**铁道交通运营管理专业**

**教学标准**

**专业名称**  铁道交通运营管理

**专业代码** 600108

**入学要求**  高中阶段教育毕业生或具有同等学力者

**修业年限** 三年

**职业面向**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| 所属专业大类（代码） | 所属专业类（代码） | 对应行业（代码） | 主要职业类别  （代码） | 主要岗位类别（或技术领域） | 职业资格证书或技能等级证书举例 |
| 交通运输大类（60） | 铁道运输类（6001） | 铁道运输（53） | 铁路车站行车作业员（6-30-02-01）  铁路车站调车作业员（6-30-02-02）  铁路车站客运服务员（4-02-01-03）  铁路车站货运服务员（4-02-01-05） | 车站值班员  助理值班员  调车长  客运值班员  铁路客运员  货运值班员  铁路货运员 | 车站值班员（中级）  助理值班员（中级）  调车区长（中级）  调车长（中级）  连结员（中级）  铁路客运员（中级）  铁路货运员（中级） |

**培养目标与培养规格**

一、培养目标

本专业培养理想信念坚定，德、智、体、美、劳全面发展，具有一定的科学文化水平，良好的人文素质、职业道德和创新意识，精益求精的工匠精神，较强的就业能力和可持续发展能力；掌握本专业知识和技术技能，面向铁路运输行业（行车、客运、货运职业群），能够从事行车指挥、客运、货运等工作的高素质技术技能人才。

二、培养规格

本专业毕业生应在素质、知识和能力等方面达到以下要求。

1.素质

（1）坚定拥护中国共产党领导和我国社会主义制度，在习近平新时代中国特色社会主义思想指引下，践行社会主义核心价值观，具有深厚的爱国情感和中华民族自豪感；

（2）崇尚宪法、遵法守纪、崇德向善、诚实守信、尊重生命、热爱劳动、履行道德准则和行为规范，具有社会责任感和社会参与意识；

（3）具有质量意识、环保意识、安全意识、信息素养、工匠、创新思维；

（4）勇于奋斗、乐观向上，具有自我管理能力、职业生涯规划意识，有较强的集体意识和团队合作精神；

（5）具有健康的体魄、心理和健全的人格，掌握基本运动知识并具备良好的运动技能，养成良好的健身，卫生与行为习惯；

（6）具有一定的审美和人文素养，并具有某项艺术特长或爱好。

2.知识

（1）掌握必备的思想政治理论、科学文化基础知识和中华优秀传统文化知识；

（2）熟悉与本专业相关的法律法规以及环境保护、安全消防等相关知识；

（3）掌握铁路行车组织、铁路行车规章、铁路行车安全管理、铁路货运组织、铁路客运组织等专业知识；

（4）了解铁路运输企业管理、运输经济法规、运输市场营销、铁路客运英语等相关知识。

3.能力

（1）具有探究学习、终身学习、分析问题和解决问题的能力；

（2）具有良好的语言、文字表达和沟通能力，能够进行流利的口语和书面的表达与交流；

（3）能够严格遵守规章、具备正确使用铁路运输设备的能力；

（4）具备铁路行车作业基本操作及行车指挥能力、具备预防行车安全管理的能力；

（5）具备铁路货物运输组织和服务能力、铁路客运组织和服务能力；

（6）具备铁路运输市场营销策划与管理的基本能力、具备运用知识解决管理相关问题能力。

**课程设置**

一、必修课程

1. 公共必修课程

|  |  |  |
| --- | --- | --- |
| 序号 | 课程名称 | 课时数 |
| 1 | 思想道德修养与法律基础及形势政策 | 66 |
| 2 | 毛泽东思想和中国特色社会主义理论体系概论及形势政策 | 66 |
| 3 | 高等数学 | 60 |
| 4 | 大学语文 | 60 |
| 5 | 公共英语 | 60 |
| 6 | 信息技术 | 72 |
| 7 | 体育 | 118 |
| 8 | 中华优秀传统文化 | 30 |
| 9 | 民族理论和政策 | 36 |
| 10 | 大学生职业发展与就业指导 | 36 |

2.专业必修课程

|  |  |  |
| --- | --- | --- |
| 序号 | 课程名称 | 课时数 |
| 1 | 铁路线路及站场 | 114 |
| 2 | 铁路机车车辆 | 60 |
| 3 | 铁路信号与通信设备 | 72 |
| 4 | 铁路职业意识 | 36 |
| 5 | 接发列车工作 | 52 |
| 6 | 铁路调车工作 | 52 |
| 7 | 铁路货运组织 | 126 |
| 8 | 车站作业计划与统计 | 48 |
| 9 | 铁路客运组织 | 72 |
| 10 | 铁路行车规章 | 48 |
| 11 | 列车调度指挥 | 36 |
| 12 | 铁路行车安全管理 | 48 |
| 13 | 铁路认知实习R | 28 |
| 14 | 铁路货运组织实训H | 56 |
| 15 | 接发列车实训L | 56 |
| 16 | 铁路客运组织实训K | 56 |
| 17 | 车站作业计划与统计实训C | 28 |
| 18 | 铁路调车工作实训D | 56 |
| 19 | 铁路技能鉴定培训B | 28 |
| 20 | 列车运行指挥实训Y | 112 |
| 21 | 顶岗实习DG | 540 |

3.素质拓展必修课程

|  |  |  |
| --- | --- | --- |
| 序号 | 课程名称 | 课时数 |
| 1 | 军训及军事理论教育 | 60 |
| 2 | 心理健康教育 | 32 |
| 3 | 大学生安全及健康教育 | 32 |
| 4 | 大学生暑期社会实践 |  |

二、选修课程

1. 专业选修课程

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| --- | --- | --- |
| 序号 | 课程名称 | 课时数 |
| 1 | 铁路物流经济地理 | 36 |
| 2 | 现代物流概论 | 36 |
| 3 | 铁路市场营销 | 54 |
| 4 | 交通运输商务管理 | 54 |
| 5 | 铁路班组管理 | 56 |
| 6 | 铁路运输企业管理 | 56 |
| 7 | 运输经济法规 | 28 |
| 8 | 运输经济学导论 | 28 |
| 9 | 铁路客运英语 | 24 |
| 10 | 高速铁路技术 | 24 |
| 11 | 车流组织 | 36 |
| 12 | 高速铁路行车组织 | 36 |
| 13 | 铁路旅客运输服务 | 36 |
| 14 | 铁路旅客运输心理学 | 36 |
| 15 | 铁路重载运输 | 24 |
| 16 | 铁路装卸机械化 | 24 |
| 17 | 集装箱运输与多式联运 | 24 |
| 18 | 货物学 | 24 |
| 19 | 城市轨道交通概论 | 24 |
| 20 | 轨道交通新技术 | 24 |

2. 素质拓展选修课程

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| --- | --- | --- |
| 序号 | 课程名称 | 课时数 |
| 1 | 演讲与口才 | 32 |
| 2 | 中国小说阅读与鉴赏 | 32 |
| 3 | 音乐欣赏 | 32 |
| 4 | 影视文学欣赏 | 32 |
| 5 | 应用写作 | 32 |
| 6 | 现代礼仪 | 32 |
| 7 | 中国古典诗词欣赏 | 32 |
| 8 | 中国近现代史纲要 | 32 |
| 9 | 中国传统文化 | 32 |
| 10 | 中国旅游资源概况 | 32 |
| 11 | ISO9000质量管理体系 | 32 |
| 12 | 高级文字排版 | 32 |
| 13 | 电子表格处理 | 32 |
| 14 | PS图像处理 | 32 |
| 15 | 高级PPT制作 | 32 |
| 16 | 计算机组装维修及网络操作 | 32 |
| 17 | 生活中的经济学 | 32 |
| 18 | 技术史漫谈 | 32 |
| 19 | 电影赏析 | 32 |
| 20 | 职业素质 | 32 |
| 21 | 创造性思维与创新方法 | 32 |
| 22 | 大学生创业基础 | 32 |
| 23 | 创新创业实践 |  |

三、专业核心课程主要教学内容与要求

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| --- | --- | --- |
| 序号 | 专业核心课程 | 主要教学内容与要求 |
| 1 | 接发列车工作 | 接发列车作业标准；非正常情况接发列车的规定；车机联控作业标准；正线和到发线上调车有关规定等。 |
| 2 | 铁路调车工作 | 调车作业有关规定；调车作业准备工作；驼峰调车、平面牵出线调车、摘挂调车、取送调车等。 |
| 3 | 车站作业计划与统计 | 货物列车及货车技术作业过程；车站班计划的编制；车站阶段计划的编制；调车作业计划的编制；货车统计工作。 |
| 4 | 列车调度指挥 | 列车运行图的编制；列车调度指挥的基本方法；列车调度指挥生产指标统计与分析等。 |
| 5 | 铁路客运组织 | 旅客票价的制定；旅客运送条件；旅客运输计划与组织；行李、包裹运输组织；车站客运工作组织；旅客运输阻碍的处理等。 |
| 6 | 铁路货运组织 | 普通货物运输；集装箱运输；阔大货物运输；鲜活、危险货物运输；货物损失处理等。 |

**学时安排**

每学年教学时间为40周，总学时数为2794。顶岗实习按每周30学时计算；校内集中教学实习按每周28学时计算，每学时为45分钟。18学时计为1个学分，总学分为144学分。军训、入学教育、社会实践、毕业设计（或毕业论文、毕业教育）等，以1周为1学分。公共基础课程学时占总学时的26%。选修课教学时数占总学时的12%。实践课教学时数占总学时的55%。学生顶岗实习为6个月，可根据实际情况，采取工学交替、多学期、分段式等多种形式组织实施。

**教学进程总体安排**

见附件（教学进程表）

**实施保障**

一、师资队伍

1．专业生师比

专业教师总数不少于25人，学生数与本专业专任教师数比例不高于18：1。

2．师资要求

专职教师必须具有大学本科以上学历，并具备高校教师任职资格，所学专业为 “铁道运输”类专业，其中专业带头人必须具有副教授以上专业技术职称。具有高级职务教师占专任教师的比例超过20%，双师素质专业教师比例一般不低于85％。

3．企业兼职教师任职资格

兼职教师由来自企业的工程师、技师组成。兼职教师承担专业课的教学任务外，参与教学文件、特别是实践教学文件的制定、编写和审定。

二、教学设施

1.校内基础课教学实验室和教学设备的基本要求

专业基础实训室：运输设备实训室。能容纳50名学生同时实训（每工位最多容纳4-5人）。

计算机房：能容纳100名学生同时实训的计算机房，供学生进行计算机应用、数据库应用等课程的实训。

2.校内实训（含职业技能鉴定）基地的基本要求

车站调度实训设备：以铁路编组站为蓝本，通过计算机模拟编制车站班计划、阶段计划编制和调车作业计划，来训练学生指挥技术站行车、编制车站作业计划和铁路车号工作的能力。实训工种有车站调度员、调车区长、车号员等。同时满足客运员职业技能培训及鉴定，铁路干部职工技术业务培训等需要。

列车运行指挥实训设备：依据铁路双线电气化铁路客运专线或高速铁路为蓝本，通过先进的调度集中(CTC)设备和计算机联锁设备，模拟铁路现场行车指挥环境，满足学生进行列车调度员、车站值班员、助理值班员、信号员四个工种进行接发列车与调度指挥方面的实训。同时满足助理值班员、信号员职业技能培训及鉴定，铁路干部职工技术业务培训等需要。

列车调度实训设备：为单项技能实训设备，目的在于进一步强化学生的列车调度指挥技能。通过先进的铁路列车调度仿真系统，在计算机模拟列车运行环境下，通过对列车晚点、摘挂列车作业、施工维修、事故救援等各种情况下的运行调整，来培养学生调整列车运行的能力。实训室应能同时容纳50名学生开展实训。

调车基本技能实训设备：用于训练学生调车方面的单项基本技能。训练的主要单项技能有安全带使用、人力制动机使用、铁鞋制动、排风和摘结软管、车辆摘解和连挂、观速观距、车辆运动中安全上下车、调车手信号显示、无线调车灯显设备使用等。同时满足连结员、制动员职业技能培训及鉴定，铁路干部职工技术业务培训等需要。

救援起复实训设备：事故救援训练设备。主要培养学生利用复轨器和简易液压顶复设备对脱轨车辆进行复轨的技能，同时培养学生的团结协作能力。

货运综合实训设备：按铁路货运站的工作环境配置货运制票及杂费核收系统、配备一定数量不同的阔大货物模型、普通平车模型及测量所需的工具可以进行货运作业的组织过程、运费核算及阔大货物装载加固方案的指定等实训。

客运综合实训设备：按铁路客运站的工作环境配置“铁路客票发售和预订系统”、“旅客服务系统”等软件、硬件及配套设备。能满足客运单项或综合技能实训及“教学做一体”教学，同时满足客运员职业技能培训及鉴定，铁路干部职工技术业务培训等需要。

3.校外实习基地的基本要求

应有不少于3个稳定的校外实习基地，宜包括铁路车站、客运段、机务段、车辆段、铁路局调度所等不同类型的站段。

实习基地应为学生配备兼职教师，与专任教师共同指导实习实训。

三、教学资源

1.教材资源

必须选择高职高专教材，禁止跨层次选择教材。优先选用教育部国家规划教材和铁道部规划教材，鼓励有特色和创新的校本教材。

2.图书资源

有一定数量的专业图书与刊物，生均专业图书、期刊资料及电子图书。

3.数字化（网络）资源

主干课程建立教学资源库，包括电子教材、教案、多媒体课件、案例库、习题库、图片及视频资料库，开辟师生学习讨论区，向学生提供丰富的网络学习资源。

四、教学方法

1.教学方法、手段建议

采用项目设计、一体化技能训练式教学，以学生为中心设计教学方案。灵活使用角色扮演法、现场教学法、任务驱动法、案例教学法、项目教学法等教学方法，注重引进铁路企业车站接发列车工作、列车调度指挥、铁路售票等生产实践项目资源，将项目分解为教学技能训练项目和任务，推行“学中练，练中学”教学模式，培养学生对铁路运输设备的操作技能和非正常情况下的应急处理能力。把教学过程变为学生自主性、能动性、创新性学习的过程。采用顶岗实习方式，动脑融于动手，做人融于做事，增加学生职业综合素质和技能。

2.教学组织形式建议

发挥校内实训室及理实一体化教室功用，利用多媒体课件、模拟现场作业过程、数字教学资源以及实训设备，按情景或项目组织教学，逐步实现全部专业教学做一体化。

五、教学评价

1.教学评价

结合岗位职业能力考核标准，按照“职业能力为主、知识为辅，过程为主、结果为辅”的原则，构建以职业能力考核为核心、以过程考核为重点的考核评价方式，从知识考核、实做考核、职业技能鉴定等方面对学生进行评价，突出考核的多样性和针对性，逐步使学生具备相应的知识结构、操作技能，实现对学生学习过程的跟踪和全面评价。

2.教学考核

（1）过程评价加期末考核评价相结合的方法进行考核；

（2）理论考核加实作考核相结合的方法进行考核；

（3）课程考核加技能鉴定相结合的方法进行考核；

（4）顶岗实践的校内指导教师与校外指导老师相结合进行考核。

六、质量管理

1.质量标准

在教学准备、课堂教学、实训实习、课程评价等各主要教学环节，制定明确的质量标准体系和教学工作规范。依据专业人才培养方案，课程标准等质量控制文件，建立较完善的教学质量保证与监控体系。

2.条件保障

学校应保障专业教学经费投入，确保教学设施运用状态良好；学校应设置独立的教学质量监控部门并配备专职人员负责教学质量诊断和监控。

3.教学管理

教学管理的重点是教学过程管理。专业教学管理应当健全，人员数量稳定、结构合理，满足教学管理工作开展的需要。应建立健全与严谨的规章制度，积极采用现代管理技术开展教学管理，切实保障教学管理工作的执行，完善的教学管理措施基本涵盖人才培养市场调研、课程建设、教材建设、教学团队建设，校内外实训基地建设、学生专业社会实践、毕业生跟踪调查、产学合作等基本内容。

4.教学评价

定期开展校内教学督导、校内学生评教、教评教、教评学等多种形式的校内教学评价活动，并充分利用企业兼职教师、校外实训基地资源，重视其在教学评价工作中重要性，采用一定的方法吸纳其参与教学评价的各个环节。专业还应建立定期的毕业生跟踪调研，观察了解毕业生专业培养职业发展的相关度，吸纳用人单位在跟踪调研中的意见与建议，建立专业整体层面的教学评价机制，不断加以信息反馈，促进教学质量不断提高。

**毕业要求**

学生德、智、体、美、劳合格，在允许的修业年限内学完培养方案规定的全部课程，通过顶岗实践或毕业论文答辩，取得相应的职业资格证书，达到毕业最低学分144分要求，即获得毕业资格，准予毕业并颁发毕业证书。

**教 学 进 程 表**

**2018 级 铁道交通运营管理 专 业**

毕业最低学分：144分

专业代码：600108

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **一、教学进程表** | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | **二、周数分配表** | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 学  年 | 教 学 周 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 理论  及  分散  实践 | | | 集  中  实  践 | | | | 考  试 | | | 劳  动 | | | | 军  训 | | | 机  动 | | | | 毕  业  教  育 | | 假  期 | | | 合  计 | | |
| 九月 | | | | | | | | 十月 | | | | | | 十一月 | | | | | | | | | 十二月 | | | | | | | | | | | 一月 | | | | | | | | | 二月 | | | | | | | | | 三月 | | | | | | | | 四月 | | | | | | 五月 | | | | | | | | | 六月 | | | | | | | | | | | 七月 | | | | | | | | | | 八月 | | | | | | |
|  | | 1 | 2 | | | 3 | 4 | | | 5 | 6 | 7 | 8 | 9 | | 10 | 11 | 12 | | 13 | | 14 | | | | 15 | | 16 | | | 17 | | 18 | | | | 19 | 20 | | 21 | | 22 | | | 23 | 24 | | 25 | 26 | | 27 | | | | | 28 | 29 | 30 | | 31 | | 32 | 33 | 34 | | 35 | | 36 | 37 | | 38 | 39 | | | 40 | | | 41 | | 42 | | | 43 | | | 44 | | | | 45 | | | 46 | | 47 | 48 | | | 49 | 50 | 51 | 52 | | | K | | | S | | | | ∷ | | | × | | | | ★ | | J | | | T | | | | = | | |  | |
| 一 | | ★2 | | | | 15 | | | | | | | | | | | | | | | | | | | | | | | | | | | J2 | | | | | ∷ | | ==== 6 | | | | | | | | | | | 18 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | J | | | | | ∷ | | ==== 6 | | | | | | | | | | 33 | | |  | | | | 2 | | |  | | | | 2 | | 3 | | | 0 | | | | 12 | | | 52 | |
| 二 | 14 | | | | | | | | | | | | | | | | | | | | | | | | R | | H | | | L2 | | | | | | J | | | ∷ | | ==== 6 | | | | | | | | | | | 12 | | | | | | | | | | | | | | | | | | | | | H | | | | K | | C | | B | | | D2 | | | | | J | | | ∷ | | ====6 | | | | | | | | | | 26 | | 10 | | | | 2 | | |  | | | | 0 | | | 2 | | | 0 | | | 12 | | | 52 | | | |
| 三 | 12 | | | | | | | | | | | | | | | | | | K | | Y4 | | | | | | | | | | | × | | | | J | | | ∷ | | ==== 6 | | | | | | | | | | | DG18 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | J | | | T | |  | | | | | | | | | | 12 | | 23 | | | | 1 | | | 1 | | | | 0 | | | 2 | | | 1 | | | 6 | | | 46 | | | |
| **三、教学进度表** | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 合计 | | | | | | | | | | | | | | | | | | | 71 | | 33 | | | | 5 | | | 1 | | | | 2 | | | 7 | | | 1 | | | 30 | | | 150 | | | |
| 课程类型 | 序  号 | | | 课程  代码 | | | | 课 程 名 称 | | | | | | | | | | | | | | | 考核学期序 | | | | | | | | | | | | | | | | | | | | 学 分 | | | | | | | 学 时 数 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 理论教学（含分散性实践教学）周学时 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 考 试 | | | | | | | | | | | 考 查 | | | | | | | | | 总 计 | | | | | | | | | 理 论 | | | | | | 实 践 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 一 年 级 | | | | | | | | | | | 二 年 级 | | | | | | | | | | | | | 三 年 级 | | | | | | | | | | |
| 合 计 | | | | | 习 题 课 | | | | 实 训 | | | | | | | | 现场教学 | | | | | | | | | 创新创业训练 | | | | | | | 1学期  15周 | | | | | 2学期  18周 | | | | | | 3学期  14周 | | | | | | | 4学期  12周 | | | | | | 5学期  12周 | | | | 6学期  18周 | | | | | | |
| 公共必修课 | 1 | | | 0001 | | | | 思想道德修养与法律基础及形势政策 | | | | | | | | | | | | | | | 1 | | | | | | | | | | | 2 | | | | | | | | | 4 | | | | | | | 66 | | | | | | | | | 52 | | | | | | 14 | | | | | 14 | | | |  | | | | | | | |  | | | | | | | | |  | | | | | | | 2 | | | | | 2 | | | | | |  | | | | | | |  | | | | | |  | | | |  | | | | | | |
| 2 | | | 0002 | | | | 毛泽东思想和中国特色社会主义理论体系概论及形势政策 | | | | | | | | | | | | | | | 3 | | | | | | | | | | | 4 | | | | | | | | | 4 | | | | | | | 66 | | | | | | | | | 54 | | | | | | 12 | | | | | 12 | | | |  | | | | | | | |  | | | | | | | | |  | | | | | | |  | | | | |  | | | | | | 3 | | | | | | | 2 | | | | | |  | | | |  | | | | | | |
| 3 | | | 0005 | | | | 高等数学 | | | | | | | | | | | | | | | 1 | | | | | | | | | | |  | | | | | | | | | 3 | | | | | | | 60 | | | | | | | | | 54 | | | | | | 6 | | | | | 6 | | | |  | | | | | | | |  | | | | | | | | |  | | | | | | | 4 | | | | |  | | | | | |  | | | | | | |  | | | | | |  | | | |  | | | | | | |
| 4 | | | 0006 | | | | 大学语文 | | | | | | | | | | | | | | |  | | | | | | | | | | | 1 | | | | | | | | | 3 | | | | | | | 60 | | | | | | | | | 52 | | | | | | 8 | | | | | 8 | | | |  | | | | | | | |  | | | | | | | | |  | | | | | | | 4 | | | | |  | | | | | |  | | | | | | |  | | | | | |  | | | |  | | | | | | |
| 5 | | | 0007 | | | | 公共英语 | | | | | | | | | | | | | | | 1 | | | | | | | | | | |  | | | | | | | | | 3 | | | | | | | 60 | | | | | | | | | 18 | | | | | | 42 | | | | | 42 | | | |  | | | | | | | |  | | | | | | | | |  | | | | | | | 4 | | | | |  | | | | | |  | | | | | | |  | | | | | |  | | | |  | | | | | | |
| 6 | | | 0008 | | | | 信息技术 | | | | | | | | | | | | | | |  | | | | | | | | | | | 2 | | | | | | | | | 4 | | | | | | | 72 | | | | | | | | | 36 | | | | | | 36 | | | | | 36 | | | |  | | | | | | | |  | | | | | | | | |  | | | | | | |  | | | | | 4 | | | | | |  | | | | | | |  | | | | | |  | | | |  | | | | | | |
| 7 | | | 0009 | | | | 体育 | | | | | | | | | | | | | | | 3 | | | | | | | | | | | 1.2.4 | | | | | | | | | 7 | | | | | | | 118 | | | | | | | | | 8 | | | | | | 110 | | | | |  | | | |  | | | | | | | | 110 | | | | | | | | |  | | | | | | | 2 | | | | | 2 | | | | | | 2 | | | | | | | 2 | | | | | |  | | | |  | | | | | | |
| 8 | | | 0004 | | | | 中华优秀传统文化 | | | | | | | | | | | | | | |  | | | | | | | | | | | 1 | | | | | | | | | 2 | | | | | | | 30 | | | | | | | | | 30 | | | | | |  | | | | |  | | | |  | | | | | | | |  | | | | | | | | |  | | | | | | | 2 | | | | |  | | | | | |  | | | | | | |  | | | | | |  | | | |  | | | | | | |
| 9 | | | 0011 | | | | 民族理论和政策 | | | | | | | | | | | | | | |  | | | | | | | | | | | 5 | | | | | | | | | 2 | | | | | | | 36 | | | | | | | | | 36 | | | | | |  | | | | |  | | | |  | | | | | | | |  | | | | | | | | |  | | | | | | |  | | | | |  | | | | | |  | | | | | | |  | | | | | | 3 | | | |  | | | | | | |
| 10 | | | 0010 | | | | 大学生职业发展与就业指导 | | | | | | | | | | | | | | |  | | | | | | | | | | | 2 | | | | | | | | | 2 | | | | | | | 36 | | | | | | | | | 36 | | | | | |  | | | | |  | | | |  | | | | | | | |  | | | | | | | | |  | | | | | | |  | | | | | 2 | | | | | |  | | | | | | |  | | | | | |  | | | |  | | | | | | |
| 小计学分及学时数 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 34 | | | | | | | 604 | | | | | | | | | 376 | | | | | | 228 | | | | | 118 | | | |  | | | | | | | | 110 | | | | | | | | |  | | | | | | | 18 | | | | | 10 | | | | | | 5 | | | | | | | 4 | | | | | | 3 | | | |  | | | | | | |
| 专业必修课 | 11 | | | 02001 | | | | 铁路线路及站场 | | | | | | | | | | | | | | | 2 | | | | | | | | | | | 1 | | | | | | | | | 6 | | | | | | | 114 | | | | | | | | | 74 | | | | | | 40 | | | | |  | | | | 40 | | | | | | | |  | | | | | | | | |  | | | | | | | 4 | | | | | 3 | | | | | |  | | | | | | |  | | | | | |  | | | |  | | | | | | |
| 12 | | | 02002 | | | | 铁路机车车辆 | | | | | | | | | | | | | | |  | | | | | | | | | | | 1 | | | | | | | | | 3 | | | | | | | 60 | | | | | | | | | 50 | | | | | | 10 | | | | |  | | | | 6 | | | | | | | | 4 | | | | | | | | |  | | | | | | | 4 | | | | |  | | | | | |  | | | | | | |  | | | | | |  | | | |  | | | | | | |
| 13 | | | 02003 | | | | 铁路信号与通信设备 | | | | | | | | | | | | | | | 2 | | | | | | | | | | |  | | | | | | | | | 4 | | | | | | | 72 | | | | | | | | | 54 | | | | | | 18 | | | | |  | | | | 10 | | | | | | | | 8 | | | | | | | | |  | | | | | | |  | | | | | 4 | | | | | |  | | | | | | |  | | | | | |  | | | |  | | | | | | |
| 14 | | | 02004 | | | | 铁路职业意识 | | | | | | | | | | | | | | |  | | | | | | | | | | | 2 | | | | | | | | | 2 | | | | | | | 36 | | | | | | | | | 32 | | | | | | 4 | | | | |  | | | | 4 | | | | | | | |  | | | | | | | | |  | | | | | | |  | | | | | 2 | | | | | |  | | | | | | |  | | | | | |  | | | |  | | | | | | |
| 15 | | | 02005 | | | | 接发列车工作 | | | | | | | | | | | | | | | 3 | | | | | | | | | | |  | | | | | | | | | 3 | | | | | | | 52 | | | | | | | | | 32 | | | | | | 20 | | | | |  | | | | 16 | | | | | | | | 4 | | | | | | | | |  | | | | | | |  | | | | |  | | | | | | 4 | | | | | | |  | | | | | |  | | | |  | | | | | | |
| 16 | | | 02006 | | | | 铁路调车工作 | | | | | | | | | | | | | | |  | | | | | | | | | | | 3 | | | | | | | | | 3 | | | | | | | 52 | | | | | | | | | 34 | | | | | | 18 | | | | |  | | | | 14 | | | | | | | | 4 | | | | | | | | |  | | | | | | |  | | | | |  | | | | | | 4 | | | | | | |  | | | | | |  | | | |  | | | | | | |
| 17 | | | 02007 | | | | 铁路货运组织 | | | | | | | | | | | | | | | 3 | | | | | | | | | | | 4 | | | | | | | | | 7 | | | | | | | 126 | | | | | | | | | 64 | | | | | | 62 | | | | |  | | | | 62 | | | | | | | |  | | | | | | | | |  | | | | | | |  | | | | |  | | | | | | 6 | | | | | | | 4 | | | | | |  | | | |  | | | | | | |
| 18 | | | 02008 | | | | 车站作业计划与统计 | | | | | | | | | | | | | | | 4 | | | | | | | | | | |  | | | | | | | | | 3 | | | | | | | 48 | | | | | | | | | 36 | | | | | | 12 | | | | |  | | | | 12 | | | | | | | |  | | | | | | | | |  | | | | | | |  | | | | |  | | | | | |  | | | | | | | 4 | | | | | |  | | | |  | | | | | | |
| 19 | | | 02009 | | | | 铁路客运组织 | | | | | | | | | | | | | | | 4 | | | | | | | | | | |  | | | | | | | | | 4 | | | | | | | 72 | | | | | | | | | 36 | | | | | | 36 | | | | |  | | | | 36 | | | | | | | |  | | | | | | | | |  | | | | | | |  | | | | |  | | | | | |  | | | | | | | 6 | | | | | |  | | | |  | | | | | | |
| 20 | | | 02010 | | | | 铁路行车规章 | | | | | | | | | | | | | | | 4 | | | | | | | | | | |  | | | | | | | | | 3 | | | | | | | 48 | | | | | | | | | 24 | | | | | | 24 | | | | |  | | | | 24 | | | | | | | |  | | | | | | | | |  | | | | | | |  | | | | |  | | | | | |  | | | | | | | 4 | | | | | |  | | | |  | | | | | | |
| 21 | | | 02011 | | | | 列车调度指挥 | | | | | | | | | | | | | | | 5 | | | | | | | | | | |  | | | | | | | | | 2 | | | | | | | 36 | | | | | | | | | 20 | | | | | | 16 | | | | |  | | | | 16 | | | | | | | |  | | | | | | | | |  | | | | | | |  | | | | |  | | | | | |  | | | | | | |  | | | | | | 3 | | | |  | | | | | | |
| 22 | | | 02012 | | | | 铁路行车安全管理 | | | | | | | | | | | | | | | 5 | | | | | | | | | | |  | | | | | | | | | 3 | | | | | | | 48 | | | | | | | | | 36 | | | | | | 12 | | | | |  | | | | 12 | | | | | | | |  | | | | | | | | |  | | | | | | |  | | | | |  | | | | | |  | | | | | | |  | | | | | | 4 | | | |  | | | | | | |
| 23 | | | 02013 | | | | 铁路认知实习R | | | | | | | | | | | | | | |  | | | | | | | | | | | 3 | | | | | | | | | 1 | | | | | | | 28 | | | | | | | | |  | | | | | | 28 | | | | |  | | | | 28 | | | | | | | |  | | | | | | | | |  | | | | | | |  | | | | |  | | | | | | 1周 | | | | | | |  | | | | | |  | | | |  | | | | | | |
| 24 | | | 02014 | | | | 铁路货运组织实训H | | | | | | | | | | | | | | |  | | | | | | | | | | | 3、4 | | | | | | | | | 2 | | | | | | | 56 | | | | | | | | |  | | | | | | 56 | | | | |  | | | | 56 | | | | | | | |  | | | | | | | | |  | | | | | | |  | | | | |  | | | | | | 1周 | | | | | | | 1周 | | | | | |  | | | |  | | | | | | |
| 25 | | | 02015 | | | | 接发列车实训L | | | | | | | | | | | | | | |  | | | | | | | | | | | 3 | | | | | | | | | 2 | | | | | | | 56 | | | | | | | | |  | | | | | | 56 | | | | |  | | | | 56 | | | | | | | |  | | | | | | | | |  | | | | | | |  | | | | |  | | | | | | 2周 | | | | | | |  | | | | | |  | | | |  | | | | | | |
| 26 | | | 02016 | | | | 铁路客运组织实训K | | | | | | | | | | | | | | |  | | | | | | | | | | | 4、5 | | | | | | | | | 2 | | | | | | | 56 | | | | | | | | |  | | | | | | 56 | | | | |  | | | | 56 | | | | | | | |  | | | | | | | | |  | | | | | | |  | | | | |  | | | | | |  | | | | | | | 1周 | | | | | | 1周 | | | |  | | | | | | |
| 27 | | | 02017 | | | | 车站作业计划与统计实训C | | | | | | | | | | | | | | |  | | | | | | | | | | | 4 | | | | | | | | | 1 | | | | | | | 28 | | | | | | | | |  | | | | | | 28 | | | | |  | | | | 28 | | | | | | | |  | | | | | | | | |  | | | | | | |  | | | | |  | | | | | |  | | | | | | | 1周 | | | | | |  | | | |  | | | | | | |
| 28 | | | 02018 | | | | 铁路调车工作实训D | | | | | | | | | | | | | | |  | | | | | | | | | | | 4 | | | | | | | | | 2 | | | | | | | 56 | | | | | | | | |  | | | | | | 56 | | | | |  | | | | 56 | | | | | | | |  | | | | | | | | |  | | | | | | |  | | | | |  | | | | | |  | | | | | | | 2周 | | | | | |  | | | |  | | | | | | |
| 29 | | | 02019 | | | | 铁路技能鉴定培训B | | | | | | | | | | | | | | |  | | | | | | | | | | | 4 | | | | | | | | | 1 | | | | | | | 28 | | | | | | | | |  | | | | | | 28 | | | | |  | | | | 28 | | | | | | | |  | | | | | | | | |  | | | | | | |  | | | | |  | | | | | |  | | | | | | | 1周 | | | | | |  | | | |  | | | | | | |
| 30 | | | 02020 | | | | 列车运行指挥实训Y | | | | | | | | | | | | | | |  | | | | | | | | | | | 5 | | | | | | | | | 4 | | | | | | | 112 | | | | | | | | |  | | | | | | 112 | | | | |  | | | | 112 | | | | | | | |  | | | | | | | | |  | | | | | | |  | | | | |  | | | | | |  | | | | | | |  | | | | | | 4周 | | | |  | | | | | | |
| 31 | | | 02021 | | | | 顶岗实习DG | | | | | | | | | | | | | | |  | | | | | | | | | | | 6 | | | | | | | | | 18 | | | | | | | 540 | | | | | | | | |  | | | | | | 540 | | | | |  | | | | 540 | | | | | | | |  | | | | | | | | |  | | | | | | |  | | | | |  | | | | | |  | | | | | | |  | | | | | |  | | | | 18周 | | | | | | |
| 小计学分及学时数 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 76 | | | | | | | 1724 | | | | | | | | | 492 | | | | | | 1232 | | | | | 0 | | | | 1212 | | | | | | | | 20 | | | | | | | | |  | | | | | | |  | | | | |  | | | | | |  | | | | | | |  | | | | | |  | | | |  | | | | | | |
| 专业选修课 | 32 | | | 02022 | | | | 铁路物流经济地理 | | | | | | | | | | | | | | |  | | | | | | | | | | | 2 | | | | | | | | | 2 | | | | | | | 36 | | | | | | | | | 32 | | | | | | 4 | | | | |  | | | | 4 | | | | | | | |  | | | | | | | | |  | | | | | | |  | | | | | 2 | | | | | |  | | | | | | |  | | | | | |  | | | |  | | | | | | |
| 33 | | | 02023 | | | | 现代物流概论 | | | | | | | | | | | | | | |  | | | | | | | | | | | 2 | | | | | | | | | 2 | | | | | | | 36 | | | | | | | | | 32 | | | | | | 4 | | | | |  | | | | 4 | | | | | | | |  | | | | | | | | |  | | | | | | |  | | | | |  | | | | | | |  | | | | | |  | | | |  | | | | | | |
| 34 | | | 02024 | | | | 铁路市场营销 | | | | | | | | | | | | | | | 2 | | | | | | | | | | |  | | | | | | | | | 3 | | | | | | | 54 | | | | | | | | | 38 | | | | | | 16 | | | | |  | | | |  | | | | | | | |  | | | | | | | | | 16 | | | | | | |  | | | | | 3 | | | | | |  | | | | | | |  | | | | | |  | | | |  | | | | | | |
| 35 | | | 02025 | | | | 交通运输商务管理 | | | | | | | | | | | | | | | 2 | | | | | | | | | | |  | | | | | | | | | 3 | | | | | | | 54 | | | | | | | | | 38 | | | | | | 16 | | | | |  | | | |  | | | | | | | |  | | | | | | | | | 16 | | | | | | |  | | | | |  | | | | | | |  | | | | | |  | | | |  | | | | | | |
| 36 | | | 02026 | | | | 铁路班组管理 | | | | | | | | | | | | | | |  | | | | | | | | | | | 3 | | | | | | | | | 3 | | | | | | | 56 | | | | | | | | | 48 | | | | | | 8 | | | | |  | | | | 8 | | | | | | | |  | | | | | | | | |  | | | | | | |  | | | | |  | | | | | | 4 | | | | | | |  | | | | | |  | | | |  | | | | | | |
| 37 | | | 02027 | | | | 铁路运输企业管理 | | | | | | | | | | | | | | |  | | | | | | | | | | | 3 | | | | | | | | | 3 | | | | | | | 56 | | | | | | | | | 48 | | | | | | 8 | | | | |  | | | | 8 | | | | | | | |  | | | | | | | | |  | | | | | | |  | | | | |  | | | | | |  | | | | | |  | | | |  | | | | | | |
| 38 | | | 02028 | | | | 运输经济法规 | | | | | | | | | | | | | | |  | | | | | | | | | | | 3 | | | | | | | | | 2 | | | | | | | 28 | | | | | | | | | 24 | | | | | | 4 | | | | |  | | | | 4 | | | | | | | |  | | | | | | | | |  | | | | | | |  | | | | |  | | | | | | 2 | | | | | | |  | | | | | |  | | | |  | | | | | | |
| 39 | | | 02029 | | | | 运输经济学导论 | | | | | | | | | | | | | | |  | | | | | | | | | | | 3 | | | | | | | | | 2 | | | | | | | 28 | | | | | | | | | 24 | | | | | | 4 | | | | |  | | | | 4 | | | | | | | |  | | | | | | | | |  | | | | | | |  | | | | |  | | | | | |  | | | | | |  | | | |  | | | | | | |
| 40 | | | 02030 | | | | 铁路客运英语 | | | | | | | | | | | | | | |  | | | | | | | | | | | 5 | | | | | | | | | 1 | | | | | | | 24 | | | | | | | | | 16 | | | | | | 8 | | | | |  | | | | 8 | | | | | | | |  | | | | | | | | |  | | | | | | |  | | | | |  | | | | | |  | | | | | | | 2 | | | | | |  | | | |  | | | | | | |
| 41 | | | 02031 | | | | 高速铁路技术 | | | | | | | | | | | | | | |  | | | | | | | | | | | 5 | | | | | | | | | 1 | | | | | | | 24 | | | | | | | | | 22 | | | | | | 2 | | | | |  | | | | 2 | | | | | | | |  | | | | | | | | |  | | | | | | |  | | | | |  | | | | | |  | | | | | | |  | | | |  | | | | | | |
| 42 | | | 02032 | | | | 车流组织 | | | | | | | | | | | | | | |  | | | | | | | | | | | 4 | | | | | | | | | 2 | | | | | | | 36 | | | | | | | | | 20 | | | | | | 16 | | | | |  | | | | 16 | | | | | | | |  | | | | | | | | |  | | | | | | |  | | | | |  | | | | | |  | | | | | | |  | | | | | | 3 | | | |  | | | | | | |
| 43 | | | 02033 | | | | 高速铁路行车组织 | | | | | | | | | | | | | | |  | | | | | | | | | | | 4 | | | | | | | | | 2 | | | | | | | 36 | | | | | | | | | 28 | | | | | | 8 | | | | |  | | | | 8 | | | | | | | |  | | | | | | | | |  | | | | | | |  | | | | |  | | | | | |  | | | | | | |  | | | | | |  | | | | | | |
| 44 | | | 02034 | | | | 铁路旅客运输服务 | | | | | | | | | | | | | | | 5 | | | | | | | | | | |  | | | | | | | | | 2 | | | | | | | 36 | | | | | | | | | 28 | | | | | | 8 | | | | |  | | | | 8 | | | | | | | |  | | | | | | | | |  | | | | | | |  | | | | |  | | | | | |  | | | | | | |  | | | | | | 3 | | | |  | | | | | | |
| 45 | | | 02035 | | | | 铁路旅客运输心理学 | | | | | | | | | | | | | | | 5 | | | | | | | | | | |  | | | | | | | | | 2 | | | | | | | 36 | | | | | | | | | 28 | | | | | | 8 | | | | |  | | | | 8 | | | | | | | |  | | | | | | | | |  | | | | | | |  | | | | |  | | | | | |  | | | | | | |  | | | | | |  | | | | | | |
| 46 | | | 02036 | | | | 铁路重载运输 | | | | | | | | | | | | | | |  | | | | | | | | | | | 5 | | | | | | | | | 1 | | | | | | | 24 | | | | | | | | | 20 | | | | | | 4 | | | | |  | | | |  | | | | | | | | 4 | | | | | | | | |  | | | | | | |  | | | | |  | | | | | |  | | | | | | |  | | | | | | 2 | | | |  | | | | | | |
| 47 | | | 02037 | | | | 铁路装卸机械化 | | | | | | | | | | | | | | |  | | | | | | | | | | | 5 | | | | | | | | | 1 | | | | | | | 24 | | | | | | | | | 20 | | | | | | 4 | | | | |  | | | | 4 | | | | | | | |  | | | | | | | | |  | | | | | | |  | | | | |  | | | | | |  | | | | | | |  | | | | | |  | | | | | | |
| 48 | | | 02038 | | | | 集装箱运输与多式联运 | | | | | | | | | | | | | | |  | | | | | | | | | | | 5 | | | | | | | | | 1 | | | | | | | 24 | | | | | | | | | 20 | | | | | | 4 | | | | |  | | | | 4 | | | | | | | |  | | | | | | | | |  | | | | | | |  | | | | |  | | | | | |  | | | | | | |  | | | | | | 2 | | | |  | | | | | | |
| 49 | | | 02039 | | | | 货物学 | | | | | | | | | | | | | | |  | | | | | | | | | | | 5 | | | | | | | | | 1 | | | | | | | 24 | | | | | | | | | 20 | | | | | | 4 | | | | |  | | | | 4 | | | | | | | |  | | | | | | | | |  | | | | | | |  | | | | |  | | | | | |  | | | | | | |  | | | | | |  | | | | | | |
| 50 | | | 02040 | | | | 城市轨道交通概论 | | | | | | | | | | | | | | |  | | | | | | | | | | | 5 | | | | | | | | | 1 | | | | | | | 24 | | | | | | | | | 22 | | | | | | 2 | | | | |  | | | | 2 | | | | | | | |  | | | | | | | | |  | | | | | | |  | | | | |  | | | | | |  | | | | | | |  | | | | | | 2 | | | |  | | | | | | |
| 51 | | | 02041 | | | | 轨道交通新技术 | | | | | | | | | | | | | | |  | | | | | | | | | | | 5 | | | | | | | | | 1 | | | | | | | 24 | | | | | | | | | 22 | | | | | | 2 | | | | |  | | | | 2 | | | | | | | |  | | | | | | | | |  | | | | | | |  | | | | |  | | | | | |  | | | | | | |  | | | | | |  | | | | | | |
| 小计学分及学时数 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 36 | | | | | | | 684 | | | | | | | | | 550 | | | | | | 134 | | | | | 0 | | | | 98 | | | | | | | | 4 | | | | | | | | | 32 | | | | | | |  | | | | |  | | | | | |  | | | | | | |  | | | | | |  | | | |  | | | | | | |
| **四、素质拓展课** | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 课程类型 | 序  号 | | | | 课程代码 | | | 课 程 名 称 | | | | | | | | | | | | | | | 考核学期序 | | | | | | | | | | | | | | | | | | | | 学分 分 | | | | 课  时 | | | | | | | 说 明 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 考 试 | | | | | | 考 查 | | | | | | | | | | | | | |
| 必修  课 | 1 | | | | 01 | | | 军训及军事理论教育 | | | | | | | | | | | | | | |  | | | | | | 1 | | | | | | | | | | | | | | 4 | | | | 60 | | | | | | | | 第1学期开设，含入学教育。 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 2 | | | | 02 | | | 心理健康教育 | | | | | | | | | | | | | | |  | | | | | | 2.3.4.5 | | | | | | | | | | | | | | 2 | | | | 32 | | | | | | | | 分专业在第2～5学期之一开设。 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 3 | | | | 03 | | | 大学生安全及健康教育 | | | | | | | | | | | | | | |  | | | | | | 1.2.3.4 | | | | | | | | | | | | | | 2 | | | | 32 | | | | | | | | 在1～4学期实施，以专题讲座的形式和每学期大学生第二课堂教育活动中开设。 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 4 | | | | 04 | | | 大学生暑期社会实践 | | | | | | | | | | | | | | |  | | | | | | 2.4 | | | | | | | | | | | | | | 2 | | | |  | | | | | | | | 利用暑期，进行社会实践，提交报告。 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 小计学分及学时数 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 10 | | | | 124 | | | | | | | |  | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 选  修  课 | 1 | | | | 001 | | | 演讲与口才 | | | | | | | | | | | | | | |  | | | | | | 2～5 | | | | | | | | | | | | | | 2 | | | | 32 | | | | | | | |  | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 2 | | | | 002 | | | 中国小说阅读与鉴赏 | | | | | | | | | | | | | | |  | | | | | | 2～5 | | | | | | | | | | | | | | 2 | | | | 32 | | | | | | | |  | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 3 | | | | 003 | | | 音乐欣赏 | | | | | | | | | | | | | | |  | | | | | | 2～5 | | | | | | | | | | | | | | 2 | | | | 32 | | | | | | | |  | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 4 | | | | 004 | | | 影视文学欣赏 | | | | | | | | | | | | | | |  | | | | | | 2～5 | | | | | | | | | | | | | | 2 | | | | 32 | | | | | | | |  | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 5 | | | | 005 | | | 应用写作 | | | | | | | | | | | | | | |  | | | | | | 2～5 | | | | | | | | | | | | | | 2 | | | | 32 | | | | | | | |  | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 6 | | | | 006 | | | 现代礼仪 | | | | | | | | | | | | | | |  | | | | | | 2～5 | | | | | | | | | | | | | | 2 | | | | 32 | | | | | | | |  | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 7 | | | | 007 | | | 中国古典诗词欣赏 | | | | | | | | | | | | | | |  | | | | | | 2～5 | | | | | | | | | | | | | | 2 | | | | 32 | | | | | | | |  | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 8 | | | | 008 | | | 中国近现代史纲要 | | | | | | | | | | | | | | |  | | | | | | 2～5 | | | | | | | | | | | | | | 2 | | | | 32 | | | | | | | |  | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 9 | | | | 009 | | | 中国传统文化 | | | | | | | | | | | | | | |  | | | | | | 2～5 | | | | | | | | | | | | | | 2 | | | | 32 | | | | | | | |  | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 10 | | | | 010 | | | 中国旅游资源概况 | | | | | | | | | | | | | | |  | | | | | | 2～5 | | | | | | | | | | | | | | 2 | | | | 32 | | | | | | | |  | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 11 | | | | 011 | | | ISO9000质量管理体系 | | | | | | | | | | | | | | |  | | | | | | 2～5 | | | | | | | | | | | | | | 2 | | | | 32 | | | | | | | |  | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 12 | | | | 012 | | | 高级文字排版 | | | | | | | | | | | | | | |  | | | | | | 2～5 | | | | | | | | | | | | | | 2 | | | | 32 | | | | | | | |  | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 13 | | | | 013 | | | 电子表格处理 | | | | | | | | | | | | | | |  | | | | | | 2～5 | | | | | | | | | | | | | | 2 | | | | 32 | | | | | | | |  | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 14 | | | | 014 | | | PS图像处理 | | | | | | | | | | | | | | |  | | | | | | 2～5 | | | | | | | | | | | | | | 2 | | | | 32 | | | | | | | |  | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 15 | | | | 015 | | | 高级PPT制作 | | | | | | | | | | | | | | |  | | | | | | 2～5 | | | | | | | | | | | | | | 2 | | | | 32 | | | | | | | |  | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 16 | | | | 016 | | | 计算机组装维修及网络操作 | | | | | | | | | | | | | | |  | | | | | | 2～5 | | | | | | | | | | | | | | 2 | | | | 32 | | | | | | | |  | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 17 | | | | 017 | | | 生活中的经济学 | | | | | | | | | | | | | | |  | | | | | | 2～5 | | | | | | | | | | | | | | 2 | | | | 32 | | | | | | | |  | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 18 | | | | 018 | | | 技术史漫谈 | | | | | | | | | | | | | | |  | | | | | | 2～5 | | | | | | | | | | | | | | 2 | | | | 32 | | | | | | | |  | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 19 | | | | 019 | | | 电影赏析 | | | | | | | | | | | | | | |  | | | | | | 2～5 | | | | | | | | | | | | | | 2 | | | | 32 | | | | | | | |  | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 20 | | | | 020 | | | 职业素质 | | | | | | | | | | | | | | |  | | | | | | 2～5 | | | | | | | | | | | | | | 2 | | | | 32 | | | | | | | |  | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 21 | | | | 021 | | | 创造性思维与创新方法 | | | | | | | | | | | | | | |  | | | | | | 2～5 | | | | | | | | | | | | | | 2 | | | | 32 | | | | | | | |  | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 22 | | | | 022 | | | 大学生创业基础 | | | | | | | | | | | | | | |  | | | | | | 2～5 | | | | | | | | | | | | | | 2 | | | | 32 | | | | | | | |  | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 23 | | | | 023 | | | 创新创业实践 | | | | | | | | | | | | | | |  | | | | | | 1～6 | | | | | | | | | | | | | | 10 | | | |  | | | | | | | | 用于学生参加课题研究、项目实验、竞赛活动、发表论文等创新创业成果的学分折算 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 小计学分及学时数 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 44 | | | | 704 | | | | | | | |  | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| **合计学分及学时数** | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | **总学分144,必修课学分120,选修课总学分24，其中专业选修课学分18，公共选修课学分6.总学时2794，理论学时1267，实践学时1527** | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

**铁路物流管理专业**

**教学标准**

**专业名称** 铁路物流管理

**专业代码** 600109

**入学要求** 高中阶段教育毕业生或具有同等学力者

**修业年限** 三年

**职业面向**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| 所属专业大类（代码） | 所属专业类  （代码） | 对应行业  （代码） | 主要职业类别  （代码） | 主要岗位类别（或技术领域） | 职业资格证书或技能等级证书举例 |
| 铁道运输类（6001） | 600109 | 1．铁路运输业（53）  2．装卸搬运和仓储业（59） | 1．铁路行包运输服务员（4-02-01-04）  2．铁路车站货运员（4-02-01-05）  3．危险货物运输作业员（4-02-05-04）  4．仓储管理员（4-0-06-01）  5．理货员（4-02-06-02）  6．物流服务师L（4-02-06-03） | 1.货运计划员  2.铁路货运员  3.货运调度员  4.货运核算员  5.货运检查员  6.货检值班员  7.货运值班员  8.铁路危险货物运输员  9.铁路保管员  10.铁路储运员  11.物流服务师 | 货运员（中级） |

**培养目标与培养规格**

一、培养目标

本专业培养理想信念坚定，德、智、体、美、劳全面发展，具有一定的科学文化水平，良好的人文素质、职业道德和创新意识，精益求精的工匠精神，较强的就业能力和可持续发展能力；掌握本专业知识和技术技能，面向铁路行包运输服务员、铁路车站货运员、危险货物运输作业员、仓储管理员、理货员、物流服务师等职业群，能够从事国有及地方铁路货物运输部门、地方物流企业一线生产、管理、服务等等工作的高素质技术技能人才。

二、培养规格

由素质、知识、能力三个方面的要求组成。

1.素质

（1）坚定拥护中国共产党领导和我国社会主义制度，在习近平新时代中国特色社会主义思想指引下，践行社会主义核心价值观，具有深厚的爱国情感和中华民族自豪感；

（2）崇尚宪法、遵法守纪、崇德向善、诚实守信、尊重生命、热爱劳动、履行道德准则和行为规范，具有社会责任感和社会参与意识；

（3）具有质量意识、环保意识、安全意识、信息素养、工匠、创新思维；

（4）勇于奋斗、乐观向上，具有自我管理能力、职业生涯规划意识，有较强的集体意识和团队合作精神；

（5）具有健康的体魄、心理和健全的人格，掌握基本运动知识并具备良好的运动技能，养成良好的健身，卫生与行为习惯；

（6）具有一定的审美和人文素养，并具有某项艺术特长或爱好。

2.知识

（1）掌握必备的思想政治理论、科学文化基础知识和中华优秀传统文化知识；

（2）熟悉与本专业相关的法律法规以及环境保护、安全消防、文明生产等相关知识；

（3）掌握计算机应用、计算机网络和通信技术等基础知识；

（4）掌握物流基础、铁路物流市场营销、电子商务等基础知识；

（5）掌握铁路线路站场、物流常用设施设备的基本知识；

（6）掌握铁路货物运输组织的基本知识；

（7）掌握仓储、保管、理货、配送操作的基本知识；

（8）掌握铁路危险货物运输的基本知识；

（9）掌握集装箱多式联运及国际贸易报关报检基本知识；

（10）掌握物流信息系统操作的基本知识；

（11）了解最新发布的涉及本专业的铁路行业和物流行业标准、国家标准和国际标准。

3.能力

（1）具有探究学习、终身学习、分析问题和解决问题的能力；

（2）具有良好的语言、文字表达能力和沟通能力；

（3）具有团队合作能力；

（4）能够正确填制货物运单、计算货物运价，填写货票；

（5）能够办理铁路货物托运、保管、装卸、交付业务；

（6）能够主动积极为铁路货运客户提供所需货运服务，并积极进行铁路货运新产品的推广；

（7）能够在铁路物流中心办理仓储、保管、理货、配送相关业务；

（8）能够操作铁路物流相关信息系统；

（9）能够进行国际铁路联运货物的报关报检操作；

（10）能够正确办理货物运输作业，处理货物损失、货运事故争议相关问题。

**课程设置**

一、必修课程

1. 公共必修课程

|  |  |  |
| --- | --- | --- |
| 序号 | 课程名称 | 课时数 |
| 1 | 思想道德修养与法律基础 | 66 |
| 2 | 毛泽东思想和中国特色社会主义理论体系概论及形势与政策 | 60 |
| 3 | 高等数学 | 60 |
| 4 | 大学语文 | 60 |
| 5 | 公共英语 | 60 |
| 6 | 信息技术 | 72 |
| 7 | 体育 | 126 |
| 8 | 中华优秀传统文化 | 30 |
| 9 | 民族政策 | 39 |
| 10 | 创新创业与就业指导 | 36 |

2.专业必修课程

|  |  |  |
| --- | --- | --- |
| 序号 | 课程名称 | 课时数 |
| 1 | 现代物流概论 | 72 |
| 2 | 铁路线路与站场 | 60 |
| 3 | 铁路运输设备 | 96 |
| 4 | 铁路货运组织 | 54 |
| 5 | 铁路行车组织 | 150 |
| 6 | 铁路行车规章 | 60 |
| 7 | 采购管理实务 | 60 |
| 8 | 物流仓储管理 | 90 |
| 9 | 物流配送管理 | 90 |
| 10 | 供应链管理 | 78 |
| 11 | 铁路行车安全 | 78 |
| 12 | 铁路经济法规 | 39 |
| 13 | 铁路认知实训R | 28 |
| 14 | 仓储管理实训C | 56 |
| 15 | 配送实训P | 56 |
| 16 | 订单处理实训L | 56 |
| 17 | 铁路货运综合实训T | 28 |
| 18 | 技能鉴定D | 56 |
| 19 | 顶岗实习DG（含毕业设计） | 540 |

3.素质拓展必修课程

|  |  |  |
| --- | --- | --- |
| 序号 | 课程名称 | 课时数 |
| 1 | 军训及军事理论教育 | 60 |
| 2 | 心理健康教育 | 32 |
| 3 | 大学生安全及健康教育 | 32 |
| 4 | 大学生暑期社会实践 |  |

二、选修课程

1. 专业选修课程

|  |  |  |
| --- | --- | --- |
| 序号 | 课程名称 | 课时数 |
| 1 | 商品学 | 54 |
| 2 | 物流设施与设备 | 54 |
| 3 | 铁路职业意识 | 36 |
| 4 | 铁路装卸机械 | 36 |
| 5 | 物流经济地理 | 30 |
| 6 | 物流信息管理 | 30 |
| 7 | 铁路企业管理 | 60 |
| 8 | 集装箱多式联运 | 60 |
| 9 | 数据库应用与开发 | 60 |
| 10 | 运输与包装 | 60 |
| 11 | 基础统计 | 26 |
| 12 | 铁路市场营销 | 26 |
| 13 | 电子商务实务 | 52 |
| 14 | 国际物流与货运代理 | 52 |

2. 素质拓展选修课程

|  |  |  |
| --- | --- | --- |
| 序号 | 课程名称 | 课时数 |
| 1 | 演讲与口才 | 32 |
| 2 | 中国小说阅读与鉴赏 | 32 |
| 3 | 音乐欣赏 | 32 |
| 4 | 影视文学欣赏 | 32 |
| 5 | 应用写作 | 32 |
| 6 | 现代礼仪 | 32 |
| 7 | 中国古典诗词欣赏 | 32 |
| 8 | 中国近现代史纲要 | 32 |
| 9 | 中国传统文化 | 32 |
| 10 | 中国旅游资源概况 | 32 |
| 11 | ISO9000质量管理体系 | 32 |
| 12 | 高级文字排版 | 32 |
| 13 | 电子表格处理 | 32 |
| 14 | PS图像处理 | 32 |
| 15 | 高级PPT制作 | 32 |
| 16 | 计算机组装维修及网络操作 | 32 |
| 17 | 生活中的经济学 | 32 |
| 18 | 技术史漫谈 | 32 |
| 19 | 电影赏析 | 32 |
| 20 | 职业素质 | 32 |
| 21 | 创造性思维与创新方法 | 32 |
| 22 | 大学生创业基础 | 32 |
| 23 | 创新创业实践 |  |

**学时安排**

每学年教学时间为40周，总学时数为2798。顶岗实习按每周30学时计算；校内集中教学实习按每周28学时计算，每学时为45分钟。18学时计为1个学分，总学分为143学分。军训、入学教育、社会实践、毕业设计（或毕业论文、毕业教育）等，以1周为1学分。公共基础课程学时占总学时的26%。选修课教学时数占总学时的11%。实践课教学时数占总学时的50%。学生顶岗实习为6个月，可根据实际情况，采取工学交替、多学期、分段式等多种形式组织实施。

**教学进程总体安排**

见附件（教学进程表）

**实施保障**

一、师资队伍

1．专业生师比

专业教师总数不少于25人，专业生师比不低于18：1。

2．师资要求

专职教师必须具有大学本科以上学历，并具备高校教师任职资格，所学专业为物流管理类及交通运输类，双师素质专业教师比例超过60％。

3．企业兼职教师任职资格

兼职教师由来自企业的物流师、营销师组成。兼职教师承担专业课的教学任务外，参与教学文件、特别是实践教学文件的制定、编写和审定。

二、教学设施

1.校内基础课教学实验室和教学设备的基本要求

专业基础实训室：运输组织演练室（包含铁路货场仓储设施及设备、铁路运输组织设备）。能容纳50名学生同时实训（每工位最多容纳4-5人）。

计算机房：能容纳100名学生同时实训的计算机房，供学生进行计算机应用、数据库应用等课程的实训。

2.校内实训（含职业技能鉴定）基地的基本要求

运输组织演练室（包含铁路货场仓储设施及设备、铁路运输组织设备）、校内综合实训超市、拟建设一个校内物流管理仿真实训中心。

货运综合实训设备：按铁路货运站的工作环境配置货运制票及杂费核收系统、配备一定数量不同的阔大货物模型、普通平车模型及测量所需的工具可以进行货运作业的组织过程、运费核算及阔大货物装载加固方案的指定等实训。

3.校外实习基地的基本要求

应有不少于3个稳定的校外实习基地，包括铁路物流企业、铁路工程公司、铁路货运中心、地方物流等企业，如中铁快运，呼和浩特铁路局货运营销中心所管辖部门。

实习基地应为学生配备兼职教师，与专任教师共同指导实习实训。

三、教学资源

1.教材资源

必须选择高职高专教材，禁止跨层次选择教材。优先选用教育部国家规划教材和铁道部规划教材，鼓励有特色和创新的校本教材。

2.图书资源

有一定数量的专业图书与刊物，生均专业图书、期刊资料及电子图书。

3.数字化（网络）资源

主干课程建立教学资源库，包括电子教材、教案、多媒体课件、案例库、习题库、图片及视频资料库，开辟师生学习讨论区，向学生提供丰富的网络学习资源。

四、教学方法

1.教学方法、手段建议

采用项目设计、一体化技能训练式教学，以学生为中心设计教学方案。灵活使用角色扮演法、现场教学法、任务驱动法、案例教学法、项目教学法等教学方法，注重引进铁路企业车站接发列车工作、列车调度指挥、铁路售票等生产实践项目资源，将项目分解为教学技能训练项目和任务，推行“学中练，练中学”教学模式，培养学生对铁路运输设备的操作技能和非正常情况下的应急处理能力。把教学过程变为学生自主性、能动性、创新性学习的过程。采用顶岗实习方式，动脑融于动手，做人融于做事，增加学生职业综合素质和技能。

2.教学组织形式建议

发挥校内实训室及理实一体化教室功用，利用多媒体课件、模拟现场作业过程、数字教学资源以及实训设备，按情景或项目组织教学，逐步实现全部专业教学做一体化。

五、教学评价

1.教学评价

结合岗位职业能力考核标准，按照“职业能力为主、知识为辅，过程为主、结果为辅”的原则，构建以职业能力考核为核心、以过程考核为重点的考核评价方式，从知识考核、实做考核、职业技能鉴定等方面对学生进行评价，突出考核的多样性和针对性，逐步使学生具备相应的知识结构、操作技能，实现对学生学习过程的跟踪和全面评价。

2.教学考核

（1）过程评价加期末考核评价相结合的方法进行考核；

（2）理论考核加实作考核相结合的方法进行考核；

（3）课程考核加技能鉴定相结合的方法进行考核；

（4）顶岗实践的校内指导教师与校外指导老师相结合进行考核。

六、质量管理

1.质量标准

在教学准备、课堂教学、实训实习、课程评价等各主要教学环节，制定明确的质量标准体系和教学工作规范。依据专业人才培养方案，课程标准等质量控制文件，建立较完善的教学质量保证与监控体系。

2.条件保障

学校应保障专业教学经费投入，确保教学设施运用状态良好；学校应设置独立的教学质量监控部门并配备专职人员负责教学质量诊断和监控。

3.教学管理

教学管理的重点是教学过程管理。专业教学管理应当健全，人员数量稳定、结构合理，满足教学管理工作开展的需要。应建立健全与严谨的规章制度，积极采用现代管理技术开展教学管理，切实保障教学管理工作的执行，完善的教学管理措施基本涵盖人才培养市场调研、课程建设、教材建设、教学团队建设，校内外实训基地建设、学生专业社会实践、毕业生跟踪调查、产学合作等基本内容。

4.教学评价

定期不定期切实开展好校内教学督导、校内学生评教、教评教、教评学等多种形式的校内教学评价活动，并充分利用企业兼职教师、校外实训基地资源，重视其在教学评价工作中重要性，采用一定的方法吸纳其参与教学评价的各个环节。专业还应建立定期的毕业生跟踪调研，观察了解毕业生专业培养职业发展的相关度，吸纳用人单位在跟踪调研中的意见与建议，建立专业整体层面的教学评价机制，不断加以信息反馈，促进教学质量不断提高。

**毕业要求**

学生德、智、体、美、劳合格，在允许的修业年限内学完培养方案规定的全部课程，通过顶岗实践或毕业论文答辩，取得相应的职业资格证书，达到毕业最低学分143要求，即获得毕业资格，准予毕业并颁发毕业证书。

**教 学 进 程 表**

**2018 级 铁路物流管理 专 业**

毕业最低学分：143分

专业代码： 600109

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **一、教学进程表** | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | **二、周数分配表** | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 学  年 | | 教 学 周 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 理论  及  分散  实践 | | | 集  中  实  践 | | | | 考  试 | | | 劳  动 | | | | 军  训 | | | 机  动 | | | | 毕  业  教  育 | | | 假  期 | | | 合  计 | | |
| 九月 | | | | | | | | 十月 | | | | | | | 十一月 | | | | | | | | 十二月 | | | | | | | | | | 一月 | | | | | | | | | 二月 | | | | | | | 三月 | | | | | | | | | | 四月 | | | | | | 五月 | | | | | | 六月 | | | | | | | | | | | 七月 | | | | | | | | | | 八月 | | | | | | |
|  | | | 1 | 2 | | | 3 | 4 | | | 5 | 6 | 7 | 8 | 9 | | 10 | 11 | 12 | 13 | | | 14 | | 15 | | 16 | | | 17 | | | 18 | | | 19 | | 20 | | 21 | 22 | | | 23 | 24 | | 25 | | 26 | | | 27 | | | 28 | 29 | 30 | | 31 | | 32 | 33 | 34 | | 35 | | 36 | 37 | | 38 | 39 | | | 40 | 41 | | 42 | | 43 | | | 44 | | | | 45 | | | 46 | | 47 | 48 | | | 49 | 50 | 51 | 52 | | | | K | | | S | | | | ∷ | | | × | | | | ★ | | | J | | | | T | | | = | | |  | | |
| 一 | | | ★2 | | | | 15 | | | | | | | | | | | | | | | | | | | | | | | | | | J2 | | | | | ∷ | | ==== 6 | | | | | | | | | | | | 18 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | J | | | | ∷ | | ==== 6 | | | | | | | | | | | 33 | | |  | | | | 2 | | |  | | | | 2 | | | 3 | | | | 0 | | | 12 | | | 52 | | |
| 二 | | 15 | | | | | | | | | | | | | | | | | | | | | | | | R11 | | | L2 | | | | | | J | | ∷ | | ==== 6 | | | | | | | | | | | | 15 | | | | | | | | | | | | | | | | | | | | | | | | | D2 | | | | | T | | | J | | | | ∷ | | ====6 | | | | | | | | | | | 30 | | | 6 | | | | 2 | | |  | | | | 0 | | | 2 | | | | 0 | | | 12 | | | 52 | | | |
| 三 | | 13 | | | | | | | | | | | | | | | | | | | | P2 | | | | C2 | | | | | × | | | | J | | ∷ | | ==== 6 | | | | | | | | | | | | 18 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | J | | | | T | |  | | | | | | | | | | | 31 | | | 4 | | | | 1 | | | 1 | | | | 0 | | | 2 | | | | 1 | | | 6 | | | 46 | | | |
| **三、教学进度表** | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 合计 | | | | | | | | | | | | | | | | | | | | | 94 | | | 10 | | | | 5 | | | 1 | | | | 2 | | | 7 | | | | 1 | | | 30 | | | 150 | | | |
| 课程类型 | | 序  号 | | | 课程  代码 | | | | | 课 程 名 称 | | | | | | | | | | | 考核学期序 | | | | | | | | | | | | | | | | | | | | | 学 分 | | | | | | 学 时 数 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 理论教学（含分散性实践教学）周学时 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 考 试 | | | | | | | | | | | 考 查 | | | | | | | | | | 总 计 | | | | | | | | | | 理 论 | | | | | | 实 践 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 一 年 级 | | | | | | | | | | | | 二 年 级 | | | | | | | | | | | | | | 三 年 级 | | | | | | | | | | | |
| 合 计 | | | | | 习 题 课 | | | | 实 训 | | | | | 现场教学 | | | | | | | | | 创新创业训练 | | | | | | | 1学期  15周 | | | | | 2学期  18周 | | | | | | | 3学期  15周 | | | | | | | 4学期  15周 | | | | | | | 5学期  13周 | | | | | 6学期  18周 | | | | | | |
| 公共必修课 | | 1 | | | 0001 | | | | | 思想道德修养与法律基础及形势政策 | | | | | | | | | | | 1 | | | | | | | | | | | 2 | | | | | | | | | | 4 | | | | | | 66 | | | | | | | | | | 52 | | | | | | 14 | | | | | 14 | | | |  | | | | |  | | | | | | | | |  | | | | | | | 2 | | | | | 2 | | | | | | |  | | | | | | |  | | | | | | |  | | | | |  | | | | | | |
| 2 | | | 0002 | | | | | 毛泽东思想和中国特色社会主义理论体系概论及形势政策 | | | | | | | | | | | 3 | | | | | | | | | | | 4 | | | | | | | | | | 3 | | | | | | 60 | | | | | | | | | | 50 | | | | | | 10 | | | | | 10 | | | |  | | | | |  | | | | | | | | |  | | | | | | |  | | | | |  | | | | | | | 2 | | | | | | | 2 | | | | | | |  | | | | |  | | | | | | |
| 3 | | | 0005 | | | | | 高等数学 | | | | | | | | | | | 1 | | | | | | | | | | |  | | | | | | | | | | 3 | | | | | | 60 | | | | | | | | | | 54 | | | | | | 6 | | | | | 6 | | | |  | | | | |  | | | | | | | | |  | | | | | | | 4 | | | | |  | | | | | | |  | | | | | | |  | | | | | | |  | | | | |  | | | | | | |
| 4 | | | 0006 | | | | | 大学语文 | | | | | | | | | | |  | | | | | | | | | | | 1 | | | | | | | | | | 3 | | | | | | 60 | | | | | | | | | | 52 | | | | | | 8 | | | | | 8 | | | |  | | | | |  | | | | | | | | |  | | | | | | | 4 | | | | |  | | | | | | |  | | | | | | |  | | | | | | |  | | | | |  | | | | | | |
| 5 | | | 0007 | | | | | 公共英语 | | | | | | | | | | | 1 | | | | | | | | | | |  | | | | | | | | | | 3 | | | | | | 60 | | | | | | | | | | 18 | | | | | | 42 | | | | | 42 | | | |  | | | | |  | | | | | | | | |  | | | | | | | 4 | | | | |  | | | | | | |  | | | | | | |  | | | | | | |  | | | | |  | | | | | | |
| 6 | | | 0008 | | | | | 信息技术 | | | | | | | | | | |  | | | | | | | | | | | 2 | | | | | | | | | | 4 | | | | | | 72 | | | | | | | | | | 32 | | | | | | 40 | | | | | 40 | | | |  | | | | |  | | | | | | | | |  | | | | | | |  | | | | | 4 | | | | | | |  | | | | | | |  | | | | | | |  | | | | |  | | | | | | |
| 7 | | | 0009 | | | | | 体育 | | | | | | | | | | | 3 | | | | | | | | | | | 1.2.4 | | | | | | | | | | 7 | | | | | | 126 | | | | | | | | | | 8 | | | | | | 118 | | | | |  | | | |  | | | | | 118 | | | | | | | | |  | | | | | | | 2 | | | | | 2 | | | | | | | 2 | | | | | | | 2 | | | | | | |  | | | | |  | | | | | | |
| 8 | | | 0004 | | | | | 中华优秀传统文化 | | | | | | | | | | |  | | | | | | | | | | | 1 | | | | | | | | | | 2 | | | | | | 30 | | | | | | | | | | 30 | | | | | |  | | | | |  | | | |  | | | | |  | | | | | | | | |  | | | | | | | 2 | | | | |  | | | | | | |  | | | | | | |  | | | | | | |  | | | | |  | | | | | | |
| 9 | | | 0011 | | | | | 民族政策 | | | | | | | | | | |  | | | | | | | | | | | 5 | | | | | | | | | | 2 | | | | | | 39 | | | | | | | | | | 39 | | | | | |  | | | | |  | | | |  | | | | |  | | | | | | | | |  | | | | | | |  | | | | |  | | | | | | |  | | | | | | |  | | | | | | | 3 | | | | |  | | | | | | |
| 10 | | | 0010 | | | | | 创新创业与就业指导 | | | | | | | | | | |  | | | | | | | | | | | 2 | | | | | | | | | | 2 | | | | | | 36 | | | | | | | | | | 36 | | | | | |  | | | | |  | | | |  | | | | |  | | | | | | | | |  | | | | | | |  | | | | | 2 | | | | | | |  | | | | | | |  | | | | | | |  | | | | |  | | | | | | |
| 小计学分及学时数 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 33 | | | | | | 609 | | | | | | | | | | 371 | | | | | | 238 | | | | | 120 | | | |  | | | | | 118 | | | | | | | | |  | | | | | | | 18 | | | | | 10 | | | | | | | 4 | | | | | | | 4 | | | | | | | 3 | | | | | **0** | | | | | | |
| 专业必修课 | | 11 | | | 28001 | | | | | 现代物流概论 | | | | | | | | | | | 2 | | | | | | | | | | |  | | | | | | | | | | 4 | | | | | | 72 | | | | | | | | | | 64 | | | | | | 8 | | | | | 8 | | | |  | | | | |  | | | | | | | | |  | | | | | | |  | | | | | 4 | | | | | | |  | | | | | | |  | | | | | | |  | | | | |  | | | | | | |
| 12 | | | 28002 | | | | | 铁路线路与站场 | | | | | | | | | | |  | | | | | | | | | | | 1 | | | | | | | | | | 3 | | | | | | 60 | | | | | | | | | | 48 | | | | | | 12 | | | | | 8 | | | |  | | | | | 4 | | | | | | | | |  | | | | | | | 4 | | | | |  | | | | | | |  | | | | | | |  | | | | | | |  | | | | |  | | | | | | |
| 13 | | | 28003 | | | | | 铁路运输设备 | | | | | | | | | | | 1 | | | | | | | | | | | 2 | | | | | | | | | | 5 | | | | | | 96 | | | | | | | | | | 76 | | | | | | 20 | | | | | 16 | | | |  | | | | | 4 | | | | | | | | |  | | | | | | | 4 | | | | | 2 | | | | | | |  | | | | | | |  | | | | | | |  | | | | |  | | | | | | |
| 14 | | | 28004 | | | | | 物流设施与设备 | | | | | | | | | | | 2 | | | | | | | | | | |  | | | | | | | | | | 3 | | | | | | 54 | | | | | | | | | | 46 | | | | | | 8 | | | | | 8 | | | |  | | | | |  | | | | | | | | |  | | | | | | |  | | | | | 3 | | | | | | |  | | | | | | |  | | | | | | |  | | | | |  | | | | | | |
| 15 | | | 28005 | | | | | 铁路货运组织 | | | | | | | | | | | 3.4 | | | | | | | | | | |  | | | | | | | | | | 8 | | | | | | 150 | | | | | | | | | | 75 | | | | | | 75 | | | | |  | | | | 75 | | | | |  | | | | | | | | |  | | | | | | |  | | | | |  | | | | | | | 6 | | | | | | | 4 | | | | | | |  | | | | |  | | | | | | |
| 16 | | | 28006 | | | | | 铁路行车组织 | | | | | | | | | | |  | | | | | | | | | | | 3 | | | | | | | | | | 3 | | | | | | 60 | | | | | | | | | | 30 | | | | | | 30 | | | | |  | | | | 30 | | | | |  | | | | | | | | |  | | | | | | |  | | | | |  | | | | | | | 4 | | | | | | |  | | | | | | |  | | | | |  | | | | | | |
| 17 | | | 28007 | | | | | 铁路行车规章 | | | | | | | | | | | 4 | | | | | | | | | | |  | | | | | | | | | | 3 | | | | | | 60 | | | | | | | | | | 30 | | | | | | 30 | | | | |  | | | | 30 | | | | |  | | | | | | | | |  | | | | | | |  | | | | |  | | | | | | |  | | | | | | | 4 | | | | | | |  | | | | |  | | | | | | |
| 18 | | | 28008 | | | | | 采购管理实务 | | | | | | | | | | | 3 | | | | | | | | | | |  | | | | | | | | | | 5 | | | | | | 90 | | | | | | | | | | 78 | | | | | | 12 | | | | | 12 | | | |  | | | | |  | | | | | | | | |  | | | | | | |  | | | | |  | | | | | | | 6 | | | | | | |  | | | | | | |  | | | | |  | | | | | | |
| 19 | | | 28009 | | | | | 物流仓储管理 | | | | | | | | | | | 4 | | | | | | | | | | |  | | | | | | | | | | 5 | | | | | | 90 | | | | | | | | | | 68 | | | | | | 22 | | | | | 22 | | | |  | | | | |  | | | | | | | | |  | | | | | | |  | | | | |  | | | | | | |  | | | | | | | 6 | | | | | | |  | | | | |  | | | | | | |
| 20 | | | 28010 | | | | | 物流配送管理 | | | | | | | | | | | 5 | | | | | | | | | | |  | | | | | | | | | | 4 | | | | | | 78 | | | | | | | | | | 66 | | | | | | 12 | | | | | 12 | | | |  | | | | |  | | | | | | | | |  | | | | | | |  | | | | |  | | | | | | |  | | | | | | |  | | | | | | | 6 | | | | |  | | | | | | |
| 21 | | | 28011 | | | | | 供应链管理 | | | | | | | | | | | 5 | | | | | | | | | | |  | | | | | | | | | | 4 | | | | | | 78 | | | | | | | | | | 68 | | | | | | 10 | | | | | 10 | | | |  | | | | |  | | | | | | | | |  | | | | | | |  | | | | |  | | | | | | |  | | | | | | |  | | | | | | | 6 | | | | |  | | | | | | |
| 22 | | | 28012 | | | | | 铁路行车安全 | | | | | | | | | | | 5 | | | | | | | | | | |  | | | | | | | | | | 2 | | | | | | 39 | | | | | | | | | | 31 | | | | | | 8 | | | | | 8 | | | |  | | | | |  | | | | | | | | |  | | | | | | |  | | | | |  | | | | | | |  | | | | | | |  | | | | | | | 3 | | | | |  | | | | | | |
| 23 | | | 28013 | | | | | 铁路认知实训R | | | | | | | | | | |  | | | | | | | | | | | 3 | | | | | | | | | | 1 | | | | | | 28 | | | | | | | | | |  | | | | | | 28 | | | | |  | | | |  | | | | | 28 | | | | | | | | |  | | | | | | |  | | | | |  | | | | | | | 1周 | | | | | | |  | | | | | | |  | | | | |  | | | | | | |
| 24 | | | 28014 | | | | | 仓储管理实训C | | | | | | | | | | |  | | | | | | | | | | | 4 | | | | | | | | | | 2 | | | | | | 56 | | | | | | | | | |  | | | | | | 56 | | | | |  | | | | 56 | | | | |  | | | | | | | | |  | | | | | | |  | | | | |  | | | | | | |  | | | | | | |  | | | | | | | 2周 | | | | |  | | | | | | |
| 25 | | | 28015 | | | | | 配送实训P | | | | | | | | | | |  | | | | | | | | | | | 5 | | | | | | | | | | 2 | | | | | | 56 | | | | | | | | | |  | | | | | | 56 | | | | |  | | | | 56 | | | | |  | | | | | | | | |  | | | | | | |  | | | | |  | | | | | | |  | | | | | | |  | | | | | | | 2周 | | | | |  | | | | | | |
| 26 | | | 28016 | | | | | 订单处理实训L | | | | | | | | | | |  | | | | | | | | | | | 3 | | | | | | | | | | 2 | | | | | | 56 | | | | | | | | | |  | | | | | | 56 | | | | |  | | | | 28 | | | | |  | | | | | | | | | 28 | | | | | | |  | | | | |  | | | | | | | 2周 | | | | | | |  | | | | | | |  | | | | |  | | | | | | |
| 27 | | | 28017 | | | | | 铁路货运综合实训T | | | | | | | | | | |  | | | | | | | | | | | 4 | | | | | | | | | | 1 | | | | | | 28 | | | | | | | | | |  | | | | | | 28 | | | | |  | | | | 28 | | | | |  | | | | | | | | |  | | | | | | |  | | | | |  | | | | | | |  | | | | | | | 1周 | | | | | | |  | | | | |  | | | | | | |
| 28 | | | 28018 | | | | | 技能鉴定D | | | | | | | | | | |  | | | | | | | | | | | 5 | | | | | | | | | | 2 | | | | | | 56 | | | | | | | | | |  | | | | | | 56 | | | | |  | | | | 56 | | | | |  | | | | | | | | |  | | | | | | |  | | | | |  | | | | | | |  | | | | | | | 2周 | | | | | | |  | | | | |  | | | | | | |
| 29 | | | 28019 | | | | | 顶岗实习DG（含毕业设计） | | | | | | | | | | |  | | | | | | | | | | | 6 | | | | | | | | | | 18 | | | | | | 540 | | | | | | | | | |  | | | | | | 540 | | | | |  | | | |  | | | | | 540 | | | | | | | | |  | | | | | | |  | | | | |  | | | | | | |  | | | | | | |  | | | | | | |  | | | | | 18周 | | | | | | |
| 小计学分及学时数 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 77 | | | | | | 1747 | | | | | | | | | | 680 | | | | | | 1067 | | | | | 104 | | | | 359 | | | | | 576 | | | | | | | | | 28 | | | | | | | 8 | | | | | 9 | | | | | | | 16 | | | | | | | 14 | | | | | | | 15 | | | | | **18** | | | | | | |
| 专业选修课 | | 30 | | | 28020 | | | | | 商品学 | | | | | | | | | | | 2 | | | | | | | | | | |  | | | | | | | | | | 3 | | | | | | 54 | | | | | | | | | | 44 | | | | | | 10 | | | | | 10 | | | |  | | | | |  | | | | | | | | |  | | | | | | |  | | | | | 3 | | | | | | |  | | | | | | |  | | | | | | |  | | | | |  | | | | | | |
| 31 | | | 28021 | | | | | 管理学 | | | | | | | | | | | 2 | | | | | | | | | | |  | | | | | | | | | | 3 | | | | | | 54 | | | | | | | | | | 44 | | | | | | 10 | | | | | 10 | | | |  | | | | |  | | | | | | | | |  | | | | | | |  | | | | |  | | | | | | |  | | | | | | |  | | | | |  | | | | | | |
| 32 | | | 28022 | | | | | 铁路职业意识 | | | | | | | | | | |  | | | | | | | | | | | 2 | | | | | | | | | | 2 | | | | | | 36 | | | | | | | | | | 30 | | | | | | 6 | | | | | 6 | | | |  | | | | |  | | | | | | | | |  | | | | | | |  | | | | | 2 | | | | | | |  | | | | | | |  | | | | | | |  | | | | |  | | | | | | |
| 33 | | | 28023 | | | | | 铁路企业管理 | | | | | | | | | | |  | | | | | | | | | | | 2 | | | | | | | | | | 2 | | | | | | 36 | | | | | | | | | | 30 | | | | | | 6 | | | | | 6 | | | |  | | | | |  | | | | | | | | |  | | | | | | |  | | | | |  | | | | | | |  | | | | | | |  | | | | |  | | | | | | |
| 34 | | | 28024 | | | | | 物流经济地理 | | | | | | | | | | |  | | | | | | | | | | | 3 | | | | | | | | | | 2 | | | | | | 30 | | | | | | | | | | 22 | | | | | | 8 | | | | | 8 | | | |  | | | | |  | | | | | | | | |  | | | | | | |  | | | | |  | | | | | | |  | | | | | | | 2 | | | | | | |  | | | | |  | | | | | | |
| 35 | | | 28025 | | | | | 物流信息管理 | | | | | | | | | | |  | | | | | | | | | | | 3 | | | | | | | | | | 2 | | | | | | 30 | | | | | | | | | | 22 | | | | | | 8 | | | | | 8 | | | |  | | | | |  | | | | | | | | |  | | | | | | |  | | | | |  | | | | | | |  | | | | | | |  | | | | |  | | | | | | |
| 36 | | | 28026 | | | | | 铁路市场营销 | | | | | | | | | | |  | | | | | | | | | | | 3 | | | | | | | | | | 3 | | | | | | 60 | | | | | | | | | | 40 | | | | | | 20 | | | | | 20 | | | |  | | | | |  | | | | | | | | |  | | | | | | |  | | | | |  | | | | | | | 4 | | | | | | |  | | | | | | |  | | | | |  | | | | | | |
| 37 | | | 28027 | | | | | 铁路经济法规 | | | | | | | | | | |  | | | | | | | | | | | 3 | | | | | | | | | | 3 | | | | | | 60 | | | | | | | | | | 40 | | | | | | 20 | | | | | 20 | | | |  | | | | |  | | | | | | | | |  | | | | | | |  | | | | |  | | | | | | |  | | | | | | |  | | | | |  | | | | | | |
| 38 | | | 28028 | | | | | 数据库应用与开发 | | | | | | | | | | |  | | | | | | | | | | | 4 | | | | | | | | | | 3 | | | | | | 60 | | | | | | | | | | 40 | | | | | | 20 | | | | | 20 | | | |  | | | | |  | | | | | | | | |  | | | | | | |  | | | | |  | | | | | | |  | | | | | | | 4 | | | | | | |  | | | | |  | | | | | | |
| 39 | | | 28029 | | | | | 基础统计 | | | | | | | | | | |  | | | | | | | | | | | 4 | | | | | | | | | | 3 | | | | | | 60 | | | | | | | | | | 40 | | | | | | 20 | | | | | 20 | | | |  | | | | |  | | | | | | | | |  | | | | | | |  | | | | |  | | | | | | |  | | | | | | |  | | | | |  | | | | | | |
| 40 | | | 28030 | | | | | 运输与包装 | | | | | | | | | | |  | | | | | | | | | | | 5 | | | | | | | | | | 1 | | | | | | 26 | | | | | | | | | | 20 | | | | | | 6 | | | | | 6 | | | |  | | | | |  | | | | | | | | |  | | | | | | |  | | | | |  | | | | | | |  | | | | | | |  | | | | | | | 2 | | | | |  | | | | | | |
| 41 | | | 28031 | | | | | 铁路装卸机械 | | | | | | | | | | |  | | | | | | | | | | | 5 | | | | | | | | | | 1 | | | | | | 26 | | | | | | | | | | 20 | | | | | | 6 | | | | | 6 | | | |  | | | | |  | | | | | | | | |  | | | | | | |  | | | | |  | | | | | | |  | | | | | | |  | | | | | | |  | | | | | | |
| 42 | | | 28032 | | | | | 电子商务实务 | | | | | | | | | | |  | | | | | | | | | | | 5 | | | | | | | | | | 3 | | | | | | 52 | | | | | | | | | | 40 | | | | | | 12 | | | | | 12 | | | |  | | | | |  | | | | | | | | |  | | | | | | |  | | | | |  | | | | | | |  | | | | | | |  | | | | | | | 4 | | | | |  | | | | | | |
| 43 | | | 28033 | | | | | 国际物流与货运代理 | | | | | | | | | | |  | | | | | | | | | | | 5 | | | | | | | | | | 3 | | | | | | 52 | | | | | | | | | | 40 | | | | | | 12 | | | | | 12 | | | |  | | | | |  | | | | | | | | |  | | | | | | |  | | | | |  | | | | | | |  | | | | | | |  | | | | | | |  | | | | | | |
| 小计学分及学时数 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 17 | | | | | | 318 | | | | | | | | | | 236 | | | | | | 82 | | | | | 82 | | | |  | | | | |  | | | | | | | | | 12 | | | | | | | 0 | | | | | 5 | | | | | | | 4 | | | | | | | 6 | | | | | | | 6 | | | | |  | | | | | | |
| **四、素质拓展课** | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 课程类型 | | 序  号 | | | | 课程代码 | | | | 课 程 名 称 | | | | | | | | | | | 考核学期序 | | | | | | | | | | | | | | | | | | | | | 学 分 | | | | 课  时 | | | | | | | 说 明 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 考 试 | | | | | | | 考 查 | | | | | | | | | | | | | |
| 必修  课 | | 1 | | | | 01 | | | | 军训及军事理论教育 | | | | | | | | | | |  | | | | | | | 1 | | | | | | | | | | | | | | 4 | | | | 60 | | | | | | | | 第1学期开设，含入学教育。 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 2 | | | | 02 | | | | 心理健康教育 | | | | | | | | | | |  | | | | | | | 2.3.4.5 | | | | | | | | | | | | | | 2 | | | | 32 | | | | | | | | 分专业在第2～5学期之一开设。 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 3 | | | | 03 | | | | 大学生安全及健康教育 | | | | | | | | | | |  | | | | | | | 1.2.3.4 | | | | | | | | | | | | | | 2 | | | | 32 | | | | | | | | 在1～4学期实施，以专题讲座的形式和每学期大学生第二课堂教育活动中开设. | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 4 | | | | 04 | | | | 大学生暑期社会实践 | | | | | | | | | | |  | | | | | | | 2.4 | | | | | | | | | | | | | | 2 | | | |  | | | | | | | | 利用暑期，进行社会实践，提交报告。 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 小计学分及学时数 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 10 | | | | 124 | | | | | | | |  | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 选  修  课 | | 1 | | | | 001 | | | | 演讲与口才 | | | | | | | | | | |  | | | | | | | 2～5 | | | | | | | | | | | | | | 2 | | | | 32 | | | | | | | |  | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 2 | | | | 002 | | | | 中国小说阅读与鉴赏 | | | | | | | | | | |  | | | | | | | 2～5 | | | | | | | | | | | | | | 2 | | | | 32 | | | | | | | |  | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 3 | | | | 003 | | | | 音乐欣赏 | | | | | | | | | | |  | | | | | | | 2～5 | | | | | | | | | | | | | | 2 | | | | 32 | | | | | | | |  | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 4 | | | | 004 | | | | 影视文学欣赏 | | | | | | | | | | |  | | | | | | | 2～5 | | | | | | | | | | | | | | 2 | | | | 32 | | | | | | | |  | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 5 | | | | 005 | | | | 应用写作 | | | | | | | | | | |  | | | | | | | 2～5 | | | | | | | | | | | | | | 2 | | | | 32 | | | | | | | |  | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 6 | | | | 006 | | | | 现代礼仪 | | | | | | | | | | |  | | | | | | | 2～5 | | | | | | | | | | | | | | 2 | | | | 32 | | | | | | | |  | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 7 | | | | 007 | | | | 中国古典诗词欣赏 | | | | | | | | | | |  | | | | | | | 2～5 | | | | | | | | | | | | | | 2 | | | | 32 | | | | | | | |  | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 8 | | | | 008 | | | | 中国近现代史纲要 | | | | | | | | | | |  | | | | | | | 2～5 | | | | | | | | | | | | | | 2 | | | | 32 | | | | | | | |  | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 9 | | | | 009 | | | | 中国传统文化 | | | | | | | | | | |  | | | | | | | 2～5 | | | | | | | | | | | | | | 2 | | | | 32 | | | | | | | |  | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 10 | | | | 010 | | | | 中国旅游资源概况 | | | | | | | | | | |  | | | | | | | 2～5 | | | | | | | | | | | | | | 2 | | | | 32 | | | | | | | |  | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 11 | | | | 011 | | | | ISO9000质量管理体系 | | | | | | | | | | |  | | | | | | | 2～5 | | | | | | | | | | | | | | 2 | | | | 32 | | | | | | | |  | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 12 | | | | 012 | | | | 高级文字排版 | | | | | | | | | | |  | | | | | | | 2～5 | | | | | | | | | | | | | | 2 | | | | 32 | | | | | | | |  | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 13 | | | | 013 | | | | 电子表格处理 | | | | | | | | | | |  | | | | | | | 2～5 | | | | | | | | | | | | | | 2 | | | | 32 | | | | | | | |  | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 14 | | | | 014 | | | | PS图像处理 | | | | | | | | | | |  | | | | | | | 2～5 | | | | | | | | | | | | | | 2 | | | | 32 | | | | | | | |  | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 15 | | | | 015 | | | | 高级PPT制作 | | | | | | | | | | |  | | | | | | | 2～5 | | | | | | | | | | | | | | 2 | | | | 32 | | | | | | | |  | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 16 | | | | 016 | | | | 计算机组装维修及网络操作 | | | | | | | | | | |  | | | | | | | 2～5 | | | | | | | | | | | | | | 2 | | | | 32 | | | | | | | |  | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 17 | | | | 017 | | | | 生活中的经济学 | | | | | | | | | | |  | | | | | | | 2～5 | | | | | | | | | | | | | | 2 | | | | 32 | | | | | | | |  | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 18 | | | | 018 | | | | 技术史漫谈 | | | | | | | | | | |  | | | | | | | 2～5 | | | | | | | | | | | | | | 2 | | | | 32 | | | | | | | |  | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 19 | | | | 019 | | | | 电影赏析 | | | | | | | | | | |  | | | | | | | 2～5 | | | | | | | | | | | | | | 2 | | | | 32 | | | | | | | |  | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 20 | | | | 020 | | | | 职业素质 | | | | | | | | | | |  | | | | | | | 2～5 | | | | | | | | | | | | | | 2 | | | | 32 | | | | | | | |  | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 21 | | | | 021 | | | | 创造性思维与创新方法 | | | | | | | | | | |  | | | | | | | 2～5 | | | | | | | | | | | | | | 2 | | | | 32 | | | | | | | |  | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 22 | | | | 022 | | | | 大学生创业基础 | | | | | | | | | | |  | | | | | | | 2～5 | | | | | | | | | | | | | | 2 | | | | 32 | | | | | | | |  | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 23 | | | | 023 | | | | 创新创业实践 | | | | | | | | | | |  | | | | | | | 1～6 | | | | | | | | | | | | | | 10 | | | |  | | | | | | | | 用于学生参加课题研究、项目实验、竞赛活动、发表论文等创新创业成果的学分折算 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 小计学分及学时数 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 44 | | | | 704 | | | | | | | |  | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| **合计学分及学时数** | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | **总学分143,必修课学分120,选修课学分23，其中专业选修课学分17，公共选修课学分6.总学时2798，理论学时1411，实践学时1387** | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

**高速铁道工程技术专业**

**教学标准**

**专业名称** 高速铁道工程技术

**专业代码** 600111

**招生对象** 高中阶段教育毕业生或具有同等学力者

**修业年限** 三年

**职业面向**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| 所属专业大类（代码） | 所属专业类  （代码） | 对应行业  （代码） | 主要职业类别  （代码） | 主要岗位类别（或技术领域） | 职业资格证书或技能等级证书举例 |
| 交通运输大类  (60) | 铁道运输类  (6001) | 铁路运输业（53）  土木工程建筑业  （48） | 铁道工务工程技术人员(2-02-17-06)  铁路建筑工程技术人员（2-02-18-12）  铁路线桥工（6-29-02-02） | 铁路线路工  铁路桥隧工  铁路路基工  技术员  测量员 | 线路工  桥隧工  测量员 |

**培养目标与培养规格**

一、培养目标

本专业培养理想信念坚定，德、智、体、美、劳全面发展，具有一定的科学文化水平，良好的人文素质、职业道德和创新意识，精益求精的工匠精神，较强的就业能力和可持续发展能力；掌握本专业知识和技术技能，面向铁路运输和土木工程建筑业的高速铁道工程技术领域，能够从事高速铁道线路的施工、维护、检测和管理等工作的高素质技术技能人才。

二、培养规格

本专业毕业生应在素质、知识和能力等方面达到以下要求。

1.素质

（1）坚定拥护中国共产党领导和我国社会主义制度，在习近平新时代中国特色社会主义思想指引下，践行社会主义核心价值观，具有深厚的爱国情感和中华民族自豪感；

（2）崇尚宪法、遵法守纪、崇德向善、诚实守信、尊重生命、热爱劳动、履行道德准则和行为规范，具有社会责任感和社会参与意识；

（3）具有质量意识、环保意识、安全意识、信息素养、工匠、创新思维；

（4）勇于奋斗、乐观向上，具有自我管理能力、职业生涯规划意识，有较强的集体意识和团队合作精神；

（5）具有健康的体魄、心理和健全的人格，掌握基本运动知识和一两项运动技能，养成良好的健身与卫生习惯，良好的行为习惯；

（6）具有一定的审美和人文素养，能够形成一两项艺术特长或爱好。

2.知识

（1）掌握必备的思想政治理论、科学文化基础知识和中华优秀传统文化知识；

（2）熟悉与本专业相关的法律法规以及环境保护、安全消防等相关知识；

（3）掌握高速铁路工程制图及CAD、工程测量、工程力学、土力学、钢筋混凝土结构、工程地质、铁路选线等基础理论和专业基础知识；

(4)掌握高速铁路工程施工、维护、检测等基本理论和专业知识；

(5)掌握高速铁路企业生产组织、管理和工程概预算的基本知识；

(6)掌握本专业的新技术、新工艺、新材料、新设备等方面知识；

(7)了解高速铁路电务、供电、运输设备基本知识、防灾安全监控系统基本知识和联调联试基本知识；

(8)了解最新发布的涉及本专业的铁路行业标准、国家标准和国际标准。

3.能力

（1）具有探究学习、终身学习、分析问题和解决问题的能力；

（2）具有良好的语言、文字表达能力和沟通能力，能够进行口语和书面的表达与交流；

(3)具有团队合作能力；

(4)具有熟练使用计算机及应用高速铁道工程专业软件的能力；

(5)具有高速铁路施工图识读、工程结构受力分析、工程测量、工程材料试验、工程地质情况判别、土工试验等专业基础能力；

(6)具有高速铁路路基、桥涵、隧道、轨道及附属工程的施工、维护、检测和管理的专业核心能力；

(7)具有高速铁路工程常用工机具使用、钢轨探伤、工程施工监理等方面的专业拓展能力；

(8)具有学习高速铁道工程新技术、新工艺、新方法、新设备使用等能力；

(9)具有高速铁道工程技术规范、标准、规则运用的能力；

(10)具有高速铁道工程组织、管理和概预算文件编制的能力。

**课程设置**

一、必修课程

1. 公共必修课程

|  |  |  |
| --- | --- | --- |
| 序号 | 课程名称 | 课时数 |
| 1 | 思想道德修养与法律基础及形势政策 | 64 |
| 2 | 毛泽东思想和中国特色社会主义理论体系概论及形势政策 | 60 |
| 3 | 高等数学 | 60 |
| 4 | 大学语文 | 60 |
| 5 | 公共英语 | 60 |
| 6 | 信息技术 | 68 |
| 7 | 体育 | 124 |
| 8 | 中华优秀传统文化 | 30 |
| 9 | 民族理论和政策 | 30 |
| 10 | 大学生职业发展与就业指导 | 34 |

2.专业必修课程

|  |  |  |
| --- | --- | --- |
| 序号 | 课程名称 | 课时数 |
| 1 | 工程制图与CAD | 94 |
| 2 | 高速铁路概论 | 68 |
| 3 | 工程力学 | 98 |
| 4 | 工程地质 | 30 |
| 5 | 土力学与地基基础 | 60 |
| 6 | 铁路测量 | 128 |
| 7 | 钢筋混凝土结构 | 60 |
| 8 | 高速铁路路基施工与维护 | 60 |
| 9 | 高速铁路轨道施工与维护 | 90 |
| 10 | 高速铁路桥涵施工与维护 | 120 |
| 11 | 高速铁路施工组织设计与预算 | 90 |
| 12 | 高速铁路隧道施工与维护 | 60 |
| 13 | 高速铁路选线基础 | 30 |
| 14 | 高速铁路轨道精测与检测 | 60 |
| 15 | 测量实习 | 84 |
| 16 | 模型制作实习 | 56 |
| 17 | 综合实习 | 56 |
| 18 | 线路工培训 | 56 |
| 19 | 顶岗实习 | 540 |

3.素质拓展必修课程

|  |  |  |
| --- | --- | --- |
| 序号 | 课程名称 | 课时数 |
| 1 | 军训及军事理论教育 | 60 |
| 2 | 心理健康教育 | 32 |
| 3 | 大学生安全及健康教育 | 32 |
| 4 | 大学生暑期社会实践 |  |

二、选修课程

1. 专业选修课程

|  |  |  |
| --- | --- | --- |
| 序号 | 课程名称 | 课时数 |
| 1 | 钢轨探伤 | 60 |
| 2 | 机械养路 | 45 |
| 3 | 工务安全与管理 | 60 |
| 4 | 工程监理 | 45 |
| 5 | 桥涵水文 | 45 |
| 6 | 盾构施工技术 | 60 |
| 7 | 高速铁路防灾安全监控系统 | 45 |
| 8 | 钢轨焊接 | 60 |

2. 素质拓展选修课程

|  |  |  |
| --- | --- | --- |
| 序号 | 课程名称 | 课时数 |
| 1 | 演讲与口才 | 32 |
| 2 | 中国小说阅读与鉴赏 | 32 |
| 3 | 音乐欣赏 | 32 |
| 4 | 影视文学欣赏 | 32 |
| 5 | 应用写作 | 32 |
| 6 | 现代礼仪 | 32 |
| 7 | 中国古典诗词欣赏 | 32 |
| 8 | 中国近现代史纲要 | 32 |
| 9 | 中国传统文化 | 32 |
| 10 | 中国旅游资源概况 | 32 |
| 11 | ISO9000质量管理体系 | 32 |
| 12 | 高级文字排版 | 32 |
| 13 | 电子表格处理 | 32 |
| 14 | PS图像处理 | 32 |
| 15 | 高级PPT制作 | 32 |
| 16 | 计算机组装维修及网络操作 | 32 |
| 17 | 生活中的经济学 | 32 |
| 18 | 技术史漫谈 | 32 |
| 19 | 电影赏析 | 32 |
| 20 | 职业素质 | 32 |
| 21 | 创造性思维与创新方法 | 32 |
| 22 | 大学生创业基础 | 32 |
| 23 | 创新创业实践 |  |

三、专业核心课程主要教学内容与要求

|  |  |  |
| --- | --- | --- |
| 序号 | 专业核心课程 | 主要教学内容与要求 |
| 1 | 高速铁路路基施工与维护 | 高速铁路路基的特点及结构；高速铁路路基施工；高速铁路路基工后沉降观测及评估；高速铁路路基病害的类型、防治方法和措施；高速铁路路基维修与大修作业，路基防洪与抢修基本知识；高速铁路路基新技术的应用。 |
| 2 | 高速铁路桥涵施工与维护 | 高速铁路桥涵的特点及构造；高速铁路桥涵施工；高速铁路桥涵工后沉降观测及评估；桥面、钢桥、圬工梁拱、墩台、支座及涵洞的维护方法；桥梁工程防洪与抢险的基本知识；高速铁路桥涵新技术的应用。 |
| 3 | 高速铁路隧道施工与维护 | 高速铁路隧道的类型及结构；高速铁路隧道施工；隧道现场监控量测；隧道常见病害种类及原因分析；隧道渗漏水的整治，隧道严寒地区冻害等病害的整治方法；高速铁路隧道新技术的应用。 |
| 4 | 高速铁路轨道施工与维护 | 直线轨道、曲线轨道、道岔、钢轨伸缩调节器构造；无缝线路结构设计；直线轨道与曲线轨道施工，道岔铺设，钢轨伸缩调节器安装，无缝线路铺设；直线轨道、曲线轨道、道岔、钢轨伸缩调节器、无缝线路维护，线路大中修；线路维修验收及质量评定；高速铁路轨道新技术的应用。 |
| 5 | 高速铁路轨道精测与检测 | CPⅢ控制网测量与维护；有砟轨道、板式无砟轨道、双块式无砟轨道及道岔精测精调；轨道静态检测，轨道动态检测，检测结果的分析和应用；高速铁路轨道检测质量评定；高速铁路轨道精测与检测新技术的应用。 |
| 6 | 高速铁路施工组织与概预算 | 高速铁路工程的施工方法、施工进度计划、工料机安排、施工平面布置及有关保障措施；高速铁路工程定额的运用；工程量的计算；各项工程费用的计算；工程造价软件的应用；高速铁路工程施工组织、管理与概预算文件的编制。 |

**学时安排**

每学年教学时间为40周，总学时数为2768。顶岗实习按每周30学时计算,校内实习实训按每周28学时计算。每学时为45分钟。18学时计为1个学分，总学分为143学分。军训、入学教育、社会实践、毕业设计（或毕业论文、毕业教育）等，以1周为1学分。公共基础课程学时占总学时的25.8%。选修课教学时数占总学时的比例为11.3%。学生顶岗实习为6个月，可根据实际情况，采取工学交替、多学期、分段式等多种形式组织实施。

**教学进程总体安排**

见附件（教学进程表）

**实施保障**

一、师资队伍

1、专业生师比

专业教师总数不少于15人，专业生师比不高于18：1。

2、师资要求

①专任教师应具有铁路工程技术及相关专业本科及以上学历且具备高等教育教师任职资格；其中专业带头人应具备副教授(中级)以上专业技术职务；结构优化，梯队合理。

②专任教师高级职称的比例不小于20%，每门核心专业课程必须有1-2名专任教师。

③专任教师中具备双师素质教师（具备相近专业技师职业资格、中级专业技术职称或两年以上企业经历）的比例应达到60%以上，实验实训教师应具有中级专业技术职务或中级职业资格、技能等级证书。

④专任教师应具备良好的职业道德和一定的教学科研能力，对本专业人才培养有较全面的把握能力，教育改革和质量意识比较强。

3、企业兼职教师任职资格

1.形成相对稳定的企业兼职教师和兼职实习指导教师队伍，满足兼职教师承担专业课程课时比不少于30%。

2.企业兼职教师应具有专科及以上学历，工作年限不少于5年，具有专业技师或专业中级及以上技术职称，生产经验丰富，学术水平较高。

二、教学设施

1、校内基础课教学实验室和教学设备的基本要求

校内各门基础课应有完善的优质数字资源及学生使用平台，计算机基础、英语课程、体育课程的教学实验室和教学设备应有以下基本要求：

①不少于 50 人的网络机房，配备有 1-2 台网络服务器和打印机等外部设备。

②不少于 50 人的模拟语音室或有数字化语言学习系统的网络机房。

③体育场馆和设施条件能基本保证体育教学和学生的课余健身需要。

④应能容纳50名学生同时实训（每工位最多容纳4-5人），应包括的实验室、实训室。

2、校内实训（含职业技能鉴定）基地的基本要求

根据专业特点，按照“理实一体”原则，积极探索教学型实训基地的建设模式，建设真实、仿真的项目教室、现场教室等；含有实验项目的基础课均应建有仪器设备先进、齐备、完好、同时满足50人实验的教学实验室；学校建有满足专业综合实训的真实或仿真的职业环境的实训室或实训基地，使专业技能训练项目都有对应的实训场所，实习实训设施设备技术含量高，基本达到企业现场生产设备的水平，满足对应工种职业技能鉴定的要求。

设备基本要求如下。

|  |  |  |  |
| --- | --- | --- | --- |
| 序号 | 实训室名称 | 设备名称及基本配置数量 | 实训项目 |
| 1 | 力学实验室 | 万能试验机、弯曲试验台、扭转试验机、应变仪 | 1. 轴向拉伸与压缩试验 2. 测材料弹性模量E 3. 测梁弯曲正应力 4. 测梁的变形 5. 杆受扭转试验\*   6、测材料受扭时G\* |
| 2 | 土力学  实验室 | 烘箱、环刀及压环器、碳化钙含水率测定仪、液、塑限联合测定仪、锥式液限仪、标准击实仪、搅拌器、离心机 | 1. 土的含水量试验 2. 土的密度试验   3、土粒比重试验  4、土的颗粒分析试验  5、土的液塑限试验  6、击实试验  7土的压缩试验、直剪试验、  8、承载比（CBR）试验  9、无测限抗压强度试验 |
| 3 | 工程材料  实验室 | 万能试验机、筛分仪、负压筛、抗渗仪、水泥胶砂抗折强度测定仪、水泥胶砂抗压强度试验仪、混凝土抗压试验仪、水泥净浆搅拌机、水泥胶砂搅拌机、振动台、标准维卡仪、标准养护箱、沸煮仪、坍落度筒、维勃稠度仪、混凝土搅拌机 | 1. 水泥胶砂抗折强度  2. 水泥胶砂抗压强度  3. 砼抗压强度  4. 砼抗折强度  5. 砼弹性模量  6. 砌体抗压强度  7. 岩石抗压强度  8. 钢筋屈服强度  9. 钢筋抗拉强度  10. 钢筋延伸率  11. 钢材硬度  12. 钢材冲击韧性 |
| 4 | 线路工  实训基地 | 一定长度的铁路轨道；起、拨道器；小型捣固机；道尺；支距尺；轨缝调整器；小型轨检车；安博格小车 | 1、城市轨道线路养护、维修作业及注意事项；  2、各种设备的操作与保养。 |
| 5 | 桥隧工  实训室 | 油漆搅拌机；梅花扳手；砂轮机；搅拌机；振捣器；塞尺；回弹仪；混凝土超声波检测仪；激光测距仪；钢筋定位仪；电动卷扬机；起重滑车组 | 1、桥梁、隧道养护、维修作业及注意事项；  2、各种设备的操作与保养。 |
| 6 | 工程制图  实训室 | 计算机房；绘图板；  计算机辅助制图软件 | 1、工程图纸的识读；  2、工程图纸的手工绘制；  3、工程图纸的计算机绘制。 |
| 7 | 工程测量  实训室 | 水准仪；经纬仪；全站仪；GPS；CPⅢ测量软件、激光垂准仪、激光扫平仪、精密检校台 | 1、测量仪器的操作与使用；  2、控制测量实训；  3、铁路施工测量放样；  4、测量工技能训练与鉴定 |
| 8 | 铁道工程模拟实训室 | 各类道岔模型； | 1、认识各类道岔  2、路道岔构造 |
| 9 | 高速铁路模拟实训室 | 铁路线路、桥涵、隧道、站场模型 | 1. 铁路线、桥、隧、站场认识   2、铁路线、桥、隧、站场等构造 |
| 10 | 养路机械模拟实训室 | 机械原理模型、挂图；小型养路机械模型 | 1. 机械原理 2. 小型养路机械构造，功能模拟操作 |

3、校外实习基地的基本要求

学校与实习基地签订协议，建有稳定的校外实训基地，实习基地为学生配备兼职教师，和校内教师共同制定实习任务书和指导书，完成本专业学生综合实训和顶岗实习半年以上需要，专业技能都能在实训基地得到训练。

三、教学资源

1、教材资源

必须选择高职高专教材，禁止跨层次选择教材。优先选用教育部国家规划教材和铁道部规划教材，鼓励有特色和创新的校本教材

2、图书资源

有一定数量的专业图书与刊物，生均专业图书、期刊资料及电子图书不少于 60 册。

3、数字化（网络）资源

主干课程建立教学资源库，包括电子教材、教案、多媒体课件、案例库、习题库、图片及视频资料库，开辟师生学习讨论区，向学生提供丰富的网络学习资源。

四、教学方法

1、教学方法、手段建议

在教学实施过程中，应贯彻“以学生为中心”的教学理念，突出职业道德、职业技能、创业就业能力的培养，改革教学方法和手段，深入开展项目教学、现场教学、案例教学、模拟教学，以做为核心，真正实现“教、学、做”合一。

2、教学组织形式建议

以典型产品（项目、案例）为载体，设计教学组织形式，积极探索选课制、分阶段完成学业等教学组织模式；将职业道德和职业精神融入专业教学全过程，促进学生知识、技能、职业素养协调发展；引入行业企业的新知识、新技术、新标准、新设备、新工艺、新成果和国际通用的技能型人才职业资格标准，动态更新教学内容。

五、教学评价

1、教学评价建议

建立以职业知识、职业技能与职业素养为评价核心，过程考核和结果考核相结合的课程考核评价体系。创新评价方式，建立学校、行业企业、社会机构参与评价的多元质量评价模式；创新灵活多样的考核评价管理办法，根据不同课程类型采取灵活的考核形式；职业精神纳入学生的评价考核体系。

2、教学考核建议

① 过程评价加期末考核评价相结合的方法进行考核；

② 理论考核加实作考核相结合的方法进行考核；

③ 课程考核加技能鉴定相结合的方法进行考核；

④ 顶岗实践的校内指导教师与校外指导老师相结合进行考核。

六、质量管理

主要采用以学年制为主体的全日制教学管理模式，实行弹性实施学分制管理模式。

**毕业要求**

学生德、智、体、美、劳合格，在允许的修业年限内学完培养计划规定的全部课程，通过顶岗实践或毕业论文答辩，取得相应的职业资格证书，达到毕业最低学分（143学分）要求，即获得毕业资格，准予毕业并颁发毕业证书。

**教 学 进 程 表**

**2018 级 高速铁道工程技术 专 业**

毕业最低学分：143分

专业代码： 600111

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **一、教学进程表** | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | **二、周数分配表** | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 学  年 | | 教 学 周 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 理论  及  分散  实践 | | | 集  中  实  践 | | | | 考  试 | | | 劳  动 | | | | 军  训 | | | 机  动 | | | | 毕  业  教  育 | | | 假  期 | | | 合  计 | | |
| 九月 | | | | | | | | 十月 | | | | | | | 十一月 | | | | | | | 十二月 | | | | | | | | 一月 | | | | | | | | | 二月 | | | | | | | | 三月 | | | | | | | | | 四月 | | | | | | 五月 | | | | | | 六月 | | | | | | | | | | | 七月 | | | | | | | | | 八月 | | | | | | |
|  | | | 1 | 2 | | | 3 | 4 | | | 5 | 6 | 7 | 8 | 9 | | 10 | 11 | 12 | 13 | | 14 | | 15 | | 16 | | 17 | | 18 | | | 19 | | 20 | | 21 | 22 | | | 23 | 24 | | 25 | | 26 | | | 27 | | | 28 | 29 | 30 | | 31 | | 32 | 33 | 34 | | 35 | | 36 | 37 | | 38 | 39 | | | 40 | 41 | | 42 | | 43 | | | 44 | | | | 45 | | 46 | | 47 | 48 | | | 49 | 50 | 51 | 52 | | | | K | | | S | | | | ∷ | | | × | | | | ★ | | | J | | | | T | | | = | | |  | | |
| 一 | | | ★2 | | | | 15 | | | | | | | | | | | | | | | | | | | | | | | J2 | | | | | ∷ | | ==== 6 | | | | | | | | | | | | 17 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | × | | | | J | | | ∷ | | ==== 6 | | | | | | | | | | | 32 | | | 0 | | | | 2 | | | 1 | | | | 2 | | | 3 | | | | 0 | | | 12 | | | 52 | | |
| 二 | | 15 | | | | | | | | | | | | | | | | | | | | | | | S3 | | | | | | | J | | ∷ | | ==== 6 | | | | | | | | | | | 15 | | | | | | | | | | | | | | | | | | | | | | | | | | S3 | | | | | | | | J | | | ∷ | | ====6 | | | | | | | | | | | 30 | | | 6 | | | | 2 | | | 0 | | | | 0 | | | 2 | | | | 0 | | | 12 | | | 52 | | | |
| 三 | | 15 | | | | | | | | | | | | | | | | | | | | | | | S3 | | | | | | | J | | ∷ | | ==== 6 | | | | | | | | | | | S18 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | J | | | T | |  | | | | | | | | | | | 15 | | | 21 | | | | 1 | | | 0 | | | | 0 | | | 2 | | | | 1 | | | 6 | | | 46 | | | |
| **三、教学进度表** | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 合计 | | | | | | | | | | | | | | | | | | | | 77 | | | 27 | | | | 5 | | | 1 | | | | 2 | | | 7 | | | | 1 | | | 30 | | | 150 | | | |
| 课程类型 | | 序  号 | | | 课程  代码 | | | | | 课 程 名 称 | | | | | | | | | | | 考核学期序 | | | | | | | | | | | | | | | | | | 学 分 | | | | | | 学 时 数 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 理论教学（含分散性实践教学）周学时 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 考 试 | | | | | | | | 考 查 | | | | | | | | | | 总 计 | | | | | | | | | | 理 论 | | | | | | 实 践 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 一 年 级 | | | | | | | | | | | | 二 年 级 | | | | | | | | | | | | | | 三 年 级 | | | | | | | | | | | |
| 合 计 | | | | | 习 题 课 | | | | 实 训 | | | | | 现场教学 | | | | | | | | | 创新创业训练 | | | | | | 1学期  15周 | | | | | 2学期  17周 | | | | | | | 3学期  15周 | | | | | | | 4学期  15周 | | | | | | | 5学期  15周 | | | | | 6学期  周 | | | | | | |
| 公共必修课 | | 1 | | | 0001 | | | | | 思想道德修养与法律基础及形势政策 | | | | | | | | | | | 1 | | | | | | | | 2 | | | | | | | | | | 4 | | | | | | 64 | | | | | | | | | | 50 | | | | | | 14 | | | | | 14 | | | |  | | | | |  | | | | | | | | |  | | | | | | 2 | | | | | 2 | | | | | | |  | | | | | | |  | | | | | | |  | | | | |  | | | | | | |
| 2 | | | 0002 | | | | | 毛泽东思想和中国特色社会主义理论体系概论及形势政策 | | | | | | | | | | | 3 | | | | | | | | 4 | | | | | | | | | | 3 | | | | | | 60 | | | | | | | | | | 48 | | | | | | 12 | | | | | 12 | | | |  | | | | |  | | | | | | | | |  | | | | | |  | | | | |  | | | | | | | 2 | | | | | | | 2 | | | | | | |  | | | | |  | | | | | | |
| 3 | | | 0005 | | | | | 高等数学 | | | | | | | | | | | 1 | | | | | | | |  | | | | | | | | | | 3 | | | | | | 60 | | | | | | | | | | 54 | | | | | | 6 | | | | | 6 | | | |  | | | | |  | | | | | | | | |  | | | | | | 4 | | | | |  | | | | | | |  | | | | | | |  | | | | | | |  | | | | |  | | | | | | |
| 4 | | | 0006 | | | | | 大学语文 | | | | | | | | | | |  | | | | | | | | 1 | | | | | | | | | | 3 | | | | | | 60 | | | | | | | | | | 52 | | | | | | 8 | | | | | 8 | | | |  | | | | |  | | | | | | | | |  | | | | | | 4 | | | | |  | | | | | | |  | | | | | | |  | | | | | | |  | | | | |  | | | | | | |
| 5 | | | 0007 | | | | | 公共英语 | | | | | | | | | | | 1 | | | | | | | |  | | | | | | | | | | 3 | | | | | | 60 | | | | | | | | | | 18 | | | | | | 42 | | | | | 42 | | | |  | | | | |  | | | | | | | | |  | | | | | | 4 | | | | |  | | | | | | |  | | | | | | |  | | | | | | |  | | | | |  | | | | | | |
| 6 | | | 0008 | | | | | 信息技术 | | | | | | | | | | |  | | | | | | | | 2 | | | | | | | | | | 4 | | | | | | 68 | | | | | | | | | | 34 | | | | | | 34 | | | | | 34 | | | |  | | | | |  | | | | | | | | |  | | | | | |  | | | | | 4 | | | | | | |  | | | | | | |  | | | | | | |  | | | | |  | | | | | | |
| 7 | | | 0009 | | | | | 体育 | | | | | | | | | | | 3 | | | | | | | | 1.2.4 | | | | | | | | | | 7 | | | | | | 124 | | | | | | | | | | 8 | | | | | | 116 | | | | |  | | | |  | | | | | 116 | | | | | | | | |  | | | | | | 2 | | | | | 2 | | | | | | | 2 | | | | | | | 2 | | | | | | |  | | | | |  | | | | | | |
| 8 | | | 0004 | | | | | 中华优秀传统文化 | | | | | | | | | | |  | | | | | | | | 1 | | | | | | | | | | 2 | | | | | | 30 | | | | | | | | | | 30 | | | | | |  | | | | |  | | | |  | | | | |  | | | | | | | | |  | | | | | | 2 | | | | |  | | | | | | |  | | | | | | |  | | | | | | |  | | | | |  | | | | | | |
| 9 | | | 0011 | | | | | 民族理论和政策 | | | | | | | | | | |  | | | | | | | | 5 | | | | | | | | | | 2 | | | | | | 30 | | | | | | | | | | 30 | | | | | |  | | | | |  | | | |  | | | | |  | | | | | | | | |  | | | | | |  | | | | |  | | | | | | |  | | | | | | |  | | | | | | | 2 | | | | |  | | | | | | |
| 10 | | | 0010 | | | | | 大学生职业发展与就业指导 | | | | | | | | | | |  | | | | | | | | 2 | | | | | | | | | | 2 | | | | | | 34 | | | | | | | | | | 34 | | | | | |  | | | | |  | | | |  | | | | |  | | | | | | | | |  | | | | | |  | | | | | 2 | | | | | | |  | | | | | | |  | | | | | | |  | | | | |  | | | | | | |
| 小计学分及学时数 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 33 | | | | | | 590 | | | | | | | | | | 358 | | | | | | 232 | | | | | 116 | | | | 0 | | | | | 116 | | | | | | | | | 0 | | | | | | 18 | | | | | 10 | | | | | | | 4 | | | | | | | 4 | | | | | | | 2 | | | | | 0 | | | | | | |
| 专业必修课 | | 11 | | | 16001 | | | | | 工程制图与CAD | | | | | | | | | | | 2 | | | | | | | | 1 | | | | | | | | | | 5 | | | | | | 94 | | | | | | | | | | 50 | | | | | | 44 | | | | |  | | | |  | | | | | 44 | | | | | | | | |  | | | | | | 4 | | | | | 2 | | | | | | |  | | | | | | |  | | | | | | |  | | | | |  | | | | | | |
| 12 | | | 16004 | | | | | 高速铁路概论 | | | | | | | | | | |  | | | | | | | | 2 | | | | | | | | | | 4 | | | | | | 68 | | | | | | | | | | 64 | | | | | | 4 | | | | |  | | | |  | | | | | 4 | | | | | | | | |  | | | | | |  | | | | | 4 | | | | | | |  | | | | | | |  | | | | | | |  | | | | |  | | | | | | |
| 13 | | | 16005 | | | | | 工程力学 | | | | | | | | | | | 2 | | | | | | | | 3 | | | | | | | | | | 5 | | | | | | 98 | | | | | | | | | | 80 | | | | | | 18 | | | | | 8 | | | | 10 | | | | |  | | | | | | | | |  | | | | | |  | | | | | 4 | | | | | | | 2 | | | | | | |  | | | | | | |  | | | | |  | | | | | | |
| 14 | | | 16006 | | | | | 工程地质 | | | | | | | | | | |  | | | | | | | | 3 | | | | | | | | | | 2 | | | | | | 30 | | | | | | | | | | 26 | | | | | | 4 | | | | |  | | | |  | | | | | 4 | | | | | | | | |  | | | | | |  | | | | |  | | | | | | | 2 | | | | | | |  | | | | | | |  | | | | |  | | | | | | |
| 15 | | | 16008 | | | | | 土力学与地基基础 | | | | | | | | | | | 3 | | | | | | | |  | | | | | | | | | | 3 | | | | | | 60 | | | | | | | | | | 30 | | | | | | 30 | | | | | 2 | | | | 28 | | | | |  | | | | | | | | |  | | | | | |  | | | | |  | | | | | | | 4 | | | | | | |  | | | | | | |  | | | | |  | | | | | | |
| 16 | | | 16009 | | | | | 铁路测量 | | | | | | | | | | | 2 | | | | | | | | 1 | | | | | | | | | | 7 | | | | | | 128 | | | | | | | | | | 72 | | | | | | 56 | | | | |  | | | |  | | | | | 56 | | | | | | | | |  | | | | | | 4 | | | | | 4 | | | | | | |  | | | | | | |  | | | | | | |  | | | | |  | | | | | | |
| 17 | | | 16010 | | | | | 钢筋混凝土结构 | | | | | | | | | | | 3 | | | | | | | |  | | | | | | | | | | 3 | | | | | | 60 | | | | | | | | | | 50 | | | | | | 10 | | | | | 2 | | | | 8 | | | | |  | | | | | | | | |  | | | | | |  | | | | |  | | | | | | | 4 | | | | | | |  | | | | | | |  | | | | |  | | | | | | |
| 18 | | | 16011 | | | | | 高速铁路路基施工与维护 | | | | | | | | | | | 4 | | | | | | | |  | | | | | | | | | | 3 | | | | | | 60 | | | | | | | | | | 50 | | | | | | 10 | | | | | 2 | | | |  | | | | | 8 | | | | | | | | | 4 | | | | | |  | | | | |  | | | | | | |  | | | | | | | 4 | | | | | | |  | | | | |  | | | | | | |
| 19 | | | 16012 | | | | | 高速铁路轨道施工与维护 | | | | | | | | | | | 4.5 | | | | | | | |  | | | | | | | | | | 5 | | | | | | 90 | | | | | | | | | | 60 | | | | | | 30 | | | | | 4 | | | |  | | | | | 26 | | | | | | | | | 4 | | | | | |  | | | | |  | | | | | | |  | | | | | | | 4 | | | | | | | 2 | | | | |  | | | | | | |
| 20 | | | 16013 | | | | | 高速铁路桥梁施工与维护 | | | | | | | | | | | 4.5 | | | | | | | |  | | | | | | | | | | 7 | | | | | | 120 | | | | | | | | | | 70 | | | | | | 50 | | | | | 2 | | | | 36 | | | | | 12 | | | | | | | | | 18 | | | | | |  | | | | |  | | | | | | |  | | | | | | | 4 | | | | | | | 4 | | | | |  | | | | | | |
| 21 | | | 16014 | | | | | 高速铁路施工组织设计与概预算 | | | | | | | | | | |  | | | | | | | | 4.5 | | | | | | | | | | 5 | | | | | | 90 | | | | | | | | | | 54 | | | | | | 36 | | | | |  | | | | 36 | | | | |  | | | | | | | | | 26 | | | | | |  | | | | |  | | | | | | |  | | | | | | | 4 | | | | | | | 2 | | | | |  | | | | | | |
| 22 | | | 16018 | | | | | 高速铁路隧道施工与维护 | | | | | | | | | | | 3 | | | | | | | |  | | | | | | | | | | 3 | | | | | | 60 | | | | | | | | | | 50 | | | | | | 10 | | | | | 2 | | | |  | | | | | 8 | | | | | | | | | 4 | | | | | |  | | | | |  | | | | | | | 4 | | | | | | |  | | | | | | |  | | | | |  | | | | | | |
| 23 | | | 16020 | | | | | 高速铁路选线基础 | | | | | | | | | | |  | | | | | | | | 3 | | | | | | | | | | 2 | | | | | | 30 | | | | | | | | | | 26 | | | | | | 4 | | | | |  | | | |  | | | | | 4 | | | | | | | | |  | | | | | |  | | | | |  | | | | | | | 2 | | | | | | |  | | | | | | |  | | | | |  | | | | | | |
| 24 | | | 16021 | | | | | 高速铁路轨道精测与检测 | | | | | | | | | | |  | | | | | | | | 5 | | | | | | | | | | 3 | | | | | | 60 | | | | | | | | | | 40 | | | | | | 20 | | | | | 10 | | | | 10 | | | | |  | | | | | | | | |  | | | | | |  | | | | |  | | | | | | |  | | | | | | |  | | | | | | | 4 | | | | |  | | | | | | |
| 25 | | | 16101 | | | | | 测量实习 | | | | | | | | | | |  | | | | | | | | 3 | | | | | | | | | | 3 | | | | | | 84 | | | | | | | | | |  | | | | | | 84 | | | | |  | | | |  | | | | | 84 | | | | | | | | |  | | | | | |  | | | | |  | | | | | | | 3周 | | | | | | |  | | | | | | |  | | | | |  | | | | | | |
| 26 | | | 16102 | | | | | 模型制作实习 | | | | | | | | | | |  | | | | | | | | 4 | | | | | | | | | | 2 | | | | | | 56 | | | | | | | | | |  | | | | | | 56 | | | | |  | | | |  | | | | | 56 | | | | | | | | |  | | | | | |  | | | | |  | | | | | | |  | | | | | | | 2周 | | | | | | |  | | | | |  | | | | | | |
| 27 | | | 16103 | | | | | 综合实习 | | | | | | | | | | |  | | | | | | | | 4.5 | | | | | | | | | | 2 | | | | | | 56 | | | | | | | | | |  | | | | | | 56 | | | | |  | | | |  | | | | | 56 | | | | | | | | |  | | | | | |  | | | | |  | | | | | | |  | | | | | | | 1周 | | | | | | | 1周 | | | | |  | | | | | | |
| 28 | | | 16104 | | | | | 线路工培训 | | | | | | | | | | |  | | | | | | | | 5 | | | | | | | | | | 2 | | | | | | 56 | | | | | | | | | |  | | | | | | 56 | | | | |  | | | | 56 | | | | |  | | | | | | | | |  | | | | | |  | | | | |  | | | | | | |  | | | | | | |  | | | | | | | 2周 | | | | |  | | | | | | |
| 29 | | | 16105 | | | | | 顶岗实习 | | | | | | | | | | |  | | | | | | | | 6 | | | | | | | | | | 18 | | | | | | 540 | | | | | | | | | |  | | | | | | 540 | | | | |  | | | |  | | | | | 540 | | | | | | | | |  | | | | | |  | | | | |  | | | | | | |  | | | | | | |  | | | | | | |  | | | | | 18周 | | | | | | |
| 小计学分及学时数 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 84 | | | | | | 1840 | | | | | | | | | | 722 | | | | | | 1118 | | | | | 32 | | | | 184 | | | | | 902 | | | | | | | | | 56 | | | | | | 8 | | | | | 14 | | | | | | | 18 | | | | | | | 16 | | | | | | | 12 | | | | |  | | | | | | |
| 专业选修课 | | 30 | | | 16036 | | | | | 钢轨探伤 | | | | | | | | | | |  | | | | | | | | 5 | | | | | | | | | | 3 | | | | | | 60 | | | | | | | | | | 40 | | | | | | 20 | | | | |  | | | | 20 | | | | |  | | | | | | | | |  | | | | | |  | | | | |  | | | | | | |  | | | | | | |  | | | | | | | 4 | | | | |  | | | | | | |
| 31 | | | 16031 | | | | | 机械养路 | | | | | | | | | | |  | | | | | | | | 4 | | | | | | | | | | 3 | | | | | | 45 | | | | | | | | | | 39 | | | | | | 6 | | | | |  | | | |  | | | | | 6 | | | | | | | | |  | | | | | |  | | | | |  | | | | | | |  | | | | | | | 3 | | | | | | |  | | | | |  | | | | | | |
| 32 | | | 16032 | | | | | 工务安全与班组管理 | | | | | | | | | | | 5 | | | | | | | |  | | | | | | | | | | 3 | | | | | | 60 | | | | | | | | | | 56 | | | | | | 4 | | | | |  | | | |  | | | | | 4 | | | | | | | | |  | | | | | |  | | | | |  | | | | | | |  | | | | | | |  | | | | | | | 4 | | | | |  | | | | | | |
| 33 | | | 16035 | | | | | 工程监理 | | | | | | | | | | |  | | | | | | | | 5 | | | | | | | | | | 3 | | | | | | 45 | | | | | | | | | | 41 | | | | | | 4 | | | | |  | | | |  | | | | | 4 | | | | | | | | |  | | | | | |  | | | | |  | | | | | | |  | | | | | | |  | | | | | | | 3 | | | | |  | | | | | | |
| 34 | | | 16040 | | | | | 桥涵水文 | | | | | | | | | | |  | | | | | | | | 4 | | | | | | | | | | 3 | | | | | | 45 | | | | | | | | | | 39 | | | | | | 6 | | | | |  | | | |  | | | | | 6 | | | | | | | | |  | | | | | |  | | | | |  | | | | | | |  | | | | | | | 3 | | | | | | |  | | | | |  | | | | | | |
| 35 | | | 16041 | | | | | 盾构施工技术 | | | | | | | | | | |  | | | | | | | | 5 | | | | | | | | | | 3 | | | | | | 60 | | | | | | | | | | 56 | | | | | | 4 | | | | |  | | | |  | | | | | 4 | | | | | | | | |  | | | | | |  | | | | |  | | | | | | |  | | | | | | |  | | | | | | | 4 | | | | |  | | | | | | |
| 36 | | | 16042 | | | | | 高速铁路防灾安全监控系统 | | | | | | | | | | |  | | | | | | | | 5 | | | | | | | | | | 3 | | | | | | 45 | | | | | | | | | | 41 | | | | | | 4 | | | | |  | | | |  | | | | | 4 | | | | | | | | |  | | | | | |  | | | | |  | | | | | | |  | | | | | | |  | | | | | | | 3 | | | | |  | | | | | | |
| 37 | | | 16043 | | | | | 钢轨焊接 | | | | | | | | | | |  | | | | | | | | 5 | | | | | | | | | | 3 | | | | | | 60 | | | | | | | | | | 52 | | | | | | 8 | | | | |  | | | |  | | | | | 8 | | | | | | | | |  | | | | | |  | | | | |  | | | | | | |  | | | | | | |  | | | | | | | 4 | | | | |  | | | | | | |
| 最低选修课小计学分及学时数 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 12 | | | | | | 210 | | | | | | | | | | 176 | | | | | | 34 | | | | | 0 | | | | 20 | | | | | 14 | | | | | | | | | 0 | | | | | | 0 | | | | | 0 | | | | | | | 0 | | | | | | | 3 | | | | | | | 11 | | | | |  | | | | | | |
| 开设选修课小计学分及学时数 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 24 | | | | | | 420 | | | | | | | | | | 364 | | | | | | 56 | | | | | 0 | | | | 20 | | | | | 36 | | | | | | | | | 0 | | | | | | 0 | | | | | 0 | | | | | | | 0 | | | | | | | 6 | | | | | | | 22 | | | | |  | | | | | | |
| 最低学分及学时数 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 129 | | | | | | 2640 | | | | | | | | | | 1256 | | | | | | 1384 | | | | | 148 | | | | 204 | | | | | 1032 | | | | | | | | | 56 | | | | | | 26 | | | | | 24 | | | | | | | 22 | | | | | | | 23 | | | | | | | 25 | | | | |  | | | | | | |
| 总计学分及学时数 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 141 | | | | | | 2850 | | | | | | | | | | 1444 | | | | | | 1406 | | | | | 148 | | | | 204 | | | | | 1054 | | | | | | | | | 56 | | | | | | 26 | | | | | 24 | | | | | | | 22 | | | | | | | 26 | | | | | | | 36 | | | | |  | | | | | | |
| **四、素质拓展课** | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 课程类型 | | 序  号 | | | | 课程代码 | | | | 课 程 名 称 | | | | | | | | | | | 考核学期序 | | | | | | | | | | | | | | | | | | 学 分 | | | | 课  时 | | | | | | | 说 明 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 考 试 | | | | | | 考 查 | | | | | | | | | | | |
| 必修  课 | | 1 | | | | 01 | | | | 军训及军事理论教育 | | | | | | | | | | |  | | | | | | 1 | | | | | | | | | | | | 4 | | | | 60 | | | | | | | | 第1学期开设，含入学教育。(4+56) | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 2 | | | | 02 | | | | 心理健康教育 | | | | | | | | | | |  | | | | | | 2.3.4.5 | | | | | | | | | | | | 2 | | | | 32 | | | | | | | | 分专业在第2～5学期之一开设。(20+12) | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 3 | | | | 03 | | | | 大学生安全及健康教育 | | | | | | | | | | |  | | | | | | 1.2.3.4 | | | | | | | | | | | | 2 | | | | 32 | | | | | | | | 在1～4学期实施，以专题讲座的形式和每学期大学生第二课堂教育活动中开设.(20+12) | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 4 | | | | 04 | | | | 大学生暑期社会实践 | | | | | | | | | | |  | | | | | | 2.4 | | | | | | | | | | | | 2 | | | |  | | | | | | | | 利用暑期，进行社会实践，提交报告。 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 小计学分及学时数 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 10 | | | | 124 | | | | | | | |  | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 选  修  课 | | 1 | | | | 001 | | | | 演讲与口才 | | | | | | | | | | |  | | | | | | 2～5 | | | | | | | | | | | | 2 | | | | 32 | | | | | | | |  | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 2 | | | | 002 | | | | 中国小说阅读与鉴赏 | | | | | | | | | | |  | | | | | | 2～5 | | | | | | | | | | | | 2 | | | | 32 | | | | | | | |  | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 3 | | | | 003 | | | | 音乐欣赏 | | | | | | | | | | |  | | | | | | 2～5 | | | | | | | | | | | | 2 | | | | 32 | | | | | | | |  | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 4 | | | | 004 | | | | 影视文学欣赏 | | | | | | | | | | |  | | | | | | 2～5 | | | | | | | | | | | | 2 | | | | 32 | | | | | | | |  | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 5 | | | | 005 | | | | 应用写作 | | | | | | | | | | |  | | | | | | 2～5 | | | | | | | | | | | | 2 | | | | 32 | | | | | | | |  | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 6 | | | | 006 | | | | 现代礼仪 | | | | | | | | | | |  | | | | | | 2～5 | | | | | | | | | | | | 2 | | | | 32 | | | | | | | |  | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 7 | | | | 007 | | | | 中国古典诗词欣赏 | | | | | | | | | | |  | | | | | | 2～5 | | | | | | | | | | | | 2 | | | | 32 | | | | | | | |  | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 8 | | | | 008 | | | | 中国近现代史纲要 | | | | | | | | | | |  | | | | | | 2～5 | | | | | | | | | | | | 2 | | | | 32 | | | | | | | |  | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 9 | | | | 009 | | | | 中国传统文化 | | | | | | | | | | |  | | | | | | 2～5 | | | | | | | | | | | | 2 | | | | 32 | | | | | | | |  | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 10 | | | | 010 | | | | 中国旅游资源概况 | | | | | | | | | | |  | | | | | | 2～5 | | | | | | | | | | | | 2 | | | | 32 | | | | | | | |  | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 11 | | | | 011 | | | | ISO9000质量管理体系 | | | | | | | | | | |  | | | | | | 2～5 | | | | | | | | | | | | 2 | | | | 32 | | | | | | | |  | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 12 | | | | 012 | | | | 高级文字排版 | | | | | | | | | | |  | | | | | | 2～5 | | | | | | | | | | | | 2 | | | | 32 | | | | | | | |  | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 13 | | | | 013 | | | | 电子表格处理 | | | | | | | | | | |  | | | | | | 2～5 | | | | | | | | | | | | 2 | | | | 32 | | | | | | | |  | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 14 | | | | 014 | | | | PS图像处理 | | | | | | | | | | |  | | | | | | 2～5 | | | | | | | | | | | | 2 | | | | 32 | | | | | | | |  | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 15 | | | | 015 | | | | 高级PPT制作 | | | | | | | | | | |  | | | | | | 2～5 | | | | | | | | | | | | 2 | | | | 32 | | | | | | | |  | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 16 | | | | 016 | | | | 计算机组装维修及网络操作 | | | | | | | | | | |  | | | | | | 2～5 | | | | | | | | | | | | 2 | | | | 32 | | | | | | | |  | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 17 | | | | 017 | | | | 生活中的经济学 | | | | | | | | | | |  | | | | | | 2～5 | | | | | | | | | | | | 2 | | | | 32 | | | | | | | |  | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 18 | | | | 018 | | | | 技术史漫谈 | | | | | | | | | | |  | | | | | | 2～5 | | | | | | | | | | | | 2 | | | | 32 | | | | | | | |  | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 19 | | | | 019 | | | | 电影赏析 | | | | | | | | | | |  | | | | | | 2～5 | | | | | | | | | | | | 2 | | | | 32 | | | | | | | |  | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 20 | | | | 020 | | | | 职业素质 | | | | | | | | | | |  | | | | | | 2～5 | | | | | | | | | | | | 2 | | | | 32 | | | | | | | |  | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 21 | | | | 021 | | | | 创造性思维与创新方法 | | | | | | | | | | |  | | | | | | 2～5 | | | | | | | | | | | | 2 | | | | 32 | | | | | | | |  | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 22 | | | | 022 | | | | 大学生创业基础 | | | | | | | | | | |  | | | | | | 2～5 | | | | | | | | | | | | 2 | | | | 32 | | | | | | | |  | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 23 | | | | 023 | | | | 创新创业实践 | | | | | | | | | | |  | | | | | | 1～6 | | | | | | | | | | | | 10 | | | |  | | | | | | | | 用于学生参加课题研究、项目实验、竞赛活动、发表论文等创新创业成果的学分折算 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 小计学分及学时数 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 44 | | | | 704 | | | | | | | |  | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| **合计学分及学时数** | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | **总学分143,必修课学分127,选修课学分16，其中专业选修课学分12，素质选修课学分4.总学时2798，理论学时1300，实践学时1464** | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

总学分143=最低学分及学时数栏129+素质拓展必修课10+素质拓展选修课4

必修课学分127=总学分143-最低选修课小计学分及学时数12-素质拓展选修课4

选修课学分16=最低选修课小计学分及学时数12+素质拓展选修课4

总学时2764=最低学分及学时数栏2640+素质拓展必修课124 (素质拓展选修课学时不计入总学时）

理论学时1300=最低学分及学时数栏1256+素质拓展必修课44

实践学时1464=最低学分及学时数栏1384+素质拓展必修课80 (军训56;心理12;大学生安全12)

**城市轨道交通工程技术专业**

**教学标准**

**专业名称** 城市轨道交通工程技术专业

**专业代码** 600605

**招生对象** 高中阶段教育毕业生或具有同等学力者

**修业年限** 三年

**职业面向**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| 所属专业大类（代码） | 所属专业类  （代码） | 对应  行业  （代码） | 主要职业类别  （代码） | 主要岗位类别（或技术领域） | 职业资格证书或技能等级证书举例 |
| 交通运输大类  (60) |  |  |  |  |  |

**培养目标与培养规格**

一、培养目标

本专业培养理想信念坚定，德、智、体、美、劳全面发展，具有一定的科学文化水平，良好的人文素质、职业道德和创新意识，精益求精的工匠精神，较强的就业能力和可持续发展能力；掌握本专业知识和技术技能，面向城市轨道交通运输和土木工程建筑业的城市轨道交通工程技术领域，能够从事城市轨道交通线路的施工、维护、检测和管理等工作的高素质技术技能人才。

二、培养规格

本专业毕业生应在素质、知识和能力等方面达到以下要求。

1.素质

（1）坚定拥护中国共产党领导和我国社会主义制度，在习近平新时代中国特色社会主义思想指引下，践行社会主义核心价值观，具有深厚的爱国情感和中华民族自豪感；

（2）崇尚宪法、遵法守纪、崇德向善、诚实守信、尊重生命、热爱劳动、履行道德准则和行为规范，具有社会责任感和社会参与意识；

（3）具有质量意识、环保意识、安全意识、信息素养、工匠、创新思维；

（4）勇于奋斗、乐观向上，具有自我管理能力、职业生涯规划意识，有较强的集体意识和团队合作精神；

（5）具有健康的体魄、心理和健全的人格，掌握基本运动知识和一两项运动技能，养成良好的健身与卫生习惯，良好的行为习惯；

（6）具有一定的审美和人文素养，能够形成一两项艺术特长或爱好。

2.知识

（1）掌握必备的思想政治理论、科学文化基础知识和中华优秀传统文化知识；

（2）熟悉与本专业相关的法律法规以及环境保护、安全消防等相关知识；

（3）掌握城市轨道交通工程制图及CAD、工程测量、工程力学、土力学、钢筋混凝土结构、工程地质等基础理论和专业基础知识；

(4)掌握城市轨道交通工程施工、维护、检测等基本理论和专业知识；

(5)掌握城市轨道交通企业生产组织、管理和工程概预算的基本知识；

(6)掌握本专业的新技术、新工艺、新材料、新设备等方面知识；

(7)了解城市轨道交通电务、供电、运输设备基本知识、防灾安全监控系统基本知识和联调联试基本知识；

(8)了解最新发布的涉及本专业的行业标准、国家标准和国际标准。

3.能力

（1）具有探究学习、终身学习、分析问题和解决问题的能力；

（2）具有良好的语言、文字表达能力和沟通能力，能够进行口语和书面的表达与交流；

(3)具有团队合作能力；

(4)具有熟练使用计算机及应用城市轨道交通工程专业软件的能力；

(5)具有城市轨道交通施工图识读、工程结构受力分析、工程测量、工程材料试验、工程地质情况判别、土工试验等专业基础能力；

(6)具有城市轨道交通路基、桥涵、隧道、轨道及附属工程的施工、维护、检测和管理的专业核心能力；

(7)具有城市轨道交通工程常用工机具使用、钢轨探伤、工程施工监理等方面的专业拓展能力；

(8)具有学习城市轨道交通工程新技术、新工艺、新方法、新设备使用等能力；

(9)具有城市轨道交通工程技术规范、标准、规则运用的能力；

(10)具有城市轨道交通工程组织、管理和概预算文件编制的能力。

**课程设置**

一、必修课程

1. 公共必修课程

|  |  |  |
| --- | --- | --- |
| 序号 | 课程名称 | 课时数 |
| 1 | 思想道德修养与法律基础及形势政策 | 64 |
| 2 | 毛泽东思想和中国特色社会主义理论体系概论及形势政策 | 60 |
| 3 | 高等数学 | 60 |
| 4 | 大学语文 | 60 |
| 5 | 公共英语 | 60 |
| 6 | 信息技术 | 68 |
| 7 | 体育 | 124 |
| 8 | 中华优秀传统文化 | 30 |
| 9 | 民族理论和政策 | 30 |
| 10 | 大学生职业发展与就业指导 | 34 |

2.专业必修课程

|  |  |  |
| --- | --- | --- |
| 序号 | 课程名称 | 课时数 |
| 1 | 城市轨道交通概论 | 68 |
| 2 | 工程制图与CAD | 94 |
| 3 | 钢筋混凝土结构 | 60 |
| 4 | 工程测量 | 128 |
| 5 | 工程力学 | 98 |
| 6 | 工程地质 | 30 |
| 7 | 土力学与地基基础 | 60 |
| 8 | 城轨隧道施工与维护 | 90 |
| 9 | 城轨路基施工与维护 | 60 |
| 10 | 城轨轨道施工与维护 | 120 |
| 11 | 城轨桥涵施工与维护 | 120 |
| 12 | 城轨施工组织设计与概预算 | 90 |
| 13 | 测量实习 | 84 |
| 14 | 模型制作实习 | 56 |
| 15 | 综合实习 | 56 |
| 16 | 线路工培训 | 56 |
| 17 | 顶岗实习 | 540 |

3.素质拓展必修课程

|  |  |  |
| --- | --- | --- |
| 序号 | 课程名称 | 课时数 |
| 1 | 军训及军事理论教育 | 60 |
| 2 | 心理健康教育 | 32 |
| 3 | 大学生安全及健康教育 | 32 |
| 4 | 大学生暑期社会实践 |  |

二、选修课程

1. 专业选修课程

|  |  |  |
| --- | --- | --- |
| 序号 | 课程名称 | 课时数 |
| 1 | 钢轨探伤 | 60 |
| 2 | 机械养路 | 45 |
| 3 | 城市轨道交通运营安全 | 60 |
| 4 | 工程监理 | 45 |
| 5 | BIM技术 | 45 |
| 6 | 盾构施工技术 | 60 |
| 7 | 城轨工程实务 | 45 |
| 8 | 钢轨焊接 | 60 |

2. 素质拓展选修课程

|  |  |  |
| --- | --- | --- |
| 序号 | 课程名称 | 课时数 |
| 1 | 演讲与口才 | 32 |
| 2 | 中国小说阅读与鉴赏 | 32 |
| 3 | 音乐欣赏 | 32 |
| 4 | 影视文学欣赏 | 32 |
| 5 | 应用写作 | 32 |
| 6 | 现代礼仪 | 32 |
| 7 | 中国古典诗词欣赏 | 32 |
| 8 | 中国近现代史纲要 | 32 |
| 9 | 中国传统文化 | 32 |
| 10 | 中国旅游资源概况 | 32 |
| 11 | ISO9000质量管理体系 | 32 |
| 12 | 高级文字排版 | 32 |
| 13 | 电子表格处理 | 32 |
| 14 | PS图像处理 | 32 |
| 15 | 高级PPT制作 | 32 |
| 16 | 计算机组装维修及网络操作 | 32 |
| 17 | 生活中的经济学 | 32 |
| 18 | 技术史漫谈 | 32 |
| 19 | 电影赏析 | 32 |
| 20 | 职业素质 | 32 |
| 21 | 创造性思维与创新方法 | 32 |
| 22 | 大学生创业基础 | 32 |
| 23 | 创新创业实践 |  |

三、专业核心课程主要教学内容与要求

|  |  |  |
| --- | --- | --- |
| 序号 | 专业核心课程 | 主要教学内容与要求 |
| 1 | 城轨路基施工与维护 | 城市轨道路基的特点及结构；城市轨道路基施工；城市轨道路基工后沉降观测及评估；城市轨道路基病害的类型、防治方法和措施；城市轨道路基维修与大修作业；城市轨道路基新技术的应用。 |
| 2 | 城轨桥涵施工与维护 | 城市轨道桥涵的特点及构造；城市轨道桥涵施工；城市轨道桥涵工后沉降观测及评估；桥面、钢桥、圬工梁拱、墩台、支座及涵洞的维护方法；桥梁工程防洪与抢险的基本知识；城市轨道桥涵新技术的应用。 |
| 3 | 城轨隧道施工与维护 | 城市轨道交通隧道的类型及结构；城市轨道交通隧道施工；隧道现场监控量测；隧道常见病害种类及整治；城市轨道交通隧道新技术的应用。 |
| 4 | 城轨轨道施工与维护 | 城市轨道直线轨道、曲线轨道、道岔构造；直线轨道与曲线轨道施工，道岔铺设；无缝线路铺设；直线轨道、曲线轨道、道岔、无缝线路维护，线路大中修；线路维修验收及质量评定；城轨轨道交通轨道新技术的应用。 |
| 5 | 城轨施工组织设计与概预算 | 城市轨道交通工程的施工方法、施工进度计划、工料机安排、施工平面布置及有关保障措施；城市轨道交通工程定额的运用；工程量的计算；各项工程费用的计算；工程造价软件的应用；城市轨道交通工程施工组织、管理与概预算文件的编制。 |

**学时安排**

每学年教学时间为40周，总学时数为2734。顶岗实习按每周30学时计算,校内实习实训按每周28学时计算。每学时为45分钟。18学时计为1个学分，总学分为142学分。军训、入学教育、社会实践、毕业设计（或毕业论文、毕业教育）等，以1周为1学分。公共基础课程学时占总学时的26.1%。选修课教学时数占总学时的比例为11.4%。学生顶岗实习为6个月，可根据实际情况，采取工学交替、多学期、分段式等多种形式组织实施。

**教学进程总体安排**

见附件（教学进程表）

**实施保障**

一、师资队伍

1、专业生师比

专业教师总数不少于15人，专业生师比不高于18：1。

2、师资要求

①专任教师应具有铁路工程技术及相关专业本科及以上学历且具备高等教育教师任职资格；其中专业带头人应具备副教授(中级)以上专业技术职务；结构优化，梯队合理。

②专任教师高级职称的比例不小于20%，每门核心专业课程必须有1-2名专任教师。

③专任教师中具备双师素质教师（具备相近专业技师职业资格、中级专业技术职称或两年以上企业经历）的比例应达到60%以上，实验实训教师应具有中级专业技术职务或中级职业资格、技能等级证书。

④专任教师应具备良好的职业道德和一定的教学科研能力，对本专业人才培养有较全面的把握能力，教育改革和质量意识比较强。

3、企业兼职教师任职资格

1.形成相对稳定的企业兼职教师和兼职实习指导教师队伍，满足兼职教师承担专业课程课时比不少于30%。

2.企业兼职教师应具有专科及以上学历，工作年限不少于5年，具有专业技师或专业中级及以上技术职称，生产经验丰富，学术水平较高。

二、教学设施

1、校内基础课教学实验室和教学设备的基本要求

校内各门基础课应有完善的优质数字资源及学生使用平台，计算机基础、英语课程、体育课程的教学实验室和教学设备应有以下基本要求：

①不少于 50 人的网络机房，配备有 1-2 台网络服务器和打印机等外部设备。

②不少于 50 人的模拟语音室或有数字化语言学习系统的网络机房。

③体育场馆和设施条件能基本保证体育教学和学生的课余健身需要。

④应能容纳50名学生同时实训（每工位最多容纳4-5人），应包括的实验室、实训室。

2、校内实训（含职业技能鉴定）基地的基本要求

根据专业特点，按照“理实一体”原则，积极探索教学型实训基地的建设模式，建设真实、仿真的项目教室、现场教室等；含有实验项目的基础课均应建有仪器设备先进、齐备、完好、同时满足50人实验的教学实验室；学校建有满足专业综合实训的真实或仿真的职业环境的实训室或实训基地，使专业技能训练项目都有对应的实训场所，实习实训设施设备技术含量高，基本达到企业现场生产设备的水平，满足对应工种职业技能鉴定的要求。

设备基本要求如下。

|  |  |  |  |
| --- | --- | --- | --- |
| 序号 | 实训室名称 | 设备名称及基本配置数量 | 实训项目 |
| 1 | 力学实验室 | 万能试验机、弯曲试验台、扭转试验机、应变仪 | 1.轴向拉伸与压缩试验  2.测材料弹性模量E  3.测梁弯曲正应力  4.测梁的变形  5.杆受扭转试验\*  6.测材料受扭时G\* |
| 2 | 土力学实验室 | 烘箱、环刀及压环器、碳化钙含水率测定仪、液、塑限联合测定仪、锥式液限仪、标准击实仪、搅拌器、离心机 | 1.土的含水量试验  2.土的密度试验  3.土粒比重试验  4.土的颗粒分析试验  5.土的液塑限试验  6.击实试验  7.土的压缩试验、直剪试验、  8.承载比（CBR）试验  9.无测限抗压强度试验 |
| 3 | 工程材料实验室 | 万能试验机、筛分仪、负压筛、抗渗仪、水泥胶砂抗折强度测定仪、水泥胶砂抗压强度试验仪、混凝土抗压试验仪、水泥净浆搅拌机、水泥胶砂搅拌机、振动台、标准维卡仪、标准养护箱、沸煮仪、坍落度筒、维勃稠度仪、混凝土搅拌机 | 1. 水泥胶砂抗折强度  2. 水泥胶砂抗压强度  3. 砼抗压强度  4. 砼抗折强度  5. 砼弹性模量  6. 砌体抗压强度  7. 岩石抗压强度  8. 钢筋屈服强度  9. 钢筋抗拉强度  10. 钢筋延伸率  11. 钢材硬度  12. 钢材冲击韧性 |
| 4 | 线路工实训基地 | 一定长度的铁路轨道；起、拨道器；小型捣固机；道尺；支距尺；轨缝调整器；小型轨检车；安博格小车 | 1.城市轨道线路养护、维修作业及注意事项；  2.各种设备的操作与保养。 |
| 5 | 桥隧工实训室 | 油漆搅拌机；梅花扳手；砂轮机；搅拌机；振捣器；塞尺；回弹仪；混凝土超声波检测仪；激光测距仪；钢筋定位仪；电动卷扬机；起重滑车组 | 1.桥梁、隧道养护、维修作业及注意事项；  2.各种设备的操作与保养。 |
| 6 | 工程制图实训室 | 计算机房；绘图板；  计算机辅助制图软件 | 1.工程图纸的识读；  2.工程图纸的手工绘制；  3.工程图纸的计算机绘制。 |
| 7 | 工程测量实训室 | 水准仪；经纬仪；全站仪；GPS；CPⅢ测量软件、激光垂准仪、激光扫平仪、精密检校台 | 1.测量仪器的操作与使用；  2.控制测量实训；  3.铁路施工测量放样；  4.测量工技能训练与鉴定 |
| 8 | 铁道工程模拟实训室 | 各类道岔模型； | 1.认识各类道岔  2.路道岔构造 |
| 9 | 高速铁路模拟实训室 | 铁路线路、桥涵、隧道、站场模型 | 1.铁路线、桥、隧、站场认识  2.铁路线、桥、隧、站场等构造 |
| 10 | 养路机械模拟实训室 | 机械原理模型、挂图；小型养路机械模型 | 1.机械原理  2.小型养路机械构造，功能模拟操作 |

3、校外实习基地的基本要求

学校与实习基地签订协议，建有稳定的校外实训基地，实习基地为学生配备兼职教师，和校内教师共同制定实习任务书和指导书，完成本专业学生综合实训和顶岗实习半年以上需要，专业技能都能在实训基地得到训练。

三、教学资源

1、教材资源

必须选择高职高专教材，禁止跨层次选择教材。优先选用教育部国家规划教材和铁道部规划教材，鼓励有特色和创新的校本教材

2、图书资源

有一定数量的专业图书与刊物，生均专业图书、期刊资料及电子图书不少于 60 册。

3、数字化（网络）资源

主干课程建立教学资源库，包括电子教材、教案、多媒体课件、案例库、习题库、图片及视频资料库，开辟师生学习讨论区，向学生提供丰富的网络学习资源。

四、教学方法

1、教学方法、手段建议

在教学实施过程中，应贯彻“以学生为中心”的教学理念，突出职业道德、职业技能、创业就业能力的培养，改革教学方法和手段，深入开展项目教学、现场教学、案例教学、模拟教学，以做为核心，真正实现“教、学、做合一”。

2、教学组织形式建议

以典型产品（项目、案例）为载体，设计教学组织形式，积极探索选课制、分阶段完成学业等教学组织模式；将职业道德和职业精神融入专业教学全过程，促进学生知识、技能、职业素养协调发展；引入行业企业的新知识、新技术、新标准、新设备、新工艺、新成果和国际通用的技能型人才职业资格标准，动态更新教学内容。

五、教学评价

1、教学评价建议

建立以职业知识、职业技能与职业素养为评价核心，过程考核和结果考核相结合的课程考核评价体系。创新评价方式，建立学校、行业企业、社会机构参与评价的多元质量评价模式；创新灵活多样的考核评价管理办法，根据不同课程类型采取灵活的考核形式；职业精神纳入学生的评价考核体系。

2、教学考核建议

① 过程评价加期末考核评价相结合的方法进行考核；

② 理论考核加实作考核相结合的方法进行考核；

③ 课程考核加技能鉴定相结合的方法进行考核；

④ 顶岗实践的校内指导教师与校外指导老师相结合进行考核。

六、质量管理

主要采用以学年制为主体的全日制教学管理模式，实行弹性实施学分制管理模式。

**毕业要求**

学生德、智、体、美、劳合格，在允许的修业年限内学完培养计划规定的全部课程，通过顶岗实践或毕业论文答辩，取得相应的职业资格证书，达到毕业最低学分（142学分）要求，即获得毕业资格，准予毕业并颁发毕业证书。

**教 学 进 程 表**

**2018 级 城市轨道交通工程技术 专 业**

毕业最低学分：142分

专业代码： 600605

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| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **一、教学进程表** | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | **二、周数分配表** | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 学  年 | | 教 学 周 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 理论  及  分散  实践 | | | 集  中  实  践 | | | | 考  试 | | | 劳  动 | | | | 军  训 | | | 机  动 | | | | 毕  业  教  育 | | | 假  期 | | | 合  计 | | |
| 九月 | | | | | | | | 十月 | | | | | | | 十一月 | | | | | | | 十二月 | | | | | | | | 一月 | | | | | | | | | 二月 | | | | | | | | 三月 | | | | | | | | | 四月 | | | | | | 五月 | | | | | | 六月 | | | | | | | | | | | 七月 | | | | | | | | | 八月 | | | | | | |
|  | | | 1 | 2 | | | 3 | 4 | | | 5 | 6 | 7 | 8 | 9 | | 10 | 11 | 12 | 13 | | 14 | | 15 | | 16 | | 17 | | 18 | | | 19 | | 20 | | 21 | 22 | | | 23 | 24 | | 25 | | 26 | | | 27 | | | 28 | 29 | 30 | | 31 | | 32 | 33 | 34 | | 35 | | 36 | 37 | | 38 | 39 | | | 40 | 41 | | 42 | | 43 | | | 44 | | | | 45 | | 46 | | 47 | 48 | | | 49 | 50 | 51 | 52 | | | | K | | | S | | | | ∷ | | | × | | | | ★ | | | J | | | | T | | | = | | |  | | |
| 一 | | | ★2 | | | | 15 | | | | | | | | | | | | | | | | | | | | | | | J2 | | | | | ∷ | | ==== 6 | | | | | | | | | | | | 17 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | × | | | | J | | | ∷ | | ==== 6 | | | | | | | | | | | 32 | | | 0 | | | | 2 | | | 1 | | | | 2 | | | 3 | | | | 0 | | | 12 | | | 52 | | |
| 二 | | 15 | | | | | | | | | | | | | | | | | | | | | | | S3 | | | | | | | J | | ∷ | | ==== 6 | | | | | | | | | | | 15 | | | | | | | | | | | | | | | | | | | | | | | | | | S3 | | | | | | | | J | | | ∷ | | ====6 | | | | | | | | | | | 30 | | | 6 | | | | 2 | | | 0 | | | | 0 | | | 2 | | | | 0 | | | 12 | | | 52 | | | |
| 三 | | 15 | | | | | | | | | | | | | | | | | | | | | | | S3 | | | | | | | J | | ∷ | | ==== 6 | | | | | | | | | | | S18 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | J | | | T | |  | | | | | | | | | | | 15 | | | 21 | | | | 1 | | | 0 | | | | 0 | | | 2 | | | | 1 | | | 6 | | | 46 | | | |
| **三、教学进度表** | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 合计 | | | | | | | | | | | | | | | | | | | | 77 | | | 27 | | | | 5 | | | 1 | | | | 2 | | | 7 | | | | 1 | | | 30 | | | 150 | | | |
| 课程类型 | | 序  号 | | | 课程  代码 | | | | | 课 程 名 称 | | | | | | | | | | | 考核学期序 | | | | | | | | | | | | | | | | | | 学 分 | | | | | | 学 时 数 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 理论教学（含分散性实践教学）周学时 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 考 试 | | | | | | | | 考 查 | | | | | | | | | | 总 计 | | | | | | | | | | 理 论 | | | | | | 实 践 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 一 年 级 | | | | | | | | | | | | 二 年 级 | | | | | | | | | | | | | | 三 年 级 | | | | | | | | | | | |
| 合 计 | | | | | 习 题 课 | | | | 实 训 | | | | | 现场教学 | | | | | | | | | 创新创业训练 | | | | | | 1学期  15周 | | | | | 2学期  17周 | | | | | | | 3学期  15周 | | | | | | | 4学期  15周 | | | | | | | 5学期  15周 | | | | | 6学期  周 | | | | | | |
| 公共必修课 | | 1 | | | 0001 | | | | | 思想道德修养与法律基础及形势政策 | | | | | | | | | | | 1 | | | | | | | | 2 | | | | | | | | | | 4 | | | | | | 64 | | | | | | | | | | 50 | | | | | | 14 | | | | | 14 | | | |  | | | | |  | | | | | | | | |  | | | | | | 2 | | | | | 2 | | | | | | |  | | | | | | |  | | | | | | |  | | | | |  | | | | | | |
| 2 | | | 0002 | | | | | 毛泽东思想和中国特色社会主义理论体系概论及形势政策 | | | | | | | | | | | 3 | | | | | | | | 4 | | | | | | | | | | 3 | | | | | | 60 | | | | | | | | | | 48 | | | | | | 12 | | | | | 12 | | | |  | | | | |  | | | | | | | | |  | | | | | |  | | | | |  | | | | | | | 2 | | | | | | | 2 | | | | | | |  | | | | |  | | | | | | |
| 3 | | | 0005 | | | | | 高等数学 | | | | | | | | | | | 1 | | | | | | | |  | | | | | | | | | | 3 | | | | | | 60 | | | | | | | | | | 54 | | | | | | 6 | | | | | 6 | | | |  | | | | |  | | | | | | | | |  | | | | | | 4 | | | | |  | | | | | | |  | | | | | | |  | | | | | | |  | | | | |  | | | | | | |
| 4 | | | 0006 | | | | | 大学语文 | | | | | | | | | | |  | | | | | | | | 1 | | | | | | | | | | 3 | | | | | | 60 | | | | | | | | | | 52 | | | | | | 8 | | | | | 8 | | | |  | | | | |  | | | | | | | | |  | | | | | | 4 | | | | |  | | | | | | |  | | | | | | |  | | | | | | |  | | | | |  | | | | | | |
| 5 | | | 0007 | | | | | 公共英语 | | | | | | | | | | | 1 | | | | | | | |  | | | | | | | | | | 3 | | | | | | 60 | | | | | | | | | | 18 | | | | | | 42 | | | | | 42 | | | |  | | | | |  | | | | | | | | |  | | | | | | 4 | | | | |  | | | | | | |  | | | | | | |  | | | | | | |  | | | | |  | | | | | | |
| 6 | | | 0008 | | | | | 信息技术 | | | | | | | | | | |  | | | | | | | | 2 | | | | | | | | | | 4 | | | | | | 68 | | | | | | | | | | 34 | | | | | | 34 | | | | | 34 | | | |  | | | | |  | | | | | | | | |  | | | | | |  | | | | | 4 | | | | | | |  | | | | | | |  | | | | | | |  | | | | |  | | | | | | |
| 7 | | | 0009 | | | | | 体育 | | | | | | | | | | | 3 | | | | | | | | 1.2.4 | | | | | | | | | | 7 | | | | | | 124 | | | | | | | | | | 8 | | | | | | 116 | | | | |  | | | |  | | | | | 116 | | | | | | | | |  | | | | | | 2 | | | | | 2 | | | | | | | 2 | | | | | | | 2 | | | | | | |  | | | | |  | | | | | | |
| 8 | | | 0004 | | | | | 中华优秀传统文化 | | | | | | | | | | |  | | | | | | | | 1 | | | | | | | | | | 2 | | | | | | 30 | | | | | | | | | | 30 | | | | | |  | | | | |  | | | |  | | | | |  | | | | | | | | |  | | | | | | 2 | | | | |  | | | | | | |  | | | | | | |  | | | | | | |  | | | | |  | | | | | | |
| 9 | | | 0011 | | | | | 民族理论和政策 | | | | | | | | | | |  | | | | | | | | 5 | | | | | | | | | | 2 | | | | | | 30 | | | | | | | | | | 30 | | | | | |  | | | | |  | | | |  | | | | |  | | | | | | | | |  | | | | | |  | | | | |  | | | | | | |  | | | | | | |  | | | | | | | 2 | | | | |  | | | | | | |
| 10 | | | 0010 | | | | | 大学生职业发展与就业指导 | | | | | | | | | | |  | | | | | | | | 2 | | | | | | | | | | 2 | | | | | | 34 | | | | | | | | | | 34 | | | | | |  | | | | |  | | | |  | | | | |  | | | | | | | | |  | | | | | |  | | | | | 2 | | | | | | |  | | | | | | |  | | | | | | |  | | | | |  | | | | | | |
| 小计学分及学时数 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 33 | | | | | | 590 | | | | | | | | | | 358 | | | | | | 232 | | | | | 116 | | | | 0 | | | | | 116 | | | | | | | | | 0 | | | | | | 18 | | | | | 10 | | | | | | | 4 | | | | | | | 4 | | | | | | | 2 | | | | |  | | | | | | |
| 专业必修课 | | 11 | | | 21004 | | | | | 城市轨道交通概论 | | | | | | | | | | |  | | | | | | | | 4 | | | | | | | | | | 4 | | | | | | 68 | | | | | | | | | | 64 | | | | | | 4 | | | | |  | | | |  | | | | | 4 | | | | | | | | |  | | | | | |  | | | | | 4 | | | | | | |  | | | | | | |  | | | | | | |  | | | | |  | | | | | | |
| 12 | | | 21001 | | | | | 工程制图与CAD | | | | | | | | | | | 2 | | | | | | | | 1 | | | | | | | | | | 5 | | | | | | 94 | | | | | | | | | | 50 | | | | | | 44 | | | | |  | | | |  | | | | | 44 | | | | | | | | |  | | | | | | 4 | | | | | 2 | | | | | | |  | | | | | | |  | | | | | | |  | | | | |  | | | | | | |
| 13 | | | 21010 | | | | | 钢筋混凝土结构 | | | | | | | | | | | 3 | | | | | | | |  | | | | | | | | | | 3 | | | | | | 60 | | | | | | | | | | 50 | | | | | | 10 | | | | | 2 | | | | 8 | | | | |  | | | | | | | | |  | | | | | |  | | | | |  | | | | | | | 4 | | | | | | |  | | | | | | |  | | | | |  | | | | | | |
| 14 | | | 21009 | | | | | 工程测量 | | | | | | | | | | | 2 | | | | | | | | 1 | | | | | | | | | | 7 | | | | | | 128 | | | | | | | | | | 72 | | | | | | 56 | | | | |  | | | |  | | | | | 56 | | | | | | | | |  | | | | | | 4 | | | | | 4 | | | | | | |  | | | | | | |  | | | | | | |  | | | | |  | | | | | | |
| 15 | | | 21005 | | | | | 工程力学 | | | | | | | | | | | 2 | | | | | | | | 3 | | | | | | | | | | 5 | | | | | | 98 | | | | | | | | | | 80 | | | | | | 18 | | | | | 8 | | | | 10 | | | | |  | | | | | | | | |  | | | | | |  | | | | | 4 | | | | | | | 2 | | | | | | |  | | | | | | |  | | | | |  | | | | | | |
| 16 | | | 21006 | | | | | 工程地质 | | | | | | | | | | |  | | | | | | | | 3 | | | | | | | | | | 2 | | | | | | 30 | | | | | | | | | | 26 | | | | | | 4 | | | | |  | | | |  | | | | | 4 | | | | | | | | |  | | | | | |  | | | | |  | | | | | | | 2 | | | | | | |  | | | | | | |  | | | | |  | | | | | | |
| 17 | | | 21008 | | | | | 土力学与地基基础 | | | | | | | | | | | 3 | | | | | | | |  | | | | | | | | | | 3 | | | | | | 60 | | | | | | | | | | 30 | | | | | | 30 | | | | | 2 | | | | 28 | | | | |  | | | | | | | | |  | | | | | |  | | | | |  | | | | | | | 4 | | | | | | |  | | | | | | |  | | | | |  | | | | | | |
| 18 | | | 21018 | | | | | 城轨隧道施工与维护 | | | | | | | | | | | 3 | | | | | | | |  | | | | | | | | | | 5 | | | | | | 90 | | | | | | | | | | 70 | | | | | | 20 | | | | | 2 | | | |  | | | | | 18 | | | | | | | | | 4 | | | | | |  | | | | |  | | | | | | | 6 | | | | | | |  | | | | | | |  | | | | |  | | | | | | |
| 19 | | | 21011 | | | | | 城轨路基施工与维护 | | | | | | | | | | | 4 | | | | | | | |  | | | | | | | | | | 3 | | | | | | 60 | | | | | | | | | | 50 | | | | | | 10 | | | | | 2 | | | |  | | | | | 8 | | | | | | | | | 4 | | | | | |  | | | | |  | | | | | | |  | | | | | | | 4 | | | | | | |  | | | | |  | | | | | | |
| 20 | | | 21012 | | | | | 城轨轨道施工与维护 | | | | | | | | | | | 4.5 | | | | | | | |  | | | | | | | | | | 7 | | | | | | 120 | | | | | | | | | | 80 | | | | | | 40 | | | | | 4 | | | |  | | | | | 36 | | | | | | | | | 4 | | | | | |  | | | | |  | | | | | | |  | | | | | | | 4 | | | | | | | 4 | | | | |  | | | | | | |
| 21 | | | 21013 | | | | | 城轨桥涵施工与维护 | | | | | | | | | | | 4.5 | | | | | | | |  | | | | | | | | | | 7 | | | | | | 120 | | | | | | | | | | 70 | | | | | | 50 | | | | | 2 | | | | 36 | | | | | 12 | | | | | | | | | 18 | | | | | |  | | | | |  | | | | | | |  | | | | | | | 4 | | | | | | | 4 | | | | |  | | | | | | |
| 22 | | | 21014 | | | | | 城轨施工组织设计与概预算 | | | | | | | | | | |  | | | | | | | | 4.5 | | | | | | | | | | 5 | | | | | | 90 | | | | | | | | | | 54 | | | | | | 36 | | | | |  | | | | 36 | | | | |  | | | | | | | | | 26 | | | | | |  | | | | |  | | | | | | |  | | | | | | | 4 | | | | | | | 2 | | | | |  | | | | | | |
| 23 | | | 21101 | | | | | 测量实习 | | | | | | | | | | |  | | | | | | | | 3 | | | | | | | | | | 3 | | | | | | 84 | | | | | | | | | |  | | | | | | 84 | | | | |  | | | |  | | | | | 84 | | | | | | | | |  | | | | | |  | | | | |  | | | | | | | 3周 | | | | | | |  | | | | | | |  | | | | |  | | | | | | |
| 24 | | | 21102 | | | | | 模型制作实习 | | | | | | | | | | |  | | | | | | | | 4 | | | | | | | | | | 2 | | | | | | 56 | | | | | | | | | |  | | | | | | 56 | | | | |  | | | |  | | | | | 56 | | | | | | | | |  | | | | | |  | | | | |  | | | | | | |  | | | | | | | 2周 | | | | | | |  | | | | |  | | | | | | |
| 25 | | | 21103 | | | | | 综合实习 | | | | | | | | | | |  | | | | | | | | 4.5 | | | | | | | | | | 2 | | | | | | 56 | | | | | | | | | |  | | | | | | 56 | | | | |  | | | |  | | | | | 56 | | | | | | | | |  | | | | | |  | | | | |  | | | | | | |  | | | | | | | 1周 | | | | | | | 1周 | | | | |  | | | | | | |
| 26 | | | 21104 | | | | | 线路工培训 | | | | | | | | | | |  | | | | | | | | 5 | | | | | | | | | | 2 | | | | | | 56 | | | | | | | | | |  | | | | | | 56 | | | | |  | | | | 56 | | | | |  | | | | | | | | |  | | | | | |  | | | | |  | | | | | | |  | | | | | | |  | | | | | | | 2周 | | | | |  | | | | | | |
| 27 | | | 21105 | | | | | 顶岗实习 | | | | | | | | | | |  | | | | | | | | 6 | | | | | | | | | | 18 | | | | | | 540 | | | | | | | | | |  | | | | | | 540 | | | | |  | | | |  | | | | | 540 | | | | | | | | |  | | | | | |  | | | | |  | | | | | | |  | | | | | | |  | | | | | | |  | | | | | 18周 | | | | | | |
| 小计学分及学时数 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 83 | | | | | | 1810 | | | | | | | | | | 696 | | | | | | 1114 | | | | | 22 | | | | 174 | | | | | 918 | | | | | | | | | 56 | | | | | | 8 | | | | | 14 | | | | | | | 18 | | | | | | | 16 | | | | | | | 10 | | | | |  | | | | | | |
| 专业选修课 | | 28 | | | 21036 | | | | | 钢轨探伤 | | | | | | | | | | |  | | | | | | | | 5 | | | | | | | | | | 3 | | | | | | 60 | | | | | | | | | | 40 | | | | | | 20 | | | | |  | | | | 20 | | | | |  | | | | | | | | |  | | | | | |  | | | | |  | | | | | | |  | | | | | | |  | | | | | | | 4 | | | | |  | | | | | | |
| 29 | | | 21031 | | | | | 机械养路 | | | | | | | | | | |  | | | | | | | | 4 | | | | | | | | | | 3 | | | | | | 45 | | | | | | | | | | 39 | | | | | | 6 | | | | |  | | | |  | | | | | 6 | | | | | | | | |  | | | | | |  | | | | |  | | | | | | |  | | | | | | | 3 | | | | | | |  | | | | |  | | | | | | |
| 30 | | | 21032 | | | | | 城市轨道交通运营安全 | | | | | | | | | | | 5 | | | | | | | |  | | | | | | | | | | 3 | | | | | | 60 | | | | | | | | | | 56 | | | | | | 4 | | | | |  | | | |  | | | | | 4 | | | | | | | | |  | | | | | |  | | | | |  | | | | | | |  | | | | | | |  | | | | | | | 4 | | | | |  | | | | | | |
| 31 | | | 21035 | | | | | 工程监理 | | | | | | | | | | |  | | | | | | | | 5 | | | | | | | | | | 3 | | | | | | 45 | | | | | | | | | | 41 | | | | | | 4 | | | | |  | | | |  | | | | | 4 | | | | | | | | |  | | | | | |  | | | | |  | | | | | | |  | | | | | | |  | | | | | | | 3 | | | | | 3 | | | | | | |
| 32 | | | 21038 | | | | | BIM技术 | | | | | | | | | | |  | | | | | | | | 4 | | | | | | | | | | 3 | | | | | | 45 | | | | | | | | | | 30 | | | | | | 15 | | | | |  | | | | 15 | | | | |  | | | | | | | | |  | | | | | |  | | | | |  | | | | | | |  | | | | | | | 3 | | | | | | |  | | | | |  | | | | | | |
| 33 | | | 16041 | | | | | 盾构施工技术 | | | | | | | | | | |  | | | | | | | | 5 | | | | | | | | | | 3 | | | | | | 60 | | | | | | | | | | 56 | | | | | | 4 | | | | |  | | | |  | | | | | 4 | | | | | | | | |  | | | | | |  | | | | |  | | | | | | |  | | | | | | |  | | | | | | | 4 | | | | |  | | | | | | |
| 34 | | | 21037 | | | | | 城轨工程实务 | | | | | | | | | | |  | | | | | | | | 5 | | | | | | | | | | 3 | | | | | | 45 | | | | | | | | | | 37 | | | | | | 8 | | | | |  | | | | 8 | | | | |  | | | | | | | | |  | | | | | |  | | | | |  | | | | | | |  | | | | | | |  | | | | | | | 3 | | | | |  | | | | | | |
| 35 | | | 21043 | | | | | 钢轨焊接 | | | | | | | | | | |  | | | | | | | | 5 | | | | | | | | | | 3 | | | | | | 60 | | | | | | | | | | 52 | | | | | | 8 | | | | |  | | | |  | | | | | 8 | | | | | | | | |  | | | | | |  | | | | |  | | | | | | |  | | | | | | |  | | | | | | | 4 | | | | |  | | | | | | |
| 最低选修课小计学分及学时数 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 12 | | | | | | 210 | | | | | | | | | | 176 | | | | | | 34 | | | | | 0 | | | | 20 | | | | | 14 | | | | | | | | | 0 | | | | | | 0 | | | | | 0 | | | | | | | 0 | | | | | | | 3 | | | | | | | 11 | | | | |  | | | | | | |
| 开设选修课小计学分及学时数 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 24 | | | | | | 420 | | | | | | | | | | 351 | | | | | | 69 | | | | | 0 | | | | 43 | | | | | 26 | | | | | | | | | 0 | | | | | | 0 | | | | | 0 | | | | | | | 0 | | | | | | | 6 | | | | | | | 22 | | | | |  | | | | | | |
| 最低学分及学时数 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 128 | | | | | | 2610 | | | | | | | | | | 1230 | | | | | | 1380 | | | | | 138 | | | | 194 | | | | | 1048 | | | | | | | | | 56 | | | | | | 26 | | | | | 24 | | | | | | | 22 | | | | | | | 23 | | | | | | | 23 | | | | |  | | | | | | |
| 总计学分及学时数 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 140 | | | | | | 2820 | | | | | | | | | | 1405 | | | | | | 1415 | | | | | 138 | | | | 217 | | | | | 1060 | | | | | | | | | 56 | | | | | | 26 | | | | | 24 | | | | | | | 22 | | | | | | | 26 | | | | | | | 34 | | | | |  | | | | | | |
| **四、素质拓展课** | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 课程类型 | | 序  号 | | | | 课程代码 | | | | 课 程 名 称 | | | | | | | | | | | 考核学期序 | | | | | | | | | | | | | | | | | | 学 分 | | | | 课  时 | | | | | | | 说 明 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 考 试 | | | | | | 考 查 | | | | | | | | | | | |
| 必修  课 | | 1 | | | | 01 | | | | 军训及军事理论教育 | | | | | | | | | | |  | | | | | | 1 | | | | | | | | | | | | 4 | | | | 60 | | | | | | | | 第1学期开设，含入学教育。(4+56) | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 2 | | | | 02 | | | | 心理健康教育 | | | | | | | | | | |  | | | | | | 2.3.4.5 | | | | | | | | | | | | 2 | | | | 32 | | | | | | | | 分专业在第2～5学期之一开设。(20+12) | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 3 | | | | 03 | | | | 大学生安全及健康教育 | | | | | | | | | | |  | | | | | | 1.2.3.4 | | | | | | | | | | | | 2 | | | | 32 | | | | | | | | 在1～4学期实施，以专题讲座的形式和每学期大学生第二课堂教育活动中开设.(20+12) | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 4 | | | | 04 | | | | 大学生暑期社会实践 | | | | | | | | | | |  | | | | | | 2.4 | | | | | | | | | | | | 2 | | | |  | | | | | | | | 利用暑期，进行社会实践，提交报告。 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 小计学分及学时数 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 10 | | | | 124 | | | | | | | |  | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 选  修  课 | | 1 | | | | 001 | | | | 演讲与口才 | | | | | | | | | | |  | | | | | | 2～5 | | | | | | | | | | | | 2 | | | | 32 | | | | | | | |  | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 2 | | | | 002 | | | | 中国小说阅读与鉴赏 | | | | | | | | | | |  | | | | | | 2～5 | | | | | | | | | | | | 2 | | | | 32 | | | | | | | |  | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 3 | | | | 003 | | | | 音乐欣赏 | | | | | | | | | | |  | | | | | | 2～5 | | | | | | | | | | | | 2 | | | | 32 | | | | | | | |  | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 4 | | | | 004 | | | | 影视文学欣赏 | | | | | | | | | | |  | | | | | | 2～5 | | | | | | | | | | | | 2 | | | | 32 | | | | | | | |  | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 5 | | | | 005 | | | | 应用写作 | | | | | | | | | | |  | | | | | | 2～5 | | | | | | | | | | | | 2 | | | | 32 | | | | | | | |  | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 6 | | | | 006 | | | | 现代礼仪 | | | | | | | | | | |  | | | | | | 2～5 | | | | | | | | | | | | 2 | | | | 32 | | | | | | | |  | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 7 | | | | 007 | | | | 中国古典诗词欣赏 | | | | | | | | | | |  | | | | | | 2～5 | | | | | | | | | | | | 2 | | | | 32 | | | | | | | |  | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 8 | | | | 008 | | | | 中国近现代史纲要 | | | | | | | | | | |  | | | | | | 2～5 | | | | | | | | | | | | 2 | | | | 32 | | | | | | | |  | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 9 | | | | 009 | | | | 中国传统文化 | | | | | | | | | | |  | | | | | | 2～5 | | | | | | | | | | | | 2 | | | | 32 | | | | | | | |  | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 10 | | | | 010 | | | | 中国旅游资源概况 | | | | | | | | | | |  | | | | | | 2～5 | | | | | | | | | | | | 2 | | | | 32 | | | | | | | |  | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 11 | | | | 011 | | | | ISO9000质量管理体系 | | | | | | | | | | |  | | | | | | 2～5 | | | | | | | | | | | | 2 | | | | 32 | | | | | | | |  | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 12 | | | | 012 | | | | 高级文字排版 | | | | | | | | | | |  | | | | | | 2～5 | | | | | | | | | | | | 2 | | | | 32 | | | | | | | |  | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 13 | | | | 013 | | | | 电子表格处理 | | | | | | | | | | |  | | | | | | 2～5 | | | | | | | | | | | | 2 | | | | 32 | | | | | | | |  | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 14 | | | | 014 | | | | PS图像处理 | | | | | | | | | | |  | | | | | | 2～5 | | | | | | | | | | | | 2 | | | | 32 | | | | | | | |  | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 15 | | | | 015 | | | | 高级PPT制作 | | | | | | | | | | |  | | | | | | 2～5 | | | | | | | | | | | | 2 | | | | 32 | | | | | | | |  | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 16 | | | | 016 | | | | 计算机组装维修及网络操作 | | | | | | | | | | |  | | | | | | 2～5 | | | | | | | | | | | | 2 | | | | 32 | | | | | | | |  | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 17 | | | | 017 | | | | 生活中的经济学 | | | | | | | | | | |  | | | | | | 2～5 | | | | | | | | | | | | 2 | | | | 32 | | | | | | | |  | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 18 | | | | 018 | | | | 技术史漫谈 | | | | | | | | | | |  | | | | | | 2～5 | | | | | | | | | | | | 2 | | | | 32 | | | | | | | |  | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 19 | | | | 019 | | | | 电影赏析 | | | | | | | | | | |  | | | | | | 2～5 | | | | | | | | | | | | 2 | | | | 32 | | | | | | | |  | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 20 | | | | 020 | | | | 职业素质 | | | | | | | | | | |  | | | | | | 2～5 | | | | | | | | | | | | 2 | | | | 32 | | | | | | | |  | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 21 | | | | 021 | | | | 创造性思维与创新方法 | | | | | | | | | | |  | | | | | | 2～5 | | | | | | | | | | | | 2 | | | | 32 | | | | | | | |  | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 22 | | | | 022 | | | | 大学生创业基础 | | | | | | | | | | |  | | | | | | 2～5 | | | | | | | | | | | | 2 | | | | 32 | | | | | | | |  | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 23 | | | | 023 | | | | 创新创业实践 | | | | | | | | | | |  | | | | | | 1～6 | | | | | | | | | | | | 10 | | | |  | | | | | | | | 用于学生参加课题研究、项目实验、竞赛活动、发表论文等创新创业成果的学分折算 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 小计学分及学时数 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 44 | | | | 704 | | | | | | | |  | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| **合计学分及学时数** | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | **总学分142,必修课学分126,选修课学分16，其中专业选修课学分12，素质选修课学分4.总学时2734论学时1274实践学时1460** | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

总学分142=最低学分及学时数栏128+素质拓展必修课10+素质拓展选修课4

必修课学分126=总学分142-最低选修课小计学分及学时数12-素质拓展选修课4

选修课学分16=最低选修课小计学分及学时数12+素质拓展选修课4

总学时2734=最低学分及学时数栏2610+素质拓展必修课124 (素质拓展选修课学时不计入总学时）

理论学时1274=最低学分及学时数栏1230+素质拓展必修课44

实践学时1460=最低学分及学时数栏1380+素质拓展必修课80 (军训56;心理12;大学生安全12)

**动车组检修技术专业**

**教学标准**

**专业名称** 动车组检修技术

**专业代码** 600113

**入学要求** 高中阶段教育毕业生或具有同等学力者

**修业年限** 三年

**职业面向**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| 所属专业大类（代码） | 所属专业类  （代码） | 对应行业  （代码） | 主要职业类别  （代码） | 主要岗位类别（或技术领域） | 职业资格证书或技能等级证书举例 |
| 交通运输大类（60） | 铁道运输类（6001） | 铁路运输业（53） | 动车组制修师（6-23-01-03） | 动车组运用  动车组检修 | 动车组机械师  车辆钳工  车辆电工 |

**培养目标与培养规格**

一、培养目标

本专业培养理想信念坚定，德、智、体、美、劳全面发展，具有一定的科学文化水平，良好的人文素养、职业道德和创新意识，精益求精的工匠精神，较强的就业能力和可持续发展的能力；掌握本专业知识和技术技能，面向铁路运输行业的动车组制修师职业群，能够从事动车组运用、检修工作的高素质技术技能人才。

二、培养规格

本专业毕业生应在素质、知识和能力等方面达到以下要求。

1.素质

（1）坚定拥护中国共产党领导和我国社会主义制度，在习近平新时代中国特色社会主义思想指引下，践行社会主义核心价值观，具有深厚的爱国情感和中华民族自豪感；

（2）崇尚宪法、遵法守纪、崇德向善、诚实守信、尊重生命、热爱劳动、履行道德准则和行为规范，具有社会责任感和社会参与意识；

（3）具有质量意识、环保意识、安全意识、信息素养、工匠、创新思维；

（4）勇于奋斗、乐观向上，具有自我管理能力、职业生涯规划意识，有较强的集体意识和团队合作精神；

（5）具有健康的体魄、心理和健全的人格，掌握基本运动知识和一两项运动技能，养成良好的健身与卫生习惯，良好的行为习惯；

（6）具有一定的审美和人文素养，能够形成一两项艺术特长或爱好。

2.知识

（1）掌握必备的思想政治理论、科学文化基础知识和中华优秀传统文化知识；

（2）熟悉与本专业相关的法律法规以及环境保护、安全消防、文明生产等相关知识；

（3）掌握本专业所必备的机电基础理论知识；

（4）掌握动车组的构造、作用原理、检修方法的基本知识；

（5）掌握动车组机械装置、牵引、制动、辅助系统的构造、作用原理及有关使用维护的基本知识；

（6）掌握动车组检修制度、运用管理方面的基础知识；

（7）了解最新发布的涉及本专业的铁路行业标准、国家标准和国际标准。

3.能力

（1）具有探究学习、终身学习、分析问题和解决问题的能力；

（2）具有良好的语言、文字表达能力和沟通能力，能够进行口语和书面的表达与交流；

（3）具有团队合作能力；

（4）具有动车组车体、车内设施及转向架检修能力；

（5）具有动车组供风及制动系统检修能力；

（6）具有动车组牵引系统及高压设备检修能力；

（7）具有动车组电气装置及控制系统检修能力；

（8）具有正确使用本专业工具、量具、仪器、仪表的能力；

（9）具有专业必备的机电操作能力；

（10）具有本专业需要的信息技术应用能力；

（11）具有一定的组织、人际交往、公关、协调共事能力。

**课程设置**

一、必修课程

1. 公共必修课程

|  |  |  |
| --- | --- | --- |
| 序号 | 课程名称 | 课时数 |
| 1 | 思想道德修养与法律基础及形势政策 | 66 |
| 2 | 毛泽东思想和中国特色社会主义理论体系概论及形势政策 | 54 |
| 3 | 高等数学 | 60 |
| 4 | 大学语文 | 60 |
| 5 | 公共英语 | 60 |
| 6 | 信息技术 | 60 |
| 7 | 体育 | 120 |
| 8 | 中华优秀传统文化 | 30 |
| 9 | 民族理论和政策 | 36 |
| 10 | 大学生职业发展与就业指导 | 36 |

2.专业必修课程

|  |  |  |
| --- | --- | --- |
| 序号 | 课程名称 | 课时数 |
| 1 | 机械制图及CAD | 60 |
| 2 | 液压与气动技术 | 72 |
| 3 | 高速铁道概论 | 72 |
| 4 | 电工基础 | 84 |
| 5 | 工程材料及材料力学 | 72 |
| 6 | 机械基础 | 84 |
| 7 | 电子技术 | 56 |
| 8 | 电力电子装置 | 52 |
| 9 | 动车组机械装置检修 | 84 |
| 10 | 动车组牵引系统检修 | 52 |
| 11 | 动车组制动系统检修 | 48 |
| 12 | 动车组辅助系统检修 | 52 |
| 13 | 动车组网络技术 | 56 |
| 14 | 动车组运用与管理 | 56 |
| 15 | 动车组空调系统检修 | 52 |
| 16 | 钳工实训 | 60 |
| 17 | 电工电子实训 | 60 |
| 18 | 常用机械装调实训 | 60 |
| 19 | 动车组机械师职业技能鉴定培训与考证 | 30 |
| 20 | 牵引系统专项实训 | 30 |
| 21 | 辅助电气系统专项实训 | 30 |
| 22 | 制动系统专项实训 | 30 |
| 23 | 毕业顶岗实习 | 540 |

3.素质拓展必修课程

|  |  |  |
| --- | --- | --- |
| 序号 | 课程名称 | 课时数 |
| 1 | 军训及军事理论教育 | 60 |
| 2 | 心理健康教育 | 32 |
| 3 | 大学生安全及健康教育 | 32 |
| 4 | 大学生暑期社会实践 |  |

二、选修课程

1. 专业选修课程

|  |  |  |
| --- | --- | --- |
| 序号 | 课程名称 | 课时数 |
| 1 | 互换性与技术测量 | 56 |
| 2 | 机加工技术 | 56 |
| 3 | 可编程控制应用 | 52 |
| 4 | 计算机控制与网络 | 52 |
| 5 | 铁路安全与救援 | 48 |
| 6 | 专业英语 | 48 |
| 7 | 高速动车组新技术 | 48 |
| 8 | 焊工实习 | 60 |
| 9 | 机加工实习 | 60 |

2. 素质拓展选修课程

|  |  |  |
| --- | --- | --- |
| 序号 | 课程名称 | 课时数 |
| 1 | 演讲与口才 | 32 |
| 2 | 中国小说阅读与鉴赏 | 32 |
| 3 | 音乐欣赏 | 32 |
| 4 | 影视文学欣赏 | 32 |
| 5 | 应用写作 | 32 |
| 6 | 现代礼仪 | 32 |
| 7 | 中国古典诗词欣赏 | 32 |
| 8 | 中国近现代史纲要 | 32 |
| 9 | 中国传统文化 | 32 |
| 10 | 中国旅游资源概况 | 32 |
| 11 | ISO9000质量管理体系 | 32 |
| 12 | 高级文字排版 | 32 |
| 13 | 电子表格处理 | 32 |
| 14 | PS图像处理 | 32 |
| 15 | 高级PPT制作 | 32 |
| 16 | 计算机组装维修及网络操作 | 32 |
| 17 | 生活中的经济学 | 32 |
| 18 | 技术史漫谈 | 32 |
| 19 | 电影赏析 | 32 |
| 20 | 职业素质 | 32 |
| 21 | 创造性思维与创新方法 | 32 |
| 22 | 大学生创业基础 | 32 |
| 23 | 创新创业实践 |  |

三、专业核心课程主要教学内容与要求

|  |  |  |
| --- | --- | --- |
| 序号 | 专业核心课程 | 主要教学内容与要求 |
| 1 | 动车组机械装置检修 | 动车组车体检修；动车组转向架检修；动车组车端连接装置检修。 |
| 2 | 动车组牵引系统检修 | 动车组车顶高压电器设备检修；动车组牵引变压器检修；动车组牵引变流器检修；动车组牵引电机检修；动车组牵引控制系统。 |
| 3 | 动车组制动系统检修 | 动车组风源系统检修；动车组指令发生、传输系统检修；动车组制动控制系统的检修；动车组基础制动装置检修；动车组制动系统试验；动车组制动系统故障处理。 |
| 4 | 动车组辅助系统检修 | 动车组辅助供电系统检修；动车组空调系统检修；动车组车内设施检修；动车组车门检修；动车组司机室检查。 |
| 5 | 动车组网络技术 | 通信与网络基础知识；列车通信网络的构成与功能；动车组通信网络协议；动车组列车网络控制系统。 |
| 6 | 动车组运用与管理 | 动车组维修体系；动车组修程修制；铁路动车组运用维修作业标准；动车组一、二级修及专项修质量标准；动车组重联和解编作业；动车组无动力回送；动车组救援；随车机械师作业标准；动车组行车规章；动车组信息化管理系统。 |
| 7 | 动车组空调系统检修 | 动车组空调通风系统组成、原理、检修；动车组空调制冷系统组成、原理、检修；动车组空调供热系统组成、原理、检修； |

**学时安排**

每学年教学时间为40周，总学时数为2766，实习按每周30学时计算。每学时为45分钟。18学时计为1个学分，总学分为144学分。军训、入学教育、社会实践、毕业设计（或毕业论文、毕业教育）等，以1周为1学分。公共基础课程学时占总学时的21%。选修课教学时数占总学时的比例均为13%。学生顶岗实习为6个月，可根据实际情况，采取工学交替、多学期、分段式等多种形式组织实施。

**教学进程总体安排**

见附件（教学进程表）

**实施保障**

1. 师资队伍

1.队伍结构

学生数与本专业专任教师数比例为22:1，双师素质教师占专业教师比为60%，专任教师队伍要考虑职称、年龄，形成合理的梯队结构。

2.专任教师

具有高校教师资格；具有理想信念、道德情操、扎实学识、仁爱之心；具有动车组检修技术相关专业本科及以上学历；具有扎实的动车组检修技术专业相关理论功底和实践能力；具有较强信息化教学能力，能够开展课程教学改革和科学研究；每5年累计不少于6个月的企业实践经历。

3.专业带头人

原则上应具有副高及以上职称，能够较好地把握国内外行业、专业发展，能广泛联系行业企业，了解行业企业对动车组检修技术专业人才的实际需求，教学设计、专业研究能力强，组织开展教科研工作能力强，在本区域或本领域有一定的专业影响力。

4.兼职教师

主要从铁路动车段或相关企业聘任，具备良好的思想政治素质、职业道德和工匠精神，具有扎实的动车组检修技术专业知识和丰富的工作经验，具有中级及以上行业相关专业技术资格，能承担课程与实训教学、实习指导等专业教学任务。

1. 教学设施

主要包括能够满足正常的课程教学、实习实训所必需的专业教室、实训室和实训基地。

1.专业教室基本条件

一般配备黑（白）板、多媒体计算机、投影设备、音响设备，互联网接入或WiFi环境，并具有网络安全防护措施。安装应急照明装置并保持良好状态，符合紧急疏散要求、标志明显、保持逃生通道畅通无阻。

2.校内实训室基本要求

（1）动车组检修技术专业基础技能实训室

主要配备各种电气测试仪表仪器等通用电工工具、通用机械检修工、量、夹具等。开展钳工基本操作、电气设备安装、调试、维修等实训项目。

（2）动车组机械装置检修实训室

主要配备练功用动车组转向架、练功用自动车钩、练功用过渡车钩、机车车钩、动车组塞拉门等。开展转向架检查、过渡车钩安装、机车车钩钩舌更换、动车组塞拉门检查等实训项目。

（3）动车组牵引系统检修实训室

主要配备练功用车顶高压设备、可拆装练功型受电弓、接触器等。开展车顶高压设备维护、受电弓检修、动车组电器部件检修等实训项目。

（4）动车组制动系统检修实训室

主要配备司机制动控制器、空气压缩机、空气干燥器、各种阀类、制动软管、基础制动装置等。开展空气压缩机检修、阀类检修、制动软管更换、制动闸片更换等实训项目。

（5）动车组辅助系统检修

主要配备动车组蓄电池、动车组辅助变流器（仿制）、动车组配电柜（仿制）、动车组真空集便装置、动车组电茶炉等。开展动车组辅助供电设备检查、动车组真空集便装置检修、动车组电茶炉检修等实训项目。

（6）动车组机械师仿真实训室

主要配备动车组司机操纵台、动车组仿真电器柜、动车组机械师仿真实训操作计算机、动车组一级检修仿真软件、动车组二级检修仿真软件、动车组转向架检修仿真软件、动车组应急故障处理仿真软件等。开展动车组司机室检查、动车组一级检修（仿真）、动车组二级检修（仿真）、动车组应急故障处理（仿真）等等实训项目。

以上实训室还可以作为学生创新创业的实践平台。

3.校外实训基地基本要求

具有稳定的校外实训基地。能够提供开展动车组检修技术专业实践教学活动，实训设施齐备，实训岗位、实训指导教师确定，实训管理及实施规章制度齐全。

4.学生实习基地基本要求

具有稳定的校外实习基地。能涵盖当前动车组检修技术专业发展的主流技术，可接纳一定规模的学生实习；能够配备相应数量的指导教师对学生实习进行指导和管理；有保证实习生日常工作、学习、生活的规章制度，有安全、保险保障。

5.支持信息化教学方面的基本要求

具有利用数字化教学资源库、文献资料、常见问题解答等的信息化条件。引导鼓励教师开发并利用信息化教学资源、教学平台，创新教学方法、提升教学效果。

1. 教学资源

主要包括能够满足学生专业学习、教师专业教学研究和教学实施需要的教材、图书及数字化教学资源等。

1.教材选用基本要求

按照国家规定选用优质教材，禁止不合格的教材进入课堂。学校建立由专业教师、行业专家和教研人员等参与的教材选用机构，完善教材选用制度，经过规范程序择优选用教材。

2.图书、文献配备基本要求

图书、文献配备能满足人才培养、专业建设、教科研等工作的需要，方便师生查询、借阅。专业类图书主要包括：动车组检修技术专业涉及的职业标准、技术手册、操作规范、规章制度、专业期刊以及案例类图书等。

3.数字教学资源配备基本要求

建设、配备与本专业有关的音视频素材、教学课件、数字化教学案例库、虚拟仿真软件、数字教材等数字资源，种类丰富、形式多样、使用便捷、动态更新、满足教学。

1. 教学方法

1.教学方法、手段建议

讲授时以“任务引领、项目教学”为主线的，根据不同的“工作任务”各自的特点在教学的环节上灵活运用不同的教学方法，提高实际动手能力，培养分析问题、解决问题的能力，培养团结合作精神。主要将小组讨论法、项目教学法、完整行动过程法（六步法） 、角色扮演法、经验反思法等灵活运用到学习工作的各个环节上。

2.教学组织形式建议

采用现场教学、多媒体教学和教学做一体化的教学方法，以学生自我学习为主，正面教学为辅充分训练学生的自我搜索、自我学习的能力，以团队合作的形式完成任务，达到学习目标。

1. 教学评价

1.教学评价建议

着重评价能否理解基本概念及原理、能否在老师指导下完成一般的检修作业、能否用理论知识解释故障原因及检修方法、能否自我提出多种检修策略、是否具备基本的安全意识。

2.教学考核建议

以学习能力、职业能力和综合素质为评价核心，改革学生考核评价体系，做到考核主体多元化、考核内容多维化、考核方式多样化，充分体现学校考核与企业评价结合，教师考核和自我考核相配合、过程考核和结果考核相融合，培养具有动车组检修维护能力的高素质高级技能型专门人才。

(1）考核主体多元化：采用“学校考核 + 企业考核”相结合的方式，实现“考核主体双元化”，校企共同参与确定课程的考核内容、考核标准、考核手段、成绩评定等，使学生的成绩评价与岗位职业标准相对接，实现学生的知识、能力、素质的全面测试与评价。同时教学过程中建议根据采用教师考核、团队考核、个人考核的多元化考核主体，增强团队凝聚力，培养自我总结及反思能力。

(2）考核内容多维化：主动适应动车组检修主要岗位的任职要求，根据不同课程的特点，将企业岗位考核标准优化到考核内容，并有针对性地将学生自我学习的能力、自我约束和管理的能力；自我融入社会的能力，融入到培养和考核中，增强学生的可持续发展能力。

(3）考核方式多样化：结合岗位职业能力考核标准，按照“职业能力为主、知识为辅，过程为主、结果为辅”的原则，构建以职业能力考核为核心、以过程考核为重点的考核评价方式，通过团队汇报、个人展示、技能考核等多种方式逐步使学生具备相应的知识结构、操作技能，实现对学生学习过程的跟踪和全面评价。

1. 质量管理

1.学校和二级院系要建立专业建设和教学过程质量监控机制，健全专业教学质量监控管理制度，完善课堂教学、教学评价、实习实训、毕业设计以及专业调研、人才培养方案更新、资源建设等方面质量标准建设，通过教学实施、过程监控、质量评价和持续改进，达成人才培养规格。

2.学校、二级院系及专业要完善教学管理机制，加强日常教学组织运行与管理，定期开展课程建设水平和教学质量诊断与改进，建立健全巡课、听课、评教、评学等制度，建立与企业联动的实践教学环节督导制度，严明教学纪律，强化教学组织功能，定期开展公开课、示范课等教研活动。

3.学校要建立毕业生跟踪反馈机制及社会评价机制，并对生源情况、在校生学业水平、毕业生就业情况等进行分析，定期评价人才培养质量和培养目标达成情况。

4.专业教研组织要充分利用评价分析结果有效改进专业教学，针对人才培养过程中存在的问题，进行诊断与改进，持续提高人才培养质量。

**毕业要求**

学生德、智、体合格，在允许的修业年限内学完培养计划规定的全部课程，通过顶岗实践或毕业论文答辩，取得相应的职业资格证书，达到毕业最低学分（144分）要求，即获得毕业资格，准予毕业并颁发毕业证书。

**教 学 进 程 表**

**2018 级 动车组检修技术 专 业**

毕业最低学分：144分

专业代码：600113

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
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| **一、教学进程表** | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | **二、周数分配表** | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 学  年 | | 教 学 周 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 理论  及  分散  实践 | | | 集  中  实  践 | | | | 考  试 | | | 劳  动 | | | | 军  训 | | | 机  动 | | | | 毕  业  教  育 | | 假  期 | | | 合  计 | |
| 九月 | | | | | | | 十月 | | | | | | | 十一月 | | | | | | | | 十二月 | | | | | | | | | | 一月 | | | | | | | | 二月 | | | | | | | | | 三月 | | | | | | | | 四月 | | | | | | 五月 | | | | | | | | | 六月 | | | | | | | | | 七月 | | | | | | | | | | 八月 | | | | | | |
|  | | 1 | 2 | | | 3 | 4 | | | 5 | 6 | 7 | 8 | 9 | | 10 | 11 | 12 | | 13 | 14 | | | | 15 | | 16 | | 17 | | 18 | | | 19 | 20 | | 21 | | 22 | | | 23 | 24 | | 25 | 26 | | 27 | | | | | 28 | 29 | 30 | | 31 | | 32 | 33 | 34 | | 35 | | 36 | 37 | | 38 | 39 | | | 40 | | 41 | | 42 | | 43 | | 44 | | | | | 45 | | | 46 | | 47 | 48 | | | 49 | 50 | 51 | 52 | | | | K | | | S | | | | ∷ | | | × | | | ★ | | | J | | | | T | | = | | |  | |
| 一 | | ★2 | | | | 15 | | | | | | | | | | | | | | | | | | | | | | | | | J2 | | | | ∷ | | ==== 6 | | | | | | | | | | | 18  × | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | J | | | | | ∷ | | ==== 6 | | | | | | | | | | | 33 | | | 0 | | | | 2 | | | 0 | | | 2 | | | 3 | | | | 0 | | 12 | | | 52 | |
| 二 | | 14 | | | | | | | | | | | | | | | | | | | | | | | | DG | | | | YS | | | | J | | ∷ | | ==== 6 | | | | | | | | | | | 13 | | | | | | | | | | | | | | | | | | | | | FZ | | | | | QY | | HG | | | | × | | | J | | | ∷ | | ====6 | | | | | | | | | | | 27 | | | 8 | | | | 2 | | | 1 | | | 0 | | 2 | | | | 0 | | | 12 | | 52 | | | |
| 三 | | 14 | | | | | | | | | | | | | | | | | HG/JG | | | | | | | ZD | | | | DK | | | | J | | ∷ | | ==== 6 | | | | | | | | | | | 18BS | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | J | | | T | |  | | | | | | | | | | | 14 | | | 22 | | | | 1 | | | 0 | | | 0 | | 2 | | | | 1 | | | 6 | | 46 | | | |
| **三、教学进度表** | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 合计 | | | | | | | | | | | | | | | | | | | | | 74 | | | 30 | | | | 5 | | | 1 | | | 2 | | 7 | | | | 1 | | | 30 | | 150 | | | |
| 课程类型 | | 序  号 | | 课程  代码 | | | | | 课 程 名 称 | | | | | | | | | | | | | 考核学期序 | | | | | | | | | | | | | | | | | | 学 分 | | | | | | | 学 时 数 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 理论教学（含分散性实践教学）周学时 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 考 试 | | | | | | | | | | 考 查 | | | | | | | | 总 计 | | | | | | | | | 理 论 | | | | | | 实 践 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 一 年 级 | | | | | | | | | | | | 二 年 级 | | | | | | | | | | | | | 三 年 级 | | | | | | | | | |
| 合 计 | | | | | 习 题 课 | | | | 实 训 | | | | | | | 现场教学 | | | | | | | | 创新创业训练 | | | | | | | 1学期  15周 | | | | | 2学期  18周 | | | | | | | 3学期  14周 | | | | | | | 4学期  13周 | | | | | | 5学期  14周 | | | | 6学期  周 | | | | | |
| 公共必修课 | | 1 | | 0001 | | | | | 思想道德修养与法律基础及形势政策 | | | | | | | | | | | | | 1 | | | | | | | | | | 2 | | | | | | | | 4 | | | | | | | 66 | | | | | | | | | 52 | | | | | | 14 | | | | | 14 | | | |  | | | | | | |  | | | | | | | |  | | | | | | | 2 | | | | | 2 | | | | | | |  | | | | | | |  | | | | | |  | | | |  | | | | | |
| 2 | | 0002 | | | | | 毛泽东思想和中国特色社会主义理论体系概论及形势政策 | | | | | | | | | | | | | 3 | | | | | | | | | | 4 | | | | | | | | 3 | | | | | | | 54 | | | | | | | | | 40 | | | | | | 12 | | | | | 12 | | | |  | | | | | | |  | | | | | | | |  | | | | | | |  | | | | |  | | | | | | | 2 | | | | | | | 2 | | | | | |  | | | |  | | | | | |
| 3 | | 0005 | | | | | 高等数学 | | | | | | | | | | | | | 1 | | | | | | | | | |  | | | | | | | | 3 | | | | | | | 60 | | | | | | | | | 54 | | | | | | 6 | | | | | 6 | | | |  | | | | | | |  | | | | | | | |  | | | | | | | 4 | | | | |  | | | | | | |  | | | | | | |  | | | | | |  | | | |  | | | | | |
| 4 | | 0006 | | | | | 大学语文 | | | | | | | | | | | | |  | | | | | | | | | | 1 | | | | | | | | 3 | | | | | | | 60 | | | | | | | | | 52 | | | | | | 8 | | | | | 8 | | | |  | | | | | | |  | | | | | | | |  | | | | | | | 4 | | | | |  | | | | | | |  | | | | | | |  | | | | | |  | | | |  | | | | | |
| 5 | | 0007 | | | | | 公共英语 | | | | | | | | | | | | | 1 | | | | | | | | | |  | | | | | | | | 3 | | | | | | | 60 | | | | | | | | | 18 | | | | | | 42 | | | | | 42 | | | |  | | | | | | |  | | | | | | | |  | | | | | | | 4 | | | | |  | | | | | | |  | | | | | | |  | | | | | |  | | | |  | | | | | |
| 6 | | 0008 | | | | | 信息技术 | | | | | | | | | | | | |  | | | | | | | | | | 1 | | | | | | | | 3 | | | | | | | 60 | | | | | | | | | 30 | | | | | | 30 | | | | | 30 | | | |  | | | | | | |  | | | | | | | |  | | | | | | | 4 | | | | |  | | | | | | |  | | | | | | |  | | | | | |  | | | |  | | | | | |
| 7 | | 0009 | | | | | 体育 | | | | | | | | | | | | | 3 | | | | | | | | | | 1.2.4 | | | | | | | | 7 | | | | | | | 120 | | | | | | | | | 8 | | | | | | 112 | | | | |  | | | |  | | | | | | | 112 | | | | | | | |  | | | | | | | 2 | | | | | 2 | | | | | | | 2 | | | | | | | 2 | | | | | |  | | | |  | | | | | |
| 8 | | 0004 | | | | | 中华优秀传统文化 | | | | | | | | | | | | |  | | | | | | | | | | 1 | | | | | | | | 2 | | | | | | | 30 | | | | | | | | | 30 | | | | | |  | | | | |  | | | |  | | | | | | |  | | | | | | | |  | | | | | | | 2 | | | | |  | | | | | | |  | | | | | | |  | | | | | |  | | | |  | | | | | |
| 9 | | 0011 | | | | | 民族理论和政策 | | | | | | | | | | | | |  | | | | | | | | | | 5 | | | | | | | | 2 | | | | | | | 28 | | | | | | | | | 28 | | | | | |  | | | | |  | | | |  | | | | | | |  | | | | | | | |  | | | | | | |  | | | | |  | | | | | | |  | | | | | | |  | | | | | | 2 | | | |  | | | | | |
| 10 | | 0010 | | | | | 大学生职业发展与就业指导 | | | | | | | | | | | | |  | | | | | | | | | | 2 | | | | | | | | 2 | | | | | | | 36 | | | | | | | | | 36 | | | | | |  | | | | |  | | | |  | | | | | | |  | | | | | | | |  | | | | | | |  | | | | | 2 | | | | | | |  | | | | | | |  | | | | | |  | | | |  | | | | | |
| 小计学分及学时数 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | **32** | | | | | | | **574** | | | | | | | | | **348** | | | | | | **224** | | | | |  | | | |  | | | | | | | **574** | | | | | | | |  | | | | | | | **22** | | | | | **6** | | | | | | | **4** | | | | | | | **4** | | | | | | **2** | | | | **0** | | | | | |
| 专业必修课 | | 11 | | 30001 | | | | | 机械识图及CAD | | | | | | | | | | | | |  | | | | | | | | | | 1 | | | | | | | | 3 | | | | | | | 60 | | | | | | | | | 30 | | | | | | 30 | | | | |  | | | |  | | | | | | | 30 | | | | | | | |  | | | | | | | 4 | | | | |  | | | | | | |  | | | | | | |  | | | | | |  | | | |  | | | | | |
| 12 | | 30002 | | | | | 液压与气动技术 | | | | | | | | | | | | |  | | | | | | | | | | 2 | | | | | | | | 4 | | | | | | | 72 | | | | | | | | | 60 | | | | | | 12 | | | | | 4 | | | |  | | | | | | | 8 | | | | | | | |  | | | | | | |  | | | | | 4 | | | | | | |  | | | | | | |  | | | | | |  | | | |  | | | | | |
| 13 | | 30003 | | | | | 高速铁道概论 | | | | | | | | | | | | | 2 | | | | | | | | | |  | | | | | | | | 4 | | | | | | | 72 | | | | | | | | | 64 | | | | | | 8 | | | | | 4 | | | |  | | | | | | | 4 | | | | | | | |  | | | | | | |  | | | | | 4 | | | | | | |  | | | | | | |  | | | | | |  | | | |  | | | | | |
| 14 | | 30004 | | | | | 工程材料和材料力学 | | | | | | | | | | | | | 2 | | | | | | | | | |  | | | | | | | | 4 | | | | | | | 72 | | | | | | | | | 60 | | | | | | 12 | | | | | 6 | | | |  | | | | | | | 6 | | | | | | | |  | | | | | | |  | | | | | 4 | | | | | | |  | | | | | | |  | | | | | |  | | | |  | | | | | |
| 15 | | 30005 | | | | | 电工基础 | | | | | | | | | | | | | 2 | | | | | | | | | |  | | | | | | | | 4 | | | | | | | 72 | | | | | | | | | 44 | | | | | | 28 | | | | | 8 | | | |  | | | | | | | 20 | | | | | | | |  | | | | | | |  | | | | | 4 | | | | | | |  | | | | | | |  | | | | | |  | | | |  | | | | | |
| 16 | | 30006 | | | | | 机械基础 | | | | | | | | | | | | | 3 | | | | | | | | | |  | | | | | | | | 5 | | | | | | | 84 | | | | | | | | | 62 | | | | | | 22 | | | | | 6 | | | |  | | | | | | | 10 | | | | | | | | 6 | | | | | | |  | | | | |  | | | | | | | 6 | | | | | | |  | | | | | |  | | | |  | | | | | |
| 17 | | 30007 | | | | | 电子技术 | | | | | | | | | | | | | 3 | | | | | | | | | |  | | | | | | | | 3 | | | | | | | 56 | | | | | | | | | 36 | | | | | | 20 | | | | | 8 | | | |  | | | | | | | 8 | | | | | | | | 4 | | | | | | |  | | | | |  | | | | | | | 4 | | | | | | |  | | | | | |  | | | |  | | | | | |
| 18 | | 30008 | | | | | 动车组机械装置检修 | | | | | | | | | | | | | 3 | | | | | | | | | |  | | | | | | | | 5 | | | | | | | 84 | | | | | | | | | 64 | | | | | | 20 | | | | |  | | | |  | | | | | | | 20 | | | | | | | |  | | | | | | |  | | | | |  | | | | | | | 6 | | | | | | |  | | | | | |  | | | |  | | | | | |
| 19 | | 30009 | | | | | 电工电子实训DG | | | | | | | | | | | | |  | | | | | | | | | | 3 | | | | | | | | 2 | | | | | | | 60 | | | | | | | | | 0 | | | | | | 60 | | | | |  | | | | 60 | | | | | | |  | | | | | | | |  | | | | | | |  | | | | |  | | | | | | | 2周 | | | | | | |  | | | | | |  | | | |  | | | | | |
| 20 | | 30010 | | | | | 常用机械装调实训YS | | | | | | | | | | | | |  | | | | | | | | | | 3 | | | | | | | | 2 | | | | | | | 60 | | | | | | | | | 0 | | | | | | 60 | | | | |  | | | | 60 | | | | | | |  | | | | | | | |  | | | | | | |  | | | | |  | | | | | | | 2周 | | | | | | |  | | | | | |  | | | |  | | | | | |
| 21 | | 30011 | | | | | 钳工实训HG | | | | | | | | | | | | |  | | | | | | | | | | 4 | | | | | | | | 2 | | | | | | | 60 | | | | | | | | | 0 | | | | | | 60 | | | | |  | | | | 60 | | | | | | |  | | | | | | | |  | | | | | | |  | | | | |  | | | | | | |  | | | | | | | 2周 | | | | | |  | | | |  | | | | | |
| 22 | | 30012 | | | | | 电力电子装置 | | | | | | | | | | | | |  | | | | | | | | | | 4 | | | | | | | | 3 | | | | | | | 52 | | | | | | | | | 46 | | | | | | 6 | | | | |  | | | |  | | | | | | | 6 | | | | | | | |  | | | | | | |  | | | | |  | | | | | | |  | | | | | | | 4 | | | | | |  | | | |  | | | | | |
| 23 | | 30013 | | | | | 动车组牵引系统检修 | | | | | | | | | | | | | 4 | | | | | | | | | |  | | | | | | | | 3 | | | | | | | 52 | | | | | | | | | 44 | | | | | | 8 | | | | |  | | | |  | | | | | | | 8 | | | | | | | |  | | | | | | |  | | | | |  | | | | | | |  | | | | | | | 4 | | | | | |  | | | |  | | | | | |
| 24 | | 30014 | | | | | 牵引系统专项实训（QY) | | | | | | | | | | | | |  | | | | | | | | | | 4 | | | | | | | | 1 | | | | | | | 30 | | | | | | | | |  | | | | | | 30 | | | | |  | | | | 30 | | | | | | |  | | | | | | | |  | | | | | | |  | | | | |  | | | | | | |  | | | | | | | 1周 | | | | | |  | | | |  | | | | | |
| 25 | | 30015 | | | | | 动车组辅助系统检修 | | | | | | | | | | | | | 4 | | | | | | | | | |  | | | | | | | | 3 | | | | | | | 52 | | | | | | | | | 46 | | | | | | 6 | | | | |  | | | |  | | | | | | | 6 | | | | | | | |  | | | | | | |  | | | | |  | | | | | | |  | | | | | | | 4 | | | | | |  | | | |  | | | | | |
| 26 | | 30016 | | | | | 辅助电气系统专项实训（FZ) | | | | | | | | | | | | |  | | | | | | | | | | 4 | | | | | | | | 1 | | | | | | | 30 | | | | | | | | |  | | | | | | 30 | | | | |  | | | | 30 | | | | | | |  | | | | | | | |  | | | | | | |  | | | | |  | | | | | | |  | | | | | | | 1周 | | | | | |  | | | |  | | | | | |
| 27 | | 30017 | | | | | 动车组空调系统检修 | | | | | | | | | | | | | 4 | | | | | | | | | |  | | | | | | | | 3 | | | | | | | 52 | | | | | | | | | 46 | | | | | | 6 | | | | |  | | | |  | | | | | | | 6 | | | | | | | |  | | | | | | |  | | | | |  | | | | | | |  | | | | | | | 4 | | | | | |  | | | |  | | | | | |
| 28 | | 30018 | | | | | 动车组制动系统检修 | | | | | | | | | | | | | 5 | | | | | | | | | |  | | | | | | | | 3 | | | | | | | 56 | | | | | | | | | 50 | | | | | | 6 | | | | |  | | | |  | | | | | | | 6 | | | | | | | |  | | | | | | |  | | | | |  | | | | | | |  | | | | | | |  | | | | | | 4 | | | |  | | | | | |
| 29 | | 30019 | | | | | 制动系统专项实训（ZD） | | | | | | | | | | | | |  | | | | | | | | | | 5 | | | | | | | | 2 | | | | | | | 30 | | | | | | | | | 0 | | | | | | 30 | | | | |  | | | | 30 | | | | | | |  | | | | | | | |  | | | | | | |  | | | | |  | | | | | | |  | | | | | | |  | | | | | | 1周 | | | |  | | | | | |
| 30 | | 30020 | | | | | 动车组网络技术 | | | | | | | | | | | | | 5 | | | | | | | | | |  | | | | | | | | 4 | | | | | | | 56 | | | | | | | | | 50 | | | | | | 6 | | | | |  | | | |  | | | | | | | 6 | | | | | | | |  | | | | | | |  | | | | |  | | | | | | |  | | | | | | |  | | | | | | 4 | | | |  | | | | | |
| 31 | | 30021 | | | | | 动车组运用与管理 | | | | | | | | | | | | | 5 | | | | | | | | | |  | | | | | | | | 3 | | | | | | | 56 | | | | | | | | | 50 | | | | | | 6 | | | | |  | | | |  | | | | | | | 6 | | | | | | | |  | | | | | | |  | | | | |  | | | | | | |  | | | | | | |  | | | | | | 4 | | | |  | | | | | |
| 32 | | 30022 | | | | | 动车组机械师职业技能鉴定培训与考证DK | | | | | | | | | | | | |  | | | | | | | | | | 5 | | | | | | | | 2 | | | | | | | 30 | | | | | | | | | 0 | | | | | | 30 | | | | |  | | | | 30 | | | | | | |  | | | | | | | |  | | | | | | |  | | | | |  | | | | | | |  | | | | | | |  | | | | | | 1周 | | | |  | | | | | |
| 33 | | 30023 | | | | | 毕业顶岗实习BS | | | | | | | | | | | | |  | | | | | | | | | | 6 | | | | | | | | 18 | | | | | | | 540 | | | | | | | | | 0 | | | | | | 540 | | | | |  | | | | 540 | | | | | | |  | | | | | | | |  | | | | | | |  | | | | |  | | | | | | |  | | | | | | |  | | | | | |  | | | | **18周** | | | | | |
| 小计学分及学时数 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | **84** | | | | | | | **1788** | | | | | | | | | **752** | | | | | | **1036** | | | | | **36** | | | | **840** | | | | | | | **150** | | | | | | | | **10** | | | | | | | **4** | | | | | **16** | | | | | | | **18** | | | | | | | **16** | | | | | | **12** | | | |  | | | | | |
| 专业选修课 | | 33 | | 30024 | | | | | 互换性与技术测量 | | | | | | | | | | | | | | |  | | | | | | | | 3 | | | | | | | | 3 | | | | | | | 56 | | | | | | | | | 44 | | | | | | 12 | | | | | 4 | | | |  | | | | | | | 8 | | | | | | | |  | | | | | | |  | | | | |  | | | | | | | 4 | | | | | | |  | | | | | |  | | | |  | | | | | |
| 34 | | 30025 | | | | | 机加工技术 | | | | | | | | | | | | | | |  | | | | | | | | 3 | | | | | | | | 3 | | | | | | | 56 | | | | | | | | | 44 | | | | | | 12 | | | | | 4 | | | |  | | | | | | | 8 | | | | | | | |  | | | | | | |  | | | | |  | | | | | | | 4 | | | | | | |  | | | | | |  | | | |  | | | | | |
| 35 | | 30026 | | | | | 可编程控制器应用 | | | | | | | | | | | | | | |  | | | | | | | | 4 | | | | | | | | 3 | | | | | | | 52 | | | | | | | | | 40 | | | | | | 12 | | | | |  | | | |  | | | | | | | 12 | | | | | | | |  | | | | | | |  | | | | |  | | | | | | |  | | | | | | | 4 | | | | | |  | | | |  | | | | | |
| 36 | | 30027 | | | | | 计算机控制与网络技术 | | | | | | | | | | | | | | |  | | | | | | | | 4 | | | | | | | | 3 | | | | | | | 52 | | | | | | | | | 40 | | | | | | 12 | | | | |  | | | |  | | | | | | | 12 | | | | | | | |  | | | | | | |  | | | | |  | | | | | | |  | | | | | | | 4 | | | | | |  | | | |  | | | | | |
| 37 | | 30028 | | | | | 铁路安全与救援 | | | | | | | | | | | | | | |  | | | | | | | | 5 | | | | | | | | 3 | | | | | | | 56 | | | | | | | | | 52 | | | | | | 4 | | | | |  | | | |  | | | | | | | 4 | | | | | | | |  | | | | | | |  | | | | |  | | | | | | |  | | | | | | |  | | | | | | 4 | | | |  | | | | | |
| 38 | | 30029 | | | | | 专业英语 | | | | | | | | | | | | | | |  | | | | | | | | 5 | | | | | | | | 3 | | | | | | | 56 | | | | | | | | | 52 | | | | | | 4 | | | | |  | | | |  | | | | | | | 4 | | | | | | | |  | | | | | | |  | | | | |  | | | | | | |  | | | | | | |  | | | | | | 4 | | | |  | | | | | |
| 39 | | 30030 | | | | | 高速动车组新技术 | | | | | | | | | | | | | | |  | | | | | | | | 5 | | | | | | | | 3 | | | | | | | 56 | | | | | | | | | 52 | | | | | | 4 | | | | |  | | | |  | | | | | | | 4 | | | | | | | |  | | | | | | |  | | | | |  | | | | | | |  | | | | | | |  | | | | | | 4 | | | |  | | | | | |
| 40 | | 30031 | | | | | 焊工实习QG | | | | | | | | | | | | | | |  | | | | | | | | 5 | | | | | | | | 2 | | | | | | | 60 | | | | | | | | | 0 | | | | | | 60 | | | | |  | | | | 60 | | | | | | |  | | | | | | | |  | | | | | | |  | | | | |  | | | | | | |  | | | | | | |  | | | | | | 2周 | | | |  | | | | | |
| 41 | | 30032 | | | | | 机加工实习JG | | | | | | | | | | | | | | |  | | | | | | | | 5 | | | | | | | | 2 | | | | | | | 60 | | | | | | | | | 0 | | | | | | 60 | | | | |  | | | | 60 | | | | | | |  | | | | | | | |  | | | | | | |  | | | | |  | | | | | | |  | | | | | | |  | | | | | | 2周 | | | |  | | | | | |
| 42 | | 30033 | | | | |  | | | | | | | | | | | | | | |  | | | | | | | |  | | | | | | | |  | | | | | | |  | | | | | | | | |  | | | | | |  | | | | |  | | | |  | | | | | | |  | | | | | | | |  | | | | | | |  | | | | |  | | | | | | |  | | | | | | |  | | | | | |  | | | |  | | | | | |
| **小计学分及学时数** | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | **14/25** | | | | | | | **280/504** | | | | | | | | | **188/300** | | | | | | **92/180** | | | | | **4/8** | | | | **60** | | | | | | | **28/52** | | | | | | | |  | | | | | | | 0 | | | | | 4 | | | | | | | 4 | | | | | | | 4 | | | | | | 8 | | | |  | | | | | |
| 总计学分及学时数 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | **131** | | | | | | | **2642** | | | | | | | | | **1302** | | | | | | **1352** | | | | |  | | | |  | | | | | | |  | | | | | | | |  | | | | | | | **26** | | | | | **22** | | | | | | | **24** | | | | | | | **24** | | | | | | **22** | | | |  | | | | | |
| **四、素质拓展课** | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 课程类型 | | 序  号 | | | 课程代码 | | | | 课 程 名 称 | | | | | | | | | | | | | | | 考核学期序 | | | | | | | | | | | | | | | | 学 分 | | | | 课  时 | | | | | | | 说 明 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 考 试 | | | | 考 查 | | | | | | | | | | | |
| 必修  课 | | 1 | | | 01 | | | | 军训及军事理论教育 | | | | | | | | | | | | | | |  | | | | 1 | | | | | | | | | | | | 4 | | | | 60 | | | | | | | | 第1学期开设，含入学教育。 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 2 | | | 02 | | | | 心理健康教育 | | | | | | | | | | | | | | |  | | | | 2.3.4.5 | | | | | | | | | | | | 2 | | | | 32 | | | | | | | | 分专业在第2～5学期之一开设。 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 3 | | | 03 | | | | 大学生安全及健康教育 | | | | | | | | | | | | | | |  | | | | 1.2.3.4 | | | | | | | | | | | | 2 | | | | 32 | | | | | | | | 在1～4学期实施，以专题讲座的形式和每学期大学生第二课堂教育活动中开设. | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 4 | | | 04 | | | | 大学生暑期社会实践 | | | | | | | | | | | | | | |  | | | | 2.4 | | | | | | | | | | | | 2 | | | |  | | | | | | | | 利用暑期，进行社会实践，提交报告。 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 小计学分及学时数 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | **10** | | | | **124** | | | | | | | | 军训理论：4；心理安全理论：20 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 选  修  课 | | 1 | | | 001 | | | | 演讲与口才 | | | | | | | | | | | | | | |  | | | | 2～5 | | | | | | | | | | | | 2 | | | | 32 | | | | | | | |  | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 2 | | | 002 | | | | 中国小说阅读与鉴赏 | | | | | | | | | | | | | | |  | | | | 2～5 | | | | | | | | | | | | 2 | | | | 32 | | | | | | | |  | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 3 | | | 003 | | | | 音乐欣赏 | | | | | | | | | | | | | | |  | | | | 2～5 | | | | | | | | | | | | 2 | | | | 32 | | | | | | | |  | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 4 | | | 004 | | | | 影视文学欣赏 | | | | | | | | | | | | | | |  | | | | 2～5 | | | | | | | | | | | | 2 | | | | 32 | | | | | | | |  | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 5 | | | 005 | | | | 应用写作 | | | | | | | | | | | | | | |  | | | | 2～5 | | | | | | | | | | | | 2 | | | | 32 | | | | | | | |  | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 6 | | | 006 | | | | 现代礼仪 | | | | | | | | | | | | | | |  | | | | 2～5 | | | | | | | | | | | | 2 | | | | 32 | | | | | | | |  | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 7 | | | 007 | | | | 中国古典诗词欣赏 | | | | | | | | | | | | | | |  | | | | 2～5 | | | | | | | | | | | | 2 | | | | 32 | | | | | | | |  | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 8 | | | 008 | | | | 中国近现代史纲要 | | | | | | | | | | | | | | |  | | | | 2～5 | | | | | | | | | | | | 2 | | | | 32 | | | | | | | |  | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 9 | | | 009 | | | | 中国传统文化 | | | | | | | | | | | | | | |  | | | | 2～5 | | | | | | | | | | | | 2 | | | | 32 | | | | | | | |  | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 10 | | | 010 | | | | 中国旅游资源概况 | | | | | | | | | | | | | | |  | | | | 2～5 | | | | | | | | | | | | 2 | | | | 32 | | | | | | | |  | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 11 | | | 011 | | | | ISO9000质量管理体系 | | | | | | | | | | | | | | |  | | | | 2～5 | | | | | | | | | | | | 2 | | | | 32 | | | | | | | |  | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 12 | | | 012 | | | | 高级文字排版 | | | | | | | | | | | | | | |  | | | | 2～5 | | | | | | | | | | | | 2 | | | | 32 | | | | | | | |  | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 13 | | | 013 | | | | 电子表格处理 | | | | | | | | | | | | | | |  | | | | 2～5 | | | | | | | | | | | | 2 | | | | 32 | | | | | | | |  | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 14 | | | 014 | | | | PS图像处理 | | | | | | | | | | | | | | |  | | | | 2～5 | | | | | | | | | | | | 2 | | | | 32 | | | | | | | |  | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 15 | | | 015 | | | | 高级PPT制作 | | | | | | | | | | | | | | |  | | | | 2～5 | | | | | | | | | | | | 2 | | | | 32 | | | | | | | |  | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 16 | | | 016 | | | | 计算机组装维修及网络操作 | | | | | | | | | | | | | | |  | | | | 2～5 | | | | | | | | | | | | 2 | | | | 32 | | | | | | | |  | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 17 | | | 017 | | | | 生活中的经济学 | | | | | | | | | | | | | | |  | | | | 2～5 | | | | | | | | | | | | 2 | | | | 32 | | | | | | | |  | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 18 | | | 018 | | | | 技术史漫谈 | | | | | | | | | | | | | | |  | | | | 2～5 | | | | | | | | | | | | 2 | | | | 32 | | | | | | | |  | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 19 | | | 019 | | | | 电影赏析 | | | | | | | | | | | | | | |  | | | | 2～5 | | | | | | | | | | | | 2 | | | | 32 | | | | | | | |  | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 20 | | | 020 | | | | 职业素质 | | | | | | | | | | | | | | |  | | | | 2～5 | | | | | | | | | | | | 2 | | | | 32 | | | | | | | |  | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 21 | | | 021 | | | | 创造性思维与创新方法 | | | | | | | | | | | | | | |  | | | | 2～5 | | | | | | | | | | | | 2 | | | | 32 | | | | | | | |  | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 22 | | | 022 | | | | 大学生创业基础 | | | | | | | | | | | | | | |  | | | | 2～5 | | | | | | | | | | | | 2 | | | | 32 | | | | | | | |  | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 23 | | | 023 | | | | 创新创业实践 | | | | | | | | | | | | | | |  | | | | 1～6 | | | | | | | | | | | | 10 | | | |  | | | | | | | | 用于学生参加课题研究、项目实验、竞赛活动、发表论文等创新创业成果的学分折算 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 小计学分及学时数 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 44 | | | | 704 | | | | | | | | **公共选修课1～22 选4学分** | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| **合计学分及学时数** | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | **总学分144,必修课学分32+84+10=126,选修课学分18，其中专业选修课学分14，素质选修课学分4.总学时574+1788+280+124=2766，理论学时1314，实践学时1452，理论实践比：1:1.11** | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

**铁道工程技术专业**

**教学标准**

**专业名称**  铁道工程技术

**专业代码** 600104

**入学要求** 高中阶段教育毕业生或具有同等学力者

**修业年限** 三年

**职业面向**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| 所属专业大类（代码） | 所属专业类（代码） | 对应行业  （代码） | 主要职业类别  （代码） | 主要岗位类别（或技术领域） | 职业资格证书或技能等级证书举例 |
| 交通运输大类（60） | 铁道运输类（6001） | 土木工程建筑业（48）  铁路运输业（53） | 铁道工务工程技术人员（2-02-17-06）  铁 路 建 筑 工 程 技 术 人 员（2-02-18-12）  铁路线桥工（6-29-02-02） | 施工  铁路线路  铁路路基 | 施工员  铁路线路工  铁路路基工 |

**培养目标与培养规格**

一、培养目标

本专业培养理想信念坚定，德、智、体、美、劳全面发展，具有一定的科学文化水平，良好的人文素养、职业道德和创新意识，精益求精的工匠精神，较强的就业能力和可持续发展的能力；掌握铁路线路工程、桥梁工程、隧道工程等相关工程的施工与养护维修等知识和技术技能，面向铁路施工与维护领域的高素质技术技能人才。

二、培养规格

本专业毕业生应在素质、知识和能力等方面达到以下要求。

1.素质

（1）坚定拥护中国共产党领导和我国社会主义制度，在习近平新时代中国特色社会主义思想指引下，践行社会主义核心价值观，具有深厚的爱国情感和中华民族自豪感；

（2）崇尚宪法、遵法守纪、崇德向善、诚实守信、尊重生命、热爱劳动、履行道德准则和行为规范，具有社会责任感和社会参与意识；

（3）具有质量意识、环保意识、安全意识、信息素养、工匠、创新思维；

（4）勇于奋斗、乐观向上，具有自我管理能力、职业生涯规划意识，有较强的集体意识和团队合作精神；

（5）具有健康的体魄、心理和健全的人格，掌握基本运动知识和一两项运动技能，养成良好的健身与卫生习惯，良好的行为习惯；

（6）具有一定的审美和人文素养，能够形成一两项艺术特长或爱好。

2.知识

（1）掌握必备的思想政治理论、科学文化基础知识和中华优秀传统文化知识；

（2）熟悉与本专业相关的法律法规以及环境保护、安全消防等相关知识；

（3）掌握与职业基础技能相适应的铁道概论、工程制图、工程测量、工程力学、土木工程材料试验、工程地质、土力学与地基基础等专业基础知识；

（4）掌握与职业技术技能相适应的铁道工程施工与维护方面的专业理论知识；

（5）掌握与本专业相关的安全、质量相关知识；

（6）掌握本专业新技术、新工艺、新材料、新设备等方面知识；

（7）熟悉与本专业有关的规章制度，了解施工技术管理相关知；

（8）了解电务、供电、信号、运输设备基本知识；

（9）了解最新发布的涉及本专业的铁路行业标准、国家标准和国际标准。

3.能力

（1）具有探究学习、终身学习、分析问题和解决问题的能力；

（2）具有良好的语言、文字表达能力和沟通能力，能够进行口语和书面的表达与交流；

（3）具有铁道线路施工图判读能力，能用工程语言（图纸）与专业人员进行有效的沟通交流；

1. 具有对铁道线路结构物进行受力分析和计算的能力；
2. 具有进行主要铁路工程材料试验能力，有铁道线路的测绘能力；
3. 具有进行小型铁路工程概预算编制的能力；

（7）具有进行铁路路基、桥隧、轨道等工程施工与维护的能力；

（8）具有利用铁路安全生产及保护知识，分析铁路工程事故的能力；

（9）具有操作和使用铁路工程常用小型养路机械的能力；

（10）具有本专业需要的信息技术应用能力，探究学习和终身学习的能力。

**课程设置**

一、必修课程

1. 公共必修课程

|  |  |  |
| --- | --- | --- |
| 序号 | 课程名称 | 课时数 |
| 1 | 思想道德修养与法律基础及形式政策 | 64 |
| 2 | 毛泽东思想和中国特色社会主义理论体系概论及形势与政策 | 60 |
| 3 | 高等数学 | 60 |
| 4 | 大学语文 | 60 |
| 5 | 公共英语 | 60 |
| 6 | 信息技术 | 68 |
| 7 | 体育 | 124 |
| 8 | 中华优秀传统文化 | 30 |
| 9 | 民族理论和政策 | 30 |
| 10 | 大学生职业发展与就业指导 | 34 |

2.专业必修课程

|  |  |  |
| --- | --- | --- |
| 序号 | 课程名称 | 课时数 |
| 1 | 铁路测量 | 128 |
| 2 | 工程制图 | 94 |
| 3 | 工程力学 | 98 |
| 4 | 铁道概论 | 68 |
| 5 | 工程地质 | 30 |
| 6 | 钢筋混凝土结构 | 60 |
| 7 | 土力学与地基基础 | 60 |
| 8 | 铁路隧道施工与维护 | 60 |
| 9 | 铁路路基施工与维护 | 90 |
| 10 | 铁路轨道施工与维护 | 120 |
| 11 | 铁路桥梁施工与维护 | 120 |
| 12 | 铁路施工组织设计与概预算 | 90 |
| 13 | 工务安全与班组管理 | 60 |
| 14 | 测量实习 | 84 |
| 15 | 模型制作实习 | 56 |
| 16 | 综合实习 | 56 |
| 17 | 线路工培训 | 56 |
| 18 | 顶岗实习 | 540 |

3.素质拓展必修课程

|  |  |  |
| --- | --- | --- |
| 序号 | 课程名称 | 课时数 |
| 1 | 军训及军事理论教育 | 60 |
| 2 | 心理健康教育 | 32 |
| 3 | 大学生安全及健康教育 | 32 |
| 4 | 大学生暑期社会实践 |  |

二、选修课程

1. 专业选修课程

|  |  |  |
| --- | --- | --- |
| 序号 | 课程名称 | 课时数 |
| 1 | 铁路选线 | 30 |
| 2 | 高速铁道概论 | 68 |
| 3 | 城市轨道交通概论 | 68 |
| 4 | 工程CAD | 30 |
| 5 | 地基处理 | 30 |
| 6 | 专业英语 | 30 |
| 7 | 高速铁路车站与线路 | 30 |
| 8 | 机械养路 | 45 |
| 9 | BIM技术 | 45 |
| 10 | 监理概论 | 45 |
| 11 | 钢轨探伤 | 45 |
| 12 | 铁道工程实务 | 45 |

2. 素质拓展选修课程

|  |  |  |
| --- | --- | --- |
| 序号 | 课程名称 | 课时数 |
| 1 | 演讲与口才 | 32 |
| 2 | 中国小说阅读与鉴赏 | 32 |
| 3 | 音乐欣赏 | 32 |
| 4 | 影视文学欣赏 | 32 |
| 5 | 应用写作 | 32 |
| 6 | 现代礼仪 | 32 |
| 7 | 中国古典诗词欣赏 | 32 |
| 8 | 中国近现代史纲要 | 32 |
| 9 | 中国传统文化 | 32 |
| 10 | 中国旅游资源概况 | 32 |
| 11 | ISO9000质量管理体系 | 32 |
| 12 | 高级文字排版 | 32 |
| 13 | 电子表格处理 | 32 |
| 14 | PS图像处理 | 32 |
| 15 | 高级PPT制作 | 32 |
| 16 | 计算机组装维修及网络操作 | 32 |
| 17 | 生活中的经济学 | 32 |
| 18 | 技术史漫谈 | 32 |
| 19 | 电影赏析 | 32 |
| 20 | 职业素质 | 32 |
| 21 | 创造性思维与创新方法 | 32 |
| 22 | 大学生创业基础 | 32 |
| 23 | 创新创业实践 |  |

1. 专业核心课程主要教学内容与要求

|  |  |  |
| --- | --- | --- |
| 序号 | 专业核心课程 | 主要教学内容与要求 |
| 1 | 铁路路基施工与维护 | 主要教学内容：  路基工程施工计划的制定；按照施工图纸，使用测量仪器进行路基施工放样和标高控制；按照施工规范完成路基工程各部位的施工；使用检测设备完成质量检测，并进行结果计算；按照相应验收规范完成工程的质量自检和评定；配合监理人员完成每道工序的检查签证；路基病害的检查和整治；按照相应要求规范整理内业资料及完成工程验收工作。  教学目标：  能够进行路基工程的施工和维护作业，包括：能控制路基的结构尺寸；能掌握路基基底的加固处理、路堤的填筑施工、路堑的开挖施工、路基排水设备的施工、路基过渡段的施工；能进行路基病害的检查和整治、路基加固和防护设备的施工；能进行路基的质量检测。 |
| 2 | 铁路隧道施工与维护 | 主要教学内容：  铁路隧道工程施工计划的制定；隧道工程施工放样；按照施工规范要求完成隧道工程各部位的施工；按照验收标准完成隧道工程的质量自检和评定；隧道的检测与加固及病害的检查和整治；施工设备的安全操作。  教学目标：  通过学习，学生能够进行隧道的施工和维护作业，包括：隧道施工测量放样；组织隧道各部位施工；隧道的检测与加固；隧道的病害检查和整治作业。 |
| 3 | 铁路轨道施工与维护 | 主要教学内容：  铁路轨道的构造；铁路有砟轨道施工作业流程；铁路无砟轨道作业流程；按照工程质量标准评定工程质量等级；铁路轨道铺设中各作业环节的质量标准、技术规范和操作规程；按照施工技术文件实施施工中操作规范、记录真实、准确性要求；根据作业过程中关键参数的检验与量测，判断施工质量、进度与成本指标；编制铁路维修作业计划；使用检测工具或设备检测铁路线路；铁路线路维护的标准化维修作业；铁路线路质量状态评定。  教学目标：  通过学习，学生具备铁路轨道的施工与维护作业的能力，包括：铁路无砟轨道施工；铁路有砟轨道施工；无缝线路施工；道岔的铺设；铁道线路的维护作业。 |
| 4 | 铁路桥梁施工与维护 | 主要教学内容：  桥梁工程施工计划的制定；按照施工图纸，使用测量仪器进行桥梁各部位的施工放样；按照施工规范要求完成桥梁工程各部位的施工；按照验收标准完成桥梁工程的质量自检和评定；配合监理人员桥梁完成每道工序的检查签证；按照相应要求规范整理内业资料及完成工程验收工作；桥梁的检测与加固及病害的检查和整治；施工设备的安全操作。  教学目标：  通过学习，学生能够进行桥梁的施工和维护作业，包括：桥梁施工各部位的测量放线；组织钢筋混凝土框架涵的施工；组织混凝土墩台的施工；组织预应力简支梁的预制及架设施工；组织预应力连续梁的现浇施工；能进行钢桥的制作和架设施工及拱桥施工；各类桥梁的维护工作。 |
| 5 | 铁路施工组织设计与概预算 | 主要教学内容：  学习新建铁路基本建设管理、项目与工程管理基本知识，工程项目的成本预测与计划的方法，成本核算与分析方法，工程质量的数理统计分析方法，工程质量验收要求，工程项目网络计划的编制，工程施工组织设计的编制，施工现场的安全与文明施工管理，铁路概预算。  教学目标：  通过本门课程的学习，学生能掌握高速铁路施工组织基本知识和技能，具有一般工程施工组织能力和一般工程项目管理的基本能力，能够编制高速铁路概预算。 |

**学时安排**

每学年教学时间为40周，总学时数为2749学时，实习按每周28学时计算。每学时为45分钟。18学时计为1个学分，总学分为144学分。军训、入学教育、集中实践、顶岗实习、毕业设计（或毕业论文、毕业教育）等，以1周为1学分。公共基础课程学时占总学时的26%。选修课教学时数占总学时的比例均为12%。学生顶岗实习为6个月，可根据实际情况，采取工学交替、多学期、分段式等多种形式组织实施。

**教学进程总体安排**

见附件（教学进程表）

**实施保障**

1. 师资队伍

1、专业生师比

专业教师总数不少于15人，专业生师比不高于18：1。

2、师资要求

①专任教师应具有铁路工程技术及相关专业本科及以上学历且具备高等教育教师任职资格；其中专业带头人应具备副教授(中级)以上专业技术职务；结构优化，梯队合理。

②专任教师高级职称的比例不小于20%，每门核心专业课程必须有1-2名专任教师。

③专任教师中具备双师素质教师（具备相近专业技师职业资格、中级专业技术职称或两年以上企业经历）的比例应达到85%以上，实验实训教师应具有中级专业技术职务或中级职业资格、技能等级证书。

④专任教师应具备良好的职业道德和一定的教学科研能力，对本专业人才培养有较全面的把握能力，教育改革和质量意识比较强。

1. 企业兼职教师任职资格

①主要从铁道线路施工与维护相关企业聘任，具备良好的思想政治素质、

职业道德和工匠精神，具有扎实的铁道工程技术专业知识和丰富的实际工作经验。

②企业兼职教师应具有专科及以上学历，工作年限不少于5年，具有专业技师或专业中级及以上技术职称，能承担专业课程教学、实习实训指导和学生职业发展规划指导等教学任务。

③形成相对稳定的企业兼职教师和兼职实习指导教师队伍，满足兼职教师承担专业课程课时比不少于30%。

1. 教学设施

1、校内基础课教学实验室和教学设备的基本要求

校内各门基础课应有完善的优质数字资源及学生使用平台，计算机基础、英语课程、体育课程的教学实验室和教学设备应有以下基本要求：

①不少于 50 人的网络机房，配备有 1-2 台网络服务器和打印机等外部设备。

②不少于 50 人的模拟语音室或有数字化语言学习系统的网络机房。

③体育场馆和设施条件能基本保证体育教学和学生的课余健身需要。

④应能容纳50名学生同时实训（每工位最多容纳4-5人），应包括的实验室、实训室。

2、校内实训（含职业技能鉴定）基地的基本要求

根据专业特点，按照“理实一体”原则，积极探索教学型实训基地的建设模式，建设真实、仿真的项目教室、现场教室等；含有实验项目的基础课均应建有仪器设备先进、齐备、完好、同时满足50人实验的教学实验室；学校建有满足专业综合实训的真实或仿真的职业环境的实训室或实训基地，使专业技能训练项目都有对应的实训场所，实习实训设施设备技术含量高，基本达到企业现场生产设备的水平，满足对应工种职业技能鉴定的要求。

设备基本要求如下。

|  |  |  |  |
| --- | --- | --- | --- |
| 序号 | 实训室名称 | 设备名称及基本配置数量 | 实训项目 |
| 1 | 力学实验室 | 万能试验机、弯曲试验台、扭转试验机、应变仪 | 1.轴向拉伸与压缩试验  2.测材料弹性模量E  3.测梁弯曲正应力  4.测梁的变形  5.杆受扭转试验\*  6.测材料受扭时G\* |
| 2 | 土力学  实验室 | 烘箱、环刀及压环器、碳化钙含水率测定仪、液、塑限联合测定仪、锥式液限仪、标准击实仪、搅拌器、离心机 | 1.土的含水量试验  2.土的密度试验  3.土粒比重试验  4.土的颗粒分析试验  5.土的液塑限试验  6.击实试验  7.土的压缩试验、直剪试验、  8.承载比（CBR）试验  9.无测限抗压强度试验 |
| 3 | 工程材料  实验室 | 万能试验机、筛分仪、负压筛、抗渗仪、水泥胶砂抗折强度测定仪、水泥胶砂抗压强度试验仪、混凝土抗压试验仪、水泥净浆搅拌机、水泥胶砂搅拌机、振动台、标准维卡仪、标准养护箱、沸煮仪、坍落度筒、维勃稠度仪、混凝土搅拌机 | 1. 水泥胶砂抗折强度  2. 水泥胶砂抗压强度  3. 砼抗压强度  4. 砼抗折强度  5. 砼弹性模量  6. 砌体抗压强度  7. 岩石抗压强度  8. 钢筋屈服强度  9. 钢筋抗拉强度  10. 钢筋延伸率  11. 钢材硬度  12. 钢材冲击韧性 |
| 4 | 线路工  实训基地 | 一定长度的铁路轨道；起、拨道器；小型捣固机；道尺；支距尺；轨缝调整器；小型轨检车；安博格小车 | 1.城市轨道线路养护、维修作业及注意事项；  2.各种设备的操作与保养。 |
| 5 | 工程制图  实训室 | 计算机房；绘图板；  计算机辅助制图软件 | 1.工程图纸的识读；  2.工程图纸的手工绘制；  3.工程图纸的计算机绘制。 |
| 6 | 工程测量  实训室 | 水准仪；经纬仪；全站仪；GPS；CPⅢ测量软件、激光垂准仪、激光扫平仪、精密检校台 | 1.测量仪器的操作与使用；  2.控制测量实训；  3.铁路施工测量放样；  4.测量工技能训练与鉴定 |
| 7 | 铁道工程模拟实训室 | 各类道岔模型； | 1.认识各类道岔  2.路道岔构造 |
| 8 | 高速铁路模拟实训室 | 铁路线路、桥涵、隧道、站场模型 | 1.铁路线、桥、隧、站场认识  2.铁路线、桥、隧、站场等构造 |
| 9 | 养路机械模拟实训室 | 机械原理模型、挂图；小型养路机械模型 | 1.机械原理  2.小型养路机械构造，功能模拟操作 |

3、校外实习基地的基本要求

学校与实习基地签订协议，建有稳定的校外实训基地，实习基地为学生配备兼职教师，和校内教师共同制定实习任务书和指导书，完成本专业学生综合实训和顶岗实习半年以上需要，专业技能都能在实训基地得到训练。

1. 教学资源

1、教材资源

选用高职高专教材，优先选用教育部国家规划教材和铁道部规划教材，鼓励有特色和创新的校本教材。

2、图书资源

有一定数量的专业图书与刊物，生均专业图书、期刊资料及电子图书不少于 60 册。

3、数字化（网络）资源

主干专业核心课程完成教学资源库的上传工作并已投入使用。资源类型包括电子教材、教案、多媒体课件、案例库、试题库、图片及视频资料库，开辟师生学习讨论区，向学生了提供丰富的网络学习资源。

1. 教学方法

1、教学方法、手段建议

在教学实施过程中，应贯彻“以学生为中心”的教学理念，突出职业道德、职业技能、创业就业能力的培养，改革教学方法和手段，深入开展项目教学、现场教学、案例教学、模拟教学，以做为核心，真正实现“教、学、做”合一。

2、教学组织形式建议

以典型产品（项目、案例）为载体，设计教学组织形式，将职业道德和职业精神融入专业教学全过程，促进学生知识、技能、职业素养协调发展；引入行业企业的新知识、新技术、新标准、新设备、新工艺、新成果和国际通用的技能型人才职业资格标准，动态更新教学内容。

1. 教学评价

1、教学评价建议

建立以职业知识、职业技能与职业素养为评价核心，过程考核和结果考核相结合的课程考核评价体系。创新评价方式，建立学校、行业企业、社会机构参与评价的多元质量评价模式；创新灵活多样的考核评价管理办法，根据不同课程类型采取灵活的考核形式；职业精神纳入学生的评价考核体系。

2、教学考核建议

① 过程评价加期末考核评价相结合的方法进行考核；

② 理论考核加实作考核相结合的方法进行考核；

③ 课程考核加技能鉴定相结合的方法进行考核；

④ 顶岗实践的校内指导教师与校外指导老师相结合进行考核。

六、质量管理

主要采用以学年制为主体的全日制教学管理模式，实行弹性实施学分制管理模式。

**毕业要求**

学生德、智、体合格，在允许的修业年限内学完培养计划规定的全部课程，通过顶岗实践或毕业论文答辩，取得相应的职业资格证书，达到毕业最低学分（144分）要求，即获得毕业资格，准予毕业并颁发毕业证书。

**教 学 进 程 表**

**2018 级 铁道工程技术 专 业**

毕业最低学分：144分

专业代码： 600104

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **一、教学进程表** | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | **二、周数分配表** | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 学  年 | | 教 学 周 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 理论  及  分散  实践 | | | 集  中  实  践 | | | | 考  试 | | | 劳  动 | | | | 军  训 | | | 机  动 | | | | 毕  业  教  育 | | 假  期 | | | 合  计 | | |
| 九月 | | | | | | | | 十月 | | | | | | | 十一月 | | | | | | 十二月 | | | | | | | | 一月 | | | | | | | | | 二月 | | | | | | | | | 三月 | | | | | | | 四月 | | | | | 五月 | | | | | | | | 六月 | | | | | | | | | 七月 | | | | | | | | | 八月 | | | | | | | |
|  | | | 1 | 2 | | | 3 | 4 | | | 5 | 6 | 7 | 8 | 9 | | 10 | 11 | 12 | 13 | 14 | | 15 | | 16 | | 17 | | 18 | | | 19 | | 20 | | 21 | 22 | | | 23 | 24 | | 25 | | 26 | | 27 | | | | 28 | 29 | 30 | 31 | | 32 | 33 | 34 | 35 | | 36 | 37 | | 38 | 39 | | 40 | | 41 | | 42 | | 43 | | | 44 | | | | 45 | | 46 | | 47 | 48 | | | 49 | 50 | 51 | 52 | | | | K | | | S | | | | ∷ | | | × | | | | ★ | | | J | | | | T | | = | | |  | | |
| 一 | | | ★2 | | | | 15 | | | | | | | | | | | | | | | | | | | | | | J2 | | | | | ∷ | | ==== 6 | | | | | | | | | | | 17 | | | | | | | | | | | | | | | | | | | | | | | | | | | | × | | | | J | | | ∷ | | ==== 6 | | | | | | | | | | | 32 | | | 0 | | | | 2 | | | 1 | | | | 2 | | | 3 | | | | 0 | | 12 | | | 52 | | |
| 二 | | 15 | | | | | | | | | | | | | | | | | | | | | | S3 | | | | | | | J | | ∷ | | ==== 6 | | | | | | | | | | | 15 | | | | | | | | | | | | | | | | | | | | | | | | S3 | | | | | | | | J | | | ∷ | | ====6 | | | | | | | | | | 30 | | | 6 | | | | 2 | | | 0 | | | | 0 | | | 2 | | | | 0 | | | 12 | | 52 | | | | |
| 三 | | 15 | | | | | | | | | | | | | | | | | | | | | | S3 | | | | | | | J | | ∷ | | ==== 6 | | | | | | | | | | | S18 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | J | | | T | |  | | | | | | | | | | 15 | | | 21 | | | | 1 | | | 0 | | | | 0 | | | 2 | | | | 1 | | | 6 | | 46 | | | | |
| **三、教学进度表** | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 合计 | | | | | | | | | | | | | | | | | | | 77 | | | 27 | | | | 5 | | | 1 | | | | 2 | | | 7 | | | | 1 | | | 30 | | 150 | | | | |
| 课程类型 | | 序  号 | | | 课程  代码 | | | | | 课 程 名 称 | | | | | | | | | | | 考核学期序 | | | | | | | | | | | | | | | | | 学 分 | | | | | | 学 时 数 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 理论教学（含分散性实践教学）周学时 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 考 试 | | | | | | | 考 查 | | | | | | | | | | 总 计 | | | | | | | | | | 理 论 | | | | | 实 践 | | | | | | | | | | | | | | | | | | | | | | | | | | | | 一 年 级 | | | | | | | | | | | | 二 年 级 | | | | | | | | | | | | | | 三 年 级 | | | | | | | | | | |
| 合 计 | | | | 习 题 课 | | | 实 训 | | | | | | 现场教学 | | | | | | | | | 创新创业训练 | | | | | | 1学期  15周 | | | | | 2学期  17周 | | | | | | | 3学期  15周 | | | | | | | 4学期  15周 | | | | | | | 5学期  15周 | | | | 6学期  0周 | | | | | | |
| 公共必修课 | | 1 | | | 0001 | | | | | 思想道德修养与法律基础及形势政策 | | | | | | | | | | | 1 | | | | | | | 2 | | | | | | | | | | 4 | | | | | | 64 | | | | | | | | | | 64 | | | | |  | | | |  | | |  | | | | | |  | | | | | | | | |  | | | | | | 2 | | | | | 2 | | | | | | |  | | | | | | |  | | | | | | |  | | | |  | | | | | | |
| 2 | | | 0002 | | | | | 毛泽东思想和中国特色社会主义理论体系概论及形势政策 | | | | | | | | | | | 3 | | | | | | | 4 | | | | | | | | | | 3 | | | | | | 60 | | | | | | | | | | 60 | | | | |  | | | |  | | |  | | | | | |  | | | | | | | | |  | | | | | |  | | | | |  | | | | | | | 2 | | | | | | | 2 | | | | | | |  | | | |  | | | | | | |
| 3 | | | 0005 | | | | | 高等数学 | | | | | | | | | | | 1 | | | | | | |  | | | | | | | | | | 3 | | | | | | 60 | | | | | | | | | | 54 | | | | | 6 | | | | 6 | | |  | | | | | |  | | | | | | | | |  | | | | | | 4 | | | | |  | | | | | | |  | | | | | | |  | | | | | | |  | | | |  | | | | | | |
| 4 | | | 0006 | | | | | 大学语文 | | | | | | | | | | |  | | | | | | | 1 | | | | | | | | | | 3 | | | | | | 60 | | | | | | | | | | 52 | | | | | 8 | | | | 8 | | |  | | | | | |  | | | | | | | | |  | | | | | | 4 | | | | |  | | | | | | |  | | | | | | |  | | | | | | |  | | | |  | | | | | | |
| 5 | | | 0007 | | | | | 公共英语 | | | | | | | | | | | 1 | | | | | | |  | | | | | | | | | | 3 | | | | | | 60 | | | | | | | | | | 18 | | | | | 42 | | | | 42 | | |  | | | | | |  | | | | | | | | |  | | | | | | 4 | | | | |  | | | | | | |  | | | | | | |  | | | | | | |  | | | |  | | | | | | |
| 6 | | | 0008 | | | | | 信息技术 | | | | | | | | | | |  | | | | | | | 2 | | | | | | | | | | 4 | | | | | | 68 | | | | | | | | | | 34 | | | | | 34 | | | |  | | | 34 | | | | | |  | | | | | | | | |  | | | | | |  | | | | | 4 | | | | | | |  | | | | | | |  | | | | | | |  | | | |  | | | | | | |
| 7 | | | 0009 | | | | | 体育 | | | | | | | | | | | 3 | | | | | | | 1.2.4 | | | | | | | | | | 7 | | | | | | 124 | | | | | | | | | | 8 | | | | | 116 | | | |  | | |  | | | | | | 116 | | | | | | | | |  | | | | | | 2 | | | | | 2 | | | | | | | 2 | | | | | | | 2 | | | | | | |  | | | |  | | | | | | |
| 8 | | | 0004 | | | | | 中华优秀传统文化 | | | | | | | | | | |  | | | | | | | 1 | | | | | | | | | | 2 | | | | | | 30 | | | | | | | | | | 30 | | | | |  | | | |  | | |  | | | | | |  | | | | | | | | |  | | | | | | 2 | | | | |  | | | | | | |  | | | | | | |  | | | | | | |  | | | |  | | | | | | |
| 9 | | | 0011 | | | | | 民族理论和政策 | | | | | | | | | | |  | | | | | | | 5 | | | | | | | | | | 2 | | | | | | 30 | | | | | | | | | | 30 | | | | |  | | | |  | | |  | | | | | |  | | | | | | | | |  | | | | | |  | | | | |  | | | | | | |  | | | | | | |  | | | | | | | 2 | | | |  | | | | | | |
| 10 | | | 0010 | | | | | 大学生职业发展与就业指导 | | | | | | | | | | |  | | | | | | | 2 | | | | | | | | | | 2 | | | | | | 34 | | | | | | | | | | 34 | | | | |  | | | |  | | |  | | | | | |  | | | | | | | | |  | | | | | |  | | | | | 2 | | | | | | |  | | | | | | |  | | | | | | |  | | | |  | | | | | | |
| 小计学分及学时数 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 33 | | | | | | 590 | | | | | | | | | | 384 | | | | | 206 | | | | 56 | | | 34 | | | | | | 116 | | | | | | | | |  | | | | | | 18 | | | | | 10 | | | | | | | 4 | | | | | | | 4 | | | | | | | 2 | | | | 0 | | | | | | |
| 专业必修课 | | 11 | | | 01009 | | | | | 铁路测量 | | | | | | | | | | | 2 | | | | | | | 1 | | | | | | | | | | 7 | | | | | | 128 | | | | | | | | | | 72 | | | | | 56 | | | |  | | |  | | | | | | 56 | | | | | | | | |  | | | | | | 4 | | | | | 4 | | | | | | |  | | | | | | |  | | | | | | |  | | | |  | | | | | | |
| 12 | | | 01001 | | | | | 工程制图 | | | | | | | | | | | 1 | | | | | | | 2 | | | | | | | | | | 5 | | | | | | 94 | | | | | | | | | | 64 | | | | | 30 | | | |  | | | 30 | | | | | |  | | | | | | | | |  | | | | | | 4 | | | | | 2 | | | | | | |  | | | | | | |  | | | | | | |  | | | |  | | | | | | |
| 13 | | | 01005 | | | | | 工程力学 | | | | | | | | | | | 2 | | | | | | | 3 | | | | | | | | | | 5 | | | | | | 98 | | | | | | | | | | 80 | | | | | 18 | | | | 8 | | | 10 | | | | | |  | | | | | | | | |  | | | | | |  | | | | | 4 | | | | | | | 2 | | | | | | |  | | | | | | |  | | | |  | | | | | | |
| 14 | | | 01004 | | | | | 铁道概论 | | | | | | | | | | | 2 | | | | | | | 4 | | | | | | | | | | 4 | | | | | | 68 | | | | | | | | | | 64 | | | | | 4 | | | |  | | |  | | | | | | 4 | | | | | | | | |  | | | | | |  | | | | | 4 | | | | | | |  | | | | | | |  | | | | | | |  | | | |  | | | | | | |
|  | | | 01006 | | | | | 工程地质 | | | | | | | | | | |  | | | | | | | 3 | | | | | | | | | | 2 | | | | | | 30 | | | | | | | | | | 26 | | | | | 4 | | | |  | | |  | | | | | | 4 | | | | | | | | |  | | | | | |  | | | | |  | | | | | | | 2 | | | | | | |  | | | | | | |  | | | |  | | | | | | |
| 14 | | | 01010 | | | | | 钢筋混凝土结构 | | | | | | | | | | | 3 | | | | | | |  | | | | | | | | | | 3 | | | | | | 60 | | | | | | | | | | 48 | | | | | 12 | | | | 6 | | | 6 | | | | | |  | | | | | | | | |  | | | | | |  | | | | |  | | | | | | | 4 | | | | | | |  | | | | | | |  | | | |  | | | | | | |
| 15 | | | 01008 | | | | | 土力学与地基基础 | | | | | | | | | | | 3 | | | | | | |  | | | | | | | | | | 3 | | | | | | 60 | | | | | | | | | | 30 | | | | | 30 | | | | 2 | | | 28 | | | | | |  | | | | | | | | |  | | | | | |  | | | | |  | | | | | | | 4 | | | | | | |  | | | | | | |  | | | |  | | | | | | |
| 16 | | | 01018 | | | | | 铁路隧道施工与维护 | | | | | | | | | | |  | | | | | | | 3 | | | | | | | | | | 3 | | | | | | 60 | | | | | | | | | | 40 | | | | | 20 | | | |  | | | 20 | | | | | |  | | | | | | | | | 4 | | | | | |  | | | | |  | | | | | | | 4 | | | | | | |  | | | | | | |  | | | |  | | | | | | |
| 17 | | | 01011 | | | | | 铁路路基施工与维护 | | | | | | | | | | | 4 | | | | | | |  | | | | | | | | | | 5 | | | | | | 90 | | | | | | | | | | 46 | | | | | 44 | | | |  | | | 8 | | | | | | 36 | | | | | | | | | 4 | | | | | |  | | | | |  | | | | | | |  | | | | | | | 6 | | | | | | |  | | | |  | | | | | | |
| 18 | | | 01012 | | | | | 铁路轨道施工与维护 | | | | | | | | | | | 4.5 | | | | | | |  | | | | | | | | | | 7 | | | | | | 120 | | | | | | | | | | 60 | | | | | 60 | | | | 4 | | |  | | | | | | 56 | | | | | | | | | 4 | | | | | |  | | | | |  | | | | | | |  | | | | | | | 4 | | | | | | | 4 | | | |  | | | | | | |
| 19 | | | 01013 | | | | | 铁路桥梁施工与维护 | | | | | | | | | | | 4.5 | | | | | | |  | | | | | | | | | | 7 | | | | | | 120 | | | | | | | | | | 60 | | | | | 60 | | | |  | | |  | | | | | | 60 | | | | | | | | | 18 | | | | | |  | | | | |  | | | | | | |  | | | | | | | 4 | | | | | | | 2 | | | |  | | | | | | |
| 20 | | | 01014 | | | | | 铁路施工组织设计与概预算 | | | | | | | | | | |  | | | | | | | 4.5 | | | | | | | | | | 5 | | | | | | 90 | | | | | | | | | | 46 | | | | | 44 | | | |  | | | 44 | | | | | |  | | | | | | | | | 26 | | | | | |  | | | | |  | | | | | | |  | | | | | | | 4 | | | | | | | 2 | | | |  | | | | | | |
| 21 | | | 01032 | | | | | 工务安全与班组管理 | | | | | | | | | | | 5 | | | | | | |  | | | | | | | | | | 3 | | | | | | 60 | | | | | | | | | | 56 | | | | | 4 | | | |  | | |  | | | | | | 4 | | | | | | | | |  | | | | | |  | | | | |  | | | | | | |  | | | | | | |  | | | | | | | 4 | | | |  | | | | | | |
| 22 | | | 01102 | | | | | 测量实习 | | | | | | | | | | |  | | | | | | | 3 | | | | | | | | | | 3 | | | | | | 84 | | | | | | | | | |  | | | | | 84 | | | |  | | |  | | | | | | 84 | | | | | | | | |  | | | | | |  | | | | |  | | | | | | | 3周 | | | | | | |  | | | | | | |  | | | |  | | | | | | |
| 23 | | | 01105 | | | | | 模型制作实习 | | | | | | | | | | |  | | | | | | | 4 | | | | | | | | | | 2 | | | | | | 56 | | | | | | | | | |  | | | | | 56 | | | |  | | |  | | | | | | 56 | | | | | | | | |  | | | | | |  | | | | |  | | | | | | |  | | | | | | | 2周 | | | | | | |  | | | |  | | | | | | |
| 24 | | | 01107 | | | | | 综合实习 | | | | | | | | | | |  | | | | | | | 4.5 | | | | | | | | | | 2 | | | | | | 56 | | | | | | | | | |  | | | | | 56 | | | |  | | |  | | | | | | 56 | | | | | | | | |  | | | | | |  | | | | |  | | | | | | |  | | | | | | | 1周 | | | | | | | 1周 | | | |  | | | | | | |
| 25 | | | 01108 | | | | | 线路工培训 | | | | | | | | | | |  | | | | | | | 5 | | | | | | | | | | 2 | | | | | | 56 | | | | | | | | | |  | | | | | 56 | | | |  | | | 56 | | | | | |  | | | | | | | | |  | | | | | |  | | | | |  | | | | | | |  | | | | | | |  | | | | | | | 2周 | | | |  | | | | | | |
| 26 | | | 01109 | | | | | 顶岗实习 | | | | | | | | | | |  | | | | | | | 6 | | | | | | | | | | 18 | | | | | | 540 | | | | | | | | | |  | | | | | 540 | | | |  | | |  | | | | | | 540 | | | | | | | | |  | | | | | |  | | | | |  | | | | | | |  | | | | | | |  | | | | | | |  | | | | 18周 | | | | | | |
| 小计学分及学时数 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 86 | | | | | | 1870 | | | | | | | | | | 692 | | | | | 1178 | | | | 20 | | | 202 | | | | | | 956 | | | | | | | | | 56 | | | | | | 8 | | | | | 14 | | | | | | | 16 | | | | | | | 18 | | | | | | | 14 | | | |  | | | | | | |
| 专业选修课 | | 27 | | | 01042 | | | | | 铁路选线 | | | | | | | | | | |  | | | | | | | 5 | | | | | | | | | | 3 | | | | | | 30 | | | | | | | | | | 26 | | | | | 4 | | | |  | | |  | | | | | | 4 | | | | | | | | |  | | | | | |  | | | | |  | | | | | | | 2 | | | | | | |  | | | | | | |  | | | |  | | | | | | |
| 28 | | | 16004 | | | | | 高速铁道概论 | | | | | | | | | | |  | | | | | | | 4 | | | | | | | | | | 3 | | | | | | 68 | | | | | | | | | | 64 | | | | | 4 | | | |  | | |  | | | | | | 4 | | | | | | | | |  | | | | | |  | | | | | 4 | | | | | | |  | | | | | | |  | | | | | | |  | | | |  | | | | | | |
| 29 | | | 21004 | | | | | 城市轨道交通概论 | | | | | | | | | | |  | | | | | | | 4 | | | | | | | | | | 3 | | | | | | 68 | | | | | | | | | | 64 | | | | | 4 | | | |  | | |  | | | | | | 4 | | | | | | | | |  | | | | | |  | | | | | 4 | | | | | | |  | | | | | | |  | | | | | | |  | | | |  | | | | | | |
| 30 | | | 01002 | | | | | 工程CAD | | | | | | | | | | |  | | | | | | | 3 | | | | | | | | | | 2 | | | | | | 30 | | | | | | | | | | 15 | | | | | 15 | | | |  | | | 15 | | | | | |  | | | | | | | | |  | | | | | |  | | | | |  | | | | | | | 2 | | | | | | |  | | | | | | |  | | | |  | | | | | | |
| 31 | | | 01038 | | | | | 地基处理 | | | | | | | | | | |  | | | | | | | 3 | | | | | | | | | | 2 | | | | | | 30 | | | | | | | | | | 24 | | | | | 6 | | | |  | | |  | | | | | | 6 | | | | | | | | |  | | | | | |  | | | | |  | | | | | | | 2 | | | | | | |  | | | | | | |  | | | |  | | | | | | |
| 32 | | | 01043 | | | | | 专业英语 | | | | | | | | | | |  | | | | | | | 5 | | | | | | | | | | 2 | | | | | | 30 | | | | | | | | | | 26 | | | | | 4 | | | |  | | | 4 | | | | | |  | | | | | | | | |  | | | | | |  | | | | |  | | | | | | |  | | | | | | |  | | | | | | | 2 | | | |  | | | | | | |
| 33 | | | 16033 | | | | | 高速铁路车站与线路 | | | | | | | | | | |  | | | | | | | 4 | | | | | | | | | | 2 | | | | | | 30 | | | | | | | | | | 26 | | | | | 4 | | | |  | | |  | | | | | | 4 | | | | | | | | |  | | | | | |  | | | | |  | | | | | | |  | | | | | | | 2 | | | | | | |  | | | |  | | | | | | |
| 34 | | | 01031 | | | | | 机械养路 | | | | | | | | | | |  | | | | | | | 4 | | | | | | | | | | 3 | | | | | | 45 | | | | | | | | | | 41 | | | | | 4 | | | |  | | |  | | | | | | 4 | | | | | | | | |  | | | | | |  | | | | |  | | | | | | |  | | | | | | | 3 | | | | | | |  | | | |  | | | | | | |
| 35 | | | 01039 | | | | | BIM技术 | | | | | | | | | | |  | | | | | | | 4 | | | | | | | | | | 3 | | | | | | 45 | | | | | | | | | | 23 | | | | | 22 | | | |  | | | 22 | | | | | |  | | | | | | | | |  | | | | | |  | | | | |  | | | | | | |  | | | | | | | 3 | | | | | | |  | | | |  | | | | | | |
| 36 | | | 01035 | | | | | 监理概论 | | | | | | | | | | |  | | | | | | | 5 | | | | | | | | | | 3 | | | | | | 45 | | | | | | | | | | 41 | | | | | 4 | | | |  | | |  | | | | | | 4 | | | | | | | | |  | | | | | |  | | | | |  | | | | | | |  | | | | | | |  | | | | | | | 2 | | | |  | | | | | | |
| 37 | | | 01036 | | | | | 钢轨探伤 | | | | | | | | | | |  | | | | | | | 5 | | | | | | | | | | 3 | | | | | | 45 | | | | | | | | | | 31 | | | | | 14 | | | |  | | |  | | | | | | 14 | | | | | | | | |  | | | | | |  | | | | |  | | | | | | |  | | | | | | |  | | | | | | | 3 | | | |  | | | | | | |
| 38 | | | 01037 | | | | | 铁道工程实务 | | | | | | | | | | |  | | | | | | | 5 | | | | | | | | | | 3 | | | | | | 45 | | | | | | | | | | 31 | | | | | 14 | | | |  | | | 14 | | | | | |  | | | | | | | | |  | | | | | |  | | | | |  | | | | | | |  | | | | | | |  | | | | | | | 3 | | | |  | | | | | | |
| 小计学分及学时数 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 11 | | | | | | 165 | | | | | | | | | | 128 | | | | | 37 | | | |  | | | 15 | | | | | | 22 | | | | | | | | |  | | | | | |  | | | | |  | | | | | | | 2 | | | | | | | 3 | | | | | | | 5 | | | |  | | | | | | |
| **四、素质拓展课** | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 课程类型 | | 序  号 | | | | 课程代码 | | | | 课 程 名 称 | | | | | | | | | | | 考核学期序 | | | | | | | | | | | | | | | | | 学 分 | | | | 课  时 | | | | | | | 说 明 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 考 试 | | | | | 考 查 | | | | | | | | | | | |
| 必修  课 | | 1 | | | | 01 | | | | 军训及军事理论教育 | | | | | | | | | | |  | | | | | 1 | | | | | | | | | | | | 4 | | | | 60 | | | | | | | | 第1学期开设，含入学教育。 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 2 | | | | 02 | | | | 心理健康教育 | | | | | | | | | | |  | | | | | 2.3.4.5 | | | | | | | | | | | | 2 | | | | 32 | | | | | | | | 分专业在第2～5学期之一开设。 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 3 | | | | 03 | | | | 大学生安全及健康教育 | | | | | | | | | | |  | | | | | 1.2.3.4 | | | | | | | | | | | | 2 | | | | 32 | | | | | | | | 在1～4学期实施，以专题讲座的形式和每学期大学生第二课堂教育活动中开设. | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 4 | | | | 04 | | | | 大学生暑期社会实践 | | | | | | | | | | |  | | | | | 2.4 | | | | | | | | | | | | 2 | | | |  | | | | | | | | 利用暑期，进行社会实践，提交报告。 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 小计学分及学时数 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 10 | | | | 124 | | | | | | | |  | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 选  修  课 | | 1 | | | | 001 | | | | 演讲与口才 | | | | | | | | | | |  | | | | | 2～5 | | | | | | | | | | | | 2 | | | | 32 | | | | | | | |  | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 2 | | | | 002 | | | | 中国小说阅读与鉴赏 | | | | | | | | | | |  | | | | | 2～5 | | | | | | | | | | | | 2 | | | | 32 | | | | | | | |  | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 3 | | | | 003 | | | | 音乐欣赏 | | | | | | | | | | |  | | | | | 2～5 | | | | | | | | | | | | 2 | | | | 32 | | | | | | | |  | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 4 | | | | 004 | | | | 影视文学欣赏 | | | | | | | | | | |  | | | | | 2～5 | | | | | | | | | | | | 2 | | | | 32 | | | | | | | |  | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 5 | | | | 005 | | | | 应用写作 | | | | | | | | | | |  | | | | | 2～5 | | | | | | | | | | | | 2 | | | | 32 | | | | | | | |  | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 6 | | | | 006 | | | | 现代礼仪 | | | | | | | | | | |  | | | | | 2～5 | | | | | | | | | | | | 2 | | | | 32 | | | | | | | |  | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 7 | | | | 007 | | | | 中国古典诗词欣赏 | | | | | | | | | | |  | | | | | 2～5 | | | | | | | | | | | | 2 | | | | 32 | | | | | | | |  | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 8 | | | | 008 | | | | 中国近现代史纲要 | | | | | | | | | | |  | | | | | 2～5 | | | | | | | | | | | | 2 | | | | 32 | | | | | | | |  | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 9 | | | | 009 | | | | 中国传统文化 | | | | | | | | | | |  | | | | | 2～5 | | | | | | | | | | | | 2 | | | | 32 | | | | | | | |  | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 10 | | | | 010 | | | | 中国旅游资源概况 | | | | | | | | | | |  | | | | | 2～5 | | | | | | | | | | | | 2 | | | | 32 | | | | | | | |  | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 11 | | | | 011 | | | | ISO9000质量管理体系 | | | | | | | | | | |  | | | | | 2～5 | | | | | | | | | | | | 2 | | | | 32 | | | | | | | |  | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 12 | | | | 012 | | | | 高级文字排版 | | | | | | | | | | |  | | | | | 2～5 | | | | | | | | | | | | 2 | | | | 32 | | | | | | | |  | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 13 | | | | 013 | | | | 电子表格处理 | | | | | | | | | | |  | | | | | 2～5 | | | | | | | | | | | | 2 | | | | 32 | | | | | | | |  | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 14 | | | | 014 | | | | PS图像处理 | | | | | | | | | | |  | | | | | 2～5 | | | | | | | | | | | | 2 | | | | 32 | | | | | | | |  | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 15 | | | | 015 | | | | 高级PPT制作 | | | | | | | | | | |  | | | | | 2～5 | | | | | | | | | | | | 2 | | | | 32 | | | | | | | |  | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 16 | | | | 016 | | | | 计算机组装维修及网络操作 | | | | | | | | | | |  | | | | | 2～5 | | | | | | | | | | | | 2 | | | | 32 | | | | | | | |  | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 17 | | | | 017 | | | | 生活中的经济学 | | | | | | | | | | |  | | | | | 2～5 | | | | | | | | | | | | 2 | | | | 32 | | | | | | | |  | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 18 | | | | 018 | | | | 技术史漫谈 | | | | | | | | | | |  | | | | | 2～5 | | | | | | | | | | | | 2 | | | | 32 | | | | | | | |  | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 19 | | | | 019 | | | | 电影赏析 | | | | | | | | | | |  | | | | | 2～5 | | | | | | | | | | | | 2 | | | | 32 | | | | | | | |  | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 20 | | | | 020 | | | | 职业素质 | | | | | | | | | | |  | | | | | 2～5 | | | | | | | | | | | | 2 | | | | 32 | | | | | | | |  | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 21 | | | | 021 | | | | 创造性思维与创新方法 | | | | | | | | | | |  | | | | | 2～5 | | | | | | | | | | | | 2 | | | | 32 | | | | | | | |  | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 22 | | | | 022 | | | | 大学生创业基础 | | | | | | | | | | |  | | | | | 2～5 | | | | | | | | | | | | 2 | | | | 32 | | | | | | | |  | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 23 | | | | 023 | | | | 创新创业实践 | | | | | | | | | | |  | | | | | 1～6 | | | | | | | | | | | | 10 | | | |  | | | | | | | | 用于学生参加课题研究、项目实验、竞赛活动、发表论文等创新创业成果的学分折算 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 小计学分及学时数 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 44 | | | | 704 | | | | | | | |  | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| **合计学分及学时数** | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | **总学分144,必修课学分129,选修课学分15，其中专业选修课学分11，素质选修课学分4.总学时2749，理论学时1248，实践学时1501** | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

**铁路桥梁与隧道工程技术专业**

**教学标准**

**专业名称** 铁路桥梁与隧道工程技术

**专业代码** 600110

**入学要求** 高中阶段教育毕业生或具有同等学力者

**修业年限** 三年

**职业面向**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| 所属专业大类（代码） | 所属专业类  （代码） | 对应行业  （代码） | 主要职业类别  （代码） | 主要岗位类别或技术领域举例 | 职业资格或职业技能等级证书举例 |
| 交通运输大类(60) | 铁道运输类(6001) | 土木工程建筑业（48）  铁路运输业（53） | 建筑工程技术人员（2-02-18）  铁道工程技术人员（2-02-17） | 施工  维护 | 中级桥隧工  中级线路工  中级测量工 |

**培养目标与培养规格**

一、培养目标

本专业培养理想信念坚定，德、智、体、美、劳全面发展，具有一定的科学文化水平，良好的人文素养、职业道德和创新意识，精益求精的工匠精神，较强的就业能力和可持续发展的能力；掌握铁路桥梁与隧道工程技术专业知识和技术技能，面向铁路桥隧工程施工与维护等技术领域，能够从事铁路桥隧工程勘察、施工、检测、维修等技术与管理工作的高素质技术技能人才。

二、培养规格

本专业毕业生应在素质、知识和能力等方面达到以下要求。

1.素质

（1）坚定拥护中国共产党领导和我国社会主义制度，在习近平新时代中国特色社会主义思想指引下，践行社会主义核心价值观，具有深厚的爱国情感和中华民族自豪感；

（2）崇尚宪法、遵法守纪、崇德向善、诚实守信、尊重生命、热爱劳动、履行道德准则和行为规范，具有社会责任感和社会参与意识；

（3）具有质量意识、环保意识、安全意识、信息素养、工匠、创新思维；

（4）勇于奋斗、乐观向上，具有自我管理能力、职业生涯规划意识，有较强的集体意识和团队合作精神；

（5）具有健康的体魄、心理和健全的人格，掌握基本运动知识和一两项运动技能，养成良好的健身与卫生习惯，良好的行为习惯；

（6）具有一定的审美和人文素养，能够形成一两项艺术特长或爱好。

2.知识

（1）掌握必备的思想政治理论、科学文化基础知识和中华优秀传统文化知识；

（2）熟悉与本专业相关的法律法规以及环境保护、安全消防等相关知识；

（3）掌握与职业基础技能相适应的工程制图、工程测量、工程力学、建筑材料、工程地质、混凝土结构等专业基础知识；

（4）掌握与职业技术技能相适应的铁路桥梁和隧道工程勘测、施工、养护、维修、概预算等专业知识；

（5）掌握本专业相关的生产管理、质量管理和现场管理等管理知识；

（6）掌握本专业相关的安全、质量、环保等相关知识；

（7）熟悉本专业新技术、新工艺、新材料、新设备等方面的知识；

（8）熟悉铁路桥梁与隧道工程安全生产技术管理相关知识；

（9）了解铁路交通运输行业四电和运输设备等基本知识、防灾安全监控系统基本知识；

（10）了解最新发布的涉及本专业的铁路行业标准、国家标准和国际标准。

3.能力

（1）具有探究学习、终身学习、分析问题和解决问题的能力；

（2）具有良好的语言、文字表达能力和沟通能力，能够进行口语和书面的表达与交流；

（3）具有团队合作能力；

（4）具备铁路桥梁与隧道施工识图、读图、绘图能力；

（5）具备对铁路桥隧典型结构进行受力分析及计算的能力，掌握铁路桥梁与隧道施工临时结构检算初步技能；

（6）具备开展铁路桥隧工程施工测量放样的能力；

（7）具备进行铁路桥隧工程主要建筑材料试验检测的能力；

（8）具备阅读分析工程地质资料的能力；

（9）具有开展铁路桥隧工程勘察、施工、检测、维修、概预算的基本能力；

（10）具有生产管理、质量管理、现场管理及班组管理的基本能力；

（11）具有铁路桥隧工程施工和维护常用工程机械的使用与维护保养的基本能力。

**课程设置及学时安排**

一、必修课程

1. 公共必修课程

|  |  |  |
| --- | --- | --- |
| 序号 | 课程名称 | 课时数 |
| 1 | 思想道德修养与法律基础及形势政策 | 64 |
| 2 | 毛泽东思想和中国特色社会主义理论体系概论及形势政策 | 60 |
| 3 | 高等数学 | 60 |
| 4 | 大学语文 | 60 |
| 5 | 公共英语 | 60 |
| 6 | 信息技术 | 68 |
| 7 | 体育 | 124 |
| 8 | 中华优秀传统文化 | 30 |
| 9 | 民族理论和政策 | 30 |
| 10 | 大学生职业发展与就业指导 | 34 |

2.专业必修课程

|  |  |  |
| --- | --- | --- |
| 序号 | 课程名称 | 课时数 |
| 1 | 铁道概论 | 68 |
| 2 | 铁路测量 | 128 |
| 3 | 工程制图与CAD | 94 |
| 4 | 工程力学 | 128 |
| 5 | 土力学 | 60 |
| 6 | 钢筋混凝土结构 | 60 |
| 7 | 工程地质 | 30 |
| 8 | 铁路桥梁施工 | 90 |
| 9 | 铁路隧道施工 | 90 |
| 10 | 地基基础施工 | 60 |
| 11 | 铁路桥隧施工组织设计与概预算 | 90 |
| 12 | 铁路桥隧检测 | 60 |
| 13 | 铁路桥隧养护维修 | 60 |
| 14 | 测量实习 | 84 |
| 15 | 模型制作实习 | 56 |
| 16 | 综合实习 | 28 |
| 17 | 桥隧工培训 | 56 |
| 18 | 桥隧养护实习 | 28 |
| 19 | 顶岗实习 | 540 |

3.素质拓展必修课程

|  |  |  |
| --- | --- | --- |
| 序号 | 课程名称 | 课时数 |
| 1 | 军训及军事理论教育 | 60 |
| 2 | 心理健康教育 | 32 |
| 3 | 大学生安全及健康教育 | 32 |
| 4 | 大学生暑期社会实践 |  |

二、选修课程

1. 专业选修课程

|  |  |  |
| --- | --- | --- |
| 序号 | 课程名称 | 课时数 |
| 1 | 水力学与桥涵水文 | 60 |
| 2 | 铁路线路施工与维护 | 60 |
| 3 | 铁路路基施工与维护 | 60 |
| 4 | 班组管理 | 45 |
| 5 | 监理概论 | 45 |
| 6 | 高速铁道概论 | 60 |
| 7 | 城市轨道交通概论 | 60 |
| 8 | 岩体力学 | 60 |
| 9 | 铁路桥隧施工临时结构检算 | 60 |
| 10 | 工务安全与管理 | 60 |
| 11 | 铁道工程实务 | 45 |
| 12 | BIM | 45 |
| 13 | 地下铁道施工技术 | 45 |
| 14 | 专业英语 | 45 |

2. 素质拓展选修课程

|  |  |  |
| --- | --- | --- |
| 序号 | 课程名称 | 课时数 |
| 1 | 演讲与口才 | 32 |
| 2 | 中国小说阅读与鉴赏 | 32 |
| 3 | 音乐欣赏 | 32 |
| 4 | 影视文学欣赏 | 32 |
| 5 | 应用写作 | 32 |
| 6 | 现代礼仪 | 32 |
| 7 | 中国古典诗词欣赏 | 32 |
| 8 | 中国近现代史纲要 | 32 |
| 9 | 中国传统文化 | 32 |
| 10 | 中国旅游资源概况 | 32 |
| 11 | ISO9000质量管理体系 | 32 |
| 12 | 高级文字排版 | 32 |
| 13 | 电子表格处理 | 32 |
| 14 | PS图像处理 | 32 |
| 15 | 高级PPT制作 | 32 |
| 16 | 计算机组装维修及网络操作 | 32 |
| 17 | 生活中的经济学 | 32 |
| 18 | 技术史漫谈 | 32 |
| 19 | 电影赏析 | 32 |
| 20 | 职业素质 | 32 |
| 21 | 创造性思维与创新方法 | 32 |
| 22 | 大学生创业基础 | 32 |
| 23 | 创新创业实践 |  |

三、专业核心课程主要教学内容与要求

|  |  |  |
| --- | --- | --- |
| 序号 | 专业核心课程 | 主要教学内容与要求 |
| 1 | 地基基础施工 | 常见的地基基础类型与构造；地基基础施工的基本方法；常用的土工试验原理、流程及试验数据处理等；地基基础施工常见质量问题的分析与处理；新技术、新工艺 、新材料、新设备在地基基础施工中的应用等。 |
| 2 | 铁路桥梁施工 | 铁路桥梁的类型与构造；铁路桥梁与涵洞工程施工；铁路桥梁与涵洞工程施工检验与验收； 新技术、新工艺、新材料、新设备在铁路桥梁施工中的应用等。 |
| 3 | 铁路隧道施工 | 铁路隧道的类型与构造；铁路隧道常用施工技术；新技术、新工艺、新材料、新设备在铁路隧道施工中的应用等。 |
| 4 | 铁路桥隧检测 | 铁路桥隧工程结构检查与检测；铁路桥隧工程状态评定等。 |
| 5 | 铁路桥隧养护维修 | 铁路桥隧主体工程及附属工程的养护维护； 铁路桥涵工程加固设计与施工；铁路桥涵防洪与抢险的基本知识等。 |
| 6 | 铁路桥隧施工组织与概预算 | 铁路桥隧工程的施工与维护的施组设计方法、 施工计划、劳动力组织、网络计划管理；铁路工程定额的运用和各项工程费用的计算等。 |

**学时安排**

每学年教学时间为40周，总学时数为2794。顶岗实习按每周30学时计算,校内实习实训按每周28学时计算。每学时为45分钟。18学时计为1个学分，总学分为142学分。军训、入学教育、社会实践、毕业设计（或毕业论文、毕业教育）等，以1周为1学分。公共基础课程学时占总学时的21%。选修课教学时数占总学时的比例为10%。学生顶岗实习为6个月，可根据实际情况，采取工学交替、多学期、分段式等多种形式组织实施。

**教学进程总体安排**

见附件（教学进程表）

**实施保障**

一、师资队伍

1.队伍结构

学生数与本专业专任教师数比例不高于18:1，双师素质教师占专业教师比一般不低于60%，专任教师队伍要考虑职称、年龄，形成合理的梯队结构。

2.专任教师

具有高校教师资格；有理想信念、有道德情操、有扎实学识、有仁爱之心；具有铁路桥梁与隧道工程相关专业本科及以上学历；具有扎实的铁路桥梁与隧道工程相关理论功底和实践能力；具有较强信息化教学能力，能够开展课程教学改革和科学研究；每5年累计不少于6个月的企业实践经历。

3.专业带头人

原则上应具有副高及以上职称，能够较好地把握国内外行业、专业最新发展，能广泛联系行业企业，了解行业企业对铁路桥梁与隧道工程技术专业人才的实际需求，教学设计、专业研究能力强，组织开展教科研工作能力强，在本区域或本领域有一定的专业影响力。

4.兼职教师

主要从铁路工务段或施工相关企业聘任，具备良好的思想政治素质、职业道德和工匠精神，具有扎实的铁路桥梁与隧道工程技术专业知识和丰富的实践经验，具有中级及以上行业相关专业技术资格，能承担课程与实训教学、实习指导等专业教学任务。

二、教学设施

主要包括能够满足正常课程教学、实习实训所必需的专业教室、实训室和实训基地。

1.专业教室基本条件

一般配备黑（白）板、多媒体计算机、投影设备、音响设备，互联网接入或WiFi环境，并具有网络安全防护措施。安装应急照明装置并保持良好状态，符合紧急疏散要求、标志明显、保持逃生通道畅通无阻。

2.校内实训室基本要求

（1）铁路桥隧专业基础实训室

主要配备压力试验机、抗折试验机、万能试验机、多功能材料力学实验机、水准仪、全站仪等。用于工程力学、土木工程材料、混凝土结构、工程测量、工程地质、地基基础施工等课程的教学与实训。

（2）铁路桥隧模型室

主要配备各类铁路桥梁、隧道、涵洞模型及典型构造，各类铁路桥梁支座等。用于铁道概论、铁路桥梁施工、铁路隧道施工等课程的教学与实训。

（3）铁路桥隧检测实训室

主要配备回弹仪、钢筋扫描仪、钢筋锈蚀探测仪、激光测量一体机、断面仪、应变计等。用于铁路桥梁施工、铁路隧道施工、铁路桥隧检测等课程的教学与实训。

（4）铁路桥隧养护实训室

主要配备空压机、电动除锈机、搅拌机、振捣器等。用于铁路桥梁施工、铁路隧道施工、铁路桥隧养护维修等课程的教学与实训。

（5）铁路桥隧专业软件实训室

主要配备计算机、打印机等硬件，工程绘图、桥隧设计、工程造价、桥隧单项作业视频培训等软件。用于工程制图、铁路桥梁施工、铁路隧道施工、铁路施工组织与概预算等课程的教学与实训。

以上实训室还可以作为学生创新创业的实践平台。

3.校外实训基地基本要求

具有稳定的校外实训基地。能够提供铁路桥梁与隧道工程技术专业相关教学实践活动，实训设施齐备，实训岗位、实训指导教师确定，实训管理及实施规章制度齐全。

4.学生实习基地基本要求

具有稳定的校外实习基地。能涵盖当前铁路桥梁与隧道工程专业发展的主流技术，可接纳一定规模的学生实习；能够配备相应数量的指导教师对学生实习进行指导和管理；有保证实习学生日常工作、学习、生活的规章制度，有安全、保险保障。

5.支持信息化教学方面的基本要求

具有利用数字化教学资源库、文献资料、常见问题解答等的信息化条件。引导鼓励教师开发并利用信息化教学资源、教学平台，创新教学方法、提升教学效果。

三、教学资源

主要包括能够满足学生专业学习、教师专业教学研究和教学实施需要的教材、图书及数字资源等。

1.教材选用基本要求

按照国家规定选用优质教材，禁止不合格的教材进入课堂。学校建立由专业教师、行业专家和教研人员等参加的教材选用机构，完善教材选用制度，经过规范程序择优选用教材。

2.图书文献配备基本要求

图书文献配备能满足人才培养、专业建设、教科研等工作的需要，方便师生查询、借阅。其中，专业类图书文献主要包括：铁路桥梁与隧道工程技术专业涉及的职业标准、技术手册、操作规范、规章制度、专业期刊以及案例类图书等。

3.数字教学资源配备基本要求

建设、配备与本专业有关的音视频素材、教学课件、数字化教学案例库、虚拟仿真软件、数字教材等数字资源，种类丰富、形式多样、使用便捷、动态更新、满足教学。

四、教学方法

1.教学方法、手段建议

在教学实施过程中，应贯彻“以学生为中心”的教学理念，突出职业道德、职业技能、创业就业能力的培养，改革教学方法和手段，深入开展项目教学、现场教学、案例教学、模拟教学，以做为核心，真正实现“教、学、做”合一。

2.教学组织形式建议

积极探索选课制、分阶段完成学业等教学组织模式；以典型产品（项目、案例）为载体，利用多媒体课件、 模拟现场作业过程、 数字教学资源以及实训设备， 按情境或项目组织教学。

五、教学评价

1.教学评价建议

建立以职业知识、职业技能与职业素养为评价核心，过程考核和结果考核相结合的课程考核评价体系。创新评价方式，建立学校、行业企业、社会机构参与评价的多元质量评价模式；创新灵活多样的考核评价管理办法，根据不同课程类型采取灵活的考核形式将职业精神纳入学生的评价考核体系。

2.教学考核建议

（1）过程评价加期末考核评价相结合的方法进行考核；

（2）理论考核加实作考核相结合的方法进行考核；

（3）课程考核加技能鉴定相结合的方法进行考核；

（4）顶岗实践的校内指导教师与校外指导老师相结合进行考核。

六、质量管理

主要采用以学年制为主体的全日制教学管理模式， 实行弹性实施学分制管理模式。

**毕业要求**

学生德、智、体、美、劳合格，在允许的修业年限内学完培养计划规定的全部课程，通过顶岗实践或毕业论文答辩，取得相应的职业资格证书，达到毕业最低学分（142分）要求，即获得毕业资格，准予毕业并颁发毕业证书。

**教 学 进 程 表**

**2018 级 铁路桥梁与隧道工程技术 专 业**

毕业最低学分：142分

专业代码： 600110

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| **一、教学进程表** | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | **二、周数分配表** | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 学  年 | | 教 学 周 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 理论  及  分散  实践 | | | 集  中  实  践 | | | | 考  试 | | | 劳  动 | | | | 军  训 | | | 机  动 | | | | 毕  业  教  育 | | | 假  期 | | | | 合  计 | | |
| 九月 | | | | | | | | 十月 | | | | | | | 十一月 | | | | | | | | 十二月 | | | | | | | | 一月 | | | | | | | | | 二月 | | | | | | | 三月 | | | | | | | | | | 四月 | | | | | | 五月 | | | | | | | | 六月 | | | | | | | | | 七月 | | | | | | | | | | 八月 | | | | | | |
|  | | | 1 | 2 | | | 3 | 4 | | | 5 | 6 | 7 | 8 | 9 | | 10 | 11 | 12 | 13 | | | 14 | | 15 | | 16 | | 17 | | 18 | | | 19 | 20 | | 21 | | 22 | | | 23 | 24 | | 25 | | 26 | | | 27 | | | 28 | 29 | 30 | | 31 | | 32 | 33 | 34 | | 35 | | 36 | 37 | | 38 | 39 | | 40 | | 41 | | 42 | | 43 | | | 44 | | | | 45 | | | 46 | 47 | | 48 | | | 49 | 50 | 51 | 52 | | | | K | | | S | | | | ∷ | | | × | | | | ★ | | J | | | | T | | | | = | | |  | | |
| 一 | | | ★2 | | | | 15 | | | | | | | | | | | | | | | | | | | | | | | | J2 | | | | ∷ | | ==== 6 | | | | | | | | | | | | | 17 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | × | | | | J | | | | ∷ | ==== 6 | | | | | | | | | | | |  | | |  | | | | 2 | | |  | | | | 2 | | 3 | | | | 0 | | | | 12 | | | 52 | | |
| 二 | | 15 | | | | | | | | | | | | | | | | | | | | | | | | S3 | | | | | | | J | | | ∷ | | ==== 6 | | | | | | | | | | | 15 | | | | | | | | | | | | | | | | | | | | | | | | | S3 | | | | | | | | J | | | | ∷ | | | ====6 | | | | | | | | | |  | | |  | | | | 2 | | |  | | | | 0 | | 2 | | | 0 | | | | | 12 | | 52 | | | | |
| 三 | | 15 | | | | | | | | | | | | | | | | | | | | | | | | S3 | | | | | | | J | | | ∷ | | ==== 6 | | | | | | | | | | | S18 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | J | | | | T | | |  | | | | | | | | | |  | | |  | | | | 1 | | |  | | | | 0 | | 2 | | | 1 | | | | | 6 | | 46 | | | | |
| **三、教学进度表** | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 合计 | | | | | | | | | | | | | | | | | | | | |  | | |  | | | | 5 | | |  | | | | 2 | | 7 | | | 1 | | | | | 30 | | 150 | | | | |
| 课程类型 | | 序  号 | | | 课程  代码 | | | | | 课 程 名 称 | | | | | | | | | | | | 考核学期序 | | | | | | | | | | | | | | | | | | 学 分 | | | | | | 学 时 数 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 理论教学（含分散性实践教学）周学时 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 考 试 | | | | | | | | 考 查 | | | | | | | | | | 总 计 | | | | | | | | | | 理 论 | | | | | | 实 践 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 一 年 级 | | | | | | | | | | | | 二 年 级 | | | | | | | | | | | | | 三 年 级 | | | | | | | | | | | | |
| 合 计 | | | | | 习 题 课 | | | 实 训 | | | | | | 现场教学 | | | | | | | | | 创新创业训练 | | | | | | | 1学期  15周 | | | | | 2学期  17周 | | | | | | | 3学期  15周 | | | | | | | 4学期  15周 | | | | | | 5学期  15周 | | | | 6学期  周 | | | | | | | | |
| 公共必修课 | | 1 | | | 0001 | | | | | 思想道德修养与法律基础及形势政策 | | | | | | | | | | | | 1 | | | | | | | | 2 | | | | | | | | | | 4 | | | | | | 64 | | | | | | | | | | 50 | | | | | | 14 | | | | | 14 | | |  | | | | | |  | | | | | | | | |  | | | | | | | 2 | | | | | 2 | | | | | | |  | | | | | | |  | | | | | |  | | | |  | | | | | | | | |
| 2 | | | 0002 | | | | | 毛泽东思想和中国特色社会主义理论体系概论及形势政策 | | | | | | | | | | | | 3 | | | | | | | | 4 | | | | | | | | | | 3 | | | | | | 60 | | | | | | | | | | 48 | | | | | | 12 | | | | | 12 | | |  | | | | | |  | | | | | | | | |  | | | | | | |  | | | | |  | | | | | | | 2 | | | | | | | 2 | | | | | |  | | | |  | | | | | | | | |
| 3 | | | 0005 | | | | | 高等数学 | | | | | | | | | | | | 1 | | | | | | | |  | | | | | | | | | | 3 | | | | | | 60 | | | | | | | | | | 54 | | | | | | 6 | | | | | 6 | | |  | | | | | |  | | | | | | | | |  | | | | | | | 4 | | | | |  | | | | | | |  | | | | | | |  | | | | | |  | | | |  | | | | | | | | |
| 4 | | | 0006 | | | | | 大学语文 | | | | | | | | | | | |  | | | | | | | | 1 | | | | | | | | | | 3 | | | | | | 60 | | | | | | | | | | 52 | | | | | | 8 | | | | | 8 | | |  | | | | | |  | | | | | | | | |  | | | | | | | 4 | | | | |  | | | | | | |  | | | | | | |  | | | | | |  | | | |  | | | | | | | | |
| 5 | | | 0007 | | | | | 公共英语 | | | | | | | | | | | | 1 | | | | | | | |  | | | | | | | | | | 3 | | | | | | 60 | | | | | | | | | | 18 | | | | | | 42 | | | | | 42 | | |  | | | | | |  | | | | | | | | |  | | | | | | | 4 | | | | |  | | | | | | |  | | | | | | |  | | | | | |  | | | |  | | | | | | | | |
| 6 | | | 0008 | | | | | 信息技术 | | | | | | | | | | | |  | | | | | | | | 2 | | | | | | | | | | 4 | | | | | | 68 | | | | | | | | | | 34 | | | | | | 34 | | | | | 34 | | |  | | | | | |  | | | | | | | | |  | | | | | | |  | | | | | 4 | | | | | | |  | | | | | | |  | | | | | |  | | | |  | | | | | | | | |
| 7 | | | 0009 | | | | | 体育 | | | | | | | | | | | | 3 | | | | | | | | 1.2.4 | | | | | | | | | | 7 | | | | | | 124 | | | | | | | | | | 8 | | | | | | 116 | | | | |  | | |  | | | | | | 116 | | | | | | | | |  | | | | | | | 2 | | | | | 2 | | | | | | | 2 | | | | | | | 2 | | | | | |  | | | |  | | | | | | | | |
| 8 | | | 0004 | | | | | 中华优秀传统文化 | | | | | | | | | | | |  | | | | | | | | 1 | | | | | | | | | | 2 | | | | | | 30 | | | | | | | | | | 30 | | | | | |  | | | | |  | | |  | | | | | |  | | | | | | | | |  | | | | | | | 2 | | | | |  | | | | | | |  | | | | | | |  | | | | | |  | | | |  | | | | | | | | |
| 9 | | | 0011 | | | | | 民族理论和政策 | | | | | | | | | | | |  | | | | | | | | 5 | | | | | | | | | | 2 | | | | | | 30 | | | | | | | | | | 30 | | | | | |  | | | | |  | | |  | | | | | |  | | | | | | | | |  | | | | | | |  | | | | |  | | | | | | |  | | | | | | |  | | | | | | 2 | | | |  | | | | | | | | |
| 10 | | | 0010 | | | | | 大学生职业发展与就业指导 | | | | | | | | | | | |  | | | | | | | | 2 | | | | | | | | | | 2 | | | | | | 34 | | | | | | | | | | 34 | | | | | |  | | | | |  | | |  | | | | | |  | | | | | | | | |  | | | | | | |  | | | | | 2 | | | | | | |  | | | | | | |  | | | | | |  | | | |  | | | | | | | | |
| 小计学分及学时数 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 33 | | | | | | 590 | | | | | | | | | | 358 | | | | | | 232 | | | | | 116 | | | 0 | | | | | | 116 | | | | | | | | |  | | | | | | | 18 | | | | | 10 | | | | | | | 4 | | | | | | | 4 | | | | | | 2 | | | | **0** | | | | | | | | |
| 专业必修课 | | 1 | | | 01004 | | | | | 铁道概论 | | | | | | | | | | | |  | | | | | | | | 2 | | | | | | | | | | 4 | | | | | | 68 | | | | | | | | | | 58 | | | | | | 10 | | | | | 6 | | |  | | | | | | 4 | | | | | | | | |  | | | | | | |  | | | | | 4 | | | | | | |  | | | | | | |  | | | | | |  | | | |  | | | | | | | | |
| 2 | | | 29009 | | | | | 铁路测量 | | | | | | | | | | | | 2 | | | | | | | | 1 | | | | | | | | | | 7 | | | | | | 128 | | | | | | | | | | 72 | | | | | | 56 | | | | |  | | |  | | | | | | 56 | | | | | | | | |  | | | | | | | 4 | | | | | 4 | | | | | | |  | | | | | | |  | | | | | |  | | | |  | | | | | | | | |
| 3 | | | 29001 | | | | | 工程制图与CAD | | | | | | | | | | | | 2 | | | | | | | | 1 | | | | | | | | | | 5 | | | | | | 94 | | | | | | | | | | 50 | | | | | | 44 | | | | | 44 | | |  | | | | | |  | | | | | | | | |  | | | | | | | 4 | | | | | 2 | | | | | | |  | | | | | | |  | | | | | |  | | | |  | | | | | | | | |
| 4 | | | 29005 | | | | | 工程力学 | | | | | | | | | | | | 2 | | | | | | | | 3 | | | | | | | | | | 7 | | | | | | 128 | | | | | | | | | | 94 | | | | | | 34 | | | | | 22 | | | 10 | | | | | | 2 | | | | | | | | |  | | | | | | |  | | | | | 4 | | | | | | | 4 | | | | | | |  | | | | | |  | | | |  | | | | | | | | |
| 5 | | | 29008 | | | | | 土力学 | | | | | | | | | | | | 3 | | | | | | | |  | | | | | | | | | | 3 | | | | | | 60 | | | | | | | | | | 30 | | | | | | 30 | | | | | 2 | | | 28 | | | | | |  | | | | | | | | |  | | | | | | |  | | | | |  | | | | | | | 4 | | | | | | |  | | | | | |  | | | |  | | | | | | | | |
| 6 | | | 29010 | | | | | 钢筋混凝土结构 | | | | | | | | | | | | 3 | | | | | | | |  | | | | | | | | | | 3 | | | | | | 60 | | | | | | | | | | 48 | | | | | | 12 | | | | | 4 | | | 8 | | | | | |  | | | | | | | | |  | | | | | | |  | | | | |  | | | | | | | 4 | | | | | | |  | | | | | |  | | | |  | | | | | | | | |
| 7 | | | 29006 | | | | | 工程地质 | | | | | | | | | | | |  | | | | | | | | 3 | | | | | | | | | | 2 | | | | | | 30 | | | | | | | | | | 26 | | | | | | 4 | | | | |  | | |  | | | | | | 4 | | | | | | | | |  | | | | | | |  | | | | |  | | | | | | | 2 | | | | | | |  | | | | | |  | | | |  | | | | | | | | |
| 8 | | | 29012 | | | | | 铁路桥梁施工 | | | | | | | | | | | | 4、5 | | | | | | | |  | | | | | | | | | | 5 | | | | | | 90 | | | | | | | | | | 64 | | | | | | 26 | | | | | 4 | | | 14 | | | | | |  | | | | | | | | | 8 | | | | | | |  | | | | |  | | | | | | |  | | | | | | | 6 | | | | | |  | | | |  | | | | | | | | |
| 9 | | | 29013 | | | | | 铁路隧道施工 | | | | | | | | | | | | 5 | | | | | | | |  | | | | | | | | | | 5 | | | | | | 90 | | | | | | | | | | 72 | | | | | | 18 | | | | |  | | |  | | | | | | 14 | | | | | | | | | 4 | | | | | | |  | | | | |  | | | | | | |  | | | | | | |  | | | | | | 6 | | | |  | | | | | | | | |
| 10 | | | 29015 | | | | | 地基基础施工 | | | | | | | | | | | | 4 | | | | | | | |  | | | | | | | | | | 3 | | | | | | 60 | | | | | | | | | | 44 | | | | | | 16 | | | | | 10 | | | 6 | | | | | |  | | | | | | | | |  | | | | | | |  | | | | |  | | | | | | |  | | | | | | | 4 | | | | | |  | | | |  | | | | | | | | |
| 11 | | | 29014 | | | | | 铁路桥隧施工组织设计与概预算 | | | | | | | | | | | | 4 | | | | | | | | 5 | | | | | | | | | | 5 | | | | | | 90 | | | | | | | | | | 54 | | | | | | 36 | | | | |  | | | 20 | | | | | |  | | | | | | | | | 16 | | | | | | |  | | | | |  | | | | | | |  | | | | | | | 4 | | | | | | 2 | | | |  | | | | | | | | |
| 12 | | | 29016 | | | | | 铁路桥隧检测 | | | | | | | | | | | | 5 | | | | | | | |  | | | | | | | | | | 3 | | | | | | 60 | | | | | | | | | | 26 | | | | | | 34 | | | | |  | | | 26 | | | | | |  | | | | | | | | | 8 | | | | | | |  | | | | |  | | | | | | |  | | | | | | |  | | | | | | 4 | | | |  | | | | | | | | |
| 13 | | | 29017 | | | | | 铁路桥隧养护维修 | | | | | | | | | | | |  | | | | | | | | 5 | | | | | | | | | | 3 | | | | | | 60 | | | | | | | | | | 42 | | | | | | 18 | | | | |  | | | 18 | | | | | |  | | | | | | | | |  | | | | | | |  | | | | |  | | | | | | |  | | | | | | |  | | | | | | 4 | | | |  | | | | | | | | |
| 14 | | | 29101 | | | | | 测量实习 | | | | | | | | | | | |  | | | | | | | | 3 | | | | | | | | | | 3 | | | | | | 84 | | | | | | | | | |  | | | | | | 84 | | | | |  | | | 84 | | | | | |  | | | | | | | | |  | | | | | | |  | | | | |  | | | | | | | 3周 | | | | | | |  | | | | | |  | | | |  | | | | | | | | |
| 15 | | | 29102 | | | | | 模型制作实习 | | | | | | | | | | | |  | | | | | | | | 4 | | | | | | | | | | 2 | | | | | | 56 | | | | | | | | | |  | | | | | | 56 | | | | |  | | | 56 | | | | | |  | | | | | | | | |  | | | | | | |  | | | | |  | | | | | | |  | | | | | | | 2周 | | | | | |  | | | |  | | | | | | | | |
| 16 | | | 29103 | | | | | 综合实习 | | | | | | | | | | | |  | | | | | | | | 4 | | | | | | | | | | 1 | | | | | | 28 | | | | | | | | | |  | | | | | | 28 | | | | |  | | | 28 | | | | | |  | | | | | | | | |  | | | | | | |  | | | | |  | | | | | | |  | | | | | | | 1周 | | | | | |  | | | |  | | | | | | | | |
| 17 | | | 29104 | | | | | 桥隧工培训 | | | | | | | | | | | |  | | | | | | | | 5 | | | | | | | | | | 2 | | | | | | 56 | | | | | | | | | |  | | | | | | 56 | | | | |  | | | 56 | | | | | |  | | | | | | | | |  | | | | | | |  | | | | |  | | | | | | |  | | | | | | |  | | | | | | 2周 | | | |  | | | | | | | | |
| 18 | | | 29105 | | | | | 桥隧养护实习 | | | | | | | | | | | |  | | | | | | | | 5 | | | | | | | | | | 1 | | | | | | 28 | | | | | | | | | |  | | | | | | 28 | | | | |  | | | 28 | | | | | |  | | | | | | | | |  | | | | | | |  | | | | |  | | | | | | |  | | | | | | |  | | | | | | 1周 | | | |  | | | | | | | | |
| 19 | | | 29106 | | | | | 顶岗实习 | | | | | | | | | | | |  | | | | | | | | 6 | | | | | | | | | | 18 | | | | | | 540 | | | | | | | | | |  | | | | | | 540 | | | | |  | | | 540 | | | | | |  | | | | | | | | |  | | | | | | |  | | | | |  | | | | | | |  | | | | | | |  | | | | | |  | | | | 18周 | | | | | | | | |
| 小计学分及学时数 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 82 | | | | | | 1810 | | | | | | | | | | 680 | | | | | | 1130 | | | | | 92 | | | 922 | | | | | | 80 | | | | | | | | | 36 | | | | | | | 8 | | | | | 14 | | | | | | | 14 | | | | | | | 14 | | | | | | 16 | | | |  | | | | | | | | |
| 专业选修课 | | 1 | | | 29011 | | | | | 水力学与桥涵水文 | | | | | | | | | | | |  | | | | | | | | 3 | | | | | | | | | | 3 | | | | | | 60 | | | | | | | | | | 44 | | | | | | 16 | | | | | 8 | | | 6 | | | | | | 2 | | | | | | | | |  | | | | | | |  | | | | |  | | | | | | | 4 | | | | | | |  | | | | | |  | | | |  | | | | | | | | |
| 2 | | | 29020 | | | | | 铁路线路施工与维护 | | | | | | | | | | | |  | | | | | | | | 4 | | | | | | | | | | 3 | | | | | | 60 | | | | | | | | | | 34 | | | | | | 26 | | | | |  | | |  | | | | | | 22 | | | | | | | | | 4 | | | | | | |  | | | | |  | | | | | | |  | | | | | | | 4 | | | | | |  | | | |  | | | | | | | | |
| 3 | | | 29021 | | | | | 铁路路基施工与维护 | | | | | | | | | | | |  | | | | | | | | 4 | | | | | | | | | | 3 | | | | | | 60 | | | | | | | | | | 50 | | | | | | 10 | | | | |  | | | 10 | | | | | |  | | | | | | | | |  | | | | | | |  | | | | |  | | | | | | |  | | | | | | | 4 | | | | | |  | | | |  | | | | | | | | |
| 4 | | | 29030 | | | | | 班组管理 | | | | | | | | | | | |  | | | | | | | | 5 | | | | | | | | | | 3 | | | | | | 45 | | | | | | | | | | 39 | | | | | | 6 | | | | | 6 | | |  | | | | | |  | | | | | | | | |  | | | | | | |  | | | | |  | | | | | | |  | | | | | | |  | | | | | | 3 | | | |  | | | | | | | | |
| 5 | | | 29022 | | | | | 监理概论 | | | | | | | | | | | |  | | | | | | | | 5 | | | | | | | | | | 3 | | | | | | 45 | | | | | | | | | | 40 | | | | | | 5 | | | | |  | | |  | | | | | | 5 | | | | | | | | |  | | | | | | |  | | | | |  | | | | | | |  | | | | | | |  | | | | | | 3 | | | |  | | | | | | | | |
| 6 | | | 16004 | | | | | 高速铁道概论 | | | | | | | | | | | |  | | | | | | | | 4 | | | | | | | | | | 3 | | | | | | 60 | | | | | | | | | | 54 | | | | | | 6 | | | | |  | | | 6 | | | | | |  | | | | | | | | |  | | | | | | |  | | | | |  | | | | | | | 4 | | | | | | |  | | | | | |  | | | |  | | | | | | | | |
| 7 | | | 21004 | | | | | 城市轨道交通概论 | | | | | | | | | | | |  | | | | | | | | 4 | | | | | | | | | | 3 | | | | | | 60 | | | | | | | | | | 48 | | | | | | 12 | | | | |  | | |  | | | | | | 6 | | | | | | | | | 6 | | | | | | |  | | | | |  | | | | | | | 4 | | | | | | |  | | | | | |  | | | |  | | | | | | | | |
| 8 | | | 29018 | | | | | 岩体力学 | | | | | | | | | | | |  | | | | | | | | 3 | | | | | | | | | | 3 | | | | | | 60 | | | | | | | | | | 44 | | | | | | 16 | | | | | 16 | | |  | | | | | |  | | | | | | | | |  | | | | | | |  | | | | |  | | | | | | | 4 | | | | | | |  | | | | | |  | | | |  | | | | | | | | |
| 9 | | | 29019 | | | | | 铁路桥隧施工临时结构检算 | | | | | | | | | | | |  | | | | | | | | 4 | | | | | | | | | | 3 | | | | | | 60 | | | | | | | | | | 50 | | | | | | 10 | | | | | 10 | | |  | | | | | |  | | | | | | | | |  | | | | | | |  | | | | |  | | | | | | |  | | | | | | | 4 | | | | | |  | | | |  | | | | | | | | |
| 10 | | | 29032 | | | | | 工务安全与管理 | | | | | | | | | | | |  | | | | | | | | 5 | | | | | | | | | | 3 | | | | | | 60 | | | | | | | | | | 56 | | | | | | 4 | | | | |  | | |  | | | | | | 4 | | | | | | | | |  | | | | | | |  | | | | |  | | | | | | |  | | | | | | |  | | | | | | 4 | | | |  | | | | | | | | |
| 11 | | | 29040 | | | | | 铁道工程实务 | | | | | | | | | | | |  | | | | | | | | 5 | | | | | | | | | | 3 | | | | | | 45 | | | | | | | | | | 30 | | | | | | 15 | | | | |  | | | 15 | | | | | |  | | | | | | | | |  | | | | | | |  | | | | |  | | | | | | |  | | | | | | |  | | | | | | 3 | | | |  | | | | | | | | |
| 12 | | | 29025 | | | | | BIM | | | | | | | | | | | |  | | | | | | | | 5 | | | | | | | | | | 3 | | | | | | 45 | | | | | | | | | | 24 | | | | | | 21 | | | | |  | | | 21 | | | | | |  | | | | | | | | |  | | | | | | |  | | | | |  | | | | | | |  | | | | | | |  | | | | | | 3 | | | |  | | | | | | | | |
| 13 | | | 29026 | | | | | 地下铁道施工技术 | | | | | | | | | | | |  | | | | | | | | 5 | | | | | | | | | | 3 | | | | | | 45 | | | | | | | | | | 40 | | | | | | 5 | | | | |  | | |  | | | | | | 5 | | | | | | | | |  | | | | | | |  | | | | |  | | | | | | |  | | | | | | |  | | | | | | 3 | | | |  | | | | | | | | |
| 14 | | | 29027 | | | | | 专业英语 | | | | | | | | | | | |  | | | | | | | | 5 | | | | | | | | | | 3 | | | | | | 45 | | | | | | | | | | 45 | | | | | |  | | | | |  | | |  | | | | | |  | | | | | | | | |  | | | | | | |  | | | | |  | | | | | | |  | | | | | | |  | | | | | | 3 | | | |  | | | | | | | | |
| 最低选修课小计学分及学时数 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 15 | | | | | | 270 | | | | | | | | | | 207 | | | | | | 63 | | | | | 14 | | | 16 | | | | | | 29 | | | | | | | | | 4 | | | | | | | 0 | | | | | 0 | | | | | | | 4 | | | | | | | 8 | | | | | | 6 | | | |  | | | | | | | | |
| 开设选修课小计学分及学时数 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 42 | | | | | | 750 | | | | | | | | | | 598 | | | | | | 152 | | | | | 40 | | | 58 | | | | | | 44 | | | | | | | | | 10 | | | | | | |  | | | | |  | | | | | | | 16 | | | | | | | 12 | | | | | | 22 | | | |  | | | | | | | | |
| 最低学分及学时数 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 130 | | | | | | 2670 | | | | | | | | | | 1245 | | | | | | 1425 | | | | | 222 | | | 938 | | | | | | 225 | | | | | | | | | 40 | | | | | | | 26 | | | | | 24 | | | | | | | 22 | | | | | | | 26 | | | | | | 24 | | | |  | | | | | | | | |
| 总计学分及学时数 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 157 | | | | | | 3150 | | | | | | | | | | 1636 | | | | | | 1514 | | | | | 248 | | | 980 | | | | | | 240 | | | | | | | | | 46 | | | | | | | 26 | | | | | 24 | | | | | | | 34 | | | | | | | 30 | | | | | | 40 | | | |  | | | | | | | | |
| **四、素质拓展课** | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 课程类型 | | 序  号 | | | | 课程代码 | | | | 课 程 名 称 | | | | | | | | | | | 考核学期序 | | | | | | | | | | | | | | | | | | | 学 分 | | | | 课  时 | | | | | | | 说 明 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 考 试 | | | | | | | 考 查 | | | | | | | | | | | |
| 必修  课 | | 1 | | | | 01 | | | | 军训及军事理论教育 | | | | | | | | | | |  | | | | | | | 1 | | | | | | | | | | | | 4 | | | | 60 | | | | | | | | 第1学期开设，含入学教育。 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 2 | | | | 02 | | | | 心理健康教育 | | | | | | | | | | |  | | | | | | | 2.3.4.5 | | | | | | | | | | | | 2 | | | | 32 | | | | | | | | 分专业在第2～5学期之一开设。 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 3 | | | | 03 | | | | 大学生安全及健康教育 | | | | | | | | | | |  | | | | | | | 1.2.3.4 | | | | | | | | | | | | 2 | | | | 32 | | | | | | | | 在1～4学期实施，以专题讲座的形式和每学期大学生第二课堂教育活动中开设. | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 4 | | | | 04 | | | | 大学生暑期社会实践 | | | | | | | | | | |  | | | | | | | 2.4 | | | | | | | | | | | | 2 | | | |  | | | | | | | | 利用暑期，进行社会实践，提交报告。 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 小计学分及学时数 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 10 | | | | 124 | | | | | | | |  | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 选  修  课 | | 1 | | | | 001 | | | | 演讲与口才 | | | | | | | | | | |  | | | | | | | 2～5 | | | | | | | | | | | | 2 | | | | 32 | | | | | | | |  | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 2 | | | | 002 | | | | 中国小说阅读与鉴赏 | | | | | | | | | | |  | | | | | | | 2～5 | | | | | | | | | | | | 2 | | | | 32 | | | | | | | |  | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 3 | | | | 003 | | | | 音乐欣赏 | | | | | | | | | | |  | | | | | | | 2～5 | | | | | | | | | | | | 2 | | | | 32 | | | | | | | |  | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 4 | | | | 004 | | | | 影视文学欣赏 | | | | | | | | | | |  | | | | | | | 2～5 | | | | | | | | | | | | 2 | | | | 32 | | | | | | | |  | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 5 | | | | 005 | | | | 应用写作 | | | | | | | | | | |  | | | | | | | 2～5 | | | | | | | | | | | | 2 | | | | 32 | | | | | | | |  | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 6 | | | | 006 | | | | 现代礼仪 | | | | | | | | | | |  | | | | | | | 2～5 | | | | | | | | | | | | 2 | | | | 32 | | | | | | | |  | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 7 | | | | 007 | | | | 中国古典诗词欣赏 | | | | | | | | | | |  | | | | | | | 2～5 | | | | | | | | | | | | 2 | | | | 32 | | | | | | | |  | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 8 | | | | 008 | | | | 中国近现代史纲要 | | | | | | | | | | |  | | | | | | | 2～5 | | | | | | | | | | | | 2 | | | | 32 | | | | | | | |  | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 9 | | | | 009 | | | | 中国传统文化 | | | | | | | | | | |  | | | | | | | 2～5 | | | | | | | | | | | | 2 | | | | 32 | | | | | | | |  | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 10 | | | | 010 | | | | 中国旅游资源概况 | | | | | | | | | | |  | | | | | | | 2～5 | | | | | | | | | | | | 2 | | | | 32 | | | | | | | |  | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 11 | | | | 011 | | | | ISO9000质量管理体系 | | | | | | | | | | |  | | | | | | | 2～5 | | | | | | | | | | | | 2 | | | | 32 | | | | | | | |  | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 12 | | | | 012 | | | | 高级文字排版 | | | | | | | | | | |  | | | | | | | 2～5 | | | | | | | | | | | | 2 | | | | 32 | | | | | | | |  | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 13 | | | | 013 | | | | 电子表格处理 | | | | | | | | | | |  | | | | | | | 2～5 | | | | | | | | | | | | 2 | | | | 32 | | | | | | | |  | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 14 | | | | 014 | | | | PS图像处理 | | | | | | | | | | |  | | | | | | | 2～5 | | | | | | | | | | | | 2 | | | | 32 | | | | | | | |  | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 15 | | | | 015 | | | | 高级PPT制作 | | | | | | | | | | |  | | | | | | | 2～5 | | | | | | | | | | | | 2 | | | | 32 | | | | | | | |  | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 16 | | | | 016 | | | | 计算机组装维修及网络操作 | | | | | | | | | | |  | | | | | | | 2～5 | | | | | | | | | | | | 2 | | | | 32 | | | | | | | |  | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 17 | | | | 017 | | | | 生活中的经济学 | | | | | | | | | | |  | | | | | | | 2～5 | | | | | | | | | | | | 2 | | | | 32 | | | | | | | |  | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 18 | | | | 018 | | | | 技术史漫谈 | | | | | | | | | | |  | | | | | | | 2～5 | | | | | | | | | | | | 2 | | | | 32 | | | | | | | |  | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 19 | | | | 019 | | | | 电影赏析 | | | | | | | | | | |  | | | | | | | 2～5 | | | | | | | | | | | | 2 | | | | 32 | | | | | | | |  | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 20 | | | | 020 | | | | 职业素质 | | | | | | | | | | |  | | | | | | | 2～5 | | | | | | | | | | | | 2 | | | | 32 | | | | | | | |  | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 21 | | | | 021 | | | | 创造性思维与创新方法 | | | | | | | | | | |  | | | | | | | 2～5 | | | | | | | | | | | | 2 | | | | 32 | | | | | | | |  | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 22 | | | | 022 | | | | 大学生创业基础 | | | | | | | | | | |  | | | | | | | 2～5 | | | | | | | | | | | | 2 | | | | 32 | | | | | | | |  | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 23 | | | | 023 | | | | 创新创业实践 | | | | | | | | | | |  | | | | | | | 1～6 | | | | | | | | | | | | 10 | | | |  | | | | | | | | 用于学生参加课题研究、项目实验、竞赛活动、发表论文等创新创业成果的学分折算 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 小计学分及学时数 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 44 | | | | 704 | | | | | | | |  | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| **合计学分及学时数** | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | **总学分142,必修课学分125,选修课学分17，其中专业选修课学分15，素质选修课学分2.总学时2794，理论学时1289，实践学时1505** | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

总学分142=最低学分及学时数栏130+素质拓展必修课10+素质拓展选修课2

必修课学分125=总学分142-最低选修课小计学分及学时数15-素质拓展选修课2

选修课学分17=最低选修课小计学分及学时数15+素质拓展选修课2

总学时2794=最低学分及学时数栏2670+素质拓展必修课124

理论学时1289=最低学分及学时数栏1245+素质拓展必修课44

实践学时1505=最低学分及学时数栏1425+素质拓展必修课80 (军训56;心理12;大学生安全12)

**城市轨道交通车辆技术专业**

**教学标准**

**专业名称** 城市轨道交通车辆技术

**专业代码** 600601

**入学要求** 高中阶段教育毕业生或具有同等学力者

**修业年限** 三年

**职业面向**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| 所属专业大类（代码） | 所属专业类  （代码） | 对应行业  （代码） | 主要职业类别  （代码） | 主要岗位类别（或技术领域） | 职业资格证书或技能等级证书举例 |
| 交通运输大类  （60） | 城市轨道交通类（6006） | 铁路、船舶、航空航天和其他运输设备制造业（37）道路运输业（54） | 轨道列车司机（4-02-01-01）  动车组制修师（6-23-01-03） | 城市轨道交通列车驾驶员  车辆维护及检修  车辆装配及调试 | 轨道列车司机职业资格证  电工职业资格证 |

**培养目标与培养规格**

一、培养目标

本专业培养理想信念坚定，德、智、体、美、劳全面发展，具有一定的科学文化水平，良好的人文素质、职业道德和创新意识，精益求精的工匠精神，较强的就业能力和可持续发展能力；掌握本专业知识和技术技能，面向铁路、船舶、航空航天和其他运输设备制造业、道路运输业的轨道列车司机、动车组制修师等职业群，能够从事城市轨道交通列车驾驶、车辆维护及检修、车辆装配、车辆调试等工作的高素质技术技能人才。

二、培养规格

本专业毕业生应在素质、知识和能力等方面达到以下要求。

1.素质

（1）坚定拥护中国共产党领导和我国社会主义制度，在习近平新时代中国特色社会主义思想指引下，践行社会主义核心价值观，具有深厚的爱国情感和中华民族自豪感；

（2）崇尚宪法、遵法守纪、崇德向善、诚实守信、尊重生命、热爱劳动、履行道德准则和行为规范，具有社会责任感和社会参与意识；

（3）具有质量意识、环保意识、安全意识、信息素养、工匠、创新思维；

（4）勇于奋斗、乐观向上，具有自我管理能力、职业生涯规划意识，有较强的集体意识和团队合作精神；

（5）具有健康的体魄、心理和健全的人格，掌握基本运动知识和一两项运动技能，养成良好的健身与卫生习惯，良好的行为习惯；

（6）具有一定的审美和人文素养，能够形成一两项艺术特长或爱好。

2.知识

（1）掌握必备的思想政治理论、科学文化基础知识和中华优秀传统文化知识；

（2）熟悉与本专业相关的法律法规以及环境保护、安全消防等相关知识；

（3）掌握机械设计、电力电子、电工电子、计算机及网络技术、PLC等知识；

（4）熟悉城市轨道交通系统的组成和各子系统之间的关系；

（5) 掌握行车组织规则、通信信号等知识；

(6) 掌握车辆机械设备、电气设备的结构、作用和工作原理；

(7) 掌握车辆牵引和制动系统的组成、作用和工作原理；

(8) 掌握车辆电气控制技术、网络控制技术等知识；

(9) 了解车辆检修工艺、生产组织、车辆抢险等知识。

驾驶方向还应掌握如下知识：

1. 掌握城市轨道交通列车驾驶的理论知识及操作规范；
2. 掌握城市轨道交通列车常见故障的应急处理规则及流程；
3. 掌握城市轨道交通列车运行突发事件处理规则及流程。

检修方向还应掌握如下知识：

1. 掌握车辆检修工具、设备、设施的理论知识及操作规范；

(11) 掌握车辆机械系统检修规程及工艺；

(12) 掌握车辆电气系统检修规程及工艺。

3.能力

（1）具有探究学习、终身学习、分析问题和解决问题的能力；

（2）具有良好的语言、文字表达能力和沟通能力，能够进行口语和书面的表达与交流；

（3）具有本专业必需的信息技术应用和维护能力；

驾驶方向还应具备如下能力：

（4）能够进行列车静态、动态检查及试验；

（5）能够操作列车出入场/段；

（6）具有正常情况下列车驾驶的能力；

（7）具有非正常情况下列车驾驶的能力；

（8）能够熟练处理列车突发故障；

（9）能够熟练处理列车运行突发事件。

检修方向还应具备如下能力：

（4）具有数据测量和分析能力；

（5）能够熟练使用车辆检修工具、设备和设施；

（6）能够识读电气原理图和机械图纸；

（7）具有车辆各系统维护和检修能力；

（8）具有车辆故障处理能力。

**课程设置**

一、必修课程

1. 公共必修课程

|  |  |  |
| --- | --- | --- |
| 序号 | 课程名称 | 课时数 |
| 1 | 思想道德修养与法律基础及形势政策 | 66 |
| 2 | 毛泽东思想和中国特色社会主义理论体系概论及形势政策 | 66 |
| 3 | 高等数学 | 60 |
| 4 | 大学语文 | 60 |
| 5 | 公共英语 | 60 |
| 6 | 信息技术 | 60 |
| 7 | 体育 | 120 |
| 8 | 中华优秀传统文化 | 30 |
| 9 | 民族理论和政策 | 36 |
| 10 | 大学生职业发展与就业指导 | 36 |

2.专业必修课程

|  |  |  |
| --- | --- | --- |
| 序号 | 课程名称 | 课时数 |
| 1 | 城轨概论 | 60 |
| 2 | 工程材料及材料力学 | 72 |
| 3 | 机械识图 | 72 |
| 4 | 互换性与技术测量 | 72 |
| 5 | 电工基础 | 72 |
| 6 | 机械基础 | 84 |
| 7 | 电子技术 | 56 |
| 8 | 电工电子实训 | 60 |
| 9 | 城轨车辆构造 | 84 |
| 10 | 钳工实习 | 60 |
| 11 | 城市轨道交通车辆电机与电器 | 90 |
| 12 | 城市轨道交通车辆电气控制 | 60 |
| 13 | 城市轨道交通车辆制动技术 | **60** |
| 14 | 技能鉴定 | 60 |
| 15 | 城轨车辆空调 | 56 |
| 16 | 城市轨道交通车辆检修及工艺 | **56** |
| 17 | 城轨列车驾驶 | **56** |
| 18 | 城轨车辆检修实训 | 60 |
| 19 | 毕业顶岗 | 540 |

3.素质拓展必修课程

|  |  |  |
| --- | --- | --- |
| 序号 | 课程名称 | 课时数 |
| 1 | 军训及军事理论教育 | 60 |
| 2 | 心理健康教育 | 32 |
| 3 | 大学生安全及健康教育 | 32 |
| 4 | 大学生暑期社会实践 |  |

二、选修课程

1. 专业选修课程

|  |  |  |
| --- | --- | --- |
| 序号 | 课程名称 | 课时数 |
| 1 | 焊工实习 | 60 |
| 2 | 机加工实习 | 60 |
| 3 | 液压与气动技术 | 56 |
| 4 | 可编程控制器 | 60 |
| 5 | 电力电子技术 | 60 |
| 6 | 车辆故障检修 | 56 |
| 7 | 城轨城轨车辆运用与规章 | 56 |
| 8 | 城市轨道交通网络控制 | 56 |
| 9 | 城市轨道交通牵引供电 | 56 |

2. 素质拓展选修课程

|  |  |  |
| --- | --- | --- |
| 序号 | 课程名称 | 课时数 |
| 1 | 演讲与口才 | 32 |
| 2 | 中国小说阅读与鉴赏 | 32 |
| 3 | 音乐欣赏 | 32 |
| 4 | 影视文学欣赏 | 32 |
| 5 | 应用写作 | 32 |
| 6 | 现代礼仪 | 32 |
| 7 | 中国古典诗词欣赏 | 32 |
| 8 | 中国近现代史纲要 | 32 |
| 9 | 中国传统文化 | 32 |
| 10 | 中国旅游资源概况 | 32 |
| 11 | ISO9000质量管理体系 | 32 |
| 12 | 高级文字排版 | 32 |
| 13 | 电子表格处理 | 32 |
| 14 | PS图像处理 | 32 |
| 15 | 高级PPT制作 | 32 |
| 16 | 计算机组装维修及网络操作 | 32 |
| 17 | 生活中的经济学 | 32 |
| 18 | 技术史漫谈 | 32 |
| 19 | 电影赏析 | 32 |
| 20 | 职业素质 | 32 |
| 21 | 创造性思维与创新方法 | 32 |
| 22 | 大学生创业基础 | 32 |
| 23 | 创新创业实践 |  |

三、专业核心课程主要教学内容与要求

|  |  |  |
| --- | --- | --- |
| 序号 | 专业核心课程 | 主要教学内容与要求 |
| 1 | 城轨车辆构造 | 学习轨道交通车辆的总体组成，车体结构，轮对及转向架的结构、车钩联接技术、车辆设备布置等。能读懂一般车辆的结构图、安装图，掌握主要部件的工作要求，掌握轨道车辆修程、工艺及主要检修设备的使用，能进行车辆机械部分的技术检修。 |
| 2 | 城市轨道交通车辆电气控制 | 学习轨道交通车辆电气控制知识，交、直流调速技术，主型轨道交通车辆的工作特性、技术参数。学习车辆电气线路原理图、配线图；学习车辆电气试验程序，常见电路故障分析、判断及处理方法等技术能力。能正确进行轨道车辆操作及试验，能根据车辆电气线路原理图分析车辆电路的一般故障，并进行故障排除与修复。学习车辆电气系统相关的英文专业词汇，能读懂英文专业文献及电路图。 |
| 3 | 城市轨道交通车辆制动技术 | 学习制动的基本概念、制动的基础理论、动力制动系统、制动供气系统、制动控制系统、基础制动装置、防滑原理和防滑控制系统等，达到能够应对车辆制动检修组基本技术问题和制动驾驶任务。 |
| 4 | 城市轨道交通车辆检修及工艺 | 学习轨道交通车辆检修制度、检修工艺及无损检测知识。包括车辆检修基本知识，轮对、轴箱、弹簧及减振装置、转向架、钩缓装置、车体、车门等部件的检查及检修工艺，车辆检修生产组织规程，车辆检修设备使用及管理；无损检测的主要方法与技术理论，电磁探伤、超声波探伤等无损检测设备的使用方法、故障部件的诊断及检测报告的撰写；电气化铁路安全、电气作业安全、机械作业安全、防火防爆。 |
| 5 | 城轨列车驾驶 | 列车整备作业、出入场作业、正常情况下的驾驶作业、站台作业、乘客服务、非正常驾驶、牵引故障处理、制动故障处理、车门系统故障处理、高压回路接地故障处理、辅助回路故障处理、车载信号故障处理、辅助电源系统故障处理、空压机故障处理。 |

**学时安排**

每学年教学时间为40周，总学时数为2720，实习按每周30学时计算。每学时为45分钟。18学时计为1个学分，总学分为140学分。军训、入学教育、社会实践、毕业设计（或毕业论文、毕业教育）等，以1周为1学分。公共基础课程学时占总学时的22%。选修课教学时数占总学时的比例均为14%。学生顶岗实习为6个月，可根据实际情况，采取工学交替、多学期、分段式等多种形式组织实施。

**教学进程总体安排**

见附件（教学进程表）

**实施保障**

一、师资队伍

1.队伍结构

学生数与本专业专任教师数比例不高于 22:1，双师素质教师占专业教师比一般不低于 60%，专任教师队伍要考虑职称、年龄，形成合理的梯队结构。

2.专任教师

具有高校教师资格和本专业领域有关证书；有理想信念、有道德情操、有扎实学识、有仁爱之心；具有车辆工程、交通运输等相关专业本科及以上学历；具有扎实的城市轨道交通车辆技术相关理论功底和实践能力；具有较强信息化教学能力，能够开展课程教学改革和科学研究；每5年累计不少于6个月的企业实践经历。

3.专业带头人

原则上应具有副高及以上职称，能够较好地把握国内外城市轨道交通车辆行业、专业发展，能广泛联系行业企业，了解行业企业对城市轨道交通车辆技术专业人才的需求实际，教学设计、专业研究能力强，组织开展教科研工作能力强，在本区域或本领域具有一定的专业影响力。

4.兼职教师

主要从城市轨道交通运营企业聘任，具备良好的思想政治素质、职业道德和工匠精神，具有扎实的城市轨道交通车辆技术专业知识和丰富的实际工作经验，具有中级及以上相关专业职称，能承担专业课程教学、实习实训指导和学生职业发展规划指导等教学任务。

二、教学设施

1.校内基础课教学实验室和教学设备的基本要求

应能容纳40名以上学生同时实训，包括多媒体教室、公共计算机实验室、机加工实训室、钳工实训室、基础电工实训室、电子实训室、电机技能实训、电力电子实训室。

2.校内实训（含职业技能鉴定）基地的基本要求

应能容纳40名以上学生同时实训，大型专项实训室应能容纳20名以上学生同时进行实训，并在实训中合理轮换，保证学生的实训时间与效果。包括车辆部件检修实训室、车辆制动实训室、车辆空调实训室、车辆电器实训室、车辆控制实训室、列车模拟驾驶实训室等。

3.校外实习基地的基本要求

校外实训基地应能满足学生车辆检修实训及顶岗实习的教学要求，大型校外实训基地一般在地铁公司、车辆段、动车检修基地、铁路机车车辆工厂建设，由学校及企业合作完成实训教学任务。

三、教学资源

主要包括能够满足学生专业学习、教师专业教学研究和教学实施需要的教材、图书及数字化资源等。

1．教材选用基本要求

按照国家规定选用优质教材，禁止不合格的教材进入课堂。学校应建立由专业教师、行业专家和教研人员等参与的教材选用机构，完善教材选用制度，经过规范程序择优选用教材。

2．图书文献配备基本要求

图书文献配备能满足人才培养、专业建设、教科研等工研等工作的需要，方便师生查询、借阅。专业类图书主要包括：城市轨道交通车辆行业政策法规、行业标准、技术规范以及相关专业技术手册等；城市轨道交通车辆技术专业类图书和实务案例类图书；2 种以上城市轨道交通车辆类专业学术期刊。

3．数字教学资源配置基本要求

建设、配备与本专业有关的音视频素材、教学课件、数字化教学案例库、虚拟仿真软件、数字教材等专业教学资源种类丰富、形式多样、使用便捷、动态更新、满足教学。

四、教学方法

1.教学方法、手段建议

① 教学方法建议

重视学生在校学习与实际工作的一致性，专业课程一般在实训室和企业完成，有针对性地采取任务驱动、项目导向等多种形式的“做中学、做中教”教学模式。根据课程内容和学生特点，灵活运用案例分析、分组讨论、角色扮演、启发引导教学方法，引导学生积极思考、乐于实践，提高教学效果。

② 教学手段建议

在教学过程中，要充分理由教学资源，开展有效课堂、一体化教学，贴近行业、企业需求，采取工学交替的教学模式，着眼学生职业生涯的发展，致力于培养学生对开发工作的兴趣，积极引导学生提升自身职业素养和职业道德水平。

2.教学组织形式建议

根据具体教学要求和进程，适当采取分段式教学，便于企业授课和兼职教师授课。

五、教学评价

1.教学评价建议

建立学历证书、职业资格证书等证书评价体系，吸引行业企业参与考核评价；注重学习过程，以能力考核为主，过程考核和期终考核相结合，通过实际操作、作品、技能竞赛、PPT汇报与理论考核综合评定学生学业水平，部分课程实行以证代考。

多元化评价。通过知识、能力、德才等多方面综合评价学生的学业成绩；突出对学生实践能力的考核，采用“学校考核 + 企业考核”相结合的方式，实现“考核主体双元化”；校企共同参与确定课程的考核内容、考核标准、考核手段、成绩评定等，加强校内成绩考核与企业实践考核结合的力度，使学生的成绩评价与岗位职业标准相对接，实现学生的知识、能力、素质的全面测试与评价。

2.教学考核建议

考核方式多样化。结合岗位职业能力考核标准，按照“职业能力为主、知识为辅，过程为主、结果为辅”的原则，构建以职业能力考核为核心、以过程考核为重点的考核评价方式，通过知识考核、实做考核、职业技能鉴定等对学生进行综合考核评价，突出考核的多样性和针对性，逐步使学生具备相应的知识结构、操作技能，实现对学生学习过程的跟踪和全面评价。

考核标准科学化：主动适应城市轨道交通驾驶岗位的任职要求，根据不同课程的特点，科学合理地制定考核标准，引入企业考核标准优化考核内容，并有针对性地选择合适的考核方法、考核手段和评价办法，综合运用笔试、实做、答辩等多种形式考核学生的职业素养和职业能力，促进学生的全面发展。

六、质量管理

采用以学年制为主体的全日制教学管理模式，实施弹性学分制管理模式。

**毕业要求**

学生德、智、体、美、劳合格，在允许的修业年限内学完培养计划规定的全部课程，通过顶岗实践或毕业论文答辩，取得相应的职业资格证书，达到毕业最低学分（140分）要求，即获得毕业资格，准予毕业并颁发毕业证书。

**教 学 进 程 表**

**2018 级 城市轨道交通车辆技术 专 业**

毕业最低学分：140分

专业代码： 600601

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **一、教学进程表** | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | **二、周数分配表** | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 学  年 | | 教 学 周 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 理论  及  分散  实践 | | | 集  中  实  践 | | | | 考  试 | | | 劳  动 | | | | 军  训 | | | 机  动 | | | | 毕  业  教  育 | | 假  期 | | | 合  计 | | |
| 九月 | | | | | | | 十月 | | | | | | | 十一月 | | | | | | | 十二月 | | | | | | | | | | 一月 | | | | | | | | | 二月 | | | | | | | | 三月 | | | | | | | | 四月 | | | | | | 五月 | | | | | | 六月 | | | | | | | | | | 七月 | | | | | | | | | | 八月 | | | | | | |
|  | | 1 | 2 | | | 3 | 4 | | | 5 | 6 | 7 | 8 | 9 | | 10 | 11 | 12 | 13 | | 14 | | 15 | | 16 | | 17 | | | 18 | | | | 19 | 20 | | 21 | | 22 | | | 23 | 24 | | 25 | 26 | 27 | | | | | 28 | 29 | 30 | | 31 | | 32 | 33 | 34 | | 35 | | 36 | 37 | | 38 | 39 | | 40 | 41 | | 42 | | 43 | | | 44 | | | | 45 | | | 46 | | 47 | 48 | | | 49 | 50 | 51 | 52 | | | | K | | | S | | | | ∷ | | | × | | | ★ | | | J | | | | T | | = | | |  | | |
| 一 | | ★2 | | | | 15 | | | | | | | | | | | | | | | | | | | | | | | | J2 | | | | | ∷ | | ==== 6 | | | | | | | | | | 18 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | J | | | | | ∷ | | ==== 6 | | | | | | | | | | | 33 | | |  | | | | 2 | | |  | | | 2 | | | 3 | | | | 0 | | 12 | | | 52 | | |
| 二 | | 14 | | | | | | | | | | | | | | | | | | | | | | HS/JG | | | | | DG | | | | J | | | ∷ | | ==== 6 | | | | | | | | | | 15  QS | | | | | | | | | | | | | | | | | | | | | | | | QS | | | | × | | | | | J | | | ∷ | | ====6 | | | | | | | | | | | 29 | | | 6 | | | | 2 | | | 1 | | | 0 | | 2 | | | | 0 | | | 12 | | 52 | | | | |
| 三 | | 14  JD | | | | | | | | | | | | | | | | | | | | | | | JX | | | JD | | | | | J | | | ∷ | | ==== 6 | | | | | | | | | | 18 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | J | | | T | |  | | | | | | | | | | | 32 | | | 4 | | | | 1 | | |  | | | 0 | | 2 | | | | 1 | | | 6 | | 46 | | | | |
| **三、教学进度表** | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 合计 | | | | | | | | | | | | | | | | | | | | 94 | | | 10 | | | | 5 | | | 1 | | | 2 | | 7 | | | | 1 | | | 30 | | 150 | | | | |
| 课程类型 | | 序  号 | | 课程  代码 | | | | | 课 程 名 称 | | | | | | | | | | | 考核学期序 | | | | | | | | | | | | | | | | | | | | 学 分 | | | | | | 学 时 数 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 理论教学（含分散性实践教学）周学时 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 考 试 | | | | | | | | | | | 考 查 | | | | | | | | | 总 计 | | | | | | | | | 理 论 | | | | | | 实 践 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 一 年 级 | | | | | | | | | | | | 二 年 级 | | | | | | | | | | | | | 三 年 级 | | | | | | | | | | |
| 合 计 | | | | | 习 题 课 | | | | 实 训 | | | | 现场教学 | | | | | | | | | 创新创业训练 | | | | | | | 1学期  15周 | | | | | 2学期  18周 | | | | | | | 3学期  14周 | | | | | | | 4学期  15周 | | | | | | 5学期  14周 | | | | 6学期  18周 | | | | | | |
| 公共必修课 | | 1 | | 0001 | | | | | 思想道德修养与法律基础及形势政策 | | | | | | | | | | | 1 | | | | | | | | | | | 2 | | | | | | | | | 4 | | | | | | 66 | | | | | | | | | 52 | | | | | | 14 | | | | | 14 | | | |  | | | |  | | | | | | | | |  | | | | | | | 2 | | | | | 2 | | | | | | |  | | | | | | |  | | | | | |  | | | |  | | | | | | |
| 2 | | 0002 | | | | | 毛泽东思想和中国特色社会主义理论体系概论及形势政策 | | | | | | | | | | | 3 | | | | | | | | | | | 4 | | | | | | | | | 3 | | | | | | 58 | | | | | | | | | 46 | | | | | | 12 | | | | | 12 | | | |  | | | |  | | | | | | | | |  | | | | | | |  | | | | |  | | | | | | | 2 | | | | | | | 2 | | | | | |  | | | |  | | | | | | |
| 3 | | 0005 | | | | | 高等数学 | | | | | | | | | | | 1 | | | | | | | | | | |  | | | | | | | | | 3 | | | | | | 60 | | | | | | | | | 54 | | | | | | 6 | | | | | 6 | | | |  | | | |  | | | | | | | | |  | | | | | | | 4 | | | | |  | | | | | | |  | | | | | | |  | | | | | |  | | | |  | | | | | | |
| 4 | | 0006 | | | | | 大学语文 | | | | | | | | | | |  | | | | | | | | | | | 1 | | | | | | | | | 3 | | | | | | 60 | | | | | | | | | 52 | | | | | | 8 | | | | | 8 | | | |  | | | |  | | | | | | | | |  | | | | | | | 4 | | | | |  | | | | | | |  | | | | | | |  | | | | | |  | | | |  | | | | | | |
| 5 | | 0007 | | | | | 公共英语 | | | | | | | | | | | 1 | | | | | | | | | | |  | | | | | | | | | 3 | | | | | | 60 | | | | | | | | | 18 | | | | | | 42 | | | | | 42 | | | |  | | | |  | | | | | | | | |  | | | | | | | 4 | | | | |  | | | | | | |  | | | | | | |  | | | | | |  | | | |  | | | | | | |
| 6 | | 0008 | | | | | 信息技术 | | | | | | | | | | |  | | | | | | | | | | | 1 | | | | | | | | | 3 | | | | | | 60 | | | | | | | | | 30 | | | | | | 30 | | | | | 30 | | | |  | | | |  | | | | | | | | |  | | | | | | | 4 | | | | |  | | | | | | |  | | | | | | |  | | | | | |  | | | |  | | | | | | |
| 7 | | 0009 | | | | | 体育 | | | | | | | | | | | 3 | | | | | | | | | | | 1.2.4 | | | | | | | | | 7 | | | | | | 120 | | | | | | | | | 8 | | | | | | 112 | | | | |  | | | |  | | | | 112 | | | | | | | | |  | | | | | | | 2 | | | | | 2 | | | | | | | 2 | | | | | | | 2 | | | | | |  | | | |  | | | | | | |
| 8 | | 0004 | | | | | 中华优秀传统文化 | | | | | | | | | | |  | | | | | | | | | | | 1 | | | | | | | | | 2 | | | | | | 30 | | | | | | | | | 30 | | | | | |  | | | | |  | | | |  | | | |  | | | | | | | | |  | | | | | | | 2 | | | | |  | | | | | | |  | | | | | | |  | | | | | |  | | | |  | | | | | | |
| 9 | | 0011 | | | | | 民族理论和政策 | | | | | | | | | | |  | | | | | | | | | | | 5 | | | | | | | | | 2 | | | | | | 28 | | | | | | | | | 28 | | | | | |  | | | | |  | | | |  | | | |  | | | | | | | | |  | | | | | | |  | | | | |  | | | | | | |  | | | | | | |  | | | | | | 2 | | | |  | | | | | | |
| 10 | | 0010 | | | | | 大学生职业发展与就业指导 | | | | | | | | | | |  | | | | | | | | | | | 2 | | | | | | | | | 2 | | | | | | 36 | | | | | | | | | 36 | | | | | |  | | | | |  | | | |  | | | |  | | | | | | | | |  | | | | | | |  | | | | | 2 | | | | | | |  | | | | | | |  | | | | | |  | | | |  | | | | | | |
| **小计学分及学时数** | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | **32** | | | | | | **578** | | | | | | | | | **354** | | | | | | **224** | | | | |  | | | |  | | | |  | | | | | | | | |  | | | | | | | **22** | | | | | **6** | | | | | | | **4** | | | | | | | **4** | | | | | | **2** | | | | **0** | | | | | | |
| 专业必修课 | | 11 | | 19001 | | | | | 城市轨道交通概论 | | | | | | | | | | | 1 | | | | | | | | | | |  | | | | | | | | | 3 | | | | | | 60 | | | | | | | | | 50 | | | | | | 10 | | | | | 2 | | | |  | | | | 4 | | | | | | | | | 4 | | | | | | | 4 | | | | |  | | | | | | |  | | | | | | |  | | | | | |  | | | |  | | | | | | |
| 12 | | 19002 | | | | | 工程材料及材料力学 | | | | | | | | | | | 2 | | | | | | | | | | |  | | | | | | | | | 4 | | | | | | 72 | | | | | | | | | 62 | | | | | | 10 | | | | | 6 | | | |  | | | | 4 | | | | | | | | |  | | | | | | |  | | | | | 4 | | | | | | |  | | | | | | |  | | | | | |  | | | |  | | | | | | |
| 13 | | 19003 | | | | | 机械识图 | | | | | | | | | | |  | | | | | | | | | | | 2 | | | | | | | | | 4 | | | | | | 72 | | | | | | | | | 42 | | | | | | 30 | | | | |  | | | |  | | | | 30 | | | | | | | | |  | | | | | | |  | | | | | 4 | | | | | | |  | | | | | | |  | | | | | |  | | | |  | | | | | | |
| 14 | | 19019 | | | | | 互换性与技术测量 | | | | | | | | | | | 2 | | | | | | | | | | |  | | | | | | | | | 4 | | | | | | 72 | | | | | | | | | 58 | | | | | | 14 | | | | | 8 | | | |  | | | | 6 | | | | | | | | |  | | | | | | |  | | | | | 4 | | | | | | |  | | | | | | |  | | | | | |  | | | |  | | | | | | |
| 15 | | 19004 | | | | | 电工基础 | | | | | | | | | | | 2 | | | | | | | | | | |  | | | | | | | | | 4 | | | | | | 72 | | | | | | | | | 44 | | | | | | 28 | | | | | 8 | | | |  | | | | 20 | | | | | | | | |  | | | | | | |  | | | | | 4 | | | | | | |  | | | | | | |  | | | | | |  | | | |  | | | | | | |
| 16 | | 19005 | | | | | 机械基础 | | | | | | | | | | | 3 | | | | | | | | | | |  | | | | | | | | | 5 | | | | | | 84 | | | | | | | | | 62 | | | | | | 22 | | | | | 6 | | | |  | | | | 10 | | | | | | | | | 6 | | | | | | |  | | | | |  | | | | | | | 6 | | | | | | |  | | | | | |  | | | |  | | | | | | |
| 17 | | 19006 | | | | | 电子技术 | | | | | | | | | | | 3 | | | | | | | | | | |  | | | | | | | | | 3 | | | | | | 56 | | | | | | | | | 36 | | | | | | 20 | | | | | 8 | | | |  | | | | 8 | | | | | | | | | 4 | | | | | | |  | | | | |  | | | | | | | 4 | | | | | | |  | | | | | |  | | | |  | | | | | | |
| 18 | | 19007 | | | | | 电工电子实训DG | | | | | | | | | | |  | | | | | | | | | | | 3 | | | | | | | | | 2 | | | | | | 60 | | | | | | | | |  | | | | | | 60 | | | | |  | | | | 60 | | | |  | | | | | | | | |  | | | | | | |  | | | | |  | | | | | | | 2周 | | | | | | |  | | | | | |  | | | |  | | | | | | |
| 19 | | 19008 | | | | | 城轨车辆构造 | | | | | | | | | | | 3 | | | | | | | | | | |  | | | | | | | | | 5 | | | | | | 84 | | | | | | | | | 44 | | | | | | 40 | | | | | 4 | | | |  | | | | 36 | | | | | | | | |  | | | | | | |  | | | | |  | | | | | | | 6 | | | | | | |  | | | | | |  | | | |  | | | | | | |
| 20 | | 19009 | | | | | 钳工实习QS | | | | | | | | | | |  | | | | | | | | | | | 4 | | | | | | | | | 2 | | | | | | 60 | | | | | | | | |  | | | | | | 60 | | | | |  | | | | 60 | | | |  | | | | | | | | |  | | | | | | |  | | | | |  | | | | | | |  | | | | | | | 2周 | | | | | |  | | | |  | | | | | | |
| 21 | | 19010 | | | | | 城轨车辆电机电器 | | | | | | | | | | | 4 | | | | | | | | | | |  | | | | | | | | | 5 | | | | | | 90 | | | | | | | | | 46 | | | | | | 44 | | | | | 4 | | | | 40 | | | |  | | | | | | | | |  | | | | | | |  | | | | |  | | | | | | |  | | | | | | | 6 | | | | | |  | | | |  | | | | | | |
| 22 | | 19011 | | | | | 城轨车辆电气控制 | | | | | | | | | | | 4 | | | | | | | | | | |  | | | | | | | | | 3 | | | | | | 60 | | | | | | | | | 50 | | | | | | 10 | | | | | 2 | | | | 8 | | | |  | | | | | | | | |  | | | | | | |  | | | | |  | | | | | | |  | | | | | | | 4 | | | | | |  | | | |  | | | | | | |
| 23 | | 19012 | | | | | 城轨车辆制动技术 | | | | | | | | | | | 4 | | | | | | | | | | |  | | | | | | | | | 3 | | | | | | 60 | | | | | | | | | 50 | | | | | | 10 | | | | | 2 | | | | 8 | | | |  | | | | | | | | |  | | | | | | |  | | | | |  | | | | | | |  | | | | | | | 4 | | | | | |  | | | |  | | | | | | |
| 24 | | 19029 | | | | | 技能鉴定 | | | | | | | | | | |  | | | | | | | | | | | 5 | | | | | | | | | 2 | | | | | | 60 | | | | | | | | |  | | | | | | 60 | | | | |  | | | | 60 | | | |  | | | | | | | | |  | | | | | | |  | | | | |  | | | | | | |  | | | | | | |  | | | | | | 2周 | | | |  | | | | | | |
| 25 | | 19013 | | | | | 车辆空调制冷 | | | | | | | | | | | 5 | | | | | | | | | | |  | | | | | | | | | 3 | | | | | | 56 | | | | | | | | | 46 | | | | | | 10 | | | | | 2 | | | |  | | | | 8 | | | | | | | | |  | | | | | | |  | | | | |  | | | | | | |  | | | | | | |  | | | | | | 4 | | | |  | | | | | | |
| 26 | | 19014 | | | | | 城轨交通车辆检修及工艺 | | | | | | | | | | | 5 | | | | | | | | | | |  | | | | | | | | | 3 | | | | | | 56 | | | | | | | | | 50 | | | | | | 6 | | | | | 2 | | | |  | | | | 4 | | | | | | | | |  | | | | | | |  | | | | |  | | | | | | |  | | | | | | |  | | | | | | 4 | | | |  | | | | | | |
| 27 | | 19015 | | | | | 城市轨道交通列车驾驶 | | | | | | | | | | | 5 | | | | | | | | | | |  | | | | | | | | | 3 | | | | | | 56 | | | | | | | | | 52 | | | | | | 4 | | | | | 4 | | | |  | | | |  | | | | | | | | |  | | | | | | |  | | | | |  | | | | | | |  | | | | | | |  | | | | | | 4 | | | |  | | | | | | |
| 28 | | 19016 | | | | | 城轨车辆检修实训JX | | | | | | | | | | |  | | | | | | | | | | | 5 | | | | | | | | | 2 | | | | | | 60 | | | | | | | | |  | | | | | | 60 | | | | |  | | | | 60 | | | |  | | | | | | | | |  | | | | | | |  | | | | |  | | | | | | |  | | | | | | |  | | | | | | 2周 | | | |  | | | | | | |
| 29 | | 19017 | | | | | 毕业顶岗 | | | | | | | | | | |  | | | | | | | | | | | 6 | | | | | | | | | 18 | | | | | | 540 | | | | | | | | |  | | | | | | 540 | | | | |  | | | | 540 | | | |  | | | | | | | | |  | | | | | | |  | | | | |  | | | | | | |  | | | | | | |  | | | | | |  | | | | **30** | | | | | | |
| 小计学分及学时数 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | **78** | | | | | | **1730** | | | | | | | | | **692** | | | | | | **1038** | | | | | **58** | | | | **836** | | | | **130** | | | | | | | | | **14** | | | | | | | **4** | | | | | **16** | | | | | | | **16** | | | | | | | **14** | | | | | | **12** | | | |  | | | | | | |
| 专业选修课 | | 31 | | 19019 | | | | | 焊工实习HS | | | | | | | | | | |  | | | | | | | | | | | 3 | | | | | | | | | 2 | | | | | | 60 | | | | | | | | |  | | | | | | 60 | | | | |  | | | | 60 | | | |  | | | | | | | | |  | | | | | | |  | | | | |  | | | | | | | 2周 | | | | | | |  | | | | | |  | | | |  | | | | | | |
| 32 | | 19020 | | | | | 机加工实习JG | | | | | | | | | | |  | | | | | | | | | | | 3 | | | | | | | | | 2 | | | | | | 60 | | | | | | | | |  | | | | | | 60 | | | | |  | | | | 60 | | | |  | | | | | | | | |  | | | | | | |  | | | | |  | | | | | | | 2周 | | | | | | |  | | | | | |  | | | |  | | | | | | |
| 33 | | 19021 | | | | | 液压与气动 | | | | | | | | | | |  | | | | | | | | | | | 3 | | | | | | | | | 3 | | | | | | 56 | | | | | | | | | 46 | | | | | | 10 | | | | | 4 | | | |  | | | | 6 | | | | | | | | |  | | | | | | |  | | | | |  | | | | | | | 4 | | | | | | |  | | | | | |  | | | |  | | | | | | |
| 34 | | 19022 | | | | | 机械加工技术 | | | | | | | | | | |  | | | | | | | | | | | 3 | | | | | | | | | 3 | | | | | | 56 | | | | | | | | | 46 | | | | | | 10 | | | | | 4 | | | |  | | | | 6 | | | | | | | | |  | | | | | | |  | | | | |  | | | | | | | 4 | | | | | | |  | | | | | |  | | | |  | | | | | | |
| 35 | | 19023 | | | | | 可编程控制器 | | | | | | | | | | |  | | | | | | | | | | | 4 | | | | | | | | | 3 | | | | | | 60 | | | | | | | | | 44 | | | | | | 16 | | | | | 4 | | | |  | | | | 12 | | | | | | | | |  | | | | | | |  | | | | |  | | | | | | |  | | | | | | | 4 | | | | | |  | | | |  | | | | | | |
| 36 | | 19024 | | | | | 电力电子技术 | | | | | | | | | | |  | | | | | | | | | | | 4 | | | | | | | | | 3 | | | | | | 60 | | | | | | | | | 44 | | | | | | 16 | | | | | 4 | | | |  | | | | 12 | | | | | | | | |  | | | | | | |  | | | | |  | | | | | | |  | | | | | | | 4 | | | | | |  | | | |  | | | | | | |
| 37 | | 19025 | | | | | 城轨车辆故障检修 | | | | | | | | | | |  | | | | | | | | | | | 5 | | | | | | | | | 3 | | | | | | 56 | | | | | | | | | 48 | | | | | | 8 | | | | | 2 | | | |  | | | | 6 | | | | | | | | |  | | | | | | |  | | | | |  | | | | | | |  | | | | | | |  | | | | | | 4 | | | |  | | | | | | |
| 38 | | 19026 | | | | | 城轨车辆运用与规章 | | | | | | | | | | |  | | | | | | | | | | | 5 | | | | | | | | | 3 | | | | | | 56 | | | | | | | | | 48 | | | | | | 8 | | | | | 2 | | | |  | | | | 6 | | | | | | | | |  | | | | | | |  | | | | |  | | | | | | |  | | | | | | |  | | | | | | 4 | | | |  | | | | | | |
| 39 | | 19027 | | | | | 城市轨道交通网络控制技术 | | | | | | | | | | |  | | | | | | | | | | | 5 | | | | | | | | | 3 | | | | | | 56 | | | | | | | | | 54 | | | | | | 2 | | | | | 2 | | | |  | | | |  | | | | | | | | |  | | | | | | |  | | | | |  | | | | | | |  | | | | | | |  | | | | | | 4 | | | |  | | | | | | |
| 40 | | 19028 | | | | | 城市轨道交通牵引供电 | | | | | | | | | | |  | | | | | | | | | | | 5 | | | | | | | | | 3 | | | | | | 56 | | | | | | | | | 54 | | | | | | 2 | | | | | 2 | | | |  | | | |  | | | | | | | | |  | | | | | | |  | | | | |  | | | | | | |  | | | | | | |  | | | | | | 4 | | | |  | | | | | | |
| 小计学分及学时数 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | **14/28** | | | | | | **288/576** | | | | | | | | | **192/384** | | | | | | **96/192** | | | | | **12/24** | | | | **60/120** | | | | **24/48** | | | | | | | | |  | | | | | | |  | | | | |  | | | | | | |  | | | | | | |  | | | | | |  | | | |  | | | | | | |
| 学分及学时数 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | **124** | | | | | | **2596** | | | | | | | | | **1238** | | | | | | **1358** | | | | |  | | | |  | | | |  | | | | | | | | |  | | | | | | | **26** | | | | | **22** | | | | | | | **24** | | | | | | | **22** | | | | | | **22** | | | |  | | | | | | |
| **四、素质拓展课** | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 课程类型 | | 序  号 | | | 课程代码 | | | | 课 程 名 称 | | | | | | | | | | | 考核学期序 | | | | | | | | | | | | | | | | | | | | 学 分 | | | | 课  时 | | | | | | 说 明 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 考 试 | | | | | | 考 查 | | | | | | | | | | | | | |
| 必修  课 | | 1 | | | 01 | | | | 军训及军事理论教育 | | | | | | | | | | |  | | | | | | 1 | | | | | | | | | | | | | | 4 | | | | 60 | | | | | | | 第1学期开设，含入学教育。 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 2 | | | 02 | | | | 心理健康教育 | | | | | | | | | | |  | | | | | | 2.3.4.5 | | | | | | | | | | | | | | 2 | | | | 32 | | | | | | | 分专业在第2～5学期之一开设。 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 3 | | | 03 | | | | 大学生安全及健康教育 | | | | | | | | | | |  | | | | | | 1.2.3.4 | | | | | | | | | | | | | | 2 | | | | 32 | | | | | | | 在1～4学期实施，以专题讲座的形式和每学期大学生第二课堂教育活动中开设。 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 4 | | | 04 | | | | 大学生暑期社会实践 | | | | | | | | | | |  | | | | | | 2.4 | | | | | | | | | | | | | | 2 | | | |  | | | | | | | 利用暑期，进行社会实践，提交报告。 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 小计学分及学时数 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | **10** | | | | **124** | | | | | | | **军训理论：4；心理安全理论：20；计24** | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 选  修  课 | | 1 | | | 001 | | | | 演讲与口才 | | | | | | | | | | |  | | | | | | 2～5 | | | | | | | | | | | | | | 2 | | | | 32 | | | | | | |  | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 2 | | | 002 | | | | 中国小说阅读与鉴赏 | | | | | | | | | | |  | | | | | | 2～5 | | | | | | | | | | | | | | 2 | | | | 32 | | | | | | |  | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 3 | | | 003 | | | | 音乐欣赏 | | | | | | | | | | |  | | | | | | 2～5 | | | | | | | | | | | | | | 2 | | | | 32 | | | | | | |  | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 4 | | | 004 | | | | 影视文学欣赏 | | | | | | | | | | |  | | | | | | 2～5 | | | | | | | | | | | | | | 2 | | | | 32 | | | | | | |  | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 5 | | | 005 | | | | 应用写作 | | | | | | | | | | |  | | | | | | 2～5 | | | | | | | | | | | | | | 2 | | | | 32 | | | | | | |  | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 6 | | | 006 | | | | 现代礼仪 | | | | | | | | | | |  | | | | | | 2～5 | | | | | | | | | | | | | | 2 | | | | 32 | | | | | | |  | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 7 | | | 007 | | | | 中国古典诗词欣赏 | | | | | | | | | | |  | | | | | | 2～5 | | | | | | | | | | | | | | 2 | | | | 32 | | | | | | |  | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 8 | | | 008 | | | | 中国近现代史纲要 | | | | | | | | | | |  | | | | | | 2～5 | | | | | | | | | | | | | | 2 | | | | 32 | | | | | | |  | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 9 | | | 009 | | | | 中国传统文化 | | | | | | | | | | |  | | | | | | 2～5 | | | | | | | | | | | | | | 2 | | | | 32 | | | | | | |  | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 10 | | | 010 | | | | 中国旅游资源概况 | | | | | | | | | | |  | | | | | | 2～5 | | | | | | | | | | | | | | 2 | | | | 32 | | | | | | |  | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 11 | | | 011 | | | | ISO9000质量管理体系 | | | | | | | | | | |  | | | | | | 2～5 | | | | | | | | | | | | | | 2 | | | | 32 | | | | | | |  | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 12 | | | 012 | | | | 高级文字排版 | | | | | | | | | | |  | | | | | | 2～5 | | | | | | | | | | | | | | 2 | | | | 32 | | | | | | |  | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 13 | | | 013 | | | | 电子表格处理 | | | | | | | | | | |  | | | | | | 2～5 | | | | | | | | | | | | | | 2 | | | | 32 | | | | | | |  | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 14 | | | 014 | | | | PS图像处理 | | | | | | | | | | |  | | | | | | 2～5 | | | | | | | | | | | | | | 2 | | | | 32 | | | | | | |  | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 15 | | | 015 | | | | 高级PPT制作 | | | | | | | | | | |  | | | | | | 2～5 | | | | | | | | | | | | | | 2 | | | | 32 | | | | | | |  | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 16 | | | 016 | | | | 计算机组装维修及网络操作 | | | | | | | | | | |  | | | | | | 2～5 | | | | | | | | | | | | | | 2 | | | | 32 | | | | | | |  | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 17 | | | 017 | | | | 生活中的经济学 | | | | | | | | | | |  | | | | | | 2～5 | | | | | | | | | | | | | | 2 | | | | 32 | | | | | | |  | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 18 | | | 018 | | | | 技术史漫谈 | | | | | | | | | | |  | | | | | |  | | | | | | | | | | | | | | 2 | | | | 32 | | | | | | |  | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 19 | | | 019 | | | | 电影赏析 | | | | | | | | | | |  | | | | | | 2～5 | | | | | | | | | | | | | | 2 | | | | 32 | | | | | | |  | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 20 | | | 020 | | | | 职业素质 | | | | | | | | | | |  | | | | | | 2～5 | | | | | | | | | | | | | | 2 | | | | 32 | | | | | | |  | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 21 | | | 021 | | | | 创造性思维与创新方法 | | | | | | | | | | |  | | | | | | 2～5 | | | | | | | | | | | | | | 2 | | | | 32 | | | | | | |  | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 22 | | | 022 | | | | 大学生创业基础 | | | | | | | | | | |  | | | | | | 2～5 | | | | | | | | | | | | | | 2 | | | | 32 | | | | | | |  | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 23 | | | 023 | | | | 创新创业实践 | | | | | | | | | | |  | | | | | | 1～6 | | | | | | | | | | | | | | 10 | | | |  | | | | | | | 用于学生参加课题研究、项目实验、竞赛活动、发表论文等创新创业成果的学分折算 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 小计学分及学时数 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 44 | | | | 704 | | | | | | | **公共选修课1～22 选6学分** | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| **合计学分及学时数** | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | **总学分140,必修课学分32+78+10=120,选修课学分20，其中专业选修课学分14，素质选修课学分6.总学时578+1730+288+124=2720，理论学时1238+24=1262，实践学时1358+100=1458，理论实践比：1:1.16** | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

**城市轨道交通运营管理专业**

**教学标准**

**专业名称** 城市轨道交通运营管理专业

**专业代码** 600606

**入学要求** 普通高级中学毕业、中等职业学校毕业或具备同等学力

**修业年限** 三年

**职业面向**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| 所属专业大类（代码） | 所属专业类  （代码） | 对应行业  （代码） | 主要职业类别  （代码） | 主要岗位类别（或技术领域） | 职业资格证书或技能等级证书举例 |
| 交通运输大类  （60） | 城市轨道交通类  （6006） | 道路运输业  （54） | 城市轨道交通服务员  （4-02-01-07） | 行车组织  票务组织  客运服务  车站管理 | 急救员证  客运员  助理值班员 |

**培养目标与培养规格**

一、培养目标

本专业培养理想信念坚定，德、智、体、美、劳全面发展，具有一定的科学文化水平，良好的人文素养、职业道德和创新意识，精益求精的工匠精神，较强的就业能力和可持续发展的能力；掌握本专业知识和技术技能，面向道路运输行业的城市轨道交通服务员等职业群，能够从事行车组织、票务组织、客运服务、车站管理等工作的高素质技术技能人才。

二、培养规格

本专业毕业生应在素质、知识和能力方面达到以下要求。

1.素质

（1）坚定拥护中国共产党领导和我国社会主义制度，在习近平新时代中国特色社会主义思想指引下，践行社会主义核心价值观，具有深厚的爱国情感和中华民族自豪感；

（2）崇尚宪法、遵法守纪、崇德向善、诚实守信、尊重生命、热爱劳动，履行道德准则和行为规范，具有社会责任感和社会参与意识；

（3）具有质量意识、环保意识、安全意识、信息素养、工匠精神、创新思维；

（4）勇于奋斗、乐观向上，具有自我管理能力、职业生涯规划的意识，有较强的集体意识和团队合作精神；

（5）具有健康的体魄、心理和健全的人格，掌握基本运动知识和一两项运动技能，养成良好的健身与卫生习惯，良好的行为习惯；

（6）具有一定的审美和人文素养，能够形成一两项艺术特长或爱好。

2.知识

（1）掌握必备的思想政治理论、科学文化基础知识和中华优秀传统文化知识；

（2）熟悉与本专业相关的法律法规以及环境保护、安全消防、文明生产等相关知识；

（3）熟悉与本专业相关的电工电子、计算机应用、管理等基本知识；

（4）掌握城市轨道交通线路站场、通信信号、车站机电设备、车辆等基本知识；

（5）掌握城市轨道交通客运组织、乘客服务的基本理论和方法；

（6）掌握城市轨道交通车站及车辆段行车组织、调度指挥的基本理论和方法；

（7）掌握城市轨道交通车站及车辆段突发事件应急处置的预案及基本处置方法。

3.能力

（1）具有探究学习、终身学习、分析问题和解决问题的能力；

（2）具有良好的语言、文字表达能力和沟通能力；

（3）具有本专业必需的信息技术应用和维护能力；

（4）具有城市轨道交通车站运营设备的识别、操作运用和监控能力，能够对自动售检票、站台门、火灾自动报警、环境与设备监控、电扶梯等系统及设备进行监视、操作及故障处理；

（5）具有城市轨道交通车站自动售检票系统运用、设备操作及票务处理能力，能够正确使用自动售检票系统，办理售票、监票、补票、退票、发卡、充值、退卡等作业；

（6）具有城市轨道交通车站客运组织、客运服务及事务处理能力，能够组织开展车站日常运作、客流组织疏导、客流调查与预测、车站客流组织方案编制与分析、乘客服务、乘客投诉与纠纷处理、站容环境保持等工作；

（7）具有城市轨道交通车站及车辆段行车组织、施工协调处理能力，能够组织开展控制台监视与操作、接发列车、施工行车组织等工作；

（8）具有城市轨道交通车站及车辆段突发事件应急处置能力。

**课程设置**

一、必修课程

1. 公共必修课程

|  |  |  |
| --- | --- | --- |
| 序号 | 课程名称 | 课时数 |
| 1 | 思想道德修养与法律基础 | 66 |
| 2 | 毛泽东思想和中国特色社会主义理论体系概论及形势与政策 | 60 |
| 3 | 高等数学 | 60 |
| 4 | 大学语文 | 60 |
| 5 | 公共英语 | 60 |
| 6 | 信息技术 | 72 |
| 7 | 体育 | 126 |
| 8 | 中华优秀传统文化 | 30 |
| 9 | 民族政策 | 26 |
| 10 | 创新创业与就业指导 | 36 |

2.专业必修课程

|  |  |  |
| --- | --- | --- |
| 序号 | 课程名称 | 课时数 |
| 1 | 电工电子 | 36 |
| 2 | 城市轨道交通车辆构造 | 60 |
| 3 | 城市轨道交通通信信号 | 72 |
| 4 | 城市轨道交通线路与站场 | 60 |
| 5 | 城市轨道交通车站设备 | 72 |
| 6 | 城市轨道交通客运服务 | 60 |
| 7 | 城市轨道交通行车组织 | 60 |
| 8 | 城市轨道交通客运组织 | 60 |
| 9 | 城市轨道交通票务管理 | 60 |
| 10 | 城市轨道交通安全管理 | 52 |
| 11 | 城市轨道交通运营调度 | 52 |
| 12 | 卫生防疫与急救 | 26 |
| 13 | 旅客运输心理学 | 60 |
| 14 | 城市轨道交通运输设备认知实习 | 28 |
| 15 | 城市轨道车务综合实训 | 56 |
| 16 | 城市轨道交通客运服务实训 | 56 |
| 17 | 城市轨道交通调度实训 | 56 |
| 18 | 城市轨道交通票务实训 | 56 |
| 19 | 技能鉴定 | 28 |
| 20 | 顶岗实习（含毕业设计） | 540 |

3.素质拓展必修课程

|  |  |  |
| --- | --- | --- |
| 序号 | 课程名称 | 课时数 |
| 1 | 军训及军事理论教育 | 60 |
| 2 | 心理健康教育 | 32 |
| 3 | 大学生安全及健康教育 | 32 |
| 4 | 大学生暑期社会实践 |  |

二、选修课程

1. 专业选修课程

|  |  |  |
| --- | --- | --- |
| 序号 | 课程名称 | 课时数 |
| 1 | 客运服务英语 | 72 |
| 2 | 服务礼仪 | 60 |
| 3 | 基础会计 | 60 |
| 4 | 管理学基础 | 52 |
| 5 | 运输经济法规 | 52 |
| 6 | 运输企业管理 | 52 |
| 7 | 运输产品市场营销 | 52 |
| 8 | 城市轨道交通班组管理 | 52 |
| 9 | 铁路客运组织 | 60 |
| 10 | 铁路行车组织 | 60 |
| 11 | 数据库应用 | 60 |
| 12 | 电子商务 | 60 |
| 13 | 基础统计 | 60 |
| 14 | 运输经济学导论 | 60 |

2. 素质拓展选修课程

|  |  |  |
| --- | --- | --- |
| 序号 | 课程名称 | 课时数 |
| 1 | 演讲与口才 | 32 |
| 2 | 中国小说阅读与鉴赏 | 32 |
| 3 | 音乐欣赏 | 32 |
| 4 | 影视文学欣赏 | 32 |
| 5 | 应用写作 | 32 |
| 6 | 现代礼仪 | 32 |
| 7 | 中国古典诗词欣赏 | 32 |
| 8 | 中国近现代史纲要 | 32 |
| 9 | 中国传统文化 | 32 |
| 10 | 中国旅游资源概况 | 32 |
| 11 | ISO9000质量管理体系 | 32 |
| 12 | 高级文字排版 | 32 |
| 13 | 电子表格处理 | 32 |
| 14 | PS图像处理 | 32 |
| 15 | 高级PPT制作 | 32 |
| 16 | 计算机组装维修及网络操作 | 32 |
| 17 | 生活中的经济学 | 32 |
| 18 | 技术史漫谈 | 32 |
| 19 | 电影赏析 | 32 |
| 20 | 职业素质 | 32 |
| 21 | 创造性思维与创新方法 | 32 |
| 22 | 大学生创业基础 | 32 |
| 23 | 创新创业实践 |  |

**教学进程总体安排**

见附件（教学进程表）

**实施保障**

一、师资队伍

1.队伍结构

学生数与本专业专任教师数比例不高于22:1，双师素质教师占专业教师比一般不低于60%，专任教师队伍要考虑职称、年龄，形成合理的梯队结构。

2.专任教师

具有高校教师资格和本专业领域有关证书；有理想信念、有道德情操、有扎实学识、有仁爱之心；具有交通运输等相关专业本科及以上学历；具有扎实的城市轨道交通运营管理相关理论功底和实践能力；具有较强信息化教学能力，能够开展课程教学改革和科学研究；每5 年累计不少于6 个月的企业实践经历。

3.专业带头人

原则上应具有副高及以上职称，能够较好地把握国内外城市轨道交通运营管理行业、专业发展，能广泛联系行业企业，了解行业企业对城市轨道交通运营管理专业人才的需求实际，教学设计、专业研究能力强，组织开展教科研工作能力强，在本区域或本领域具有一定的专业影响力。

4.兼职教师

主要从城市轨道交通相关企业聘任，具备良好的思想政治素质、职业道德和工匠精神，具有扎实的城市轨道交通专业知识和丰富的实际工作经验，具有中级及以上相关专业职称，能承担专业课程教学、实习实训指导和学生职业发展规划指导等教学任务。

二、教学设施

主要包括能够满足正常的课程教学、实习实训所需的专业教室、实训室和实训基地。

1.专业教室基本条件

一般配备黑（白）板、多媒体计算机、投影设备、音响设备，互联网接入或WiFi 环境，并具有网络安全防护措施。安装应急照明装置并保持良好状态，符合紧急疏散要求、标志明显、保持逃生通道畅通无阻。

2.校内实训室基本要求

（1）电工电子基础实训室：具备常用低压电器设备的识别测量，电工工具、常用仪器仪表的使用，常用电路的安装、调试及故障诊断、排除等实训功能。

（2）钳工基础实训室：具备钳工工具的使用和测量，简单工件的加工等实训功能。

（3）形体礼仪实训室：具备基本形态训练，姿态训练，矫正训练等实训功能。

（4）票务实训区：具备自动售票机、半自动售票机的售补票作业，一卡通的发卡、退卡及充值作业，设备故障及售票常见问题的应急处理等实训功能。

（5）行车组织实训区：具备列车监控系统（ATS）监视、操作，综合监控系统（ISCS）监视、操作，行车作业办理等实训功能。

（6）车站综合控制实训区：具备备品的管理与使用，列车自动监控系统（ATS）、综合监控系统（ISCS）、闭路电视系统（CCTV）、广播系统（PA）、乘客信息系统（PIS）、火灾自动报警系统（FAS）、环境与设备监控系统（BAS）、综合后备控制盘（IBP）等的监控与操作，非正常情况下的应急处理等实训功能。

（7）站台门与车门实训区：具备站台门、车门的基本结构及功能认知，站台门、车门故障的类型和常见故障处理等实训功能。

（8）急救与消防设备实训室：具备消防设备设施认知及日常巡检维护，火警状态下各系统间的联动控制，火灾应急演练，消火栓和各类灭火器使用操作，心肺复苏、外伤包扎等急救操作等实训功能。

（9）电梯实训区：具备电梯（自动扶梯、直升梯、无障碍设施）的设备认知，电梯的控制操作，电梯的常见故障识别及应急处置等实训功能。实训场所面积及台位数能满足每班四十人同时开展实训教学的需要。

3.校外实训基地基本要求

具有稳定的校外实训基地。能够提供开展城市轨道交通等实训活动，实训设施齐备，实训岗位、实训指导教师确定，实训管理及实施规章制度齐全。

4.学生实习基地基本要求

具有稳定的校外实习基地。能提供城市轨道交通等相关实习岗位，能涵盖当前城市轨道交通运营管理的主流设备和技术，可接纳一定规模的学生实习；能够配备相应数量的指导教师对学生实习进行指导和管理；有保证实习生日常工作、学习、生活的规章制度，有安全、保险保障。

5.支持信息化教学方面的基本要求

具有利用数字化教学资源库、文献资料、常见问题解答等的信息化条件。引导鼓励教师开发并利用信息化教学资源、教学平台，创新教学方法、提升教学效果。

三、教学资源

主要包括能够满足学生专业学习、教师专业教学研究和教学实施需要的教材、图书及数字化资源等。

1．教材选用基本要求

按照国家规定选用优质教材，禁止不合格的教材进入课堂。学校应建立由专业教师、行业专家和教研人员等参与的教材选用机构，完善教材选用制度，经过规范程序择优选用教材。

2．图书文献配备基本要求

图书文献配备能满足人才培养、专业建设、教科研等工作的需要，方便师生查询、借阅。专业类图书主要包括：城市轨道交通行业政策法规、行业标准、技术规范以及相关专业技术手册等；城市轨道交通运营管理专业类图书和实务案例类图书；2 种以上城市轨道交通运营管理类专业学术期刊。

3．数字教学资源配置基本要求

建设、配备与本专业有关的音视频素材、教学课件、数字化教学案例库、虚拟仿真软件、数字教材等专业教学资源库，种类丰富、形式多样、使用便捷、动态更新、满足教学。

四、教学方法

1.教学方法、手段建议

在教学过程应该充分发挥学生的主体作用和教师的主导作用，注重培养学生分析和解决问题能力，引导学生完成“任务”，从而实现教学目标。在教学过程中可采用引导文教学法、角色扮演法、现场教学法、任务驱动法、案例教学法、项目教学法等多种形式，利用一体化实训室、多媒体、录像等多种教学手段。

2.教学组织形式建议

发挥校内实训基地或一体化教室功用，利用多媒体课件、现场作业录像、数字教学资源以及实训设备，按情境或项目组织教学。

五、教学评价

1.教学评价建议

结合岗位职业能力考核标准，按照“职业能力为主、知识为辅，过程为主、结果为辅”的原则，构建以职业能力考核为核心、以过程考核为重点的考核评价方式，从知识考核、实做考核、职业技能鉴定等方面对学生进行评价，突出考核的多样性和针对性，逐步使学生具备相应的知识结构、操作技能，实现对学生学习过程的跟踪和全面评价。

2.教学考核建议

① 过程评价加期末考核评价相结合的方法进行考核；

② 理论考核加实作考核相结合的方法进行考核；

③ 课程考核加技能鉴定相结合的方法进行考核；

④ 顶岗实践的校内指导教师与校外指导老师相结合进行考核。

六、质量管理

主要采用以学年制为主体的全日制教学管理模式，实行弹性实施学分制管理模式。

**毕业要求**

学生德、智、体、美、劳合格，在允许的修业年限内学完培养计划规定的全部课程，通过顶岗实践或毕业论文答辩，取得相应的职业资格证书，达到毕业最低学分（146分）要求，即获得毕业资格，准予毕业并颁发毕业证书。

**教 学 进 程 表**

**2018 级 城市轨道交通运营管理 专 业**

毕业最低学分：146分

专业代码： 600606

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| **一、教学进程表** | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | **二、周数分配表** | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 学  年 | 教 学 周 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 理论  及  分散  实践 | | | 集  中  实  践 | | | | 考  试 | | | 劳  动 | | | | 军  训 | | | 机  动 | | | | 毕  业  教  育 | | 假  期 | | | 合  计 | | |
| 九月 | | | | | | | | 十月 | | | | | | | 十一月 | | | | | | | | 十二月 | | | | | | | | | | 一月 | | | | | | | | | 二月 | | | | | | | | | 三月 | | | | | | | | 四月 | | | | | | 五月 | | | | | | | | 六月 | | | | | | | | | 七月 | | | | | | | | | | 八月 | | | | | | | |
|  | | | 1 | 2 | | | 3 | 4 | | | 5 | 6 | 7 | 8 | 9 | | 10 | 11 | 12 | 13 | | 14 | | | | 15 | 16 | | | | 17 | 18 | | | | 19 | | 20 | | 21 | 22 | | | 23 | 24 | | 25 | 26 | | | 27 | | | | 28 | 29 | 30 | | 31 | | 32 | 33 | 34 | | 35 | | 36 | 37 | | 38 | 39 | | 40 | | 41 | | 42 | | 43 | | | 44 | | | | 45 | | | 46 | | 47 | 48 | | | 49 | 50 | 51 | 52 | | | | K | | | S | | | | ∷ | | | × | | | | ★ | | J | | | T | | | | = | | |  | |
| 一 | | | ★2 | | | | 15 | | | | | | | | | | | | | | | | | | | | | | | | | J2 | | | | | | ∷ | | ==== 6 | | | | | | | | | | | 18 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | J | | | | ∷ | | ==== 6 | | | | | | | | | | | 33 | | |  | | | | 2 | | |  | | | | 2 | | 3 | | | 0 | | | | 12 | | | 52 | |
| 二 | | 15  RZ | | | | | | | | | | | | | | | | | | | | | | | | | | R | | PW | | | | | J | | ∷ | | ==== 6 | | | | | | | | | | | 15  ZH | | | | | | | | | | | | | | | | | | | | | | | | | | JD | | | | KF | | | | J | | | | ∷ | | ====6 | | | | | | | | | | 30 | | | 6 | | | | 2 | | |  | | | | 0 | | | 2 | | | 0 | | | 12 | | | 52 | | | |
| 三 | | 13 | | | | | | | | | | | | | | | | | | | | | × | | ZH | | | | | DD | | | | | J | | ∷ | | ==== 6 | | | | | | | | | | | 18DG | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | J | | | | T | |  | | | | | | | | | | 31 | | | 4 | | | | 1 | | | 1 | | | | 0 | | | 2 | | | 1 | | | 6 | | | 46 | | | |
| **三、教学进度表** | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 合计 | | | | | | | | | | | | | | | | | | | 92 | | | 10 | | | | 5 | | | 1 | | | | 2 | | | 7 | | | 1 | | | 30 | | | 150 | | | |
| 课程类型 | | 序  号 | | | 课程  代码 | | | | | 课 程 名 称 | | | | | | | | | | | 考核学期序 | | | | | | | | | | | | | | | | | | | | | 学 分 | | | | | | | 学 时 数 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 理论教学（含分散性实践教学）周学时 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 考 试 | | | | | | | | | | | | 考 查 | | | | | | | | | 总 计 | | | | | | | | | 理 论 | | | | | | 实 践 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 一 年 级 | | | | | | | | | | | | 二 年 级 | | | | | | | | | | | | | 三 年 级 | | | | | | | | | | |
| 合 计 | | | | | 习 题 课 | | | 实 训 | | | | | | 现场教学 | | | | | | | | | 创新创业训练 | | | | | | | 1学期  15周 | | | | | 2学期  18周 | | | | | | | 3学期  15周 | | | | | | | 4学期  15周 | | | | | | 5学期  13周 | | | | 6学期  18周 | | | | | | |
| 公共必修课 | | 1 | | | 0001 | | | | | 思想道德修养与法律基础及形势政策 | | | | | | | | | | | 1 | | | | | | | | | | | | 2 | | | | | | | | | 4 | | | | | | | 66 | | | | | | | | | 52 | | | | | | 14 | | | | | 14 | | |  | | | | | |  | | | | | | | | |  | | | | | | | 2 | | | | | 2 | | | | | | |  | | | | | | |  | | | | | |  | | | |  | | | | | | |
| 2 | | | 0002 | | | | | 毛泽东思想和中国特色社会主义理论体系概论及形势政策 | | | | | | | | | | | 3 | | | | | | | | | | | | 4 | | | | | | | | | 4 | | | | | | | 60 | | | | | | | | | 48 | | | | | | 12 | | | | | 12 | | |  | | | | | |  | | | | | | | | |  | | | | | | |  | | | | |  | | | | | | | 2 | | | | | | | 2 | | | | | |  | | | |  | | | | | | |
| 3 | | | 0005 | | | | | 高等数学 | | | | | | | | | | | 1 | | | | | | | | | | | |  | | | | | | | | | 5 | | | | | | | 60 | | | | | | | | | 54 | | | | | | 6 | | | | | 6 | | |  | | | | | |  | | | | | | | | |  | | | | | | | 4 | | | | |  | | | | | | |  | | | | | | |  | | | | | |  | | | |  | | | | | | |
| 4 | | | 0006 | | | | | 大学语文 | | | | | | | | | | |  | | | | | | | | | | | | 1 | | | | | | | | | 5 | | | | | | | 60 | | | | | | | | | 52 | | | | | | 8 | | | | | 8 | | |  | | | | | |  | | | | | | | | |  | | | | | | | 4 | | | | |  | | | | | | |  | | | | | | |  | | | | | |  | | | |  | | | | | | |
| 5 | | | 0007 | | | | | 公共英语 | | | | | | | | | | | 1 | | | | | | | | | | | |  | | | | | | | | | 5 | | | | | | | 60 | | | | | | | | | 18 | | | | | | 42 | | | | | 42 | | |  | | | | | |  | | | | | | | | |  | | | | | | | 4 | | | | |  | | | | | | |  | | | | | | |  | | | | | |  | | | |  | | | | | | |
| 6 | | | 0008 | | | | | 信息技术 | | | | | | | | | | |  | | | | | | | | | | | | 2 | | | | | | | | | 3 | | | | | | | 72 | | | | | | | | | 36 | | | | | | 36 | | | | |  | | | 36 | | | | | |  | | | | | | | | |  | | | | | | |  | | | | | 4 | | | | | | |  | | | | | | |  | | | | | |  | | | |  | | | | | | |
| 7 | | | 0009 | | | | | 体育 | | | | | | | | | | | 3 | | | | | | | | | | | | 1.2.4 | | | | | | | | | 7 | | | | | | | 126 | | | | | | | | | 8 | | | | | | 118 | | | | |  | | |  | | | | | | 118 | | | | | | | | |  | | | | | | | 2 | | | | | 2 | | | | | | | 2 | | | | | | | 2 | | | | | |  | | | |  | | | | | | |
| 8 | | | 0004 | | | | | 中华优秀传统文化 | | | | | | | | | | |  | | | | | | | | | | | | 1 | | | | | | | | | 2 | | | | | | | 30 | | | | | | | | | 30 | | | | | | 0 | | | | |  | | |  | | | | | |  | | | | | | | | |  | | | | | | | 2 | | | | |  | | | | | | |  | | | | | | |  | | | | | |  | | | |  | | | | | | |
| 9 | | | 0011 | | | | | 民族政策 | | | | | | | | | | |  | | | | | | | | | | | | 5 | | | | | | | | | 2 | | | | | | | 26 | | | | | | | | | 26 | | | | | | 0 | | | | |  | | |  | | | | | |  | | | | | | | | |  | | | | | | |  | | | | |  | | | | | | |  | | | | | | |  | | | | | | 2 | | | |  | | | | | | |
| 10 | | | 0010 | | | | | 创新创业与就业指导 | | | | | | | | | | |  | | | | | | | | | | | | 2 | | | | | | | | | 2 | | | | | | | 36 | | | | | | | | | 36 | | | | | | 0 | | | | |  | | |  | | | | | |  | | | | | | | | |  | | | | | | |  | | | | | 2 | | | | | | |  | | | | | | |  | | | | | |  | | | |  | | | | | | |
| 小计学分及学时数 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 33 | | | | | | | 596 | | | | | | | | | 366 | | | | | | 236 | | | | | 82 | | | 36 | | | | | | 118 | | | | | | | | | 0 | | | | | | | 18 | | | | | 10 | | | | | | | 4 | | | | | | | 4 | | | | | | 2 | | | | 0 | | | | | | |
| 专业必修课 | | 11 | | | 22001 | | | | | 电工电子 | | | | | | | | | | |  | | | | | | | | | | | | 2 | | | | | | | | | 2 | | | | | | | 36 | | | | | | | | | 24 | | | | | | 12 | | | | | 12 | | |  | | | | | |  | | | | | | | | |  | | | | | | |  | | | | | 2 | | | | | | |  | | | | | | |  | | | | | |  | | | |  | | | | | | |
| 12 | | | 22006 | | | | | 城市轨道交通车辆构造 | | | | | | | | | | |  | | | | | | | | | | | | 1 | | | | | | | | | 3 | | | | | | | 60 | | | | | | | | | 48 | | | | | | 12 | | | | |  | | |  | | | | | | 12 | | | | | | | | |  | | | | | | | 4 | | | | |  | | | | | | |  | | | | | | |  | | | | | |  | | | |  | | | | | | |
| 13 | | | 22005 | | | | | 城市轨道交通通信信号 | | | | | | | | | | | 2 | | | | | | | | | | | |  | | | | | | | | | 4 | | | | | | | 72 | | | | | | | | | 56 | | | | | | 16 | | | | |  | | |  | | | | | | 16 | | | | | | | | |  | | | | | | |  | | | | | 4 | | | | | | |  | | | | | | |  | | | | | |  | | | |  | | | | | | |
| 14 | | | 22004 | | | | | 城市轨道交通线路与站场 | | | | | | | | | | | 1 | | | | | | | | | | | |  | | | | | | | | | 3 | | | | | | | 60 | | | | | | | | | 48 | | | | | | 12 | | | | |  | | |  | | | | | | 12 | | | | | | | | |  | | | | | | | 4 | | | | |  | | | | | | |  | | | | | | |  | | | | | |  | | | |  | | | | | | |
| 15 | | | 22019 | | | | | 城市轨道交通车站设备 | | | | | | | | | | | 2 | | | | | | | | | | | |  | | | | | | | | | 4 | | | | | | | 72 | | | | | | | | | 56 | | | | | | 16 | | | | |  | | |  | | | | | | 16 | | | | | | | | |  | | | | | | |  | | | | | 4 | | | | | | |  | | | | | | |  | | | | | |  | | | |  | | | | | | |
| 16 | | | 22014 | | | | | 城市轨道交通客运服务 | | | | | | | | | | | 4 | | | | | | | | | | | |  | | | | | | | | | 3 | | | | | | | 60 | | | | | | | | | 48 | | | | | | 12 | | | | |  | | | 12 | | | | | |  | | | | | | | | |  | | | | | | |  | | | | |  | | | | | | |  | | | | | | | 4 | | | | | |  | | | |  | | | | | | |
| 17 | | | 22008 | | | | | 城市轨道交通行车组织 | | | | | | | | | | | 3 | | | | | | | | | | | |  | | | | | | | | | 3 | | | | | | | 60 | | | | | | | | | 50 | | | | | | 10 | | | | |  | | |  | | | | | | 10 | | | | | | | | |  | | | | | | |  | | | | |  | | | | | | | 4 | | | | | | |  | | | | | |  | | | |  | | | | | | |
| 18 | | | 22044 | | | | | 城市轨道交通客运组织 | | | | | | | | | | |  | | | | | | | | | | | | 3 | | | | | | | | | 3 | | | | | | | 60 | | | | | | | | | 46 | | | | | | 14 | | | | |  | | | 14 | | | | | |  | | | | | | | | |  | | | | | | |  | | | | |  | | | | | | | 4 | | | | | | |  | | | | | |  | | | |  | | | | | | |
| 19 | | | 22009 | | | | | 城市轨道交通票务管理 | | | | | | | | | | | 3 | | | | | | | | | | | |  | | | | | | | | | 3 | | | | | | | 60 | | | | | | | | | 50 | | | | | | 10 | | | | |  | | | 10 | | | | | |  | | | | | | | | |  | | | | | | |  | | | | |  | | | | | | | 4 | | | | | | |  | | | | | |  | | | |  | | | | | | |
| 20 | | | 22015 | | | | | 城市轨道交通安全管理 | | | | | | | | | | | 5 | | | | | | | | | | | |  | | | | | | | | | 3 | | | | | | | 52 | | | | | | | | | 38 | | | | | | 14 | | | | |  | | | 14 | | | | | |  | | | | | | | | |  | | | | | | |  | | | | |  | | | | | | |  | | | | | | |  | | | | | | 4 | | | |  | | | | | | |
| 21 | | | 22021 | | | | | 城市轨道交通运营调度 | | | | | | | | | | | 5 | | | | | | | | | | | |  | | | | | | | | | 3 | | | | | | | 52 | | | | | | | | | 38 | | | | | | 14 | | | | |  | | | 14 | | | | | |  | | | | | | | | |  | | | | | | |  | | | | |  | | | | | | |  | | | | | | |  | | | | | | 4 | | | |  | | | | | | |
| 22 | | | 22016 | | | | | 卫生防疫与急救 | | | | | | | | | | |  | | | | | | | | | | | | 5 | | | | | | | | | 1 | | | | | | | 26 | | | | | | | | | 18 | | | | | | 8 | | | | |  | | | 8 | | | | | |  | | | | | | | | |  | | | | | | |  | | | | |  | | | | | | |  | | | | | | |  | | | | | | 2 | | | |  | | | | | | |
| 23 | | | 22033 | | | | | 旅客运输心理学 | | | | | | | | | | | 4 | | | | | | | | | | | |  | | | | | | | | | 3 | | | | | | | 60 | | | | | | | | | 50 | | | | | | 10 | | | | |  | | | 10 | | | | | |  | | | | | | | | |  | | | | | | |  | | | | |  | | | | | | |  | | | | | | | 4 | | | | | |  | | | |  | | | | | | |
| 24 | | | 22055 | | | | | 城市轨道交通运输设备认知实习 | | | | | | | | | | |  | | | | | | | | | | | | 3 | | | | | | | | | 1 | | | | | | | 28 | | | | | | | | | 0 | | | | | | 28 | | | | |  | | | 28 | | | | | |  | | | | | | | | |  | | | | | | |  | | | | |  | | | | | | | 1周 | | | | | | |  | | | | | |  | | | |  | | | | | | |
| 25 | | | 22029 | | | | | 城市轨道车务综合实训 | | | | | | | | | | |  | | | | | | | | | | | | 4 | | | | | | | | | 2 | | | | | | | 56 | | | | | | | | | 0 | | | | | | 56 | | | | |  | | | 56 | | | | | |  | | | | | | | | |  | | | | | | |  | | | | |  | | | | | | |  | | | | | | |  | | | | | | 2周 | | | |  | | | | | | |
| 26 | | | 22027 | | | | | 城市轨道交通客运服务实训 | | | | | | | | | | |  | | | | | | | | | | | | 5 | | | | | | | | | 2 | | | | | | | 56 | | | | | | | | | 0 | | | | | | 56 | | | | |  | | | 56 | | | | | |  | | | | | | | | |  | | | | | | |  | | | | |  | | | | | | |  | | | | | | | 2周 | | | | | |  | | | |  | | | | | | |
| 27 | | | 22030 | | | | | 城市轨道交通调度实训 | | | | | | | | | | |  | | | | | | | | | | | | 5 | | | | | | | | | 2 | | | | | | | 56 | | | | | | | | | 0 | | | | | | 56 | | | | |  | | | 56 | | | | | |  | | | | | | | | |  | | | | | | |  | | | | |  | | | | | | |  | | | | | | |  | | | | | | 2周 | | | |  | | | | | | |
| 28 | | | 22052 | | | | | 城市轨道交通票务实训 | | | | | | | | | | |  | | | | | | | | | | | | 4 | | | | | | | | | 2 | | | | | | | 56 | | | | | | | | | 0 | | | | | | 56 | | | | |  | | | 56 | | | | | |  | | | | | | | | |  | | | | | | |  | | | | |  | | | | | | | 2周 | | | | | | |  | | | | | |  | | | |  | | | | | | |
| 29 | | | 22031 | | | | | 技能鉴定 | | | | | | | | | | |  | | | | | | | | | | | | 5 | | | | | | | | | 1 | | | | | | | 28 | | | | | | | | | 0 | | | | | | 28 | | | | |  | | | 28 | | | | | |  | | | | | | | | |  | | | | | | |  | | | | |  | | | | | | |  | | | | | | | 1周 | | | | | |  | | | |  | | | | | | |
| 30 | | | 22032 | | | | | 顶岗实习（含毕业设计） | | | | | | | | | | |  | | | | | | | | | | | | 6 | | | | | | | | | 18 | | | | | | | 540 | | | | | | | | | 0 | | | | | | 540 | | | | |  | | | 540 | | | | | |  | | | | | | | | |  | | | | | | |  | | | | |  | | | | | | |  | | | | | | |  | | | | | |  | | | | 18周 | | | | | | |
| 小计学分及学时数 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 69 | | | | | | | 1550 | | | | | | | | | 570 | | | | | | 980 | | | | | 12 | | | 902 | | | | | | 66 | | | | | | | | | 0 | | | | | | | 8 | | | | | 10 | | | | | | | 12 | | | | | | | 8 | | | | | | 10 | | | | 0 | | | | | | |
| 专业选修课 | | 31 | | | 22020 | | | | | 客运服务英语 | | | | | | | | | | | 2 | | | | | | | | | | | | 2 | | | | | | | | | 4 | | | | | | | 72 | | | | | | | | | 60 | | | | | | 12 | | | | |  | | | 12 | | | | | |  | | | | | | | | |  | | | | | | |  | | | | | 4 | | | | | | |  | | | | | | |  | | | | | |  | | | |  | | | | | | |
| 32 | | | 22055 | | | | | 服务礼仪 | | | | | | | | | | |  | | | | | | | | | | | | 3 | | | | | | | | | 3 | | | | | | | 60 | | | | | | | | | 60 | | | | | |  | | | | |  | | | 20 | | | | | |  | | | | | | | | |  | | | | | | |  | | | | |  | | | | | | | 4 | | | | | | |  | | | | | |  | | | |  | | | | | | |
| 33 | | | 22002 | | | | | 基础会计 | | | | | | | | | | | 4 | | | | | | | | | | | |  | | | | | | | | | 3 | | | | | | | 60 | | | | | | | | | 36 | | | | | | 24 | | | | |  | | | 24 | | | | | |  | | | | | | | | |  | | | | | | |  | | | | |  | | | | | | |  | | | | | | | 4 | | | | | |  | | | |  | | | | | | |
| 34 | | | 22010 | | | | | 管理学基础 | | | | | | | | | | | 5 | | | | | | | | | | | |  | | | | | | | | | 3 | | | | | | | 52 | | | | | | | | | 40 | | | | | | 12 | | | | |  | | | 12 | | | | | |  | | | | | | | | |  | | | | | | |  | | | | |  | | | | | | |  | | | | | | |  | | | | | | 4 | | | |  | | | | | | |
| 35 | | | 22034 | | | | | 运输经济法规 | | | | | | | | | | |  | | | | | | | | | | | | 5 | | | | | | | | | 3 | | | | | | | 52 | | | | | | | | | 38 | | | | | | 14 | | | | |  | | | 14 | | | | | |  | | | | | | | | |  | | | | | | |  | | | | |  | | | | | | |  | | | | | | |  | | | | | | 4 | | | |  | | | | | | |
| 36 | | | 22046 | | | | | 运输企业管理 | | | | | | | | | | |  | | | | | | | | | | | | 5 | | | | | | | | | 3 | | | | | | | 52 | | | | | | | | | 38 | | | | | | 14 | | | | |  | | | 14 | | | | | |  | | | | | | | | |  | | | | | | |  | | | | |  | | | | | | |  | | | | | | |  | | | | | | 4 | | | |  | | | | | | |
| 37 | | | 22013 | | | | | 运输产品市场营销 | | | | | | | | | | |  | | | | | | | | | | | | 5 | | | | | | | | | 3 | | | | | | | 52 | | | | | | | | | 36 | | | | | | 16 | | | | |  | | | 16 | | | | | |  | | | | | | | | |  | | | | | | |  | | | | |  | | | | | | |  | | | | | | |  | | | | | | 4 | | | |  | | | | | | |
| 38 | | | 22036 | | | | | 城市轨道交通班组管理 | | | | | | | | | | |  | | | | | | | | | | | | 5 | | | | | | | | | 3 | | | | | | | 52 | | | | | | | | | 36 | | | | | | 16 | | | | |  | | | 16 | | | | | |  | | | | | | | | |  | | | | | | |  | | | | |  | | | | | | |  | | | | | | |  | | | | | | 4 | | | |  | | | | | | |
| 39 | | | 22017 | | | | | 铁路客运组织 | | | | | | | | | | |  | | | | | | | | | | | | 4 | | | | | | | | | 3 | | | | | | | 60 | | | | | | | | | 48 | | | | | | 12 | | | | |  | | | 12 | | | | | |  | | | | | | | | |  | | | | | | |  | | | | |  | | | | | | |  | | | | | | | 4 | | | | | |  | | | |  | | | | | | |
| 40 | | | 22038 | | | | | 铁路行车组织 | | | | | | | | | | |  | | | | | | | | | | | | 4 | | | | | | | | | 3 | | | | | | | 60 | | | | | | | | | 48 | | | | | | 12 | | | | |  | | | 12 | | | | | |  | | | | | | | | |  | | | | | | |  | | | | |  | | | | | | |  | | | | | | | 4 | | | | | |  | | | |  | | | | | | |
| 41 | | | 22012 | | | | | 数据库应用 | | | | | | | | | | |  | | | | | | | | | | | | 4 | | | | | | | | | 3 | | | | | | | 60 | | | | | | | | | 30 | | | | | | 30 | | | | |  | | | 30 | | | | | |  | | | | | | | | |  | | | | | | |  | | | | |  | | | | | | |  | | | | | | | 4 | | | | | |  | | | |  | | | | | | |
| 42 | | | 22050 | | | | | 电子商务 | | | | | | | | | | |  | | | | | | | | | | | | 4 | | | | | | | | | 3 | | | | | | | 60 | | | | | | | | | 30 | | | | | | 30 | | | | |  | | | 30 | | | | | |  | | | | | | | | |  | | | | | | |  | | | | |  | | | | | | |  | | | | | | | 4 | | | | | |  | | | |  | | | | | | |
| 43 | | | 22040 | | | | | 基础统计 | | | | | | | | | | |  | | | | | | | | | | | | 3 | | | | | | | | | 3 | | | | | | | 60 | | | | | | | | | 48 | | | | | | 12 | | | | |  | | | 12 | | | | | |  | | | | | | | | |  | | | | | | |  | | | | |  | | | | | | | 4 | | | | | | |  | | | | | |  | | | |  | | | | | | |
| 44 | | | 22011 | | | | | 运输经济学导论 | | | | | | | | | | |  | | | | | | | | | | | | 3 | | | | | | | | | 3 | | | | | | | 60 | | | | | | | | | 48 | | | | | | 12 | | | | |  | | | 12 | | | | | |  | | | | | | | | |  | | | | | | |  | | | | |  | | | | | | | 4 | | | | | | |  | | | | | |  | | | |  | | | | | | |
| 小计学分及学时数 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 28 | | | | | | | 284 | | | | | | | | | 200 | | | | | | 84 | | | | | 0 | | | 84 | | | | | | 0 | | | | | | | | | 0 | | | | | | | 0 | | | | | 0 | | | | | | | 4 | | | | | | | 8 | | | | | | 8 | | | | 0 | | | | | | |
| **四、素质拓展课** | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 课程类型 | | 序  号 | | | | 课程代码 | | | | 课 程 名 称 | | | | | | | | | | | 考核学期序 | | | | | | | | | | | | | | | | | | | | | 学 分 | | | | 课  时 | | | | | | | 说 明 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 考 试 | | | | | | | | 考 查 | | | | | | | | | | | | |
| 必修  课 | | 1 | | | | 01 | | | | 军训及军事理论教育 | | | | | | | | | | |  | | | | | | | | 1 | | | | | | | | | | | | | 4 | | | | 60 | | | | | | | | 第1学期开设，含入学教育。 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 2 | | | | 02 | | | | 心理健康教育 | | | | | | | | | | |  | | | | | | | | 2.3.4.5 | | | | | | | | | | | | | 2 | | | | 32 | | | | | | | | 分专业在第2～5学期之一开设。 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 3 | | | | 03 | | | | 大学生安全及健康教育 | | | | | | | | | | |  | | | | | | | | 1.2.3.4 | | | | | | | | | | | | | 2 | | | | 32 | | | | | | | | 在1～4学期实施，以专题讲座的形式和每学期大学生第二课堂教育活动中开设. | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 4 | | | | 04 | | | | 大学生暑期社会实践 | | | | | | | | | | |  | | | | | | | | 2.4 | | | | | | | | | | | | | 2 | | | |  | | | | | | | | 利用暑期，进行社会实践，提交报告。 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 小计学分及学时数 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 10 | | | | 124 | | | | | | | |  | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 选  修  课 | | 1 | | | | 001 | | | | 演讲与口才 | | | | | | | | | | |  | | | | | | | | 2～5 | | | | | | | | | | | | | 2 | | | | 32 | | | | | | | |  | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 2 | | | | 002 | | | | 中国小说阅读与鉴赏 | | | | | | | | | | |  | | | | | | | | 2～5 | | | | | | | | | | | | | 2 | | | | 32 | | | | | | | |  | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 3 | | | | 003 | | | | 音乐欣赏 | | | | | | | | | | |  | | | | | | | | 2～5 | | | | | | | | | | | | | 2 | | | | 32 | | | | | | | |  | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 4 | | | | 004 | | | | 影视文学欣赏 | | | | | | | | | | |  | | | | | | | | 2～5 | | | | | | | | | | | | | 2 | | | | 32 | | | | | | | |  | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 5 | | | | 005 | | | | 应用写作 | | | | | | | | | | |  | | | | | | | | 2～5 | | | | | | | | | | | | | 2 | | | | 32 | | | | | | | |  | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 6 | | | | 006 | | | | 现代礼仪 | | | | | | | | | | |  | | | | | | | | 2～5 | | | | | | | | | | | | | 2 | | | | 32 | | | | | | | |  | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 7 | | | | 007 | | | | 中国古典诗词欣赏 | | | | | | | | | | |  | | | | | | | | 2～5 | | | | | | | | | | | | | 2 | | | | 32 | | | | | | | |  | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 8 | | | | 008 | | | | 中国近现代史纲要 | | | | | | | | | | |  | | | | | | | | 2～5 | | | | | | | | | | | | | 2 | | | | 32 | | | | | | | |  | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 9 | | | | 009 | | | | 中国传统文化 | | | | | | | | | | |  | | | | | | | | 2～5 | | | | | | | | | | | | | 2 | | | | 32 | | | | | | | |  | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 10 | | | | 010 | | | | 中国旅游资源概况 | | | | | | | | | | |  | | | | | | | | 2～5 | | | | | | | | | | | | | 2 | | | | 32 | | | | | | | |  | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 11 | | | | 011 | | | | ISO9000质量管理体系 | | | | | | | | | | |  | | | | | | | | 2～5 | | | | | | | | | | | | | 2 | | | | 32 | | | | | | | |  | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 12 | | | | 012 | | | | 高级文字排版 | | | | | | | | | | |  | | | | | | | | 2～5 | | | | | | | | | | | | | 2 | | | | 32 | | | | | | | |  | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 13 | | | | 013 | | | | 电子表格处理 | | | | | | | | | | |  | | | | | | | | 2～5 | | | | | | | | | | | | | 2 | | | | 32 | | | | | | | |  | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 14 | | | | 014 | | | | PS图像处理 | | | | | | | | | | |  | | | | | | | | 2～5 | | | | | | | | | | | | | 2 | | | | 32 | | | | | | | |  | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 15 | | | | 015 | | | | 高级PPT制作 | | | | | | | | | | |  | | | | | | | | 2～5 | | | | | | | | | | | | | 2 | | | | 32 | | | | | | | |  | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 16 | | | | 016 | | | | 计算机组装维修及网络操作 | | | | | | | | | | |  | | | | | | | | 2～5 | | | | | | | | | | | | | 2 | | | | 32 | | | | | | | |  | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 17 | | | | 017 | | | | 生活中的经济学 | | | | | | | | | | |  | | | | | | | | 2～5 | | | | | | | | | | | | | 2 | | | | 32 | | | | | | | |  | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 18 | | | | 018 | | | | 技术史漫谈 | | | | | | | | | | |  | | | | | | | | 2～5 | | | | | | | | | | | | | 2 | | | | 32 | | | | | | | |  | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 19 | | | | 019 | | | | 电影赏析 | | | | | | | | | | |  | | | | | | | | 2～5 | | | | | | | | | | | | | 2 | | | | 32 | | | | | | | |  | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 20 | | | | 020 | | | | 职业素质 | | | | | | | | | | |  | | | | | | | | 2～5 | | | | | | | | | | | | | 2 | | | | 32 | | | | | | | |  | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 21 | | | | 021 | | | | 创造性思维与创新方法 | | | | | | | | | | |  | | | | | | | | 2～5 | | | | | | | | | | | | | 2 | | | | 32 | | | | | | | |  | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 22 | | | | 022 | | | | 大学生创业基础 | | | | | | | | | | |  | | | | | | | | 2～5 | | | | | | | | | | | | | 2 | | | | 32 | | | | | | | |  | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 23 | | | | 023 | | | | 创新创业实践 | | | | | | | | | | |  | | | | | | | | 1～6 | | | | | | | | | | | | | 10 | | | |  | | | | | | | | 用于学生参加课题研究、项目实验、竞赛活动、发表论文等创新创业成果的学分折算 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 小计学分及学时数 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 44 | | | | 704 | | | | | | | |  | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| **合计学分及学时数** | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | **总学分146,必修课学分112,选修课学分34,其中专业选修课学分28，素质选修课学分6.总学时2554，理论学时1174，实践学时1380** | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

**铁道车辆专业**

**教学标准**

**专业名称** 铁道车辆

**专业代码** 600102

**入学要求** 高中阶段教育毕业生或具有同等学力者

**修业年限** 三年

**职业面向**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| 所属专业大类（代码） | 所属专业类（代码） | 对应行业（代码） | 主要职业类别（代码） | 主要岗位类别或技术领域举例 | 职业资格或职业技能等级证书举例 |
| 交通运输大类  （60） | 铁道运输类  （6001） | 铁路运输业  （53） | 铁路车辆制修工（6-23-01-02）  铁路机车车辆  制动钳工  （6-23-01-04） | 铁道车辆运用  铁道车辆检修 | 车辆钳工  车辆电工  客车检车员  货车检车员  动态检车员  制动钳工 |

**培养目标与培养规格**

一、培养目标

本专业培养理想信念坚定、德技并修、全面发展，具有一定的科学文化水平，良好的职业道德、工匠精神和创新精神，具有较强的就业能力、一定的创业能力和支撑终身发展的能力；掌握铁道车辆构造、原理、检修及运用管理的专业知识，具备铁道车辆运用检修的技术技能，面向铁路运输业，能够从事铁道车辆运用、检修等工作的高素质技术技能人才。

二、培养规格

本专业毕业生应在素质、知识和能力等方面达到以下要求。

1.素质

具有正确的世界观、人生观、价值观。坚决拥护中国共产党领导，树立中国特色社会主义共同理想，践行社会主义核心价值观，具有深厚的爱国情感、国家认同感、中华民族自豪感；崇尚宪法、遵守法律、遵规守纪；具有社会责任感和参与意识。

具有良好的职业道德和职业素养。崇德向善、诚实守信、爱岗敬业，具有精益求精的工匠精神；尊重劳动、热爱劳动，具有较强的实践能力；具有质量意识、绿色环保意识、安全意识、信息素养、创新精神；具有较强的集体意识和团队合作精神，能够进行有效的人际沟通和协作，与社会、自然和谐共处；具有职业生涯规划意识。

具有良好的身心素质和人文素养。具有健康的体魄和心理、健全的人格，能够掌握基本运动知识和一两项运动技能；具有感受美、表现美、鉴赏美、创造美的能力，具有一定的审美和人文素养，能够形成一两项艺术特长或爱好；掌握一定的学习方法，具有良好的生活习惯、行为习惯和自我管理能力。

2.知识

1） 掌握必备的思想政治理论、科学文化基础知识和中华优秀传统文化知识；

2）熟悉与本专业相关的法律法规以及环境保护、安全消防、文明生产等相关知识；

3）掌握本专业所必备的机电基础理论知识；

4）掌握主型铁道车辆的构造、作用原理、检修方法的基本知识；

5）掌握铁道车辆制动装置构造、作用原理、检修方法的基本知识；

6）掌握车辆制冷、空调、电气装置的构造、作用原理及有关使用维护的基本知识；

7）掌握THDS、TPDS、TADS、TFDS、TWDS、TVDS、TCDS等地对车安全监控系统的基本原理和基础知识；

8）掌握铁道车辆检修制度、运用管理方面的基础知识；

9）了解最新发布的涉及本专业的行业标准、国家标准和国际标准。

3.能力

1）具有探究学习、终身学习、分析问题和解决问题的能力；

2）具有良好的语言、文字表达能力和沟通能力；

3）具有团队合作能力；

4）具有检车员、车辆钳工、车辆电工的操作能力；

5）具有铁道车辆主要零部件一般检修的操作能力；

6）具有车辆制冷、空调、电气装置的使用和维护能力；

7）具有编制普通车辆零部件检修工艺文件的初步能力；

8）具有简单车辆检修装备的改造与设计方面的能力；

9）具有专业必备的机电操作能力；

10）具有本专业需要的信息技术应用能力。

**课程设置**

一、必修课程

1. 公共必修课程

|  |  |  |
| --- | --- | --- |
| 序号 | 课程名称 | 课时数 |
| 1 | 思想道德修养与法律基础 | 64 |
| 2 | 毛泽东思想和中国特色社会主义理论体系概论及形势与政策 | 64 |
| 3 | 高等数学 | 60 |
| 4 | 大学语文 | 60 |
| 5 | 公共英语 | 60 |
| 6 | 信息技术 | 60 |
| 7 | 体育 | 128 |
| 8 | 中华优秀传统文化 | 30 |
| 9 | 民族政策 | 32 |
| 10 | 创新创业与就业指导 | 34 |

2.专业必修课程

|  |  |  |
| --- | --- | --- |
| 序号 | 课程名称 | 课时数 |
| 1 | 机械识图与机械CAD | 60 |
| 2 | 液压与气动技术 | 68 |
| 3 | 铁道概论 | 68 |
| 4 | 工程材料和材料力学 | 68 |
| 5 | 互换性与技术测量 | 68 |
| 6 | 机加工技术 | 64 |
| 7 | 机械基础 | 102 |
| 8 | 电工电子技术 | 96 |
| 6 | 铁道车辆机械装置检修 | 128 |
| 7 | 车辆制动装置检修 | 128 |
| 9 | 铁道车辆电气装置检修 | 96 |
| 10 | 客车空调与通风装置 | 64 |
| 11 | 车辆运用与管理 | 96 |
| 12 | 铁道车辆动态检测技术 | 64 |
| 13 | 机械钳工实习 | 60 |
| 14 | 电工电子实习 | 60 |
| 17 | 车辆运用实习 | 60 |
| 18 | 毕业顶岗实习 | 540 |

3.素质拓展必修课程

|  |  |  |
| --- | --- | --- |
| 序号 | 课程名称 | 课时数 |
| 1 | 军训及军事理论教育 | 60 |
| 2 | 心理健康教育 | 32 |
| 3 | 大学生安全及健康教育 | 32 |
| 4 | 大学生暑期社会实践 |  |

二、选修课程

1. 专业选修课程

|  |  |  |
| --- | --- | --- |
| 序号 | 课程名称 | 课时数 |
| 1 | 高速铁路概论 | 64 |
| 2 | 可编程控制应用 | 64 |
| 3 | 动车组构造 | 64 |
| 4 | 货车重载技术 | 64 |
| 5 | 集成列车控制技术 | 64 |
| 6 | 车辆网络控制技术 | 64 |
| 7 | 焊工实习 | 60 |
| 8 | 机加工实习 | 60 |
| 9 | 车辆钳工技能鉴定实训 | 60 |
| 10 | 车辆电工技能鉴定实训 | 60 |

2. 素质拓展选修课程

|  |  |  |
| --- | --- | --- |
| 序号 | 课程名称 | 课时数 |
| 1 | 演讲与口才 | 32 |
| 2 | 中国小说阅读与鉴赏 | 32 |
| 3 | 音乐欣赏 | 32 |
| 4 | 影视文学欣赏 | 32 |
| 5 | 应用写作 | 32 |
| 6 | 现代礼仪 | 32 |
| 7 | 中国古典诗词欣赏 | 32 |
| 8 | 中国近现代史纲要 | 32 |
| 9 | 中国传统文化 | 32 |
| 10 | 中国旅游资源概况 | 32 |
| 11 | ISO9000质量管理体系 | 32 |
| 12 | 高级文字排版 | 32 |
| 13 | 电子表格处理 | 32 |
| 14 | PS图像处理 | 32 |
| 15 | 高级PPT制作 | 32 |
| 16 | 计算机组装维修及网络操作 | 32 |
| 17 | 生活中的经济学 | 32 |
| 18 | 技术史漫谈 | 32 |
| 19 | 电影赏析 | 32 |
| 20 | 职业素质 | 32 |
| 21 | 创造性思维与创新方法 | 32 |
| 22 | 大学生创业基础 | 32 |
| 23 | 创新创业实践 |  |

3.专业核心课程和主要教学内容

|  |  |  |
| --- | --- | --- |
| 序号 | 专业核心课 | 主要教学内容 |
| 1 | 铁道车辆构造及检修 | 主型客车（含普速客车、快速客车、提速客车）、主型货车（含快速货车、特运货车）的构造、作用原理及检修；  轮对及轴箱定位装置、车辆弹簧及减振器、转向架、车端连接装置、车体、车内设备（包括集便器、塞拉门等）；  典型车辆零部件的检修方法（含典型车辆检修装备结构原理）、车辆检修制度；  电磁探伤、超声波探伤的工作原理、操作方法及故障判别标准（含探伤仪器的结构原理）；  车辆运行性能。 |
| 2 | 铁道车辆制动装置检修 | 104型、F8型分配阀，120（120-1）型控制阀，104、F8型电空阀；  基础制动装置、制动缸、集成制动装置；  闸调器、电子防滑器；空重车自动调整装置；脱轨自动制动装置；  集成列车控制系统；人力制动机；  试验台试验、单车制动试验、列车制动试验；  列车制动系统的结构、工作原理、操作方法及故障判别标准以及制动基础理论。 |
| 3 | 铁道车辆电气装置检修 | 空调发电车动力装置、发电机组及配供电控制系统；  DC600V机车直供电系统；  25G、25T（25K、BSP）客车电气系统；  应急电源、电开水炉、轴温报警器、旅客列车尾部安全防护装置（KLW）、集便器、塞拉门、防滑器等用电器；  车体配线等结构原理、使用操作、常见故障分析和日常维护保养的基本知识、方法。 |
| 4 | 铁道车辆运用与管理 | 车辆运用管理机构组成及其职责，车辆运用技术指标，列车编组运行；  铁路客车日常维修部门及作业方法和要求；  铁路货车日常维修部门及作业方法和要求；  车辆安全管理的制度与规定；  行车事故调查、处理及救援；  车辆故障调查与处理等方面的知识。 |
| 5 | 铁道车辆动态检测技术 | 车辆轴温智能探测系统(THDS);车辆运行状态地面安全监测系统（TPDS）;车辆滚动轴承早期故障轨边声学诊断系统（TADS）;货车运行故障动态图像检测系统（TFDS）;客车故障轨边图像检测系统（TVDS）;客车运行安全监控系统（TCDS）;货车轮对尺寸动态检测系统(TWDS)等的组成、工作原理、软硬件设备、设备安装调试及操作方法和业务组织及管理等；  车号识别系统（BEI）;铁路货车管理信息系统（HMIS）;铁路客车管理信息系统（KMIS）的原理及应用。 |
| 6 | 铁道车辆空调装置检修 | 客车空调制冷系统、通风系统、加热系统、空调装置的构造及工作原理，操作及维护等知识；  客车空调装置的安装、调试、检修、运用管理规定及故障分析处理的方法；  客车空调装置的性能试验和状态检测及运行状况评价。 |

**学时安排**

每学年教学时间为40周，总学时数为2790，实习按每周30学时计算。每学时为45分钟。18学时计为1个学分，总学分为150学分。军训、入学教育、社会实践、毕业设计（或毕业论文、毕业教育）等，以1周为1学分。公共基础课程学时占总学时的22.2%。选修课教学时数占总学时的比例均为15%。学生顶岗实习为6个月，可根据实际情况，采取工学交替、多学期、分段式等多种形式组织实施。

**教学进程总体安排**

见附件（教学进程表）

**实施保障**

一、师资队伍

1.队伍结构

学生数与本专业专任教师数比例为22:1，双师素质教师占专业教师比为60%，专任教师队伍要具备高、中、初级职称，形成合理的梯队结构。

2.专任教师

具有高校教师资格；具有理想信念、道德情操、扎实学识、仁爱之心；具有铁道车辆专业及相近专业本科及以上学历；具有扎实的车辆检修技术相关理论功底和实践能力；具有较强信息化教学能力，能够开展课程教学改革和科学研究；每5年累计不少于6个月的企业实践经历。

3.专业带头人

原则上应具有副高及以上职称，能够较好地把握国内外行业、专业发展，能广泛联系行业企业，了解行业企业对铁道车辆专业人才的实际需求，教学设计、专业研究能力强，组织开展教科研工作能力强，在本区域或本领域有一定的专业影响力。

4.兼职教师

应主要从车辆段或相关企业聘任，具备良好的思想政治素质、职业道德和工匠精神，具有扎实的铁道车辆专业知识和丰富的工作经验，具有中级及以上行业相关专业技术资格，能承担课程与实训教学、实习指导等专业教学任务。

二、教学设施

1.专业教室基本条件

各教室配备黑板、多媒体计算机、投影设备、音响设备，互联网接入或WiFi环境，并具有网络安全防护措施。安装应急照明装置并保持良好状态，符合紧急疏散要求、标志明显、保持逃生通道畅通无阻。

2.校内实训室基本条件

（1）铁道车辆专业基础技能实训室

主要配备各种电气测试仪表仪器等通用电工工具、通用机械检修工、量、夹具等。用于机械制图及CAD、机械基础、电工电子技术基础、钳工实训、液压传动与气动技术、可编程控制器应用等课程的教学与实训

（2）铁道车辆机械装置检修实训室

主要配备铁道车辆零部件、客货车主型转向架和检修工具等。用于铁道车辆机械装置检修课程中的基本的车辆机械维修操作技能的教学与实训。

（3）铁道车辆制动装置检修实训室

主要配备各种类型的客货车制动阀、闸调器、基础制动装置、车辆制动检修工具及设备等。用于铁道车辆制动装置检修课程中使用车辆制动检修工具、基本的车辆制动维修操作技能的教学与实训。

（4）客车电气装置检修实训室

主要配备四合一综合控制柜、轴温报警器等客车电气设备。用于铁道车辆电气装置检修课程中进行基本的客车电气设备维修操作技能的教学与实训。

（5）客车空调装置检修实训室

主要配备客车单元式空调机组、各类型压缩机、换热器等设备。用于铁道车辆空调装置检修课程中空调系统维修操作技能的教学与实训。

（6）铁道车辆运用实训场

主要配备各类型的铁路客货车车辆整车、客货车车钩、制动梁等车辆配件及专用检修工具。用于铁道车辆运用与管理、铁道车辆机械检修、铁道车辆电气装置检修、铁道车辆制动装置检修等课程中列车或车辆基本维修操作技能的教学与实训。

（7）车辆动态检测装置实训室

主要配备铁道车辆常用传感器、车辆运行故障动态图像检测模拟系统及操作台等动态检车模拟设备。用于铁道车辆动态检测技术课程中基本的动态检车操作技能的教学与实训。

以上实训室还可以作为学生创新创业的实践平台。

3.校外实训基地

呼和浩特铁路局包头车辆段、包头西车辆段作为车辆专业稳定的校外实训基地。能够提供开展铁道车辆专业实践教学活动，实训设施齐备，实训岗位、实训指导教师确定，实训管理及实施规章制度齐全。

4.学生实习基地

呼和浩特铁路局包头车辆段、包头西车辆段作为学生校外实习基地。能涵盖当前铁道车辆专业发展的主流技术，可接纳一定规模的学生实习；能够配备相应数量的指导教师对学生实习进行指导和管理；有保证实习生日常工作、学习、生活的规章制度，有安全、保险保障。

5.支持信息化教学方面的基本要求

具有利用数字化教学资源库、文献资料、常见问题解答等的信息化条件。较多教师开发并利用信息化教学资源、教学平台，进行创新教学方法、以提升教学效果。

三、教学资源

具有能够满足学生专业学习、教师专业教学研究和教学实施需要的教材、图书及数字化教学资源等。

1．教材选用

按照国家规定选用优质教材。

2．图书文献配备基本要求

图书文献配备能满足人才培养、专业建设、教科研等工作的需要，方便师生查询、借阅。专业类图书文献主要包括：铁道车辆专业涉及的职业标准、技术手册、操作规范、规章制度、专业期刊以及案例类图书等。

3.数字教学资源配备

建设、配备有与本专业有关的音视频素材、教学课件、数字化教学案例库、虚拟仿真软件、数字教材等数字资源，种类丰富、形式多样、使用便捷、动态更新、满足教学。

四、教学方法

1.教学方法、手段建议

积极实施课程教学模式改革，选择切实可行的途径和形式多样的教学策略，改变以知识传授为主的教学方法，形成以行动为主的教学模式，有效调动起学生自主学习的积极性；推进项目教学法、实行理实一体化教学；加强信息技术与课程教学的整合，利用现代教育技术和网络技术进行教学。

积极实施多媒体教学。因材施教，灵活运用多种恰当的教学方法，开展体验性学习。实施以真实工作任务或产品为载体的，以问题为中心的启发式、讨论式、探究式、开放式、实践式等教学方法，引导学生积极思考，主动学习，乐于实践，提高教学效果。

2.教学组织形式建议

以工学结合为切入点，以任务引领型课程为基本导向，以工学结合为主要形式，积极推行订单培养，探索工学交替、任务驱动、项目导向、顶岗实习等有利于增强学生能力的教学形式。

课程实施以学生为中心，创设真实工作环境，有效设计“教、学、做”为一体的情景教学形式，强化职业能力、创新能力和就业能力培养。努力把教学过程变成学生自主性、能动性、创新性学习的过程。

五、教学评价

1.教学评价建议

突破传统的评价制度，建立以培养学生专业技术应用能力和创新精神为主要内容、评价主体多元和方式多样化的评价体系；重视过程评价和形成性评价，强化综合实践能力考核。注重引入社会评价。

2.教学考核建议

（1）积极推行过程性评价，探索教学考核方式方法的改革。根据课程不同的教学目标，积极采用除闭卷考试外的笔试、口试、答辩和现场测试、操作、提交案例分析报告、成果展示、作品评价等多种方法，实行自评、小组互评、教师评价结合。

（2）专业实践能力考核采用客观可操作的考核标准，采用有现场专业技术人员参与的实践考核。

（3）对项目式实践教学内容，教师依据学生提交的规范化项目报告实施考核。

六、质量管理

1.院系教学管理机构健全，职责明确，管理队伍结构优良。

2.教学基本文件齐备，教学管理制度健全，手段先进，执行严格，落实具体，执行有力。

3.教学档案资料齐全，分类科学，且装订规范。

4.采用现代化教学管理手段，切实提高管理效率和管理效果。

5.教学管理改革力度大、效果好；有改革创新意识和教育管理研究成果，管理工作具有先进水准。

**毕业要求**

学生德、智、体、美、劳合格，在允许的修业年限内学完培养计划规定的全部课程，通过顶岗实践或毕业论文答辩，取得相应的职业资格证书，达到毕业最低学分（150分）要求，即获得毕业资格，准予毕业并颁发毕业证书。

**教 学 进 程 表**

**2018 级 铁道车辆专 业**

毕业最低学分：150分

专业代码： 600102

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **一、教学进程表** | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | **二、周数分配表** | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 学  年 | | 教 学 周 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 理论  及  分散  实践 | | | 集  中  实  践 | | | | 考  试 | | | 劳  动 | | | | 军  训 | | | 机  动 | | | | 毕  业  教  育 | | 假  期 | | | 合  计 | | |
| 九月 | | | | | | | | 十月 | | | | | | | 十一月 | | | | | | | 十二月 | | | | | | | | 一月 | | | | | | | | | 二月 | | | | | | | | | | 三月 | | | | | | | | 四月 | | | | | | 五月 | | | | | | | | 六月 | | | | | | | | 七月 | | | | | | | | | | 八月 | | | | | | |
|  | | | 1 | 2 | | | 3 | 4 | | | 5 | 6 | 7 | 8 | 9 | | 10 | 11 | 12 | 13 | 14 | | | 15 | 16 | | 17 | | 18 | | | | 19 | 20 | | 21 | | 22 | | | 23 | 24 | | 25 | | 26 | | 27 | | | | | 28 | 29 | 30 | | 31 | | 32 | 33 | 34 | | 35 | | 36 | 37 | | 38 | 39 | | 40 | | 41 | 42 | | | 43 | | 44 | | | | 45 | | | 46 | | 47 | 48 | | | 49 | 50 | 51 | 52 | | | | K | | | S | | | | ∷ | | | × | | | ★ | | | J | | | | T | | = | | |  | | |
| 一 | | | ★2 | | | | 15 | | | | | | | | | | | | | | | | | | | | | | J2 | | | | | ∷ | | ==== 6 | | | | | | | | | | | | 17 | | | | | | | | | | | | | | | | | | | | | | | | | | 2QG | | | | | × | | J | | | | | ∷ | | ==== 6 | | | | | | | | | | | 32 | | |  | | | | 2 | | | 1 | | | 2 | | | 3 | | | | 0 | | 12 | | | 52 | | |
| 二 | | 16 | | | | | | | | | | | | | | | | | | | | | | | | | | DJ | | | | J | | | ∷ | | ==== 6 | | | | | | | | | | | | 16 | | | | | | | | | | | | | | | | | | | | | | | | | | | HG | | | | | | J | | | ∷ | | ====6 | | | | | | | | | | | 32 | | | 4 | | | | 2 | | |  | | | 0 | | 2 | | | | 0 | | | 12 | | 52 | | | | |
| 三 | | 16 | | | | | | | | | | | | | | | | | | | | | | | | | | YS | | | | J | | | ∷ | | ==== 6 | | | | | | | | | | | | 18BS | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | J | | | T | |  | | | | | | | | | | | 16 | | | 20 | | | | 1 | | |  | | | 0 | | 2 | | | | 1 | | | 6 | | 46 | | | | |
| **三、教学进度表** | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 合计 | | | | | | | | | | | | | | | | | | | | 74 | | | 30 | | | | 5 | | | 1 | | | 2 | | 7 | | | | 1 | | | 30 | | 150 | | | | |
| 课程类型 | | 序  号 | | | 课程  代码 | | | | | 课 程 名 称 | | | | | | | | | | | | 考核学期序 | | | | | | | | | | | | | | | | | 学 分 | | | | | | | | 学 时 数 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 理论教学（含分散性实践教学）周学时 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 考 试 | | | | | | | | 考 查 | | | | | | | | | 总 计 | | | | | | | | | 理 论 | | | | | | 实 践 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 一 年 级 | | | | | | | | | | | | 二 年 级 | | | | | | | | | | | | | 三 年 级 | | | | | | | | | | |
| 合 计 | | | | | 习 题 课 | | | 实 训 | | | | | 现场教学 | | | | | | | | | 创新创业训练 | | | | | | | 1学期  15周 | | | | | 2学期  15周 | | | | | | | 3学期  16周 | | | | | | | 4学期  16周 | | | | | | 5学期  16周 | | | | 6学期  周 | | | | | | |
| 公共必修课 | | 1 | | | 0001 | | | | | 思想道德修养与法律基础及形势政策 | | | | | | | | | | | | 1 | | | | | | | | 2 | | | | | | | | | 3 | | | | | | | | 60 | | | | | | | | | 46 | | | | | | 14 | | | | | 14 | | |  | | | | |  | | | | | | | | |  | | | | | | | 2 | | | | | 2 | | | | | | |  | | | | | | |  | | | | | |  | | | |  | | | | | | |
| 2 | | | 0002 | | | | | 毛泽东思想和中国特色社会主义理论体系概论及形势政策 | | | | | | | | | | | | 3 | | | | | | | | 4 | | | | | | | | | 4 | | | | | | | | 64 | | | | | | | | | 52 | | | | | | 12 | | | | | 12 | | |  | | | | |  | | | | | | | | |  | | | | | | |  | | | | |  | | | | | | | 2 | | | | | | | 2 | | | | | |  | | | |  | | | | | | |
| 3 | | | 0005 | | | | | 高等数学 | | | | | | | | | | | | 1 | | | | | | | |  | | | | | | | | | 3 | | | | | | | | 60 | | | | | | | | | 54 | | | | | | 6 | | | | | 6 | | |  | | | | |  | | | | | | | | |  | | | | | | | 4 | | | | |  | | | | | | |  | | | | | | |  | | | | | |  | | | |  | | | | | | |
| 4 | | | 0006 | | | | | 大学语文 | | | | | | | | | | | |  | | | | | | | | 1 | | | | | | | | | 3 | | | | | | | | 60 | | | | | | | | | 52 | | | | | | 8 | | | | | 8 | | |  | | | | |  | | | | | | | | |  | | | | | | | 4 | | | | |  | | | | | | |  | | | | | | |  | | | | | |  | | | |  | | | | | | |
| 5 | | | 0007 | | | | | 公共英语 | | | | | | | | | | | | 1 | | | | | | | |  | | | | | | | | | 3 | | | | | | | | 60 | | | | | | | | | 18 | | | | | | 42 | | | | | 42 | | |  | | | | |  | | | | | | | | |  | | | | | | | 4 | | | | |  | | | | | | |  | | | | | | |  | | | | | |  | | | |  | | | | | | |
| 6 | | | 0008 | | | | | 信息技术 | | | | | | | | | | | |  | | | | | | | | 1 | | | | | | | | | 3 | | | | | | | | 60 | | | | | | | | | 30 | | | | | | 30 | | | | | 30 | | |  | | | | |  | | | | | | | | |  | | | | | | | 4 | | | | |  | | | | | | |  | | | | | | |  | | | | | |  | | | |  | | | | | | |
| 7 | | | 0009 | | | | | 体育 | | | | | | | | | | | | 3 | | | | | | | | 1.2.4 | | | | | | | | | 7 | | | | | | | | 124 | | | | | | | | | 8 | | | | | | 116 | | | | |  | | |  | | | | | 116 | | | | | | | | |  | | | | | | | 2 | | | | | 2 | | | | | | | 2 | | | | | | | 2 | | | | | |  | | | |  | | | | | | |
| 8 | | | 0004 | | | | | 中华优秀传统文化 | | | | | | | | | | | |  | | | | | | | | 1 | | | | | | | | | 2 | | | | | | | | 30 | | | | | | | | | 30 | | | | | |  | | | | |  | | |  | | | | |  | | | | | | | | |  | | | | | | | 2 | | | | |  | | | | | | |  | | | | | | |  | | | | | |  | | | |  | | | | | | |
| 9 | | | 0011 | | | | | 民族政策 | | | | | | | | | | | |  | | | | | | | | 5 | | | | | | | | | 2 | | | | | | | | 32 | | | | | | | | | 32 | | | | | |  | | | | |  | | |  | | | | |  | | | | | | | | |  | | | | | | |  | | | | |  | | | | | | |  | | | | | | |  | | | | | | 2 | | | |  | | | | | | |
| 10 | | | 0010 | | | | | 创新创业与就业指导 | | | | | | | | | | | |  | | | | | | | | 2 | | | | | | | | | 2 | | | | | | | | 30 | | | | | | | | | 30 | | | | | |  | | | | |  | | |  | | | | |  | | | | | | | | |  | | | | | | |  | | | | | 2 | | | | | | |  | | | | | | |  | | | | | |  | | | |  | | | | | | |
| 小计学分及学时数 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 32 | | | | | | | | 580 | | | | | | | | | 352 | | | | | | 228 | | | | | 112 | | |  | | | | | 116 | | | | | | | | |  | | | | | | | 22 | | | | | 6 | | | | | | | 4 | | | | | | | 4 | | | | | | 2 | | | | **0** | | | | | | |
| 专业必修课 | | 11 | | | 05114 | | | | | 机械识图与机械**CAD** | | | | | | | | | | | | 1 | | | | | | | |  | | | | | | | | | 3 | | | | | | | | 60 | | | | | | | | | 30 | | | | | | 30 | | | | | 10 | | |  | | | | | 20 | | | | | | | | |  | | | | | | | 4 | | | | |  | | | | | | |  | | | | | | |  | | | | | |  | | | |  | | | | | | |
| 12 | | | 05113 | | | | | 铁道概论 | | | | | | | | | | | | 2 | | | | | | | |  | | | | | | | | | 4 | | | | | | | | 60 | | | | | | | | | 56 | | | | | | 4 | | | | |  | | |  | | | | | 4 | | | | | | | | |  | | | | | | |  | | | | | 4 | | | | | | |  | | | | | | |  | | | | | |  | | | |  | | | | | | |
| 13 | | | 05106 | | | | | 机械基础 | | | | | | | | | | | | 2 | | | | | | | |  | | | | | | | | | 6 | | | | | | | | 90 | | | | | | | | | 74 | | | | | | 16 | | | | | 8 | | |  | | | | | 8 | | | | | | | | |  | | | | | | |  | | | | | 6 | | | | | | |  | | | | | | |  | | | | | |  | | | |  | | | | | | |
| 14 | | | 05119 | | | | | 工程材料和材料力学 | | | | | | | | | | | | 2 | | | | | | | |  | | | | | | | | | 4 | | | | | | | | 60 | | | | | | | | | 48 | | | | | | 12 | | | | | 8 | | |  | | | | | 4 | | | | | | | | |  | | | | | | |  | | | | | 4 | | | | | | |  | | | | | | |  | | | | | |  | | | |  | | | | | | |
| 15 | | | 05108 | | | | | 互换性与技术测量 | | | | | | | | | | | |  | | | | | | | | 2 | | | | | | | | | 4 | | | | | | | | 60 | | | | | | | | | 50 | | | | | | 10 | | | | | 6 | | |  | | | | | 4 | | | | | | | | |  | | | | | | |  | | | | | 4 | | | | | | |  | | | | | | |  | | | | | |  | | | |  | | | | | | |
| 16 | | | 05119 | | | | | 液压与气动技术 | | | | | | | | | | | | 3 | | | | | | | |  | | | | | | | | | 4 | | | | | | | | 64 | | | | | | | | | 52 | | | | | | 12 | | | | | 6 | | |  | | | | | 6 | | | | | | | | |  | | | | | | |  | | | | |  | | | | | | | 4 | | | | | | |  | | | | | |  | | | |  | | | | | | |
| 17 | | | 05139 | | | | | 机加工技术 | | | | | | | | | | | |  | | | | | | | | 3 | | | | | | | | | 4 | | | | | | | | 64 | | | | | | | | | 56 | | | | | | 8 | | | | | 4 | | |  | | | | | 4 | | | | | | | | |  | | | | | | |  | | | | |  | | | | | | | 4 | | | | | | |  | | | | | |  | | | |  | | | | | | |
| 18 | | | 05131 | | | | | 电工电子技术 | | | | | | | | | | | | 3 | | | | | | | |  | | | | | | | | | 5 | | | | | | | | 96 | | | | | | | | | 76 | | | | | | 20 | | | | | 10 | | |  | | | | | 10 | | | | | | | | |  | | | | | | |  | | | | |  | | | | | | | 6 | | | | | | |  | | | | | |  | | | |  | | | | | | |
| 19 | | | 05109 | | | | | 铁道车辆机械装置检修 | | | | | | | | | | | | 4 | | | | | | | | 3 | | | | | | | | | 7 | | | | | | | | 128 | | | | | | | | | 60 | | | | | | 68 | | | | | 8 | | |  | | | | | 60 | | | | | | | | |  | | | | | | |  | | | | |  | | | | | | | 4 | | | | | | | 4 | | | | | |  | | | |  | | | | | | |
| 20 | | | 05110 | | | | | 车辆制动装置检修 | | | | | | | | | | | | 4 | | | | | | | | 5 | | | | | | | | | 7 | | | | | | | | 128 | | | | | | | | | 60 | | | | | | 68 | | | | | 8 | | |  | | | | | 60 | | | | | | | | |  | | | | | | |  | | | | |  | | | | | | |  | | | | | | | 4 | | | | | | 4 | | | |  | | | | | | |
| 21 | | | 05115 | | | | | 铁道车辆电气装置检修 | | | | | | | | | | | | 4 | | | | | | | |  | | | | | | | | | 5 | | | | | | | | 96 | | | | | | | | | 62 | | | | | | 34 | | | | | 4 | | |  | | | | | 30 | | | | | | | | |  | | | | | | |  | | | | |  | | | | | | |  | | | | | | | 6 | | | | | |  | | | |  | | | | | | |
| 22 | | | 05116 | | | | | 车辆空调装置检修 | | | | | | | | | | | | 5 | | | | | | | |  | | | | | | | | | 4 | | | | | | | | 64 | | | | | | | | | 48 | | | | | | 16 | | | | | 4 | | |  | | | | | 12 | | | | | | | | |  | | | | | | |  | | | | |  | | | | | | |  | | | | | | |  | | | | | | 4 | | | |  | | | | | | |
| 23 | | | 05112 | | | | | 铁道车辆运用与管理 | | | | | | | | | | | | 5 | | | | | | | |  | | | | | | | | | 5 | | | | | | | | 96 | | | | | | | | | 86 | | | | | | 10 | | | | | 4 | | |  | | | | | 6 | | | | | | | | |  | | | | | | |  | | | | |  | | | | | | |  | | | | | | |  | | | | | | 6 | | | |  | | | | | | |
| 24 | | | 05141 | | | | | 铁道车辆动态检测技术 | | | | | | | | | | | | 5 | | | | | | | |  | | | | | | | | | 4 | | | | | | | | 64 | | | | | | | | | 54 | | | | | | 10 | | | | | 4 | | |  | | | | | 6 | | | | | | | | |  | | | | | | |  | | | | |  | | | | | | |  | | | | | | |  | | | | | | 4 | | | |  | | | | | | |
| 25 | | | 05122 | | | | | 机械钳工实习QG | | | | | | | | | | | |  | | | | | | | | 3 | | | | | | | | | 2 | | | | | | | | 60 | | | | | | | | | 0 | | | | | | 60 | | | | |  | | | 2周 | | | | |  | | | | | | | | |  | | | | | | |  | | | | | 2QG | | | | | | |  | | | | | | |  | | | | | |  | | | |  | | | | | | |
| 26 | | | 05123 | | | | | 电工电子实习DG | | | | | | | | | | | |  | | | | | | | | 3 | | | | | | | | | 2 | | | | | | | | 60 | | | | | | | | | 0 | | | | | | 60 | | | | |  | | | 2周 | | | | |  | | | | | | | | |  | | | | | | |  | | | | |  | | | | | | | 2DG | | | | | | |  | | | | | |  | | | |  | | | | | | |
| 27 | | | 05152 | | | | | 车辆运用实习YS | | | | | | | | | | | |  | | | | | | | | 5 | | | | | | | | | 2 | | | | | | | | 60 | | | | | | | | | 0 | | | | | | 60 | | | | |  | | | 2周 | | | | |  | | | | | | | | |  | | | | | | |  | | | | |  | | | | | | |  | | | | | | |  | | | | | | 2YS | | | |  | | | | | | |
| 28 | | | 05127 | | | | | 毕业顶岗实习BS | | | | | | | | | | | |  | | | | | | | | 6 | | | | | | | | | 18 | | | | | | | | 540 | | | | | | | | | 0 | | | | | | 540 | | | | |  | | | 18周 | | | | |  | | | | | | | | |  | | | | | | |  | | | | |  | | | | | | |  | | | | | | |  | | | | | |  | | | | 18BS | | | | | | |
| 小计学分及学时数 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 86 | | | | | | | | 1850 | | | | | | | | | 812 | | | | | | 1038 | | | | | 84 | | | 24周 | | | | | 234 | | | | | | | | |  | | | | | | | 4 | | | | | 18 | | | | | | | 18 | | | | | | | 14 | | | | | | 18 | | | |  | | | | | | |
| 专业选修课 | | 29 | | | 05108 | | | | | 高速铁路概论 | | | | | | | | | | | |  | | | | | | | | 3 | | | | | | | | | 4 | | | | | | | | 64 | | | | | | | | | 64 | | | | | |  | | | | |  | | |  | | | | |  | | | | | | | | |  | | | | | | |  | | | | |  | | | | | | | 4 | | | | | | |  | | | | | |  | | | |  | | | | | | |
| 30 | | | 05132 | | | | | 可编程控制器应用 | | | | | | | | | | | |  | | | | | | | | 3 | | | | | | | | | 4 | | | | | | | | 64 | | | | | | | | | 54 | | | | | | 10 | | | | |  | | |  | | | | | 10 | | | | | | | | |  | | | | | | |  | | | | |  | | | | | | | 4 | | | | | | |  | | | | | |  | | | |  | | | | | | |
| 31 | | | 05154 | | | | | 动车组构造 | | | | | | | | | | | |  | | | | | | | | 5 | | | | | | | | | 4 | | | | | | | | 64 | | | | | | | | | 64 | | | | | |  | | | | |  | | |  | | | | |  | | | | | | | | |  | | | | | | |  | | | | |  | | | | | | |  | | | | | | | 4 | | | | | |  | | | |  | | | | | | |
| 32 | | | 05155 | | | | | 货车重载技术 | | | | | | | | | | | |  | | | | | | | | 5 | | | | | | | | | 4 | | | | | | | | 64 | | | | | | | | | 64 | | | | | |  | | | | |  | | |  | | | | |  | | | | | | | | |  | | | | | | |  | | | | |  | | | | | | |  | | | | | | | 4 | | | | | |  | | | |  | | | | | | |
| 33 | | | 05131 | | | | | 集成列车控制技术 | | | | | | | | | | | |  | | | | | | | | 5 | | | | | | | | | 4 | | | | | | 64 | | | | | | | | | | | 64 | | | | | |  | | | | |  | | |  | | | | |  | | | | | | | | |  | | | | | | |  | | | | |  | | | | | | |  | | | | | | |  | | | | | | 4 | | | |  | | | | | | |
| 34 | | | 05132 | | | | | 车辆网络控制技术 | | | | | | | | | | | |  | | | | | | | | 5 | | | | | | | | | 4 | | | | | | 64 | | | | | | | | | | | 64 | | | | | |  | | | | |  | | |  | | | | |  | | | | | | | | |  | | | | | | |  | | | | |  | | | | | | |  | | | | | | |  | | | | | | 4 | | | |  | | | | | | |
| 35 | | | 05147 | | | | | 焊工实习HG | | | | | | | | | | | |  | | | | | | | | 4 | | | | | | | | | 2 | | | | | | 60 | | | | | | | | | | | 0 | | | | | | 60 | | | | |  | | | 2周 | | | | |  | | | | | | | | |  | | | | | | |  | | | | |  | | | | | | |  | | | | | | | 2HG | | | | | |  | | | |  | | | | | | |
| 36 | | | 05125 | | | | | 机加工实习JG | | | | | | | | | | | |  | | | | | | | | 4 | | | | | | | | | 2 | | | | | | 60 | | | | | | | | | | | 0 | | | | | | 60 | | | | |  | | | 2周 | | | | |  | | | | | | | | |  | | | | | | |  | | | | |  | | | | | | |  | | | | | | | 2JG | | | | | |  | | | |  | | | | | | |
| 37 | | | 05129 | | | | | 钳工技能鉴定实训QJ | | | | | | | | | | | |  | | | | | | | | 5 | | | | | | | | | 2 | | | | | | 60 | | | | | | | | | | | 0 | | | | | | 60 | | | | |  | | | 2周 | | | | |  | | | | | | | | |  | | | | | | |  | | | | |  | | | | | | |  | | | | | | |  | | | | | | 2QJ | | | |  | | | | | | |
| 38 | | | 05130 | | | | | 电工技能鉴定实训QJ | | | | | | | | | | | |  | | | | | | | | 5 | | | | | | | | | 2 | | | | | | 60 | | | | | | | | | | | 0 | | | | | | 60 | | | | |  | | | 2周 | | | | |  | | | | | | | | |  | | | | | | |  | | | | |  | | | | | | |  | | | | | | |  | | | | | | 2QJ | | | |  | | | | | | |
| 小计学分及学时数 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 32 | | | | | | 312 | | | | | | | | | | | 182 | | | | | | 130 | | | | |  | | | 4周 | | | | | 10 | | | | | | | | |  | | | | | | |  | | | | |  | | | | | | | 4 | | | | | | | 4 | | | | | | 4 | | | |  | | | | | | |
| 总计学分及学时数 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 150 | | | | | | 2742 | | | | | | | | | | | 1346 | | | | | | 1396 | | | | |  | | |  | | | | |  | | | | | | | | |  | | | | | | | 26 | | | | | 24 | | | | | | | 26 | | | | | | | 22 | | | | | | 24 | | | |  | | | | | | |
| **四、素质拓展课** | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 课程类型 | | 序  号 | | | | 课程代码 | | | | 课 程 名 称 | | | | | | | | | | | | 考核学期序 | | | | | | | | | | | | | | | | | 学 分 | | | | 课  时 | | | | | | | | 说 明 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 考 试 | | | | 考 查 | | | | | | | | | | | | |
| 必修  课 | | 1 | | | | 01 | | | | 军训及军事理论教育 | | | | | | | | | | | |  | | | | 1 | | | | | | | | | | | | | 4 | | | | 60 | | | | | | | | | 第1学期开设，含入学教育。 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 2 | | | | 02 | | | | 心理健康教育 | | | | | | | | | | | |  | | | | 2.3.4.5 | | | | | | | | | | | | | 2 | | | | 32 | | | | | | | | | 分专业在第2～5学期之一开设。 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 3 | | | | 03 | | | | 大学生安全及健康教育 | | | | | | | | | | | |  | | | | 1.2.3.4 | | | | | | | | | | | | | 2 | | | | 32 | | | | | | | | | 在1～4学期实施，以专题讲座的形式和每学期大学生第二课堂教育活动中开设. | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 4 | | | | 04 | | | | 大学生暑期社会实践 | | | | | | | | | | | |  | | | | 2.4 | | | | | | | | | | | | | 2 | | | |  | | | | | | | | | 利用暑期，进行社会实践，提交报告。 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 小计学分及学时数 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 10 | | | | 124 | | | | | | | | |  | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 选  修  课 | | 1 | | | | 001 | | | | 演讲与口才 | | | | | | | | | | | |  | | | | 2～5 | | | | | | | | | | | | | 2 | | | | 32 | | | | | | | | |  | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 2 | | | | 002 | | | | 中国小说阅读与鉴赏 | | | | | | | | | | | |  | | | | 2～5 | | | | | | | | | | | | | 2 | | | | 32 | | | | | | | | |  | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 3 | | | | 003 | | | | 音乐欣赏 | | | | | | | | | | | |  | | | | 2～5 | | | | | | | | | | | | | 2 | | | | 32 | | | | | | | | |  | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 4 | | | | 004 | | | | 影视文学欣赏 | | | | | | | | | | | |  | | | | 2～5 | | | | | | | | | | | | | 2 | | | | 32 | | | | | | | | |  | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 5 | | | | 005 | | | | 应用写作 | | | | | | | | | | | |  | | | | 2～5 | | | | | | | | | | | | | 2 | | | | 32 | | | | | | | | |  | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 6 | | | | 006 | | | | 现代礼仪 | | | | | | | | | | | |  | | | | 2～5 | | | | | | | | | | | | | 2 | | | | 32 | | | | | | | | |  | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 7 | | | | 007 | | | | 中国古典诗词欣赏 | | | | | | | | | | | |  | | | | 2～5 | | | | | | | | | | | | | 2 | | | | 32 | | | | | | | | |  | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 8 | | | | 008 | | | | 中国近现代史纲要 | | | | | | | | | | | |  | | | | 2～5 | | | | | | | | | | | | | 2 | | | | 32 | | | | | | | | |  | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 9 | | | | 009 | | | | 中国传统文化 | | | | | | | | | | | |  | | | | 2～5 | | | | | | | | | | | | | 2 | | | | 32 | | | | | | | | |  | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 10 | | | | 010 | | | | 中国旅游资源概况 | | | | | | | | | | | |  | | | | 2～5 | | | | | | | | | | | | | 2 | | | | 32 | | | | | | | | |  | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 11 | | | | 011 | | | | ISO9000质量管理体系 | | | | | | | | | | | |  | | | | 2～5 | | | | | | | | | | | | | 2 | | | | 32 | | | | | | | | |  | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 12 | | | | 012 | | | | 高级文字排版 | | | | | | | | | | | |  | | | | 2～5 | | | | | | | | | | | | | 2 | | | | 32 | | | | | | | | |  | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 13 | | | | 013 | | | | 电子表格处理 | | | | | | | | | | | |  | | | | 2～5 | | | | | | | | | | | | | 2 | | | | 32 | | | | | | | | |  | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 14 | | | | 014 | | | | PS图像处理 | | | | | | | | | | | |  | | | | 2～5 | | | | | | | | | | | | | 2 | | | | 32 | | | | | | | | |  | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 15 | | | | 015 | | | | 高级PPT制作 | | | | | | | | | | | |  | | | | 2～5 | | | | | | | | | | | | | 2 | | | | 32 | | | | | | | | |  | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 16 | | | | 016 | | | | 计算机组装维修及网络操作 | | | | | | | | | | | |  | | | | 2～5 | | | | | | | | | | | | | 2 | | | | 32 | | | | | | | | |  | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 17 | | | | 017 | | | | 生活中的经济学 | | | | | | | | | | | |  | | | | 2～5 | | | | | | | | | | | | | 2 | | | | 32 | | | | | | | | |  | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 18 | | | | 018 | | | | 技术史漫谈 | | | | | | | | | | | |  | | | | 2～5 | | | | | | | | | | | | | 2 | | | | 32 | | | | | | | | |  | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 19 | | | | 019 | | | | 电影赏析 | | | | | | | | | | | |  | | | | 2～5 | | | | | | | | | | | | | 2 | | | | 32 | | | | | | | | |  | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 20 | | | | 020 | | | | 职业素质 | | | | | | | | | | | |  | | | | 2～5 | | | | | | | | | | | | | 2 | | | | 32 | | | | | | | | |  | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 21 | | | | 021 | | | | 创造性思维与创新方法 | | | | | | | | | | | |  | | | | 2～5 | | | | | | | | | | | | | 2 | | | | 32 | | | | | | | | |  | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 22 | | | | 022 | | | | 大学生创业基础 | | | | | | | | | | | |  | | | | 2～5 | | | | | | | | | | | | | 2 | | | | 32 | | | | | | | | |  | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 23 | | | | 023 | | | | 创新创业实践 | | | | | | | | | | | |  | | | | 1～6 | | | | | | | | | | | | | 10 | | | |  | | | | | | | | | 用于学生参加课题研究、项目实验、竞赛活动、发表论文等创新创业成果的学分折算 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 小计学分及学时数 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 44 | | | | 704 | | | | | | | | |  | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| **合计学分及学时数** | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | **总学分150,必修课学分128,选修课学分22，其中专业选修课学分为16，公共选修课学分为6. 总学时2866，理论学时1346，实践学时1520** | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

**铁道机车专业**

**教学标准**

**专业名称** 铁道机车

**专业代码** 600101

**入学要求** 高中阶段教育毕业生或具有同等学力者

**修业年限** 三年

**职业面向** 主要面向国家铁路、地方铁路、机车车辆装备修造企业、大型工矿企业（有铁路专用线），在机车乘务、机务工程技术岗位群，从事铁路电力机车（内燃机车）运用、检测、检修、维护保养、技术管理等工作。

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| 所属专业大类（代码） | 所属专业类（代码） | 对应行业（代码） | 主要职业类别（代码） | 主要岗位类别（或技术领域） | 职业资格证书或技能等级证书举例 |
| 6001 | 600101 | 0531 |  | 机车运用  机车检修  机车检查保养 | 检车检查保养员、机车电工（中级）、机车钳工（中级 ）、制动钳工（中级）等 |

**培养目标与培养规格**

一、培养目标

培养思想政治坚定、德技并修、全面发展，适应铁路行业业、企业发展需要，具有的良好职业道德和人文素养，掌握电力机车（内燃机车）组成结构、工作原理、技术条件、驾驶作业标准、检修标准与施工工艺等基本知识和技术技能，面向机车运用、维护保养、检修、管理及技术改造等领域的高素质劳动者和技术技能人才。

二、培养规格

由素质、知识、能力三个方面的要求组成。

1.素质

坚定拥护中国共产党领导和我国社会主义制度，在习近平新时代中国特色社会主义思想指引下，践行社会主义核心价值观，具有深厚的爱国情感和中华民族自豪感；

崇尚宪法、遵法守纪、崇德向善、诚实守信、尊重生命、热爱劳动、履行道德准则和行为规范，具有社会责任感和社会参与意识；

具有质量意识、环保意识、安全意识、信息素养、工匠、创新思维；

勇于奋斗、乐观向上，具有自我管理能力、职业生涯规划意识，有较强的集体意识和团队合作精神；

具有健康的体魄、心理和健全的人格，掌握基本运动知识和一两项运动技能，养成良好的健身与卫生习惯，良好的行为习惯；

具有一定的审美和人文素养，能够形成一两项艺术特长或爱好。

2.知识

掌握必备的思想政治理论、科学文化基础知识和中华优秀传统文化知识；

熟悉与本专业相关的法律法规以及环境保护、安全消防等相关知识；

掌握语文、数学、英语等通识类基础知识；

掌握电工、电子、机械、液压等专业基础知识；

掌握主型电力机车的基本构造及工作原理；

掌握机车总体及走行部、机车传动与控制、机车制动机、机车运用与规章、机车检修等核心专业理论知识。

3.能力

具有探究学习、终身学习、分析问题和解决问题的能力；

具有良好的语言、文字表达能力和沟通能力，能够进行口语和书面的表达与交流；

掌握钳工、电工实际操作技能；

掌握机车检测、检修常用设备和工具的使用与维护技能；

掌握机车钳工、机车电工、制动钳工基本技能；

掌握机车总体及主要部件、系统的检测、检修基本技能；

掌握有关铁路技术管理规程及规章；

掌握机车司机整备、检查与保养、出乘作业、驾驶操纵、非正常情况行车、故障应急处理的基本技能。

**课程设置**

一、必修课程

1. 公共必修课程

|  |  |  |
| --- | --- | --- |
| 序号 | 课程名称 | 课时数 |
| 1 | 思想道德修养与法律基础及形势政策 | 64 |
| 2 | 毛泽东思想和中国特色社会主义理论体系概论及形势与政策 | 64 |
| 3 | 高等数学 | 60 |
| 4 | 大学语文 | 60 |
| 5 | 公共英语 | 60 |
| 6 | 信息技术 | 60 |
| 7 | 体育 | 128 |
| 8 | 中华优秀传统文化 | 30 |
| 9 | 民族理论和政策 | 32 |
| 10 | 大学生职业发展与就业指导 | 34 |

2.专业必修课程

|  |  |  |
| --- | --- | --- |
| 序号 | 课程名称 | 课时数 |
| 1 | 电工基础 | 60 |
| 2 | 铁道概论 | 68 |
| 3 | 电子技术 | 68 |
| 4 | 机械基础 | 68 |
| 5 | 机车电力电子技术 | 64 |
| 6 | 电力机车电器 | 64 |
| 7 | 电力机车电机 | 64 |
| 8 | 电力机车总体 | 64 |
| 9 | 机车电器实训DQ1 | 30 |
| 10 | 机车钳工实训QG1 | 30 |
| 11 | 电力机车制动机 | 80 |
| 12 | 电力机车控制 | 80 |
| 13 | 机车运用与规章 | 112 |
| 14 | 行车安全设备 | 64 |
| 15 | 机车制动机实训ZD1 | 30 |
| 16 | 机车控制线路实训KZ1 | 30 |
| 17 | 电力机车检修 | 64 |
| 18 | 机车网络控制 | 64 |
| 19 | 机车乘务一次标准化作业 | 64 |
| 20 | 机车专业技能鉴定JN2 | 60 |
| 21 | 顶岗实习 | 540 |

3.素质拓展必修课程

|  |  |  |
| --- | --- | --- |
| 序号 | 课程名称 | 课时数 |
| 1 | 军训及军事理论教育 | 60 |
| 2 | 心理健康教育 | 32 |
| 3 | 大学生安全及健康教育 | 32 |
| 4 | 大学生暑期社会实践 |  |

二、选修课程

1. 专业选修课程

|  |  |  |
| --- | --- | --- |
| 序号 | 课程名称 | 课时数 |
| 1 | 金属工艺学 | 34 |
| 2 | 互换性与技术测量 | 34 |
| 3 | 液压气动 | 34 |
| 4 | 行车心理学 | 32 |
| 5 | 电气控制 | 32 |
| 6 | 可编程逻辑控制器 | 32 |
| 7 | 传感器检测技术 | 32 |
| 8 | 铁路企业管理 | 48 |
| 9 | 专业英语 | 48 |
| 10 | 机车新技术 | 48 |
| 11 | 列车牵引计算 | 48 |
| 12 | 动车组构造 | 48 |
| 13 | 动车组概论 | 48 |
| 14 | 机车检测技术 | 48 |
| 15 | 机车检修JX2 | 60 |

2. 素质拓展选修课程

|  |  |  |
| --- | --- | --- |
| 序号 | 课程名称 | 课时数 |
| 1 | 演讲与口才 | 32 |
| 2 | 中国小说阅读与鉴赏 | 32 |
| 3 | 音乐欣赏 | 32 |
| 4 | 影视文学欣赏 | 32 |
| 5 | 应用写作 | 32 |
| 6 | 现代礼仪 | 32 |
| 7 | 中国古典诗词欣赏 | 32 |
| 8 | 中国近现代史纲要 | 32 |
| 9 | 中国传统文化 | 32 |
| 10 | 中国旅游资源概况 | 32 |
| 11 | ISO9000质量管理体系 | 32 |
| 12 | 高级文字排版 | 32 |
| 13 | 电子表格处理 | 32 |
| 14 | PS图像处理 | 32 |
| 15 | 高级PPT制作 | 32 |
| 16 | 计算机组装维修及网络操作 | 32 |
| 17 | 生活中的经济学 | 32 |
| 18 | 技术史漫谈 | 32 |
| 19 | 电影赏析 | 32 |
| 20 | 职业素质 | 32 |
| 21 | 创造性思维与创新方法 | 32 |
| 22 | 大学生创业基础 | 32 |
| 23 | 创新创业实践 | 10 |

三、专业核心课程主要教学内容与要求

|  |  |  |
| --- | --- | --- |
| 序号 | 专业核心课程 | 主要教学内容与要求 |
| 1 | 电力机车总体 | 电力机车的分类、发展历程及主要技术参数；主型电力机车的基本结构与工作原理；和谐系列和韶山系列电力机车的总体布局、主要系统设备及布置；电力机车转向架及连接装置的作用、结构、工作原理；电力机车的通风系统的作用、布置和工作通路；电力机车的空气管路系统的组成、工作通路和维护等。 |
| 2 | 电力机车制动机 | 电力机车制动系统的构成、原理及部件间的关系；电力机车制动系统各部件的功能作用及主要参数；电力机车制动系统的操纵方法；电力机车制动系统一般故障的判断方法；电力机车制动系统试验方法；电力机车基础制动装置的操作方法。 |
| 3 | 电力机车运用与规章 | 机车运用管理部门的体制及职责；机车交路、机车运转制，机车乘务制度；列车运行图和机车周转图含义及意义；机车运用数量指标及运用质量指标的计算方法；机车乘务员的一次乘务作业过程及标准；电力机车检查、试验与保养基本知识；铁路行车信号分类、显示方式、含义及执行要求；列车编组的要求及注意事项；各种行车闭塞法控制原理，掌握正常、非正常情况下的行车凭证；在列车运行中对机车乘务员的要求，掌握正常、非正常情况下的行车办法；行车作业安全规定、措施；熟悉铁路交通事故分类及等级。。 |
| 4 | 电力机车牵引与控制 | 电力机车牵引电器、电机、电气屏柜的分类、结构及功能原理，牵引传动系统的控制原理；主、辅、控、供电等电气原理图的识读与分析；常见电气故障的处理及微机控制原理。 |
| 5 | 行车安全与设备 | 机车上的安全设备的原理和使用方法；轨道电路的组成功能、列车闭塞办理方法；机车自动信号及自动停车装置的原理和使用；列车运行监控记录装置的原理和使用。 |
| 6 | 机车网络控制 | TCN、Lonworks 等常见的机车网络通信标准；机车常见网络控制系统的功能、拓扑结构及工作原理；车辆控制单元分析与调试；机车网络控制系统运行过程中的常见故障及判断处理。 |

**学时安排**

每学年教学时间为40周，总学时数为2712，实习按每周30学时计算。每学时为45分钟。18学时计为1个学分，总学分为146学分。军训、入学教育、社会实践、毕业设计（或毕业论文、毕业教育）等，以1周为1学分。公共基础课程学时占总学时的22%。选修课教学时数占总学时的比例均为12%。学生顶岗实习为6个月，可根据实际情况，采取工学交替、多学期、分段式等多种形式组织实施。

**教学进程总体安排**

见附件（教学进程表）

**实施保障**

一、师资队伍

1.队伍结构

学生数与本专业专任教师数比例不高于18:1，双师素质教师占专业教师比一般不低于85%，专任教师队伍要考虑职称、年龄，形成合理的梯队结构。

2.专任教师

具有高校教师资格和本专业领域有关证书；有理想信念、有道德情操、有扎实学识、有仁爱之心；具有铁道机车专业或相近专业本科及以上学历；具有扎实的铁道机车专业相关理论功底和实践能力；具有较强信息化教学能力，能够开展课程教学改革和科学研究；每5年累计不少于6个月的企业实践经历。

3.专业带头人

原则上应具有副高及以上职称，能够较好地把握国内外行业、专业发展，能广泛联系行业企业，了解行业企业对铁道机车专业人才的实际需求，教学设计、专业研究能力强，组织开展教科研工作能力强，在本区域或本专业领域有一定的影响力。

4.兼职教师

主要从铁路机务段或机务相关企业聘任。具备良好的思想政治素质、职业道德和工匠精神，具有扎实的铁道机车专业知识和丰富的实际工作经验，具有中级及以上相关专业职称，能承担专业课程教学、实习实训指导和学生职业发展规划指导等教学任务。

二、教学设施

主要包括能够满足正常的课程教学、实习实训所必需的专业教室、实训室和实习基地。

1．专业教室基本条件

一般配备黑（白）板、多媒体计算机、投影设备、音响设备，互联网接入或WiFi 环境，并具有网络安全防护措施。安装应急照明装置并保持良好状态，符合紧急疏散要求、标志明显、保持逃生通道畅通无阻。

2．校内实训室基本要求

校内实训室的设备配置可以按照专业方向的不同，选择对应专业方向的设备。

（1）行车安全与设备实训室

主要包括电力机车机车信号装置、LKJ 型机车监控装置模拟仿真实训装置、HX 系列模拟操纵台或HX 系列模拟仿真终端等。用于行车安全设备、电力机车运用与规章的教学及机车模拟驾驶演练。

（2）电机与电器实训室

主要包括电力机车受电弓、电力机车主断路器、机车两位置转换开关、机车司机控制器、交或直流传动机车的小型电器、交直流电机等。用于电力机车牵引与控制的教学、机车电气综合试验演练以及机车主要部件检修实训。

（3）机车牵引与控制实训室

主要包括HX 系列模拟操纵台或HX 系列模拟仿真终端、SS（或DF）系列模拟操纵设备等。用于电力机车运用与规章课程的教学及机车模拟驾驶演练。

（4）机车总体及走行部实训室

主要包括机车转向架、机车轮对、机车车钩及缓冲装置等。用于电力机车总体及走行部课程的教学及机车主要部件检修实训。

（5）机车制动系统实训室

主要包括机车风源系统、机车压缩机、制动机操纵台（电力机车方向为DK-1 型制动机/内燃机车方向为JZ-7 型制动机）、与制动机配套的制动柜、CCB-Ⅱ型电空制动机操纵台（或机车操纵台）、CCB-Ⅱ型电空制动机制动柜、机车基础制动装置等。用于电力机车制动系统课程的教学、机车制动机操纵与试验演练及机车主要部件检修实训。

校内实训室应有明显的设备及场地安全标识。

以上实训室还可以作为学生创新创业的实践平台。

3.校外实训基地基本要求

具有稳定的校外实训基地。能够提供开展铁道机车专业实践教学活动，实训设施齐备，实训岗位、实训指导教师确定，实训管理及实施规章制度齐全。

4．学生实习基地基本要求

具有稳定的校外实习基地。能提供电力机车乘务员、机车整备员、铁路机车制修工和铁路机车制动钳工等相关实习岗位，能涵盖当前产业发展的主流技术，可接纳一定规模的学生实习；能够配备相应数量的企业指导教师对学生实习进行指导和管理；有保证实习生日常工作、学习、生活的设施规章制度，有安全、保险保障。

5.支持信息化教学方面的基本要求

具有利用数字化教学资源库、文献资料、常见问题解答等的信息化条件。引导鼓励教师开发并利用信息化教学资源、教学平台，创新教学方法、提升教学效果。

三、教学资源

主要包括能够满足学生专业学习、教师专业教学研究和教学实施需要的教材、图书及数字化教学资源等。

1.教材选用基本要求

按照国家规定选用优质教材，禁止不合格的教材进入课堂。学校建立由专业教师、行业专家和教研人员等参与的教材选用机构，完善教材选用制度，经过规范程序择优选用教材。

2.图书文献配备基本要求

图书文献配备能满足人才培养、专业建设、教科研等工作的需要，方便师生查询、借阅。其中，专业类图书文献主要包括：铁道机车专业涉及的职业标准、技术手册、车型图册、操作规范、规章制度、专业期刊以及案例类图书等。

3.数字教学资源配备基本要求

建设、配备与本专业有关的音视频素材、教学课件、数字化教案例库、虚拟仿真软件、数字教材等专业教学资源库，种类丰富、形式多样、使用便捷、动态更新、满足教学。

四、教学方法与手段

1.教学模式的设计与创新

专业核心课程教学模式：以职业需求为导向，以培养职业能力为核心，以工作过程为导向，以工作任务为载体，形成“工学结合，教学做一体化”的新型教学模式，以适应于培养具有自我学习能力、创新能力和职业持续发展力的高技能型技术人才的要求。

2.多种教学方法的运用

课程教学实施中，灵活采用多种教学方法，宏观教学方法：“任务驱动型”、“六部教法”等；微观教学方法：“小组讨论法”、“角色扮演法”、“现场教学法”。

3.现代信息化教学手段的应用

专业核心课程实施密切联系生产实践，鉴于专业设备价格昂贵，教学实施过程中可充分利用现代教学技术手段，通过多媒体教学平台、模拟仿真教学平台、网络共享平台搭建了一个现代信息化教学体系，将学习任务形象、生动化，极大地促进教学内容的实施，增强学生的学习兴趣，提高教学效果。

五、课程考核与教学评价

学生学习成绩采用绩效考核评价体系，考核采取多个评价主体综合评价，突出阶段评价、目标评价、理论与实践一体化评价。评价体系体现主体的多元化和评价形式的多样化，体现学生在评价体系中的主体地位，采用**形成性评价**和**终结性评价**相结合的方式，注重形成性评价对学生发展的作用，关注结果更关注过程，使对学习过程的评价和结果的评价达到和谐统一，同时，注重评价结果对教学效果的反馈作用，以评促教，以教导评。

六、质量管理

1.学校和二级院系应建立专业建设和教学过程质量监控机制，健全专业教学质量监控管理制度，完善课堂教学、教学评价、实习实训、毕业设计以及专业调研、人才培养方案更新、资源建设等方面质量标准建设，通过教学实施、过程监控、质量评价和持续改进，达成人才培养规格。

2.学校、二级院系及专业应完善教学管理机制，加强日常教学组织运行与管理，定期开展课程建设水平和教学质量诊诊断与改进，建立健全巡课、听课、评教、评学等制度，建立与企业联动的实践教学环节督导制度，严明教学纪律，强化教学组织功能，定期开展公开课、示范课等教研活动。

3.学校应建立毕业生跟踪反馈机制及社会评价机制，并对生源情况、在校生学业水平、毕业生就业情况等进行分析，定期评价人才培养质量和培养目标达成情况。

4.专业教研组织应充分利用评价分析结果有效改进专业教学，持续提高人才培养质量。

**毕业要求**

学生德、智、体合格，在允许的修业年限内学完培养计划规定的全部课程，通过顶岗实践或毕业论文答辩，并取得至少1项相应的专业职业资格证书（中级机车电工或中级机车钳工等），达到毕业最低学分（146学分）要求，即获得毕业资格，准予毕业并颁发毕业证书。

**教 学 进 程 表**

**2018 级 铁道机车 专 业**

专业代码： 600101

毕业最低学分：146分

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
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| **一、教学进程表** | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | **二、周数分配表** | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 学  年 | | 教 学 周 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 理论  及  分散  实践 | | | 集  中  实  践 | | | | 考  试 | | | 劳  动 | | | | 军  训 | | | 机  动 | | | | 毕  业  教  育 | | | 假  期 | | | 合  计 | | |
| 九月 | | | | | | | | 十月 | | | | | | | 十一月 | | | | | | | 十二月 | | | | | | | | | 一月 | | | | | | | | 二月 | | | | | | | 三月 | | | | | | | | | 四月 | | | | | | 五月 | | | | | | 六月 | | | | | | | | | | 七月 | | | | | | | | | 八月 | | | | | | |
|  | | | 1 | 2 | | | 3 | 4 | | | 5 | 6 | 7 | 8 | 9 | | 10 | 11 | 12 | 13 | | 14 | | 15 | 16 | | | 17 | | 18 | | | | 19 | 20 | | 21 | 22 | | | 23 | 24 | | 25 | 26 | | | 27 | | | 28 | 29 | 30 | | 31 | | 32 | 33 | 34 | | 35 | | 36 | 37 | | 38 | 39 | | | 40 | 41 | 42 | | 43 | | | 44 | | | 45 | | | 46 | | 47 | 48 | | | 49 | 50 | 51 | 52 | | | | K | | | S | | | | ∷ | | | × | | | | ★ | | | J | | | | T | | | = | | |  | | |
| 一 | | | ★2 | | | | 15 | | | | | | | | | | | | | | | | | | | | | | | J2 | | | | | ∷ | | ==== 6 | | | | | | | | | | | 17 | | | | | | | | | | | | | | | | | | | | | | | | | | | | × | | | J | | | | ∷ | | ==== 6 | | | | | | | | | | |  | | |  | | | | 2 | | | 1 | | | | 2 | | | 3 | | | | 0 | | | 12 | | | 20 | | |
| 二 | | 16 | | | | | | | | | | | | | | | | | | | | | | | | | S | | S | | | | J | | | ∷ | ==== 6 | | | | | | | | | | | 16 | | | | | | | | | | | | | | | | | | | | | | | | | S | | | S | | | J | | | ∷ | | ====6 | | | | | | | | | | |  | | | 4 | | | | 2 | | |  | | | |  | | | 2 | | | | 0 | | | 12 | | | 20 | | | |
| 三 | | 16 | | | | | | | | | | | | | | | | | | | | | | | | | S2 | | | | | | J | | | ∷ | ==== 6 | | | | | | | | | | | S18 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | J | | | T | |  | | | | | | | | | | |  | | | 20 | | | | 1 | | |  | | | | 0 | | | 2 | | | | 1 | | | 6 | | | 30 | | | |
| **三、教学进度表** | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 合计 | | | | | | | | | | | | | | | | | | | |  | | | 24 | | | | 5 | | | 1 | | | | 2 | | | 7 | | | | 1 | | | 30 | | | 70 | | | |
| 课程类型 | | 序  号 | | | 课程  代码 | | | | | 课 程 名 称 | | | | | | | | | | | 考核学期序 | | | | | | | | | | | | | | | | | | 学 分 | | | | | | | 学 时 数 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 理论教学（含分散性实践教学）周学时 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 考 试 | | | | | | | | | | 考 查 | | | | | | | | 总 计 | | | | | | | | 理 论 | | | | | | 实 践 | | | | | | | | | | | | | | | | | | | | | | | | | | | | 一 年 级 | | | | | | | | | | | | 二 年 级 | | | | | | | | | | | | | | 三 年 级 | | | | | | | | | | | |
| 合 计 | | | | | 习 题 课 | | | | 实 训 | | | | 现场教学 | | | | | | | | 创新创业训练 | | | | | | | 1学期  15周 | | | | | 2学期  17周 | | | | | | | 3学期  16周 | | | | | | | 4学期  16周 | | | | | | | 5学期  16周 | | | | | 6学期  18周 | | | | | | |
| 公共必修课 | | 1 | | | 0001 | | | | | 思想道德修养与法律基础及形势政策 | | | | | | | | | | | 1 | | | | | | | | | | 2 | | | | | | | | 4 | | | | | | | 64 | | | | | | | | 52 | | | | | | 12 | | | | | 12 | | | |  | | | |  | | | | | | | |  | | | | | | | 2 | | | | | 2 | | | | | | |  | | | | | | |  | | | | | | |  | | | | |  | | | | | | |
| 2 | | | 0002 | | | | | 毛泽东思想和中国特色社会主义理论体系概论及形势政策 | | | | | | | | | | | 3 | | | | | | | | | | 4 | | | | | | | | 4 | | | | | | | 64 | | | | | | | | 52 | | | | | | 12 | | | | | 12 | | | |  | | | |  | | | | | | | |  | | | | | | |  | | | | |  | | | | | | | 2 | | | | | | | 2 | | | | | | |  | | | | |  | | | | | | |
| 3 | | | 0005 | | | | | 高等数学 | | | | | | | | | | | 1 | | | | | | | | | |  | | | | | | | | 3 | | | | | | | 60 | | | | | | | | 54 | | | | | | 6 | | | | | 6 | | | |  | | | |  | | | | | | | |  | | | | | | | 4 | | | | |  | | | | | | |  | | | | | | |  | | | | | | |  | | | | |  | | | | | | |
| 4 | | | 0006 | | | | | 大学语文 | | | | | | | | | | |  | | | | | | | | | | 1 | | | | | | | | 3 | | | | | | | 60 | | | | | | | | 52 | | | | | | 8 | | | | | 8 | | | |  | | | |  | | | | | | | |  | | | | | | | 4 | | | | |  | | | | | | |  | | | | | | |  | | | | | | |  | | | | |  | | | | | | |
| 5 | | | 0007 | | | | | 公共英语 | | | | | | | | | | | 1 | | | | | | | | | |  | | | | | | | | 3 | | | | | | | 60 | | | | | | | | 18 | | | | | | 42 | | | | |  | | | |  | | | | 42 | | | | | | | |  | | | | | | | 4 | | | | |  | | | | | | |  | | | | | | |  | | | | | | |  | | | | |  | | | | | | |
| 6 | | | 0008 | | | | | 信息技术 | | | | | | | | | | |  | | | | | | | | | | 1 | | | | | | | | 3 | | | | | | | 60 | | | | | | | | 30 | | | | | | 30 | | | | |  | | | | 30 | | | |  | | | | | | | |  | | | | | | | 4 | | | | |  | | | | | | |  | | | | | | |  | | | | | | |  | | | | |  | | | | | | |
| 7 | | | 0009 | | | | | 体育 | | | | | | | | | | | 3 | | | | | | | | | | 1.2.4 | | | | | | | | 7 | | | | | | | 128 | | | | | | | | 8 | | | | | | 120 | | | | |  | | | |  | | | | 120 | | | | | | | |  | | | | | | | 2 | | | | | 2 | | | | | | | 2 | | | | | | | 2 | | | | | | |  | | | | |  | | | | | | |
| 8 | | | 0004 | | | | | 中华优秀传统文化 | | | | | | | | | | |  | | | | | | | | | | 1 | | | | | | | | 2 | | | | | | | 30 | | | | | | | | 30 | | | | | |  | | | | |  | | | |  | | | |  | | | | | | | |  | | | | | | | 2 | | | | |  | | | | | | |  | | | | | | |  | | | | | | |  | | | | |  | | | | | | |
| 9 | | | 0011 | | | | | 民族理论和政策 | | | | | | | | | | |  | | | | | | | | | | 5 | | | | | | | | 2 | | | | | | | 32 | | | | | | | | 32 | | | | | |  | | | | |  | | | |  | | | |  | | | | | | | |  | | | | | | |  | | | | |  | | | | | | |  | | | | | | |  | | | | | | | 2 | | | | |  | | | | | | |
| 10 | | | 0010 | | | | | 大学生职业发展与就业指导 | | | | | | | | | | |  | | | | | | | | | | 2 | | | | | | | | 2 | | | | | | | 34 | | | | | | | | 34 | | | | | |  | | | | |  | | | |  | | | |  | | | | | | | |  | | | | | | |  | | | | | 2 | | | | | | |  | | | | | | |  | | | | | | |  | | | | |  | | | | | | |
| 小计学分及学时数 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 33 | | | | | | | 592 | | | | | | | | 362 | | | | | | 230 | | | | | 38 | | | | 30 | | | | 162 | | | | | | | |  | | | | | | | 20 | | | | | 6 | | | | | | | 4 | | | | | | | 4 | | | | | | | 2 | | | | | 0 | | | | | | |
| 专业必修课 | | 11 | | | 04001 | | | | | 电工基础 | | | | | | | | | | | 1 | | | | | | | | | |  | | | | | | | | 3 | | | | | | | 60 | | | | | | | | 42 | | | | | | 18 | | | | | 6 | | | | 12 | | | |  | | | | | | | |  | | | | | | | 4 | | | | |  | | | | | | |  | | | | | | |  | | | | | | |  | | | | |  | | | | | | |
| 12 | | | 04002 | | | | | 铁道概论 | | | | | | | | | | | 2 | | | | | | | | | |  | | | | | | | | 4 | | | | | | | 68 | | | | | | | | 64 | | | | | | 4 | | | | | 4 | | | | 0 | | | |  | | | | | | | |  | | | | | | |  | | | | | 4 | | | | | | |  | | | | | | |  | | | | | | |  | | | | |  | | | | | | |
| 13 | | | 04003 | | | | | 电子技术 | | | | | | | | | | | 2 | | | | | | | | | |  | | | | | | | | 4 | | | | | | | 68 | | | | | | | | 50 | | | | | | 18 | | | | | 6 | | | | 12 | | | |  | | | | | | | |  | | | | | | |  | | | | | 4 | | | | | | |  | | | | | | |  | | | | | | |  | | | | |  | | | | | | |
| 14 | | | 04004 | | | | | 机械基础 | | | | | | | | | | | 2 | | | | | | | | | |  | | | | | | | | 4 | | | | | | | 68 | | | | | | | | 62 | | | | | | 6 | | | | | 6 | | | | 0 | | | |  | | | | | | | |  | | | | | | |  | | | | | 4 | | | | | | |  | | | | | | |  | | | | | | |  | | | | |  | | | | | | |
| 15 | | | 04005 | | | | | 机车电力电子技术 | | | | | | | | | | | 3 | | | | | | | | | |  | | | | | | | | 4 | | | | | | | 64 | | | | | | | | 44 | | | | | | 20 | | | | | 4 | | | | 16 | | | |  | | | | | | | |  | | | | | | |  | | | | |  | | | | | | | 4 | | | | | | |  | | | | | | |  | | | | |  | | | | | | |
| 16 | | | 04006 | | | | | 电力机车电器 | | | | | | | | | | | 3 | | | | | | | | | |  | | | | | | | | 4 | | | | | | | 64 | | | | | | | | 40 | | | | | | 24 | | | | | 4 | | | | 20 | | | |  | | | | | | | |  | | | | | | |  | | | | |  | | | | | | | 4 | | | | | | |  | | | | | | |  | | | | |  | | | | | | |
| 17 | | | 04007 | | | | | 电力机车电机 | | | | | | | | | | |  | | | | | | | | | | 3 | | | | | | | | 4 | | | | | | | 64 | | | | | | | | 44 | | | | | | 20 | | | | | 4 | | | | 16 | | | |  | | | | | | | |  | | | | | | |  | | | | |  | | | | | | | 4 | | | | | | |  | | | | | | |  | | | | |  | | | | | | |
| 18 | | | 04008 | | | | | 电力机车总体 | | | | | | | | | | | 3 | | | | | | | | | |  | | | | | | | | 4 | | | | | | | 64 | | | | | | | | 48 | | | | | | 16 | | | | | 4 | | | | 12 | | | |  | | | | | | | |  | | | | | | |  | | | | |  | | | | | | | 4 | | | | | | |  | | | | | | |  | | | | |  | | | | | | |
| 19 | | | 04009 | | | | | 机车电器实训DQ1 | | | | | | | | | | |  | | | | | | | | | | 3 | | | | | | | | 1 | | | | | | | 30 | | | | | | | | 0 | | | | | | 30 | | | | | 0 | | | | 30 | | | |  | | | | | | | |  | | | | | | |  | | | | |  | | | | | | | DQ1 | | | | | | |  | | | | | | |  | | | | |  | | | | | | |
| 20 | | | 04010 | | | | | 钳工实训QG1 | | | | | | | | | | |  | | | | | | | | | | 3 | | | | | | | | 1 | | | | | | | 30 | | | | | | | | 0 | | | | | | 30 | | | | | 0 | | | | 30 | | | |  | | | | | | | |  | | | | | | |  | | | | |  | | | | | | | QG1 | | | | | | |  | | | | | | |  | | | | |  | | | | | | |
| 21 | | | 04011 | | | | | 电力机车制动机 | | | | | | | | | | | 4 | | | | | | | | | |  | | | | | | | | 4 | | | | | | | 80 | | | | | | | | 54 | | | | | | 26 | | | | | 4 | | | | 22 | | | |  | | | | | | | |  | | | | | | |  | | | | |  | | | | | | |  | | | | | | | 5 | | | | | | |  | | | | |  | | | | | | |
| 22 | | | 04012 | | | | | 电力机车控制 | | | | | | | | | | | 4 | | | | | | | | | |  | | | | | | | | 4 | | | | | | | 80 | | | | | | | | 56 | | | | | | 24 | | | | | 4 | | | | 20 | | | |  | | | | | | | |  | | | | | | |  | | | | |  | | | | | | |  | | | | | | | 5 | | | | | | |  | | | | |  | | | | | | |
| 23 | | | 04013 | | | | | 机车运用与规章 | | | | | | | | | | | 4 | | | | | | | | | | 5 | | | | | | | | 6 | | | | | | | 112 | | | | | | | | 74 | | | | | | 38 | | | | | 8 | | | | 30 | | | |  | | | | | | | |  | | | | | | |  | | | | |  | | | | | | |  | | | | | | | 5 | | | | | | | 2 | | | | |  | | | | | | |
| 24 | | | 04014 | | | | | 行车安全设备 | | | | | | | | | | | 4 | | | | | | | | | |  | | | | | | | | 4 | | | | | | | 64 | | | | | | | | 30 | | | | | | 34 | | | | | 4 | | | | 30 | | | |  | | | | | | | |  | | | | | | |  | | | | |  | | | | | | |  | | | | | | | 4 | | | | | | |  | | | | |  | | | | | | |
| 25 | | | 04015 | | | | | 机车制动机实训ZD1 | | | | | | | | | | |  | | | | | | | | | | 4 | | | | | | | | 1 | | | | | | | 30 | | | | | | | | 0 | | | | | | 30 | | | | | 0 | | | | 30 | | | |  | | | | | | | |  | | | | | | |  | | | | |  | | | | | | |  | | | | | | | ZD1 | | | | | | |  | | | | |  | | | | | | |
| 26 | | | 04016 | | | | | 机车控制线路实训KZ1 | | | | | | | | | | |  | | | | | | | | | | 4 | | | | | | | | 1 | | | | | | | 30 | | | | | | | | 0 | | | | | | 30 | | | | | 0 | | | | 30 | | | |  | | | | | | | |  | | | | | | |  | | | | |  | | | | | | |  | | | | | | | KZ1 | | | | | | |  | | | | |  | | | | | | |
| 27 | | | 04017 | | | | | 电力机车检修 | | | | | | | | | | | 5 | | | | | | | | | |  | | | | | | | | 4 | | | | | | | 64 | | | | | | | | 40 | | | | | | 24 | | | | | 4 | | | | 20 | | | |  | | | | | | | |  | | | | | | |  | | | | |  | | | | | | |  | | | | | | |  | | | | | | | 4 | | | | |  | | | | | | |
| 28 | | | 04018 | | | | | 机车网络控制 | | | | | | | | | | | 5 | | | | | | | | | |  | | | | | | | | 4 | | | | | | | 64 | | | | | | | | 60 | | | | | | 4 | | | | | 4 | | | | 0 | | | |  | | | | | | | |  | | | | | | |  | | | | |  | | | | | | |  | | | | | | |  | | | | | | | 4 | | | | |  | | | | | | |
| 29 | | | 04019 | | | | | 机车乘务一次标准化作业 | | | | | | | | | | | 5 | | | | | | | | | |  | | | | | | | | 4 | | | | | | | 64 | | | | | | | | 24 | | | | | | 40 | | | | | 4 | | | | 36 | | | |  | | | | | | | |  | | | | | | |  | | | | |  | | | | | | |  | | | | | | |  | | | | | | | 4 | | | | |  | | | | | | |
| 30 | | | 04020 | | | | | 机车专业技能鉴定JN2 | | | | | | | | | | |  | | | | | | | | | | 5 | | | | | | | | 2 | | | | | | | 60 | | | | | | | | 0 | | | | | | 60 | | | | | 0 | | | | 60 | | | |  | | | | | | | |  | | | | | | |  | | | | |  | | | | | | |  | | | | | | |  | | | | | | | JN2 | | | | |  | | | | | | |
| 31 | | | 04021 | | | | | 顶岗实习 | | | | | | | | | | |  | | | | | | | | | | 6 | | | | | | | | 18 | | | | | | | 540 | | | | | | | | 0 | | | | | | 540 | | | | | 0 | | | | 540 | | | |  | | | | | | | |  | | | | | | |  | | | | |  | | | | | | |  | | | | | | |  | | | | | | |  | | | | | DG18 | | | | | | |
| 小计学分及学时数 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 85 | | | | | | | 1768 | | | | | | | | 732 | | | | | | 1036 | | | | | 70 | | | | 966 | | | |  | | | | | | | |  | | | | | | | 4 | | | | | 12 | | | | | | | 16 | | | | | | | 19 | | | | | | | 14 | | | | | 30 | | | | | | |
| 专业选修课 | | 32 | | | 04101 | | | | | 金属工艺学 | | | | | | | | | | |  | | | | | | | | | | 2 | | | | | | | | **2** | | | | | | | 34 | | | | | | | | 24 | | | | | | 10 | | | | | 2 | | | | 8 | | | |  | | | | | | | |  | | | | | | |  | | | | | **2** | | | | | | |  | | | | | | |  | | | | | | |  | | | | |  | | | | | | |
| 33 | | | 04102 | | | | | 互换性与技术测量 | | | | | | | | | | |  | | | | | | | | | | 2 | | | | | | | | 2 | | | | | | | 34 | | | | | | | | 24 | | | | | | 10 | | | | | 2 | | | | 8 | | | |  | | | | | | | |  | | | | | | |  | | | | | 2 | | | | | | |  | | | | | | |  | | | | | | |  | | | | |  | | | | | | |
| 34 | | | 04103 | | | | | 液压气动 | | | | | | | | | | |  | | | | | | | | | | 3 | | | | | | | | **2** | | | | | | | 34 | | | | | | | | 28 | | | | | | 6 | | | | | 2 | | | | 4 | | | |  | | | | | | | |  | | | | | | |  | | | | | **2** | | | | | | |  | | | | | | |  | | | | | | |  | | | | |  | | | | | | |
| 35 | | | 04104 | | | | | 行车心理学 | | | | | | | | | | |  | | | | | | | | | | 3 | | | | | | | | **2** | | | | | | | 32 | | | | | | | | 26 | | | | | | 6 | | | | | 2 | | | | 4 | | | |  | | | | | | | |  | | | | | | |  | | | | |  | | | | | | | **2** | | | | | | |  | | | | | | |  | | | | |  | | | | | | |
| 36 | | | 04105 | | | | | 电气控制 | | | | | | | | | | |  | | | | | | | | | | 3 | | | | | | | | 2 | | | | | | | 32 | | | | | | | | 26 | | | | | | 6 | | | | | 2 | | | | 4 | | | |  | | | | | | | |  | | | | | | |  | | | | |  | | | | | | | **2** | | | | | | |  | | | | | | |  | | | | |  | | | | | | |
| 37 | | | 04106 | | | | | 可编程逻辑控制器 | | | | | | | | | | |  | | | | | | | | | | 3 | | | | | | | | 2 | | | | | | | 32 | | | | | | | | 26 | | | | | | 6 | | | | | 2 | | | | 4 | | | |  | | | | | | | |  | | | | | | |  | | | | |  | | | | | | | 2 | | | | | | |  | | | | | | |  | | | | |  | | | | | | |
| 38 | | | 04107 | | | | | 传感器检测技术 | | | | | | | | | | |  | | | | | | | | | | 3 | | | | | | | | **2** | | | | | | | 32 | | | | | | | | 22 | | | | | | 10 | | | | | 2 | | | | 8 | | | |  | | | | | | | |  | | | | | | |  | | | | |  | | | | | | | **2** | | | | | | |  | | | | | | |  | | | | |  | | | | | | |
| 39 | | | 04108 | | | | | 铁路企业管理 | | | | | | | | | | |  | | | | | | | | | | 5 | | | | | | | | 3 | | | | | | | 48 | | | | | | | | 46 | | | | | | 2 | | | | | 2 | | | | 0 | | | |  | | | | | | | |  | | | | | | |  | | | | |  | | | | | | |  | | | | | | |  | | | | | | | 3 | | | | |  | | | | | | |
|  | | | 04109 | | | | | 专业英语 | | | | | | | | | | |  | | | | | | | | | | 5 | | | | | | | | **3** | | | | | | | 48 | | | | | | | | 46 | | | | | | 2 | | | | | 2 | | | | 0 | | | |  | | | | | | | |  | | | | | | |  | | | | |  | | | | | | |  | | | | | | |  | | | | | | | **3** | | | | |  | | | | | | |
| 40 | | | 04110 | | | | | 机车新技术 | | | | | | | | | | |  | | | | | | | | | | 5 | | | | | | | | **3** | | | | | | | 48 | | | | | | | | 46 | | | | | | 2 | | | | | 2 | | | | 0 | | | |  | | | | | | | |  | | | | | | |  | | | | |  | | | | | | |  | | | | | | |  | | | | | | | **3** | | | | |  | | | | | | |
| 41 | | | 04111 | | | | | 列车牵引计算 | | | | | | | | | | |  | | | | | | | | | | 5 | | | | | | | | 3 | | | | | | | 48 | | | | | | | | 46 | | | | | | 2 | | | | | 2 | | | | 0 | | | |  | | | | | | | |  | | | | | | |  | | | | |  | | | | | | |  | | | | | | |  | | | | | | | 3 | | | | |  | | | | | | |
| 42 | | | 04112 | | | | | 动车组构造 | | | | | | | | | | |  | | | | | | | | | | 5 | | | | | | | | 3 | | | | | | | 48 | | | | | | | | 46 | | | | | | 2 | | | | | 2 | | | | 0 | | | |  | | | | | | | |  | | | | | | |  | | | | |  | | | | | | |  | | | | | | |  | | | | | | | 3 | | | | |  | | | | | | |
| 43 | | | 04113 | | | | | 动车组概论 | | | | | | | | | | |  | | | | | | | | | | 5 | | | | | | | | 3 | | | | | | | 48 | | | | | | | | 46 | | | | | | 2 | | | | | 2 | | | | 0 | | | |  | | | | | | | |  | | | | | | |  | | | | |  | | | | | | |  | | | | | | |  | | | | | | | 3 | | | | |  | | | | | | |
| 44 | | | 04114 | | | | | 机车检测技术 | | | | | | | | | | |  | | | | | | | | | | 5 | | | | | | | | 3 | | | | | | | 48 | | | | | | | | 46 | | | | | | 2 | | | | | 2 | | | | 0 | | | |  | | | | | | | |  | | | | | | |  | | | | |  | | | | | | |  | | | | | | |  | | | | | | | 3 | | | | |  | | | | | | |
| 46 | | | 04115 | | | | | 机车检修实训JX2 | | | | | | | | | | |  | | | | | | | | | | 5 | | | | | | | | 2 | | | | | | | 60 | | | | | | | | 0 | | | | | | 60 | | | | | 0 | | | | 60 | | | |  | | | | | | | |  | | | | | | |  | | | | |  | | | | | | |  | | | | | | |  | | | | | | | JX2 | | | | |  | | | | | | |
| 小计学分及学时数 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 14 | | | | | | | 228 | | | | | | | | 188 | | | | | | 40 | | | | | 12 | | | | 38 | | | |  | | | | | | | |  | | | | | | | 0 | | | | | 4 | | | | | | | 4 | | | | | | | 0 | | | | | | | 6 | | | | |  | | | | | | |
| **四、素质拓展课** | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 课程类型 | | 序  号 | | | | 课程代码 | | | | 课 程 名 称 | | | | | | | | | | | 考核学期序 | | | | | | | | | | | | | | | | | | 学 分 | | | | 课  时 | | | | | | 说 明 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 考 试 | | | | | 考 查 | | | | | | | | | | | | |
| 必修  课 | | 1 | | | | 01 | | | | 军训及军事理论教育 | | | | | | | | | | |  | | | | | 1 | | | | | | | | | | | | | 4 | | | | 60 | | | | | | | 第1学期开设，含入学教育。 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 2 | | | | 02 | | | | 心理健康教育 | | | | | | | | | | |  | | | | | 2.3.4.5 | | | | | | | | | | | | | 2 | | | | 32 | | | | | | | 分专业在第2～5学期之一开设。 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 3 | | | | 03 | | | | 大学生安全及健康教育 | | | | | | | | | | |  | | | | | 1.2.3.4 | | | | | | | | | | | | | 2 | | | | 32 | | | | | | | 在1～4学期实施，以专题讲座的形式和每学期大学生第二课堂教育活动中开设. | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 4 | | | | 04 | | | | 大学生暑期社会实践 | | | | | | | | | | |  | | | | | 2.4 | | | | | | | | | | | | | 2 | | | |  | | | | | | | 利用暑期，进行社会实践，提交报告。 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 小计学分及学时数 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 10 | | | | 124 | | | | | | |  | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 选  修  课 | | 1 | | | | 001 | | | | 演讲与口才 | | | | | | | | | | |  | | | | | 2～5 | | | | | | | | | | | | | 2 | | | | 32 | | | | | | |  | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 2 | | | | 002 | | | | 中国小说阅读与鉴赏 | | | | | | | | | | |  | | | | | 2～5 | | | | | | | | | | | | | 2 | | | | 32 | | | | | | |  | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 3 | | | | 003 | | | | 音乐欣赏 | | | | | | | | | | |  | | | | | 2～5 | | | | | | | | | | | | | 2 | | | | 32 | | | | | | |  | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 4 | | | | 004 | | | | 影视文学欣赏 | | | | | | | | | | |  | | | | | 2～5 | | | | | | | | | | | | | 2 | | | | 32 | | | | | | |  | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 5 | | | | 005 | | | | 应用写作 | | | | | | | | | | |  | | | | | 2～5 | | | | | | | | | | | | | 2 | | | | 32 | | | | | | |  | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 6 | | | | 006 | | | | 现代礼仪 | | | | | | | | | | |  | | | | | 2～5 | | | | | | | | | | | | | 2 | | | | 32 | | | | | | |  | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 7 | | | | 007 | | | | 中国古典诗词欣赏 | | | | | | | | | | |  | | | | | 2～5 | | | | | | | | | | | | | 2 | | | | 32 | | | | | | |  | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 8 | | | | 008 | | | | 中国近现代史纲要 | | | | | | | | | | |  | | | | | 2～5 | | | | | | | | | | | | | 2 | | | | 32 | | | | | | |  | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 9 | | | | 009 | | | | 中国传统文化 | | | | | | | | | | |  | | | | | 2～5 | | | | | | | | | | | | | 2 | | | | 32 | | | | | | |  | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 10 | | | | 010 | | | | 中国旅游资源概况 | | | | | | | | | | |  | | | | | 2～5 | | | | | | | | | | | | | 2 | | | | 32 | | | | | | |  | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 11 | | | | 011 | | | | ISO9000质量管理体系 | | | | | | | | | | |  | | | | | 2～5 | | | | | | | | | | | | | 2 | | | | 32 | | | | | | |  | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 12 | | | | 012 | | | | 高级文字排版 | | | | | | | | | | |  | | | | | 2～5 | | | | | | | | | | | | | 2 | | | | 32 | | | | | | |  | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 13 | | | | 013 | | | | 电子表格处理 | | | | | | | | | | |  | | | | | 2～5 | | | | | | | | | | | | | 2 | | | | 32 | | | | | | |  | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 14 | | | | 014 | | | | PS图像处理 | | | | | | | | | | |  | | | | | 2～5 | | | | | | | | | | | | | 2 | | | | 32 | | | | | | |  | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 15 | | | | 015 | | | | 高级PPT制作 | | | | | | | | | | |  | | | | | 2～5 | | | | | | | | | | | | | 2 | | | | 32 | | | | | | |  | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 16 | | | | 016 | | | | 计算机组装维修及网络操作 | | | | | | | | | | |  | | | | | 2～5 | | | | | | | | | | | | | 2 | | | | 32 | | | | | | |  | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 17 | | | | 017 | | | | 生活中的经济学 | | | | | | | | | | |  | | | | | 2～5 | | | | | | | | | | | | | 2 | | | | 32 | | | | | | |  | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 18 | | | | 018 | | | | 技术史漫谈 | | | | | | | | | | |  | | | | | 2～5 | | | | | | | | | | | | | 2 | | | | 32 | | | | | | |  | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 19 | | | | 019 | | | | 电影赏析 | | | | | | | | | | |  | | | | | 2～5 | | | | | | | | | | | | | 2 | | | | 32 | | | | | | |  | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 20 | | | | 020 | | | | 职业素质 | | | | | | | | | | |  | | | | | 2～5 | | | | | | | | | | | | | 2 | | | | 32 | | | | | | |  | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 21 | | | | 021 | | | | 创造性思维与创新方法 | | | | | | | | | | |  | | | | | 2～5 | | | | | | | | | | | | | 2 | | | | 32 | | | | | | |  | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 22 | | | | 022 | | | | 大学生创业基础 | | | | | | | | | | |  | | | | | 2～5 | | | | | | | | | | | | | 2 | | | | 32 | | | | | | |  | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 23 | | | | 023 | | | | 创新创业实践 | | | | | | | | | | |  | | | | | 1～6 | | | | | | | | | | | | | 10 | | | |  | | | | | | | 用于学生参加课题研究、项目实验、竞赛活动、发表论文等创新创业成果的学分折算 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 小计学分及学时数 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 44 | | | | 704 | | | | | | |  | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| **合计学分及学时数** | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | **总学分146,必修课学分128,选修课学分18，其中专业选修课学分为14，公共选修课学分为4. 总学时2712，理论学时1282，实践学时1430** | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

**铁道通信与信息化技术专业**

**教学标准**

**专业名称** 铁道通信与信息化技术

**专业代码** 600107

**入学要求** 高中阶段教育毕业生或具有同等学力者

**修业年限** 三年

**职业面向**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| 所属专业大类（代码） | 所属专业类（代码） | 对应行业（代码） | 主要职业类别（代码） | 主要岗位类别（或技术领域） | 职业资格证书或技能等级证书举例 |
| 交通运输大类（60） | 铁道运输类（6001） | 铁路运输业（53） | 轨道交通通信工（6-29-03-09）  铁道电务工程技术人员  （2-02-17-04） | 室内设备维护  现场综合维护  线务维护  无线维护  网络维护管理 | 铁路通信工 |

**培养目标与培养规格**

一、培养目标

本专业培养理想信念坚定，德、智、体、美、劳全面发展，具有一定的科学文化水平，良好的人文素质、职业道德和创新意识，精益求精的工匠精神，较强的就业能力和可持续发展能力；掌握本专业知识和技术技能，面向铁路运输行业的轨道交通通信工和铁道电务工程技术人员等职业群，能够从事铁路通信设备的安装、调试、维护及通信工程施工、技术改造等工作的高素质技术技能人才。

二、培养规格

本专业毕业生应在素质、知识和能力等方面应达到以下要求。

1.素质

（1）坚定拥护中国共产党领导和我国社会主义制度，在习近平新时代中国特色社会主义思想指引下，践行社会主义核心价值观，具有深厚的爱国情感和中华民族自豪感；

（2）崇尚宪法、遵法守纪、崇德向善、诚实守信、尊重生命、热爱劳动，履行道德准则和行为规范，具有社会责任感和社会参与意识；

（3）具有质量意识、环保意识、安全意识、信息素养、工匠精神和创新思维；

（4）勇于奋斗、乐观向上，具有自我管理能力、职业生涯规划意识，有较强的集体意识和团队合作精神；

（5）具有健康的体魄、心理和健全的人格，掌握基本运动知识和一两项运动技能，养成良好的健身与卫生习惯，良好的行为习惯；

（6）具有一定的审美和人文素养，能够形成一两项艺术特长或爱好。

2.知识

（1）掌握必备的思想政治理论、科学文化基础知识和中华优秀传统文化知识；

（2）熟悉与本专业相关的法律法规以及环境保护、安全消防、文明生产、支付与安全等相关知识；

（3）掌握电路分析、电子技术、数据库、计算机网络基础理论和基本知识；

（4）掌握通信系统基础理论知识和基本原理；

（5）掌握通信线路、光传输系统、数据通信系统、铁路移动通信系统、铁路专用通信、车载无线通信设备、通信电源等理论知识和基本原理；

（6）掌握《铁路技术管理规程》、《铁路通信维护规则》、《铁路安全管理条例》和铁路通信设备检修标准化作业流程；

（7）熟悉铁路通信设备设施安装、调试、维护、故障处理的流程；

（8）了解通信工程方案的制定和组织实施的内容、标准和验收程序；

（9）了解铁路车务、机务、工务、供电、电务、车辆等相关专业知识；

（10）了解最新发布的涉及本专业的铁道行业标准、国家标准和国际标准。

3.能力

（1）具有探究学习、终身学习、分析问题和解决问题的能力；

（2）具有良好的语言、文字表达能力和沟通能力，能够进行口语和书面的表达与交流；

（3）具有团队合作能力；

（4）具有电子产品的组装、调试、维修的基本技能；（5）具有电工操作和通信仪器仪表操作能力；

（6）能够执行铁路通信维护规则和技术管理规程，进行铁路通信系统及设备维护；

（7）能够正确识读铁路通信设备技术图、表，具有通信工程施工、设备的安装、

调试能力，具有基本的生产管理和技术管理能力；

（8）具有通信光电缆敷设、接续、测试及故障处理能力；

（9）能够判断数据传输、数据通信、调度通信、视频会议、综合视频监控等设备运行状态和故障现象进行故障处理；

（10）能够对铁路移动通信系统无线侧设备、列车无线调度通信地面设备、车载无线通信设备进行日常检修、指标测试和故障处理；

（11）能够对铁路通信电源及动力环境监控系统设备进行调试、检修和故障处理。

**课程设置**

一、必修课程

1. 公共必修课程

|  |  |  |
| --- | --- | --- |
| 序号 | 课程名称 | 课时数 |
| 1 | 思想道德修养与法律基础及形势政策 | 66 |
| 2 | 毛泽东思想和中国特色社会主义理论体系概论及形势政策 | 62 |
| 3 | 高等数学 | 60 |
| 4 | 大学语文 | 60 |
| 5 | 公共英语 | 60 |
| 6 | 信息技术 | 72 |
| 7 | 体育 | 128 |
| 8 | 中华优秀传统文化 | 30 |
| 9 | 民族理论和政策 | 42 |
| 10 | 大学生职业发展与就业指导 | 36 |

2.专业必修课程

|  |  |  |
| --- | --- | --- |
| 序号 | 课程名称 | 课时数 |
| 1 | 铁道概论 | 60 |
| 2 | 电工基础 | 60 |
| 3 | 模拟电子技术 | 72 |
| 4 | 数字电子技术 | 68 |
| 5 | 计算机辅助设计 | 56 |
| 6 | 现代通信概论 | 72 |
| 7 | Access数据库应用 | 72 |
| 8 | 通信原理 | 68 |
| 9 | 通信线路 | 68 |
| 10 | 计算机网络通信 | 102 |
| 11 | 数字传输系统 | 56 |
| 12 | 铁路专用通信 | 84 |
| 13 | 列车无线调度通信 | 56 |
| 14 | 铁路移动通信系统 | 84 |
| 15 | 数字调度通信系统 | 56 |
| 16 | 数字电子技术实训 | 28 |
| 17 | 铁路专用通信实训 | 28 |
| 18 | 数字传输系统实训 | 28 |
| 19 | 计算机辅助设计实训 | 28 |
| 20 | 列车无线调度通信实训 | 28 |
| 21 | 通信工技能鉴定培训 | 84 |
| 22 | 顶岗实习 | 540 |

3.素质拓展必修课程

|  |  |  |
| --- | --- | --- |
| 序号 | 课程名称 | 课时数 |
| 1 | 军训及军事理论教育 | 60 |
| 2 | 心理健康教育 | 32 |
| 3 | 大学生安全及健康教育 | 32 |
| 4 | 大学生暑期社会实践 |  |

二、选修课程

1. 专业选修课程

|  |  |  |
| --- | --- | --- |
| 序号 | 课程名称 | 课时数 |
| 1 | 通信电源 | 51 |
| 2 | 现代交换技术 | 51 |
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2. 素质拓展选修课程

|  |  |  |
| --- | --- | --- |
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| 13 | 电子表格处理 | 32 |
| 14 | PS图像处理 | 32 |
| 15 | 高级PPT制作 | 32 |
| 16 | 计算机组装维修及网络操作 | 32 |
| 17 | 生活中的经济学 | 32 |
| 18 | 技术史漫谈 | 32 |
| 19 | 电影赏析 | 32 |
| 20 | 职业素质 | 32 |
| 21 | 创造性思维与创新方法 | 32 |
| 22 | 大学生创业基础 | 32 |
| 23 | 创新创业实践 |  |

三、专业核心课程主要教学内容与要求

|  |  |  |
| --- | --- | --- |
| 序号 | 专业核心课程 | 主要教学内容与要求 |
| 1 | 通信线路 | 光纤的传输特性；光缆结构及分类、光缆的型号、色谱与纤序；光缆接续、测试、维护及故障处理；通信电缆的结构及分类；通信电缆的参数和特性指标；通信电缆接续、测试、维护及故障处理方法；通信线路质量标准及维护要求；综合布线的基本概念、各子系统的结构及设计施工规范和流程。 |
| 2 | 数字传输系统 | 光传输系统的概念、分类与应用；SDH/MSTP 的基本原理、设备组成、组网保护及应用；DWDM 的基本原理、工作方式、系统结构及应用；OTN 的基本原理、设备组成、组网保护及应用；传输径路图、DDF、ODF 等技术资料的管理和应用；传输系统网管的基本知识；传输设备的测试、维护与故障处理；传输系统工程施工的方法和要求；全程全网的概念。 |
| 3 | 铁路专用通信 | 铁路专用通信系统的概念、分类及功能；会议通信、应急通信、综合视频监控、广播与站场通信等系统的工作原理、组网方式、典型设备硬件结构和功能；各系统的主要电气性能指标及测试；铁路专用通信设备的维护和常见故障处理。 |
| 4 | 列车无线调度通信 | 无线通信收发信机的组成；天线的基本知识；列车无线调度通信系统构成及功能；机车综合无线通信设备（CIR）基本组成、主机各单元模块的配置及功能；列车防护报警和客车列尾系统的组成及主要功能；车载无线通信设备、区间设备主要电气指标及测试；机车综合无线通信设备（CIR）设备操作、维护和一般故障处理；车站设备、区间设备的维护和常见故障处理。 |
| 5 | 铁路移动通信系统 | 铁路移动通信系统的组成；铁路移动通信系统的业务及其在铁路中的应用；铁路移动通信系统的空中接口、主要事件及流程；天馈系统的组成、性能和测试；基站设备的构成、性能、工作原理和维护；直放站设备的构成、性能和维护；铁路移动通信系统工程施工、维护的方法和要求。 |
| 6 | 数字调度通信系统 | 数字调度通信的基础知识；数字调度通信系统结构原理；数字调度通信系统的故障类型、分析方法及故障恢复的步骤：数字调度通信系统设备的构成、功能、设备的安装等基本理论知识；数字调度通信系统设备测试原理。熟练维修数字调度通信系统设备；熟练处理各种数字调度通信系统的常见故障。 |

**学时安排**

每学年教学时间为40周，总学时数为2785，实训按每周28学时计算。每学时为45分钟。18学时计为1个学分，总学分为143学分。军训、入学教育、社会实践、毕业设计（或毕业论文、毕业教育）等，以1周为1学分。公共基础课程学时占总学时的26%。选修课教学时数占总学时的比例为10%。学生顶岗实习为6个月，可根据实际情况，采取工学交替、多学期、分段式等多种形式组织实施。

**教学进程总体安排**

见附件（教学进程表）

**实施保障**

一、师资队伍

1.队伍结构

学生数与本专业专任教师数比例不高于22:1， 双师素质教师占专业教师比一般不低于60%，专任教师队伍要考虑职称、年龄，形成合理的梯队结构。

2.专任教师

具有高校教师资格和本专业领域有关证书；有理想信念、有道德情操、有扎实学识、有仁爱之心；具有通信工程、电子信息相关专业本科及以上学历；具有扎实的通信技术、计算机技术相关理论功底和实践能力；具有较强信息化教学能力，能够开展课程教学改革和科学研究。

3.专业带头人

原则上应具有副高及以上职称，能够较好地把握国内外行业、专业发展，能广泛联系行业企业，了解行业企业对铁道通信与信息化技术人才的实际需求，教学设计、专业研究能力强，组织开展教科研工作能力强，在本区域或本专业领域有一定的影响力。

4.兼职教师

主要从铁路通信段、电务段或通信设备生产、通信运营相关企业聘任，具备良好的思想政治素质、职业道德和工匠精神，具有扎实的通信、电子信息专业知识和丰富的实际工作经验，能承担专业课程教学、实习实训指导和学生职业发展规划指导等教学任务。

二、教学设施

主要包括能够满足正常的课程教学、实习实训所必需的专业教室、实训室和实训基地。

1.专业教室基本条件

一般配备黑（白）板、多媒体计算机、投影设备、音响设备，互联网接入或WiFi环境，并具有网络安全防护措施。安装应急照明装置并保持良好状态，符合紧急疏散要求、标志明显、保持逃生通道畅通无阻。

2.校内实训室基本要求

（1）通信线路实训室

主要配备光纤熔接机、光时域反射仪、光缆终端盒、电缆模块接续机、电缆交接箱、通信电缆故障测试仪、兆欧表、光电缆等。主要用于通信线路维护、光电缆线路实训、专业综合技能实训课程的教学与实训。

（2）光传输和接入实训室

主要配备光传输设备、接入网设备、综合配线架、2M数字传输性能分析仪（误码测试仪） 、光源、光功率计、操作维护终端等。主要用于光传输设备维护、接入网技术、专业综合技能实训课程的教学与实训。

（3）数据通信实训室

主要配备交换机、路由器、网络安全设备、网络仿真教学系统、计算机、网络测试工具等。主要用于通信与计算机网络、现代交换技术、数据通信系统维护、网络设备配置实训、专业综合技能实训课程的教学与实训。

（4）铁路专用通信实训室

主要配备调度系统设备、调度台、操作维护终端以及会议通信设备、综合视频监控设备、2M误码测试仪、视频监控测试仪等。主要用于铁路专用通信设备维护、专业综合技能实训课程的教学与实训。

（5）车载无线通信实训室

主要配备机车综合无线通信设备（CIR） 、手持台、出入库检测设备、无线综合测试仪等。主要用于车载无线通信设备维护、专业综合技能实训课程的教学与实训。

（6）铁路移动通信实训室

主要配备铁路移动通信无线侧BTS设备以及配套设备、 天馈系统、天馈线测试仪、本地维护终端等。主要用于铁路移动通信系统维护、移动网络优化和规划、专业综合技能实训课程的教学与实训。

（7）通信电源和动环监控实训室

主要配备交直流配电屏、高频开关电源、蓄电池组、电源及机房环境监控系统设备等。主要用于通信电源、铁路专用通信设备维护、专业综合技能实训课程的教学与实训。

以上实训室还可以作为学生创新创业的实践平台。

3.校外实训基地基本要求

具有稳定的校外实训基地。能够提供开展铁道通信与信息化技术专业实践教学活动，实训设施齐备，实训岗位、实训指导教师确定，实训管理及实施规章制度齐全。

4.学生实习基地基本要求

具有稳定的校外实习基地。能够涵盖当前铁路专用通信和通信的主流技术，可接纳一定规模的学生实习；能够配备相应数量的指导教师对学生实习进行指导和管理；有保证实习学生日常工作、学习、生活的规章制度，有安全、保险保障。

5.支持信息化教学方面的基本要求

具有利用数字化教学资源库、文献资料、常见问题解答等的信息化条件。引导鼓励教师开发并利用信息化教学资源、教学平台，创新教学方法、提升教学效果。

三、教学资源

主要包括能够满足学生专业学习、教师专业教学研究和教学实施需要的教材、图书及数字资源等。

1.教材选用基本要求

按照国家规定选用优质教材，禁止不合格的教材进入课堂。学校应建立由专业教师、行业专家和教研人员等参加的教材选用机构，完善教材选用制度，经过规范程序择优选用教材。

2.图书文献配备基本要求

图书文献配备能满足人才培养、 专业建设、 教科研等工作的需要，方便师生查询、借阅。专业类图书文献主要包括：轨道交通行业和ICT行业政策法规以及专业涉及的职业标准、技术手册、操作规范、规章制度、专业期刊以及案例类图书等。

3.数字教学资源配备基本要求

建设、配备与本专业有关的音视频素材、教学课件、数字化教学案例库、虚拟仿真软件、数字教材等专业教学资源库，种类丰富、形式多样、使用便捷、动态更新、满足教学。

四、教学方法

1.教学方法、手段建议

本教学标准中多门课程主要以项目为载体按理论与实践一体化要求组织教学，项目来源于工作实践，提取在实际的企业岗位工作任务中选择其中一些关键的、典型的、符合职业教育课程开发目标的工作任务作为学习项目。这些学习项目，既与真实的工作任务基本一致，又必须具备容纳技术知识的功能。教师应充分利用校内实训室设备，设计“教、学、练”教学方法，以更好地培养学生综合职业能力。

2.教学组织形式建议

（1）分组分批教学：铁路通信涉及很多大型、昂贵的通信设备，在校内实训基地中有些设备只能配置1～2套，因此在实施项目教学的实践教学环节时，可将学生分组、分成不同的时段进行实训，确保每个学生都有实际动手训练的机会。

（2）现场教学：对于有些与现场环境密切相关的通信设备，例如机车综合无线通信设备的安装、调试、出入库检测等环节，可以组织学生分派班组跟随现场技术人员参观实习，体验实际的工作过程。

五、教学评价

1.教学评价建议

在学生能力评价中，引入过程评价机制、自评与互评、企业参与评价机制、职业技能鉴定机制。专业核心课程把形成性评价和总结性评价结合起来，将考核的重点放在教学情境（教学单元）评价之中，变原来的期末考试为综合能力测试，即应用所学专业知识解决实际工作流程中的问题，强调创新实践能力的考核，培养学生从业规范和良好的职业素质。以考核评价与能力展示为导向，激发学生的内在潜力和需求，更好地培养学生的沟通能力、团队合作能力、创新能力，增强安全意识和竞争意识。

2.教学考核建议

考核标准基于职业岗位要求，包括专业能力、方法能力、社会能力多元考核为评价内容，通过学生自评、互评相结合，专任教师与行业企业兼职教师评价相结合。

考核要以能力考核为核心，综合考核专业知识、专业技能、方法能力、职业素质、团队合作、道德素质等方面。克服过去只重知识考核，忽视技能和素质考核的弊端，强调关注知识、技能、素质的综合考核。

根据不同课程的特点和要求，采取笔试、口试、实操、系统设备故障处理、工程设计、成果汇报、答辩等多种方式进行考核。

六、质量管理

1.学校和二级院系应建立专业建设和教学过程质量监控机制，健全专业教学质量监控管理制度，完善课堂教学、教学评价、实习实训、毕业设计以及专业调研、人才培养方案更新、资源建设等方面质量标准建设，通过教学实施、过程监控、质量评价和持续改进，达成人才培养规格。

2.学校、二级院系及专业应完善教学管理机制，加强日常教学组织运行与管理，定期开展课程建设水平和教学质量诊断与改进，建立健全巡课、听课、评教、评学等制度，建立与企业联动的实践教学环节督导制度，严明教学纪律，强化教学组织功能，定期开展公开课、示范课等教研活动。

3.学校应建立毕业生跟踪反馈机制及社会评价机制，并对生源情况、在校生学业水平、毕业生就业情况等进行分析，定期评价人才培养质量和培养目标达成情况。

4.专业教研组织应充分利用评价分析结果有效改进专业教学，持续提高人才培养质量。

**毕业要求**

学生德、智、体、美、劳合格，在允许的修业年限内学完培养计划规定的全部课程，通过顶岗实践或毕业论文答辩，取得相应的职业资格证书，达到毕业最低学分（143分）要求，即获得毕业资格，准予毕业并颁发毕业证书。

**教 学 进 程 表**

**2018 级 铁道通信与信息化技术 专 业**

毕业最低学分：143分

专业代码：600107

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
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| **一、教学进程表** | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | **二、周数分配表** | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 学  年 | | 教 学 周 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 理论  及  分散  实践 | | | 集  中  实  践 | | | | 考  试 | | | 劳  动 | | | | 军  训 | | | 机  动 | | | | 毕  业  教  育 | | | 假  期 | | | 合  计 | | |
| 九月 | | | | | | | | 十月 | | | | | | | 十一月 | | | | | | | 十二月 | | | | | | | | 一月 | | | | | | | | | 二月 | | | | | | | 三月 | | | | | | | | | | 四月 | | | | | | 五月 | | | | | | 六月 | | | | | | | | | | 七月 | | | | | | | | | 八月 | | | | | | |
|  | | | 1 | 2 | | | 3 | 4 | | | 5 | 6 | 7 | 8 | 9 | | 10 | 11 | 12 | 13 | | 14 | | | 15 | 16 | | 17 | | 18 | | | 19 | | 20 | | 21 | 22 | | | 23 | 24 | | 25 | | 26 | | | 27 | | | 28 | 29 | 30 | | 31 | | 32 | 33 | 34 | | 35 | | 36 | 37 | | 38 | 39 | | | 40 | | 41 | 42 | | 43 | | 44 | | | 45 | | | 46 | | 47 | 48 | | | 49 | 50 | 51 | 52 | | | | K | | | S | | | | ∷ | | | × | | | | ★ | | | J | | | | T | | | = | | |  | | |
| 一 | | | ★2 | | | | K15 | | | | | | | | | | | | | | | | | | | | | | | J2 | | | | | ∷ | | ==== 6 | | | | | | | | | | | | K18 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | J | | | ∷ | | ==== 6 | | | | | | | | | | | 33 | | | 0 | | | | 2 | | | 0 | | | | 2 | | | 3 | | | | 0 | | | 12 | | | 52 | | |
| 二 | | K17 | | | | | | | | | | | | | | | | | | | | | | | | | | | S | | | J | | ∷ | | ==== 6 | | | | | | | | | | | | K14  S3 | | | | | | | | | | | | | | | | | | | | | | | | S3 | | | | | | × | | J | | | ∷ | | ====6 | | | | | | | | | | | 31 | | | 4 | | | | 2 | | | 1 | | | | 0 | | | 2 | | | | 0 | | | 12 | | | 52 | | | |
| 三 | | K14 | | | | | | | | | | | | | | | | | | | | | | S4 | | | | | | | | J | | ∷ | | ==== 6 | | | | | | | | | | | | S18 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | J | | | T | |  | | | | | | | | | | | 14 | | | 22 | | | | 1 | | | 0 | | | | 0 | | | 2 | | | | 1 | | | 6 | | | 46 | | | |
| **三、教学进度表** | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 合计 | | | | | | | | | | | | | | | | | | | 78 | | | 26 | | | | 5 | | | 1 | | | | 2 | | | 7 | | | | 1 | | | 30 | | | 150 | | | |
| 课程类型 | | 序  号 | | | 课程  代码 | | | | | 课 程 名 称 | | | | | | | | | | | 考核学期序 | | | | | | | | | | | | | | | | | | 学 分 | | | | | | 学 时 数 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 理论教学（含分散性实践教学）周学时 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 考 试 | | | | | | | | 考 查 | | | | | | | | | | 总 计 | | | | | | | | | | 理 论 | | | | | | 实 践 | | | | | | | | | | | | | | | | | | | | | | | | | | | | 一 年 级 | | | | | | | | | | | | 二 年 级 | | | | | | | | | | | | | | 三 年 级 | | | | | | | | | | | |
| 合 计 | | | | | 习 题 课 | | | | 实 训 | | | | | 现场教学 | | | | | | | 创新创业训练 | | | | | | | 1学期  15周 | | | | | 2学期  18周 | | | | | | | 3学期  17周 | | | | | | | 4学期  14周 | | | | | | | 5学期  14周 | | | | | 6学期  18周 | | | | | | |
| 公共必修课 | | 1 | | | 0001 | | | | | 思想道德修养与法律基础及形势政策 | | | | | | | | | | | 1 | | | | | | | | 2 | | | | | | | | | | 4 | | | | | | 66 | | | | | | | | | | 52 | | | | | | 14 | | | | | 14 | | | |  | | | | |  | | | | | | |  | | | | | | | 2 | | | | | 2 | | | | | | |  | | | | | | |  | | | | | | |  | | | | |  | | | | | | |
| 2 | | | 0002 | | | | | 毛泽东思想和中国特色社会主义理论体系概论及形势政策 | | | | | | | | | | | 3 | | | | | | | | 4 | | | | | | | | | | 3 | | | | | | 62 | | | | | | | | | | 50 | | | | | | 12 | | | | | 12 | | | |  | | | | |  | | | | | | |  | | | | | | |  | | | | |  | | | | | | | 2 | | | | | | | 2 | | | | | | |  | | | | |  | | | | | | |
| 3 | | | 0005 | | | | | 高等数学 | | | | | | | | | | | 1 | | | | | | | |  | | | | | | | | | | 3 | | | | | | 60 | | | | | | | | | | 54 | | | | | | 6 | | | | | 6 | | | |  | | | | |  | | | | | | |  | | | | | | | 4 | | | | |  | | | | | | |  | | | | | | |  | | | | | | |  | | | | |  | | | | | | |
| 4 | | | 0006 | | | | | 大学语文 | | | | | | | | | | |  | | | | | | | | 1 | | | | | | | | | | 3 | | | | | | 60 | | | | | | | | | | 52 | | | | | | 8 | | | | | 8 | | | |  | | | | |  | | | | | | |  | | | | | | | 4 | | | | |  | | | | | | |  | | | | | | |  | | | | | | |  | | | | |  | | | | | | |
| 5 | | | 0007 | | | | | 公共英语 | | | | | | | | | | | 1 | | | | | | | |  | | | | | | | | | | 3 | | | | | | 60 | | | | | | | | | | 18 | | | | | | 42 | | | | | 42 | | | |  | | | | |  | | | | | | |  | | | | | | | 4 | | | | |  | | | | | | |  | | | | | | |  | | | | | | |  | | | | |  | | | | | | |
| 6 | | | 0008 | | | | | 信息技术 | | | | | | | | | | |  | | | | | | | | 2 | | | | | | | | | | 4 | | | | | | 72 | | | | | | | | | | 36 | | | | | | 36 | | | | | 36 | | | |  | | | | |  | | | | | | |  | | | | | | |  | | | | | 4 | | | | | | |  | | | | | | |  | | | | | | |  | | | | |  | | | | | | |
| 7 | | | 0009 | | | | | 体育 | | | | | | | | | | | 3 | | | | | | | | 1.2.4 | | | | | | | | | | 7 | | | | | | 128 | | | | | | | | | | 8 | | | | | | 120 | | | | |  | | | |  | | | | | 120 | | | | | | |  | | | | | | | 2 | | | | | 2 | | | | | | | 2 | | | | | | | 2 | | | | | | |  | | | | |  | | | | | | |
| 8 | | | 0004 | | | | | 中华优秀传统文化 | | | | | | | | | | |  | | | | | | | | 1 | | | | | | | | | | 2 | | | | | | 30 | | | | | | | | | | 30 | | | | | |  | | | | |  | | | |  | | | | |  | | | | | | |  | | | | | | | 2 | | | | |  | | | | | | |  | | | | | | |  | | | | | | |  | | | | |  | | | | | | |
| 9 | | | 0011 | | | | | 民族理论和政策 | | | | | | | | | | |  | | | | | | | | 5 | | | | | | | | | | 2 | | | | | | 42 | | | | | | | | | | 42 | | | | | |  | | | | |  | | | |  | | | | |  | | | | | | |  | | | | | | |  | | | | |  | | | | | | |  | | | | | | |  | | | | | | | 3 | | | | |  | | | | | | |
| 10 | | | 0010 | | | | | 大学生职业发展与就业指导 | | | | | | | | | | |  | | | | | | | | 2 | | | | | | | | | | 2 | | | | | | 36 | | | | | | | | | | 36 | | | | | |  | | | | |  | | | |  | | | | |  | | | | | | |  | | | | | | |  | | | | | 2 | | | | | | |  | | | | | | |  | | | | | | |  | | | | |  | | | | | | |
| 小计学分及学时数 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 33 | | | | | | 616 | | | | | | | | | | 378 | | | | | | 238 | | | | | 118 | | | |  | | | | | 120 | | | | | | |  | | | | | | | 18 | | | | | 10 | | | | | | | 4 | | | | | | | 4 | | | | | | | 3 | | | | | **0** | | | | | | |
| 专业必修课 | | 11 | | | 23001 | | | | | 铁道概论 | | | | | | | | | | |  | | | | | | | | 1 | | | | | | | | | | 3 | | | | | | 60 | | | | | | | | | | 44 | | | | | | 16 | | | | |  | | | |  | | | | | 16 | | | | | | |  | | | | | | | 4 | | | | |  | | | | | | |  | | | | | | |  | | | | | | |  | | | | |  | | | | | | |
| 12 | | | 23002 | | | | | 电工基础 | | | | | | | | | | |  | | | | | | | | 1 | | | | | | | | | | 3 | | | | | | 60 | | | | | | | | | | 46 | | | | | | 14 | | | | | 4 | | | | 10 | | | | |  | | | | | | |  | | | | | | | 4 | | | | |  | | | | | | |  | | | | | | |  | | | | | | |  | | | | |  | | | | | | |
| 13 | | | 23003 | | | | | 模拟电子技术 | | | | | | | | | | | 2 | | | | | | | |  | | | | | | | | | | 4 | | | | | | 72 | | | | | | | | | | 54 | | | | | | 18 | | | | | 8 | | | | 10 | | | | |  | | | | | | |  | | | | | | |  | | | | | 4 | | | | | | |  | | | | | | |  | | | | | | |  | | | | |  | | | | | | |
| 14 | | | 23005 | | | | | 数字电子技术 | | | | | | | | | | |  | | | | | | | | 3 | | | | | | | | | | 4 | | | | | | 68 | | | | | | | | | | 52 | | | | | | 16 | | | | | 8 | | | | 8 | | | | |  | | | | | | |  | | | | | | |  | | | | |  | | | | | | | 4 | | | | | | |  | | | | | | |  | | | | |  | | | | | | |
| 15 | | | 23035 | | | | | 计算机辅助设计 | | | | | | | | | | |  | | | | | | | | 4 | | | | | | | | | | 3 | | | | | | 56 | | | | | | | | | | 24 | | | | | | 32 | | | | |  | | | | 22 | | | | |  | | | | | | | 10 | | | | | | |  | | | | |  | | | | | | |  | | | | | | | 4 | | | | | | |  | | | | |  | | | | | | |
| 16 | | | 23004 | | | | | 现代通信概论 | | | | | | | | | | | 2 | | | | | | | |  | | | | | | | | | | 4 | | | | | | 72 | | | | | | | | | | 64 | | | | | | 8 | | | | | 8 | | | |  | | | | |  | | | | | | |  | | | | | | |  | | | | | 4 | | | | | | |  | | | | | | |  | | | | | | |  | | | | |  | | | | | | |
| 17 | | | 23023 | | | | | Access数据库应用 | | | | | | | | | | | 2 | | | | | | | |  | | | | | | | | | | 4 | | | | | | 72 | | | | | | | | | | 36 | | | | | | 36 | | | | |  | | | | 36 | | | | |  | | | | | | |  | | | | | | |  | | | | | 4 | | | | | | |  | | | | | | |  | | | | | | |  | | | | |  | | | | | | |
| 18 | | | 23006 | | | | | 通信原理 | | | | | | | | | | | 3 | | | | | | | |  | | | | | | | | | | 4 | | | | | | 68 | | | | | | | | | | 50 | | | | | | 18 | | | | |  | | | | 18 | | | | |  | | | | | | |  | | | | | | |  | | | | |  | | | | | | | 4 | | | | | | |  | | | | | | |  | | | | |  | | | | | | |
| 19 | | | 23007 | | | | | 通信线路 | | | | | | | | | | | 3 | | | | | | | |  | | | | | | | | | | 4 | | | | | | 68 | | | | | | | | | | 34 | | | | | | 34 | | | | |  | | | | 34 | | | | |  | | | | | | |  | | | | | | |  | | | | |  | | | | | | | 4 | | | | | | |  | | | | | | |  | | | | |  | | | | | | |
| 20 | | | 23008 | | | | | 计算机网络通信 | | | | | | | | | | |  | | | | | | | | 3 | | | | | | | | | | 6 | | | | | | 102 | | | | | | | | | | 52 | | | | | | 50 | | | | |  | | | | 40 | | | | |  | | | | | | | 10 | | | | | | |  | | | | |  | | | | | | | 6 | | | | | | |  | | | | | | |  | | | | |  | | | | | | |
| 21 | | | 23010 | | | | | 数字传输系统 | | | | | | | | | | | 4 | | | | | | | |  | | | | | | | | | | 3 | | | | | | 56 | | | | | | | | | | 48 | | | | | | 8 | | | | |  | | | | 8 | | | | |  | | | | | | |  | | | | | | |  | | | | |  | | | | | | |  | | | | | | | 4 | | | | | | |  | | | | |  | | | | | | |
| 22 | | | 23012 | | | | | 铁路专用通信 | | | | | | | | | | | 4 | | | | | | | |  | | | | | | | | | | 5 | | | | | | 84 | | | | | | | | | | 68 | | | | | | 16 | | | | | 6 | | | | 10 | | | | |  | | | | | | |  | | | | | | |  | | | | |  | | | | | | |  | | | | | | | 6 | | | | | | |  | | | | |  | | | | | | |
| 23 | | | 23013 | | | | | 列车无线调度通信 | | | | | | | | | | | 5 | | | | | | | |  | | | | | | | | | | 3 | | | | | | 56 | | | | | | | | | | 50 | | | | | | 6 | | | | |  | | | | 6 | | | | |  | | | | | | |  | | | | | | |  | | | | |  | | | | | | |  | | | | | | |  | | | | | | | 4 | | | | |  | | | | | | |
| 24 | | | 23014 | | | | | 铁路移动通信系统 | | | | | | | | | | | 5 | | | | | | | |  | | | | | | | | | | 5 | | | | | | 84 | | | | | | | | | | 68 | | | | | | 16 | | | | |  | | | | 8 | | | | | 8 | | | | | | |  | | | | | | |  | | | | |  | | | | | | |  | | | | | | |  | | | | | | | 6 | | | | |  | | | | | | |
| 25 | | | 23015 | | | | | 数字调度通信系统 | | | | | | | | | | | 5 | | | | | | | |  | | | | | | | | | | 3 | | | | | | 56 | | | | | | | | | | 38 | | | | | | 18 | | | | |  | | | |  | | | | | 18 | | | | | | |  | | | | | | |  | | | | |  | | | | | | |  | | | | | | |  | | | | | | | 4 | | | | |  | | | | | | |
| 26 | | | 23028 | | | | | 数字电子技术实训 | | | | | | | | | | |  | | | | | | | | 3 | | | | | | | | | | 1 | | | | | | 28 | | | | | | | | | | 0 | | | | | | 28 | | | | |  | | | | 14 | | | | |  | | | | | | | 14 | | | | | | |  | | | | |  | | | | | | | 1周 | | | | | | |  | | | | | | |  | | | | |  | | | | | | |
| 27 | | | 23030 | | | | | 铁路专用通信实训 | | | | | | | | | | |  | | | | | | | | 4 | | | | | | | | | | 1 | | | | | | 28 | | | | | | | | | | 0 | | | | | | 28 | | | | |  | | | | 28 | | | | |  | | | | | | |  | | | | | | |  | | | | |  | | | | | | |  | | | | | | | 1周 | | | | | | |  | | | | |  | | | | | | |
| 28 | | | 23044 | | | | | 数字传输系统实训 | | | | | | | | | | |  | | | | | | | | 4 | | | | | | | | | | 1 | | | | | | 28 | | | | | | | | | | 0 | | | | | | 28 | | | | |  | | | | 28 | | | | |  | | | | | | |  | | | | | | |  | | | | |  | | | | | | |  | | | | | | | 1周 | | | | | | |  | | | | |  | | | | | | |
| 29 | | | 23052 | | | | | 计算机辅助设计实训 | | | | | | | | | | |  | | | | | | | | 4 | | | | | | | | | | 1 | | | | | | 28 | | | | | | | | | | 0 | | | | | | 28 | | | | |  | | | | 28 | | | | |  | | | | | | |  | | | | | | |  | | | | |  | | | | | | |  | | | | | | | 1周 | | | | | | |  | | | | |  | | | | | | |
| 30 | | | 23031 | | | | | 列车无线调度通信实训 | | | | | | | | | | |  | | | | | | | | 5 | | | | | | | | | | 1 | | | | | | 28 | | | | | | | | | | 0 | | | | | | 28 | | | | |  | | | | 28 | | | | |  | | | | | | |  | | | | | | |  | | | | |  | | | | | | |  | | | | | | |  | | | | | | | 1周 | | | | |  | | | | | | |
| 31 | | | 23032 | | | | | 通信工技能鉴定培训 | | | | | | | | | | |  | | | | | | | | 5 | | | | | | | | | | 3 | | | | | | 84 | | | | | | | | | | 0 | | | | | | 84 | | | | |  | | | | 84 | | | | |  | | | | | | |  | | | | | | |  | | | | |  | | | | | | |  | | | | | | |  | | | | | | | 3周 | | | | |  | | | | | | |
| 32 | | | 23034 | | | | | 顶岗实习 | | | | | | | | | | |  | | | | | | | | 6 | | | | | | | | | | 18 | | | | | | 540 | | | | | | | | | | 0 | | | | | | 540 | | | | |  | | | | 540 | | | | |  | | | | | | |  | | | | | | |  | | | | |  | | | | | | |  | | | | | | |  | | | | | | |  | | | | | **18周** | | | | | | |
| 小计学分及学时数 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 84 | | | | | | 1798 | | | | | | | | | | 728 | | | | | | 1070 | | | | | 34 | | | | 960 | | | | | 42 | | | | | | | 34 | | | | | | | 8 | | | | | 12 | | | | | | | 18 | | | | | | | 14 | | | | | | | 14 | | | | | **0** | | | | | | |
| 专业选修课 | | 33 | | | 23009 | | | | | 通信电源 | | | | | | | | | | |  | | | | | | | | 3 | | | | | | | | | | 3 | | | | | | 51 | | | | | | | | | | 41 | | | | | | 10 | | | | |  | | | | 10 | | | | |  | | | | | | |  | | | | | | |  | | | | |  | | | | | | | 3 | | | | | | |  | | | | | | |  | | | | |  | | | | | | |
| 34 | | | 23040 | | | | | 现代交换技术 | | | | | | | | | | |  | | | | | | | | 3 | | | | | | | | | | 3 | | | | | | 51 | | | | | | | | | | 41 | | | | | | 10 | | | | |  | | | | 10 | | | | |  | | | | | | |  | | | | | | |  | | | | |  | | | | | | | 3 | | | | | | |  | | | | | | |  | | | | |  | | | | | | |
| 35 | | | 23022 | | | | | C语言程序设计 | | | | | | | | | | |  | | | | | | | | 3 | | | | | | | | | | 3 | | | | | | 51 | | | | | | | | | | 41 | | | | | | 10 | | | | |  | | | | 10 | | | | |  | | | | | | |  | | | | | | |  | | | | |  | | | | | | | 3 | | | | | | |  | | | | | | |  | | | | |  | | | | | | |
| 36 | | | 23037 | | | | | 无线通信技术 | | | | | | | | | | |  | | | | | | | | 4 | | | | | | | | | | 3 | | | | | | 56 | | | | | | | | | | 48 | | | | | | 8 | | | | |  | | | | 8 | | | | |  | | | | | | |  | | | | | | |  | | | | |  | | | | | | |  | | | | | | | 4 | | | | | | |  | | | | |  | | | | | | |
| 37 | | | 23041 | | | | | 单片机原理及接口技术 | | | | | | | | | | |  | | | | | | | | 4 | | | | | | | | | | 3 | | | | | | 56 | | | | | | | | | | 48 | | | | | | 8 | | | | |  | | | | 8 | | | | |  | | | | | | |  | | | | | | |  | | | | |  | | | | | | |  | | | | | | | 4 | | | | | | |  | | | | |  | | | | | | |
| 38 | | | 23011 | | | | | 宽带接入技术 | | | | | | | | | | | 4 | | | | | | | |  | | | | | | | | | | 3 | | | | | | 56 | | | | | | | | | | 40 | | | | | | 16 | | | | |  | | | | 16 | | | | |  | | | | | | |  | | | | | | |  | | | | |  | | | | | | |  | | | | | | | 4 | | | | | | |  | | | | |  | | | | | | |
| 39 | | | 23038 | | | | | 网络管理与维护 | | | | | | | | | | | 4 | | | | | | | |  | | | | | | | | | | 3 | | | | | | 56 | | | | | | | | | | 40 | | | | | | 16 | | | | |  | | | | 16 | | | | |  | | | | | | |  | | | | | | |  | | | | |  | | | | | | |  | | | | | | | 4 | | | | | | |  | | | | |  | | | | | | |
| 40 | | | 23016 | | | | | 通信工程施工与管理 | | | | | | | | | | |  | | | | | | | | 5 | | | | | | | | | | 3 | | | | | | 56 | | | | | | | | | | 40 | | | | | | 16 | | | | |  | | | | 16 | | | | |  | | | | | | |  | | | | | | |  | | | | |  | | | | | | |  | | | | | | |  | | | | | | | 4 | | | | |  | | | | | | |
| 41 | | | 23024 | | | | | 企业网组建与应用 | | | | | | | | | | |  | | | | | | | | 5 | | | | | | | | | | 3 | | | | | | 56 | | | | | | | | | | 40 | | | | | | 16 | | | | |  | | | | 16 | | | | |  | | | | | | |  | | | | | | |  | | | | |  | | | | | | |  | | | | | | |  | | | | | | | 4 | | | | |  | | | | | | |
| 42 | | | 23042 | | | | | 通信专业英语 | | | | | | | | | | |  | | | | | | | | 5 | | | | | | | | | | 2 | | | | | | 28 | | | | | | | | | | 22 | | | | | | 6 | | | | |  | | | | 6 | | | | |  | | | | | | |  | | | | | | |  | | | | |  | | | | | | |  | | | | | | |  | | | | | | | 2 | | | | |  | | | | | | |
| 43 | | | 23043 | | | | | 信息安全技术 | | | | | | | | | | |  | | | | | | | | 5 | | | | | | | | | | 2 | | | | | | 28 | | | | | | | | | | 22 | | | | | | 6 | | | | |  | | | | 6 | | | | |  | | | | | | |  | | | | | | |  | | | | |  | | | | | | |  | | | | | | |  | | | | | | | 2 | | | | |  | | | | | | |
| 小计学分及学时数 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 31 | | | | | | 545 | | | | | | | | | | 423 | | | | | | 122 | | | | |  | | | | 122 | | | | |  | | | | | | |  | | | | | | | 0 | | | | | 0 | | | | | | | 9（3） | | | | | | | 16（8） | | | | | | | 12（6） | | | | | **0** | | | | | | |
| 周学时数 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |  | | | | | |  | | | | | | | | | |  | | | | | |  | | | | |  | | | |  | | | | |  | | | | | | |  | | | | | | | 26 | | | | | 22 | | | | | | | 25 | | | | | | | 26 | | | | | | | 23 | | | | | **0** | | | | | | |
| **四、素质拓展课** | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 课程类型 | | 序  号 | | | | 课程代码 | | | | 课 程 名 称 | | | | | | | | | | | 考核学期序 | | | | | | | | | | | | | | | | | | 学 分 | | | | 课  时 | | | | | | | 说 明 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 考 试 | | | | | | 考 查 | | | | | | | | | | | |
| 必修  课 | | 1 | | | | 01 | | | | 军训及军事理论教育 | | | | | | | | | | |  | | | | | | 1 | | | | | | | | | | | | 4 | | | | 60 | | | | | | | | 第1学期开设，含入学教育。理论教学4课时，实践教学56课时。 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 2 | | | | 02 | | | | 心理健康教育 | | | | | | | | | | |  | | | | | | 2.3.4.5 | | | | | | | | | | | | 2 | | | | 32 | | | | | | | | 分专业在第2～5学期之一开设。理论教学20课时，实践教学12课时。 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 3 | | | | 03 | | | | 大学生安全及健康教育 | | | | | | | | | | |  | | | | | | 1.2.3.4 | | | | | | | | | | | | 2 | | | | 32 | | | | | | | | 在1～4学期实施，以专题讲座的形式和每学期大学生第二课堂教育活动中开设。理论教学20课时，实践教学12课时。 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 4 | | | | 04 | | | | 大学生暑期社会实践 | | | | | | | | | | |  | | | | | | 2.4 | | | | | | | | | | | | 2 | | | |  | | | | | | | | 利用暑期，进行社会实践，提交报告。 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 小计学分及学时数 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 10 | | | | 124 | | | | | | | |  | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 选  修  课 | | 1 | | | | 001 | | | | 演讲与口才 | | | | | | | | | | |  | | | | | | 2～5 | | | | | | | | | | | | 2 | | | | 32 | | | | | | | |  | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 2 | | | | 002 | | | | 中国小说阅读与鉴赏 | | | | | | | | | | |  | | | | | | 2～5 | | | | | | | | | | | | 2 | | | | 32 | | | | | | | |  | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 3 | | | | 003 | | | | 音乐欣赏 | | | | | | | | | | |  | | | | | | 2～5 | | | | | | | | | | | | 2 | | | | 32 | | | | | | | |  | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 4 | | | | 004 | | | | 影视文学欣赏 | | | | | | | | | | |  | | | | | | 2～5 | | | | | | | | | | | | 2 | | | | 32 | | | | | | | |  | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 5 | | | | 005 | | | | 应用写作 | | | | | | | | | | |  | | | | | | 2～5 | | | | | | | | | | | | 2 | | | | 32 | | | | | | | |  | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 6 | | | | 006 | | | | 现代礼仪 | | | | | | | | | | |  | | | | | | 2～5 | | | | | | | | | | | | 2 | | | | 32 | | | | | | | |  | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 7 | | | | 007 | | | | 中国古典诗词欣赏 | | | | | | | | | | |  | | | | | | 2～5 | | | | | | | | | | | | 2 | | | | 32 | | | | | | | |  | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 8 | | | | 008 | | | | 中国近现代史纲要 | | | | | | | | | | |  | | | | | | 2～5 | | | | | | | | | | | | 2 | | | | 32 | | | | | | | |  | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 9 | | | | 009 | | | | 中国传统文化 | | | | | | | | | | |  | | | | | | 2～5 | | | | | | | | | | | | 2 | | | | 32 | | | | | | | |  | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 10 | | | | 010 | | | | 中国旅游资源概况 | | | | | | | | | | |  | | | | | | 2～5 | | | | | | | | | | | | 2 | | | | 32 | | | | | | | |  | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 11 | | | | 011 | | | | ISO9000质量管理体系 | | | | | | | | | | |  | | | | | | 2～5 | | | | | | | | | | | | 2 | | | | 32 | | | | | | | |  | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 12 | | | | 012 | | | | 高级文字排版 | | | | | | | | | | |  | | | | | | 2～5 | | | | | | | | | | | | 2 | | | | 32 | | | | | | | |  | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 13 | | | | 013 | | | | 电子表格处理 | | | | | | | | | | |  | | | | | | 2～5 | | | | | | | | | | | | 2 | | | | 32 | | | | | | | |  | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 14 | | | | 014 | | | | PS图像处理 | | | | | | | | | | |  | | | | | | 2～5 | | | | | | | | | | | | 2 | | | | 32 | | | | | | | |  | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 15 | | | | 015 | | | | 高级PPT制作 | | | | | | | | | | |  | | | | | | 2～5 | | | | | | | | | | | | 2 | | | | 32 | | | | | | | |  | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 16 | | | | 016 | | | | 计算机组装维修及网络操作 | | | | | | | | | | |  | | | | | | 2～5 | | | | | | | | | | | | 2 | | | | 32 | | | | | | | |  | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 17 | | | | 017 | | | | 生活中的经济学 | | | | | | | | | | |  | | | | | | 2～5 | | | | | | | | | | | | 2 | | | | 32 | | | | | | | |  | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 18 | | | | 018 | | | | 技术史漫谈 | | | | | | | | | | |  | | | | | | 2～5 | | | | | | | | | | | | 2 | | | | 32 | | | | | | | |  | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 19 | | | | 019 | | | | 电影赏析 | | | | | | | | | | |  | | | | | | 2～5 | | | | | | | | | | | | 2 | | | | 32 | | | | | | | |  | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 20 | | | | 020 | | | | 职业素质 | | | | | | | | | | |  | | | | | | 2～5 | | | | | | | | | | | | 2 | | | | 32 | | | | | | | |  | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 21 | | | | 021 | | | | 创造性思维与创新方法 | | | | | | | | | | |  | | | | | | 2～5 | | | | | | | | | | | | 2 | | | | 32 | | | | | | | |  | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 22 | | | | 022 | | | | 大学生创业基础 | | | | | | | | | | |  | | | | | | 2～5 | | | | | | | | | | | | 2 | | | | 32 | | | | | | | |  | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 23 | | | | 023 | | | | 创新创业实践 | | | | | | | | | | |  | | | | | | 1～6 | | | | | | | | | | | | 10 | | | |  | | | | | | | | 用于学生参加课题研究、项目实验、竞赛活动、发表论文等创新创业成果的学分折算 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 小计学分及学时数 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 44 | | | | 704 | | | | | | | |  | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| **合计学分及学时数** | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | **总学分143,必修课学分127,选修课学分16，其中专业选修课学分14，素质选修课学分2。总学时2785，理论学时1341，实践学时1444。** | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

**铁道信号自动控制专业**

**教学标准**

**专业名称** 铁道信号自动控制

**专业代码** 600106

**入学要求** 普通高级中学毕业、中等职业学校毕业或具备同等学力

**修业年限** 三年

**职业面向**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| 所属专业大类（代码） | 所属专业类（代码） | 对应行业（代码） | 主要职业类别（代码） | 主要岗位类别（或技术领域） | 职业资格证书或技能等级证书举例 |
| 交通运输（60） | 铁道运输  （6001） | 铁路运输  （53） | 铁道电务工程技术人员  （2-02-17-04）  信号设备组调工、  信号设备制造钳工  （6-24-08-00）  轨道交通信号工  （6-29-03-10） | 铁路信号工  信号设备  组调工  信号设备  制造钳工 | 铁路信号工 |

**培养目标与培养规格**

一、培养目标

本专业培养理想信念坚定，德、智、体、美、劳全面发展，具有一定的科学文化水平，良好的人文素质、职业道德和创新意识，精益求精的工匠精神，较强的就业能力和可持续发展能力；掌握本专业知识和技术技能，面向铁路运输业的铁道电务工程技术人员、信号设备组调工、信号设备制造钳工和轨道交通信号工等职业群，能够从事铁路信号设备检修维护、施工安装、生产制造、技术管理、工程设计及技术革新等工作的高素质技术技能人才。

二、培养规格

本专业毕业生应在素质、知识和能力等方面达到以下要求。

1.素质

（1）坚定拥护中国共产党领导和我国社会主义制度，在习近平新时代中国特色社会主义思想指引下，践行社会主义核心价值观，具有深厚的爱国情感和中华民族自豪感；

（2）崇尚宪法、遵法守纪、崇德向善、诚实守信、尊重生命、热爱劳动、履行道德准则和行为规范，具有社会责任感和社会参与意识；

（3）具有质量意识、环保意识、安全意识、信息素养、工匠、创新思维；

（4）勇于奋斗、乐观向上，具有自我管理能力、职业生涯规划意识，有较强的集体意识和团队合作精神；

（5）具有健康的体魄、心理和健全的人格，掌握基本运动知识和一两项运动技能，养成良好的健身与卫生习惯，良好的行为习惯；

（6）具有一定的审美和人文素养，能够形成一两项艺术特长或爱好。

2.知识

（1）掌握必备的思想政治理论、科学文化基础知识和中华优秀传统文化知识；

（2）熟悉与本专业相关的法律法规以及环境保护、安全消防等相关知识；

（3）掌握计算机应用、计算机网络和通信技术等基础知识；

（4）了解铁路线路、站场、机车车辆、供电和运输组织等基础知识；

（5）掌握电路分析、电子技术基础知识和计算机控制技术；

（6）掌握信号专业工具、仪器、仪表的使用与维护保养知识；掌握信号技术图、表的基本知识；

（7）掌握信号系统及设备的工作原理、技术条件、维护标准等基本知识；

（8）掌握信号系统及设备检修作业和故障处理的标准化程序和基本方法；

（9）掌握信号系统及设备安装、调试、施工工序、工艺的有关知识；了解生产技术管理相关知识；

（10）了解最新发布的涉及本专业的铁路行业标准、国家标准和国际标准。

3.能力

（1）具有探究学习、终身学习、分析问题和解决问题的能力；

（2）具有良好的语言、文字表达能力和沟通能力，能够进行口语和书面的表达与交流；

（3）具有团队合作能力；

（4）具有电子电路、数字电路的安装、调试、维修的基本技能；

（5）能够执行铁路信号维护规则和技术管理规程，按照铁路标准化作业程序进行信号系统及设备维护和应急故障处理；

（6）能够正确识读铁路信号设备技术图、表；能检测铁路信号设备、配件的质量和性能；

（7）.能够进行铁路信号设备分解、组装、配线、安装、调试、导通和联锁试验；

（8）能够利用信息化技术手段综合分析铁路信号系统的数据资料、运行状态和故障现象，及时、准确地处理故障，保障设备正常运行；

（9）能够进行信号电缆敷设、接续、测试及故障处理；

（10）具有对铁路信号工程进行初步设计和施工设计的基本能力；

（11）具有基本的生产管理和技术管理能力。

**课程设置**

一、必修课程

1. 公共必修课程

|  |  |  |
| --- | --- | --- |
| 序号 | 课程名称 | 课时数 |
| 1 | 思想道德修养与法律基础及形势政策 | 64 |
| 2 | 毛泽东思想和中国特色社会主义理论体系概论及形势政策 | 72 |
| 3 | 高等数学 | 60 |
| 4 | 大学语文 | 60 |
| 5 | 公共英语 | 60 |
| 6 | 信息技术 | 68 |
| 7 | 体育 | 136 |
| 8 | 中华优秀传统文化 | 30 |
| 9 | 民族理论和政策 | 30 |
| 10 | 大学生职业发展与就业指导 | 34 |

2.专业必修课程

|  |  |  |
| --- | --- | --- |
| 序号 | 课程名称 | 课时数 |
| 1 | 电工基础 | 60 |
| 2 | 铁道概论 | 60 |
| 3 | 模拟电子技术 | 68 |
| 4 | 数字电子技术 | 72 |
| 5 | 计算机辅助设计 | 72 |
| 6 | 铁路信号基础设备维护 | 140 |
| 7 | 微机原理与接口技术 | 68 |
| 8 | 车站信号自动控制系统维护 | 72 |
| 9 | 区间信号自动控制系统维护 | 72 |
| 10 | 计算机联锁 | 72 |
| 11 | 铁路信号设计与施工 | 132 |
| 12 | 列车运行控制系统 | 60 |
| 13 | 信号施工技能训练 | 30 |
| 14 | 信号工技能训练 | 60 |
| 15 | 顶岗实习 | 540 |

3.素质拓展必修课程

|  |  |  |
| --- | --- | --- |
| 序号 | 课程名称 | 课时数 |
| 1 | 军训及军事理论教育 | 60 |
| 2 | 心理健康教育 | 32 |
| 3 | 大学生安全及健康教育 | 32 |
| 4 | 大学生暑期社会实践 |  |

二、选修课程

1. 专业选修课程

|  |  |  |
| --- | --- | --- |
| 序号 | 课程名称 | 课时数 |
| 1 | 高速铁路信号技术 | 34 |
| 2 | 数据库应用 | 34 |
| 3 | 编组站自动控制系统维护 | 72 |
| 4 | 计算机网络技术 | 72 |
| 5 | 铁路信号电源设备维护 | 72 |
| 6 | 铁路信号业务管理 | 72 |
| 7 | 通信线路 | 72 |
| 8 | 机车信号与列车运行监控装置 | 72 |
| 9 | 铁路信号测量 | 60 |
| 10 | 调度集中和列车调度指挥系统 | 60 |
| 11 | 单片机应用技术 | 60 |
| 12 | 铁路信号集中监测 | 30 |
| 13 | 铁路信号规章 | 60 |
| 14 | 铁路专用通信设备维护 | 60 |
| 15 | 信号设备故障分析与处理 | 60 |
| 16 | C语言程序设计 | 30 |

2. 素质拓展选修课程

|  |  |  |
| --- | --- | --- |
| 序号 | 课程名称 | 课时数 |
| 1 | 演讲与口才 | 32 |
| 2 | 中国小说阅读与鉴赏 | 32 |
| 3 | 音乐欣赏 | 32 |
| 4 | 影视文学欣赏 | 32 |
| 5 | 应用写作 | 32 |
| 6 | 现代礼仪 | 32 |
| 7 | 中国古典诗词欣赏 | 32 |
| 8 | 中国近现代史纲要 | 32 |
| 9 | 中国传统文化 | 32 |
| 10 | 中国旅游资源概况 | 32 |
| 11 | ISO9000质量管理体系 | 32 |
| 12 | 高级文字排版 | 32 |
| 13 | 电子表格处理 | 32 |
| 14 | PS图像处理 | 32 |
| 15 | 高级PPT制作 | 32 |
| 16 | 计算机组装维修及网络操作 | 32 |
| 17 | 生活中的经济学 | 32 |
| 18 | 技术史漫谈 | 32 |
| 19 | 电影赏析 | 32 |
| 20 | 职业素质 | 32 |
| 21 | 创造性思维与创新方法 | 32 |
| 22 | 大学生创业基础 | 32 |
| 23 | 创新创业实践 |  |

三、专业核心课程主要教学内容与要求

|  |  |  |
| --- | --- | --- |
| 序号 | 专业核心课程 | 主要教学内容与要求 |
| 1 | 铁路信号基础设备维护 | 继电器的主要结构、原理、作用及特性参数测试及简单继电器电路识读；铁路信号及联锁、闭塞的概念、原理、分类；信号机分类、作用、设置、显示意义；轨道电路的基本原理、分类、作用、基本工作状态和工作参数；转辙机的作用、分类、原理、参数，道岔锁闭装置分类及工作原理；信号基础设备的日常养护与测试，简单故障的分析处理。 |
| 2 | 车站信号自动控制系统维护 | 继电联锁系统组成及工作原理；继电联锁系统结构图和电路工程图识读；车站信号联锁设备操作、联锁试验、维护及工作流程；检测和更换联锁系统各部件；车站信号联锁设备常见故障分析与处理。 |
| 3 | 计算机联锁 | 计算机联锁系统的组成、作用、工作原理；计算机联锁系统结构图和电路工程图识读；车站信号联锁设备操作、联锁试验、维护及工作流程；检测和更换计算机联锁系统各部件；车站信号联锁设备常见故障分析与处理。 |
| 4 | 区间信号自动控制系统维护 | 闭塞的基本概念；区间信号设备的类型、构成、功能、工作原理；区间信号设备结构图和电路工程图识读；各种区间信号设备维护及工作流程；区间信号设备的故障分析及处理；站内电码化设备组成及工作原理;改方电路组成及工作原理。 |
| 5 | 列车运行控制系统 | CTCS 系统的基本概念、分级；通用机车信号系统结构与设备工作原理；列车运行控制系统结构、原理，LKJ2000、CTCS-2、CTCS-3 系统的结构、工作原理与日常养护；列车运行控制系统地面设备和车载设备的基本组成及工作原理；列车运行控制系统各种运行模式和控制方式；列车运行控制系统数据下载、故障分析及处理。 |
| 6 | 铁路信号设计与施工 | 继电联锁、计算机联锁、自动闭塞工程图的识读与设计；室内信号设备安装施工；室外信号设备安装施工，信号机、转辙机、轨道电路的安装、配线及调试；信号电缆敷设、配线及导通；信号工程试验与验收。 |
| 7 | 铁路信号集中监测 | 信号集中监测系统功能、结构、原理；信号集中监测系统采集原理；信号集中监测系统应用，监测数据分析与处理;信号集中监测系统维护与管理。 |

**学时安排**

每学年教学时间为40周，总学时数为2652，实习按每周30学时计算。每学时为45分钟。18学时计为1个学分，总学分为147学分。军训、入学教育、社会实践、毕业设计（或毕业论文、毕业教育）等，以1周为1学分。公共基础课程学时占总学时的23%。专业选修课教学时数占总学时的比例均为17%。学生顶岗实习为6个月，可根据实际情况，采取工学交替、多学期、分段式等多种形式组织实施。

**教学进程总体安排**

见附件（教学进程表）

**实施保障**

一、师资队伍

1.队伍结构

学生数与本专业专任教师数比例不高于22:1，双师素质教师占专业教师比一般不低于60%，专任教师队伍要考虑职称、年龄，形成合理的梯队结构。

2.专任教师

具有高校教师资格和本专业领域有关证书；有理想信念、有道德情操、有扎实学识、有仁爱之心；具有铁道信号自动控制相关专业本科及以上学历；具有扎实的铁道信号专业相关理论功底和实践能力；具有较强信息化教学能力，能够开展课程教学改革和科学研究；每5年累计不少于6 个月的企业实践经历。

3.专业带头人

原则上应具有副高及以上职称，能够较好地把握国内外行业、专业发展，能广泛联系行业企业，了解行业企业对铁道信号专业人才的实际需求，教学设计、专业研究能力强，组织开展教科研工作能力强，在本区域或本领域有一定的专业影响力。

4.兼职教师

主要从铁路电务段或电务相关企业聘任，具备良好的思想政治素质、职业道德和工匠精神，具有扎实的铁道信号专业知识和丰富的工作经验，具有中级及以上相关专业职称，能承担专业课程教学、实习实训指导和学生职业发展规划指导等教学任务。

二、教学设施

主要包括能够满足正常的课程教学、实习实训所必需的专业教室、实训室和实训基地。

1.专业教室基本条件

一般配备黑（白）板、多媒体计算机、投影设备、音响设备，互联网接入或WiFi 环境，并具有网络安全防护措施。安装应急照明装置并保持良好状态，符合紧急疏散要求、标志明显、保持逃生通道畅通无阻。

2.校内实训室基本要求

（1）铁路信号基础实训室

主要配备信号继电器、信号机、轨道电路、转辙机等。用于继电器、信号机、轨道电路、转辙机等铁路信号基础设备的分解、组装、配线、测试、调整等教学与实训。

（2）铁路车站自动控制系统实训室

主要配备电气集中、计算机联锁和智能电源屏等。用于联锁设备和信号电源屏的操作使用、常见故障分析判断和故障处理等教学与实训。

（3）铁路区间自动控制系统实训室

主要配备移频自动闭塞智能实训系统、ZPW-2000 系列移频轨道电路等。用于区间闭塞设备操作使用、参数测试、常见故障分析判断及故障处理等教学与实训。

（4）列车运行自动控制系统实训室

主要配备机车信号、LKJ2000、列控中心设备、列控车载设备等。用于机车信号、LKJ 监控、列控系统等设备的操作使用、参数测试、记录分析、常见故障处理等教学与实训。

（5）铁路信号施工实训室

主要配备信号电缆盒、变压器箱、信号设备配线工作台等。用于室内外信号设备布置、识图、安装调试、联锁试验等教学与实训。

（6）铁路信号集中监测系统实训室

主要配备监测数据采集设备、监测站机等。用于铁路信号集中监测系统操作使用、监测信息分析、常见故障分析判断等教学与实训。

以上实训室还可以作为学生创新创业的实践平台。

3.校外实训基地基本要求

具有稳定的校外实训基地。能够提供开展铁路信号自动控制专业相关实践教学活动，实训设施齐备，实训岗位、实训指导教师确定，实训管理及实施规章制度齐全。

4.学生实习基地基本要求

具有稳定的校外实习基地。能涵盖当前铁道信号自动控制专业发展的主流技术，可接纳一定规模的学生实习；能够配备相应数量的指导教师对学生实习进行指导和管理；有保证实习生日常工作、学习、生活的规章制度，有安全、保险保障。

5.支持信息化教学方面的基本要求

具有利用数字化教学资源库、文献资料、常见问题解答等的信息化条件。引导鼓励教师开发并利用信息化教学资源、教学平台，创新教学方法、提升教学效果。

三、教学资源

主要包括能够满足学生专业学习、教师专业教学研究和教学实施需要的教材、图书及数字化教学资源等。

1.教材选用基本要求

按照国家规定选用优质教材，禁止不合格的教材进入课堂。学校建立由专业教师、行业专家和教研人员等参与的教材选用机构，完善教材选用制度，经过规范程序择优选用教材。

2.图书文献配备基本要求

图书文献配备能满足人才培养、专业建设、教科研等工作的需要，方便师生查询、借阅。专业类图书文献主要包括：铁道信号自动控制专业涉及的职业标准、技术手册、操作规范、规章制度、专业期刊以及案例类图书等。

3.数字教学资源配备基本要求

建设、配备与本专业有关的音视频素材、教学课件、数字化教学案例库、虚拟仿真软件、数字教材专业教学资源库，种类丰富、形式多样、使用便捷、动态更新、满足教学。

四、教学方法

1.教学方法、手段

采用模拟仿真、教学录像、PPT课件、FLASH动画课件、角色扮演、案例分析、分组讨论、维护设备感悟、规范演示、现场教学、实习实训等多样化教学方法开展教学活动。针对学生的基础能力和个性特点，因材施教达到教学目标，并形成可扩展的、可迁移的、可持续的职业能力。

2.教学组织形式

建议实施校企合作、工学结合、任务驱动、项目导向、顶岗实习等行动导向的教学模式，在“教学做一体化”实训室进行教学，学生边看、边做、边学，强化学生职业能力培养。教师作为学生活动的主导，成为学生学习的激励者、咨询者和指导者。

五、教学评价

1.教学评价

按照“职业能力为主、书本理论知识为辅，过程为主、结果导向”的思路，构建以职业能力培养为核心、以过程考核为重点的教学方式，从知识考核、实做考核、职业技能鉴定等方面对学生进行评价，突出考核的多样性和针对性，逐步使学生具备相应的知识结构、操作技能。

2.教学考核

以学习能力、职业能力和综合素质为评价核心，改革学生考核评价体系，做到“考核主体多元化、考核标准科学化、考核方式多样化”，实现学校考核与企业评价相融。

（1）考核主体多元化：考核标准基于职业岗位要求，包括专业能力、方法能力、社会能力多元考核为评价内容，通过学生自评、互评相结合，专任教师与行业企业兼职教师评价相结合。

（2）考核标准科学化：主动适应主要岗位的任职要求，根据不同课程的特点，引入企业考核标准优化考核内容，科学合理地制定考核标准。

（3）考核方式多样化：根据不同课程的特点和要求，综合运用笔试、口试、实做、系统设备故障处理、职业技能鉴定、答辩等多种形式考核学生的职业素养和职业能力，促进学生的全面发展。

六、质量管理

1.学校和二级院系应建立专业建设和教学过程质量监控机制，健全专业教学质量监控管理制度，完善课堂教学、教学评价、实习实训、毕业设计以及专业调研、人才培养方案更新、资源建设等方面质量标准建设，通过教学实施、过程监控、质量评价和持续改进，达成人才培养规格。

2.学校、二级院系及专业应完善教学管理机制，加强日常教学组织运行与管理，定期开展课程建设水平和教学质量诊断与改进，建立健全巡课、听课、评教、评学等制度，建立与企业联动的实践教学环节督导制度，严明教学纪律，强化教学组织功能，定期开展公开课、示范课等教研活动。

3.学校应建立毕业生跟踪反馈机制及社会评价机制，并对生源情况、在校生学业水平、毕业生就业情况等进行分析，定期评价人才培养质量和培养目标达成情况。

4.专业教研组织应充分利用评价分析结果有效改进专业教学，持续提高人才培养质量。

**毕业要求**

学生德、智、体、美、劳合格，在允许的修业年限内学完培养计划规定的全部课程，通过顶岗实践或毕业论文答辩，取得相应的职业资格证书，达到毕业最低学分（147分）要求，即获得毕业资格，准予毕业并颁发毕业证书。

**教 学 进 程 表**

**2018 级 铁道信号自动控制 专 业**

毕业最低学分：147分

专业代码： 600106

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **一、教学进程表** | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | **二、周数分配表** | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 学  年 | | 教 学 周 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 理论  及  分散  实践 | | | 集  中  实  践 | | | | 考  试 | | | 劳  动 | | | | 军  训 | | | 机  动 | | | | 毕  业  教  育 | | | 假  期 | | | 合  计 | | |
| 九月 | | | | | | | | 十月 | | | | | | | 十一月 | | | | | | | 十二月 | | | | | | | 一月 | | | | | | | | | 二月 | | | | | | | | 三月 | | | | | | | | | 四月 | | | | | | 五月 | | | | | | 六月 | | | | | | | | | | 七月 | | | | | | | | | | 八月 | | | | | | |
|  | | | 1 | 2 | | | 3 | 4 | | | 5 | 6 | 7 | 8 | 9 | | 10 | 11 | 12 | 13 | | 14 | | 15 | | 16 | | 17 | 18 | | | 19 | | 20 | | 21 | 22 | | | 23 | 24 | | 25 | 26 | | | | 27 | | | 28 | 29 | 30 | | 31 | | 32 | 33 | 34 | | 35 | | 36 | 37 | | 38 | 39 | | | 40 | 41 | 42 | | 43 | | | 44 | | | | 45 | | | 46 | | 47 | 48 | | | 49 | 50 | 51 | 52 | | | | K | | | S | | | | ∷ | | | × | | | | ★ | | | J | | | | T | | | = | | |  | | |
| 一 | | | ★2 | | | | K15 | | | | | | | | | | | | | | | | | | | | | | J2 | | | | | ∷ | | ==== 6 | | | | | | | | | | | | K17 | | | | | | | | | | | | | | | | | | | | | | | | | | | | × | | | | J | | | | ∷ | | ==== 6 | | | | | | | | | | | 32 | | | 0 | | | | 2 | | | 1 | | | | 2 | | | 3 | | | | 0 | | | 12 | | | 52 | | |
| 二 | | K18 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | J | | ∷ | | ==== 6 | | | | | | | | | | | K18 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | J | | | | ∷ | | ==== 6 | | | | | | | | | | | 36 | | | 0 | | | | 2 | | | 0 | | | | 0 | | | 2 | | | | 0 | | | 12 | | | 52 | | | |
| 三 | | K15 | | | | | | | | | | | | | | | | | | | | | | | S3 | | | | | | J | | ∷ | | ==== 6 | | | | | | | | | | | S18 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | J | | | | T | |  | | | | | | | | | | | 15 | | | 21 | | | | 1 | | | 0 | | | | 0 | | | 2 | | | | 1 | | | 6 | | | 46 | | | |
| **三、教学进度表** | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 合计 | | | | | | | | | | | | | | | | | | | | | 83 | | | 21 | | | | 5 | | | 1 | | | | 2 | | | 7 | | | | 1 | | | 30 | | | 150 | | | |
| 课程类型 | | 序  号 | | | 课程  代码 | | | | | 课 程 名 称 | | | | | | | | | | | 考核学期序 | | | | | | | | | | | | | | | | | 学 分 | | | | | | | 学 时 数 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 理论教学（含分散性实践教学）周学时 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 考 试 | | | | | | | | 考 查 | | | | | | | | | 总 计 | | | | | | | | | 理 论 | | | | | | 实 践 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 一 年 级 | | | | | | | | | | | | 二 年 级 | | | | | | | | | | | | | | 三 年 级 | | | | | | | | | | | |
| 合 计 | | | | | 习 题 课 | | | | 实 训 | | | | 现场教学 | | | | | | | | | 创新创业训练 | | | | | | | 1学期  15周 | | | | | 2学期  17周 | | | | | | | 3学期  18周 | | | | | | | 4学期  18周 | | | | | | | 5学期  15周 | | | | | 6学期  0周 | | | | | | |
| 公共必修课 | | 1 | | | 0001 | | | | | 思想道德修养与法律基础及形势政策 | | | | | | | | | | | 1 | | | | | | | | 2 | | | | | | | | | 4 | | | | | | | 64 | | | | | | | | | 50 | | | | | | 14 | | | | | 14 | | | |  | | | |  | | | | | | | | |  | | | | | | | 2 | | | | | 2 | | | | | | |  | | | | | | |  | | | | | | |  | | | | |  | | | | | | |
| 2 | | | 0002 | | | | | 毛泽东思想和中国特色社会主义理论体系概论及形势政策 | | | | | | | | | | | 3 | | | | | | | | 4 | | | | | | | | | 4 | | | | | | | 72 | | | | | | | | | 60 | | | | | | 12 | | | | | 12 | | | |  | | | |  | | | | | | | | |  | | | | | | |  | | | | |  | | | | | | | 2 | | | | | | | 2 | | | | | | |  | | | | |  | | | | | | |
| 3 | | | 0005 | | | | | 高等数学 | | | | | | | | | | | 1 | | | | | | | |  | | | | | | | | | 3 | | | | | | | 60 | | | | | | | | | 54 | | | | | | 6 | | | | | 6 | | | |  | | | |  | | | | | | | | |  | | | | | | | 4 | | | | |  | | | | | | |  | | | | | | |  | | | | | | |  | | | | |  | | | | | | |
| 4 | | | 0006 | | | | | 大学语文 | | | | | | | | | | |  | | | | | | | | 1 | | | | | | | | | 3 | | | | | | | 60 | | | | | | | | | 52 | | | | | | 8 | | | | | 8 | | | |  | | | |  | | | | | | | | |  | | | | | | | 4 | | | | |  | | | | | | |  | | | | | | |  | | | | | | |  | | | | |  | | | | | | |
| 5 | | | 0007 | | | | | 公共英语 | | | | | | | | | | | 1 | | | | | | | |  | | | | | | | | | 3 | | | | | | | 60 | | | | | | | | | 18 | | | | | | 42 | | | | | 42 | | | |  | | | |  | | | | | | | | |  | | | | | | | 4 | | | | |  | | | | | | |  | | | | | | |  | | | | | | |  | | | | |  | | | | | | |
| 6 | | | 0008 | | | | | 信息技术 | | | | | | | | | | |  | | | | | | | | 2 | | | | | | | | | 3 | | | | | | | 68 | | | | | | | | | 34 | | | | | | 34 | | | | | 34 | | | |  | | | |  | | | | | | | | |  | | | | | | |  | | | | | 4 | | | | | | |  | | | | | | |  | | | | | | |  | | | | |  | | | | | | |
| 7 | | | 0009 | | | | | 体育 | | | | | | | | | | | 3 | | | | | | | | 1.2.4 | | | | | | | | | 7 | | | | | | | 136 | | | | | | | | | 24 | | | | | | 112 | | | | |  | | | |  | | | | 112 | | | | | | | | |  | | | | | | | 2 | | | | | 2 | | | | | | | 2 | | | | | | | 2 | | | | | | |  | | | | |  | | | | | | |
| 8 | | | 0004 | | | | | 中华优秀传统文化 | | | | | | | | | | |  | | | | | | | | 1 | | | | | | | | | 2 | | | | | | | 30 | | | | | | | | | 30 | | | | | |  | | | | |  | | | |  | | | |  | | | | | | | | |  | | | | | | | 2 | | | | |  | | | | | | |  | | | | | | |  | | | | | | |  | | | | |  | | | | | | |
| 9 | | | 0011 | | | | | 民族理论和政策 | | | | | | | | | | |  | | | | | | | | 5 | | | | | | | | | 2 | | | | | | | 30 | | | | | | | | | 30 | | | | | |  | | | | |  | | | |  | | | |  | | | | | | | | |  | | | | | | |  | | | | |  | | | | | | |  | | | | | | |  | | | | | | | 2 | | | | |  | | | | | | |
| 10 | | | 0010 | | | | | 大学生职业发展与就业指导 | | | | | | | | | | |  | | | | | | | | 2 | | | | | | | | | 2 | | | | | | | 34 | | | | | | | | | 34 | | | | | |  | | | | |  | | | |  | | | |  | | | | | | | | |  | | | | | | |  | | | | | 2 | | | | | | |  | | | | | | |  | | | | | | |  | | | | |  | | | | | | |
| 小计学分及学时数 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 33 | | | | | | | 614 | | | | | | | | | 386 | | | | | | 228 | | | | | 116 | | | |  | | | | 112 | | | | | | | | |  | | | | | | | 18 | | | | | 10 | | | | | | | 4 | | | | | | | 4 | | | | | | | 2 | | | | | **0** | | | | | | |
| 专业必修课 | | 11 | | | 11001 | | | | | 电工基础 | | | | | | | | | | |  | | | | | | | | 1 | | | | | | | | | 3 | | | | | | | 60 | | | | | | | | | 40 | | | | | | 20 | | | | | 4 | | | | 16 | | | |  | | | | | | | | |  | | | | | | | 4 | | | | |  | | | | | | |  | | | | | | |  | | | | | | |  | | | | |  | | | | | | |
| 12 | | | 11002 | | | | | 铁道概论 | | | | | | | | | | |  | | | | | | | | 1 | | | | | | | | | 3 | | | | | | | 60 | | | | | | | | | 40 | | | | | | 20 | | | | | 4 | | | | 12 | | | | 4 | | | | | | | | |  | | | | | | | 4 | | | | |  | | | | | | |  | | | | | | |  | | | | | | |  | | | | |  | | | | | | |
| 13 | | | 11003 | | | | | 模拟电子技术 | | | | | | | | | | | 2 | | | | | | | |  | | | | | | | | | 4 | | | | | | | 68 | | | | | | | | | 48 | | | | | | 20 | | | | | 6 | | | | 14 | | | |  | | | | | | | | |  | | | | | | |  | | | | | 4 | | | | | | |  | | | | | | |  | | | | | | |  | | | | |  | | | | | | |
| 14 | | | 11004 | | | | | 数字电子技术 | | | | | | | | | | |  | | | | | | | | 3 | | | | | | | | | 4 | | | | | | | 72 | | | | | | | | | 48 | | | | | | 24 | | | | | 6 | | | | 18 | | | |  | | | | | | | | |  | | | | | | |  | | | | |  | | | | | | | 4 | | | | | | |  | | | | | | |  | | | | |  | | | | | | |
| 15 | | | 11005 | | | | | 计算机辅助设计 | | | | | | | | | | |  | | | | | | | | 4 | | | | | | | | | 4 | | | | | | | 72 | | | | | | | | | 20 | | | | | | 52 | | | | |  | | | | 52 | | | |  | | | | | | | | |  | | | | | | |  | | | | |  | | | | | | |  | | | | | | | 4 | | | | | | |  | | | | |  | | | | | | |
| 16 | | | 11006 | | | | | 铁路信号基础设备维护 | | | | | | | | | | | 2 | | | | | | | | 3 | | | | | | | | | 8 | | | | | | | 140 | | | | | | | | | 100 | | | | | | 40 | | | | |  | | | | 40 | | | |  | | | | | | | | |  | | | | | | |  | | | | | 4 | | | | | | | 4 | | | | | | |  | | | | | | |  | | | | |  | | | | | | |
| 17 | | | 11024 | | | | | 微机原理与接口技术 | | | | | | | | | | | 2 | | | | | | | |  | | | | | | | | | 4 | | | | | | | 68 | | | | | | | | | 40 | | | | | | 28 | | | | |  | | | | 28 | | | |  | | | | | | | | |  | | | | | | |  | | | | | 4 | | | | | | |  | | | | | | |  | | | | | | |  | | | | |  | | | | | | |
| 18 | | | 11009 | | | | | 车站信号自动控制系统维护 | | | | | | | | | | | 3 | | | | | | | |  | | | | | | | | | 4 | | | | | | | 72 | | | | | | | | | 48 | | | | | | 24 | | | | |  | | | | 24 | | | |  | | | | | | | | |  | | | | | | |  | | | | |  | | | | | | | 4 | | | | | | |  | | | | | | |  | | | | |  | | | | | | |
| 19 | | | 11010 | | | | | 区间信号自动控制系统维护 | | | | | | | | | | |  | | | | | | | | 3 | | | | | | | | | 4 | | | | | | | 72 | | | | | | | | | 48 | | | | | | 24 | | | | |  | | | | 24 | | | |  | | | | | | | | |  | | | | | | |  | | | | |  | | | | | | | 4 | | | | | | |  | | | | | | |  | | | | |  | | | | | | |
| 20 | | | 11014 | | | | | 计算机联锁 | | | | | | | | | | | 4 | | | | | | | |  | | | | | | | | | 4 | | | | | | | 72 | | | | | | | | | 48 | | | | | | 24 | | | | |  | | | | 24 | | | |  | | | | | | | | |  | | | | | | |  | | | | |  | | | | | | |  | | | | | | | 4 | | | | | | |  | | | | |  | | | | | | |
| 21 | | | 11011 | | | | | 铁路信号设计与施工 | | | | | | | | | | | 4 | | | | | | | | 5 | | | | | | | | | 7 | | | | | | | 132 | | | | | | | | | 100 | | | | | | 32 | | | | |  | | | | 32 | | | |  | | | | | | | | |  | | | | | | |  | | | | |  | | | | | | |  | | | | | | | 4 | | | | | | | 4 | | | | |  | | | | | | |
| 22 | | | 11013 | | | | | 列车运行控制系统 | | | | | | | | | | | 5 | | | | | | | |  | | | | | | | | | 3 | | | | | | | 60 | | | | | | | | | 40 | | | | | | 20 | | | | | 4 | | | | 16 | | | |  | | | | | | | | |  | | | | | | |  | | | | |  | | | | | | |  | | | | | | |  | | | | | | | 4 | | | | |  | | | | | | |
| 23 | | | 11019 | | | | | 信号施工技能训练 | | | | | | | | | | |  | | | | | | | | 5 | | | | | | | | | 1 | | | | | | | 30 | | | | | | | | |  | | | | | | 30 | | | | |  | | | | 1周 | | | |  | | | | | | | | |  | | | | | | |  | | | | |  | | | | | | |  | | | | | | |  | | | | | | | **（1周）** | | | | |  | | | | | | |
| 24 | | | 11020 | | | | | 信号工技能训练 | | | | | | | | | | |  | | | | | | | | 5 | | | | | | | | | 1+1 | | | | | | | 60 | | | | | | | | |  | | | | | | 60 | | | | |  | | | | 2周 | | | |  | | | | | | | | |  | | | | | | |  | | | | |  | | | | | | |  | | | | | | |  | | | | | | | **（2周）** | | | | |  | | | | | | |
| 25 | | | 11021 | | | | | 顶岗实习 | | | | | | | | | | |  | | | | | | | | 6 | | | | | | | | | 16+2 | | | | | | | 540 | | | | | | | | |  | | | | | | 540 | | | | |  | | | | 18周 | | | |  | | | | | | | | |  | | | | | | |  | | | | |  | | | | | | |  | | | | | | |  | | | | | | |  | | | | | **（18周）** | | | | | | |
| 小计学分及学时数 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 73 | | | | | | | 1578 | | | | | | | | | 620 | | | | | | 958 | | | | | 24 | | | | 930 | | | | 4 | | | | | | | | |  | | | | | | | 8 | | | | | 12 | | | | | | | 16 | | | | | | | 12 | | | | | | | 8 | | | | | 0 | | | | | | |
| 专业选修课 | | 26 | | | 11022 | | | | | 高速铁路信号技术 | | | | | | | | | | |  | | | | | | | | 2 | | | | | | | | | 2 | | | | | | | 34 | | | | | | | | | 22 | | | | | | 12 | | | | |  | | | | 12 | | | |  | | | | | | | | |  | | | | | | |  | | | | | 2 | | | | | | |  | | | | | | |  | | | | | | |  | | | | |  | | | | | | |
| 27 | | | 11040 | | | | | 数据库应用 | | | | | | | | | | |  | | | | | | | | 2 | | | | | | | | | 2 | | | | | | | 34 | | | | | | | | | 22 | | | | | | 12 | | | | |  | | | | 12 | | | |  | | | | | | | | |  | | | | | | |  | | | | | 2 | | | | | | |  | | | | | | |  | | | | | | |  | | | | |  | | | | | | |
| 28 | | | 11026 | | | | | 编组站自动控制系统维护 | | | | | | | | | | |  | | | | | | | | 3 | | | | | | | | | 4 | | | | | | | 72 | | | | | | | | | 50 | | | | | | 22 | | | | |  | | | | 22 | | | |  | | | | | | | | |  | | | | | | |  | | | | |  | | | | | | | 4 | | | | | | |  | | | | | | |  | | | | |  | | | | | | |
| 29 | | | 11043 | | | | | 计算机网络技术 | | | | | | | | | | |  | | | | | | | | 3 | | | | | | | | | 4 | | | | | | | 72 | | | | | | | | | 50 | | | | | | 22 | | | | |  | | | | 22 | | | |  | | | | | | | | |  | | | | | | |  | | | | |  | | | | | | | 4 | | | | | | |  | | | | | | |  | | | | |  | | | | | | |
| 30 | | | 11007 | | | | | 铁路信号电源设备维护 | | | | | | | | | | | 4 | | | | | | | |  | | | | | | | | | 4 | | | | | | | 72 | | | | | | | | | 50 | | | | | | 22 | | | | |  | | | | 22 | | | |  | | | | | | | | |  | | | | | | |  | | | | |  | | | | | | |  | | | | | | | 4 | | | | | | |  | | | | |  | | | | | | |
| 31 | | | 11015 | | | | | 铁路信号业务管理 | | | | | | | | | | |  | | | | | | | | 4 | | | | | | | | | 4 | | | | | | | 72 | | | | | | | | | 60 | | | | | | 12 | | | | | 4 | | | | 8 | | | |  | | | | | | | | |  | | | | | | |  | | | | |  | | | | | | |  | | | | | | | 4 | | | | | | |  | | | | |  | | | | | | |
| 32 | | | 11030 | | | | | 通信线路 | | | | | | | | | | | 4 | | | | | | | |  | | | | | | | | | 4 | | | | | | | 72 | | | | | | | | | 50 | | | | | | 22 | | | | |  | | | | 22 | | | |  | | | | | | | | |  | | | | | | |  | | | | |  | | | | | | |  | | | | | | | 4 | | | | | | |  | | | | |  | | | | | | |
| 33 | | | 11027 | | | | | 机车信号与列车运行监控装置 | | | | | | | | | | |  | | | | | | | | 4 | | | | | | | | | 4 | | | | | | | 72 | | | | | | | | | 60 | | | | | | 12 | | | | | 4 | | | | 8 | | | |  | | | | | | | | |  | | | | | | |  | | | | |  | | | | | | |  | | | | | | | 4 | | | | | | |  | | | | |  | | | | | | |
| 34 | | | 11008 | | | | | 铁路信号测量 | | | | | | | | | | | 5 | | | | | | | |  | | | | | | | | | 3 | | | | | | | 60 | | | | | | | | | 34 | | | | | | 26 | | | | |  | | | | 26 | | | |  | | | | | | | | |  | | | | | | |  | | | | |  | | | | | | |  | | | | | | |  | | | | | | | 4 | | | | |  | | | | | | |
| 35 | | | 11028 | | | | | 调度集中和列车调度指挥系统 | | | | | | | | | | | 5 | | | | | | | |  | | | | | | | | | 3 | | | | | | | 60 | | | | | | | | | 42 | | | | | | 18 | | | | |  | | | | 18 | | | |  | | | | | | | | |  | | | | | | |  | | | | |  | | | | | | |  | | | | | | |  | | | | | | | 4 | | | | |  | | | | | | |
| 36 | | | 11025 | | | | | 单片机应用技术 | | | | | | | | | | |  | | | | | | | | 5 | | | | | | | | | 3 | | | | | | | 60 | | | | | | | | | 30 | | | | | | 30 | | | | |  | | | | 30 | | | |  | | | | | | | | |  | | | | | | |  | | | | |  | | | | | | |  | | | | | | |  | | | | | | | 4 | | | | |  | | | | | | |
| 37 | | | 11012 | | | | | 铁路信号集中监测 | | | | | | | | | | |  | | | | | | | | 5 | | | | | | | | | 2 | | | | | | | 30 | | | | | | | | | 20 | | | | | | 10 | | | | | 2 | | | | 8 | | | |  | | | | | | | | |  | | | | | | |  | | | | |  | | | | | | |  | | | | | | |  | | | | | | | 2 | | | | |  | | | | | | |
| 38 | | | 11029 | | | | | 铁路信号规章 | | | | | | | | | | | 5 | | | | | | | |  | | | | | | | | | 3 | | | | | | | 60 | | | | | | | | | 42 | | | | | | 18 | | | | |  | | | | 18 | | | |  | | | | | | | | |  | | | | | | |  | | | | |  | | | | | | |  | | | | | | |  | | | | | | | 4 | | | | |  | | | | | | |
| 39 | | | 11031 | | | | | 铁路专用通信设备维护 | | | | | | | | | | | 5 | | | | | | | |  | | | | | | | | | 3 | | | | | | | 60 | | | | | | | | | 34 | | | | | | 26 | | | | |  | | | | 26 | | | |  | | | | | | | | |  | | | | | | |  | | | | |  | | | | | | |  | | | | | | |  | | | | | | | 4 | | | | |  | | | | | | |
| 40 | | | 11041 | | | | | 信号设备故障分析与处理 | | | | | | | | | | |  | | | | | | | | 5 | | | | | | | | | 3 | | | | | | | 60 | | | | | | | | | 30 | | | | | | 30 | | | | |  | | | | 30 | | | |  | | | | | | | | |  | | | | | | |  | | | | |  | | | | | | |  | | | | | | |  | | | | | | | 4 | | | | |  | | | | | | |
| 41 | | | 11042 | | | | | C语言程序设计 | | | | | | | | | | |  | | | | | | | | 5 | | | | | | | | | 2 | | | | | | | 30 | | | | | | | | | 20 | | | | | | 10 | | | | |  | | | | 10 | | | |  | | | | | | | | |  | | | | | | |  | | | | |  | | | | | | |  | | | | | | |  | | | | | | | 2 | | | | |  | | | | | | |
| 小计学分及学时数 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 50 | | | | | | | 920 | | | | | | | | | 616 | | | | | | 304 | | | | | 10 | | | | 294 | | | |  | | | | | | | | |  | | | | | | | 0 | | | | | 4(2) | | | | | | | 8(4) | | | | | | | 16(8) | | | | | | | 28(14) | | | | | 0 | | | | | | |
| **四、素质拓展课** | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 课程类型 | | 序  号 | | | | 课程代码 | | | | 课 程 名 称 | | | | | | | | | | | 考核学期序 | | | | | | | | | | | | | | | | | 学 分 | | | | 课  时 | | | | | | | 说 明 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 考 试 | | | | | | 考 查 | | | | | | | | | | |
| 必修  课 | | 1 | | | | 01 | | | | 军训及军事理论教育 | | | | | | | | | | |  | | | | | | 1 | | | | | | | | | | | 4 | | | | 60 | | | | | | | | 第1学期开设，含入学教育。 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 2 | | | | 02 | | | | 心理健康教育 | | | | | | | | | | |  | | | | | | 2.3.4.5 | | | | | | | | | | | 2 | | | | 32 | | | | | | | | 分专业在第2～5学期之一开设。 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 3 | | | | 03 | | | | 大学生安全及健康教育 | | | | | | | | | | |  | | | | | | 1.2.3.4 | | | | | | | | | | | 2 | | | | 32 | | | | | | | | 在1～4学期实施，以专题讲座的形式和每学期大学生第二课堂教育活动中开设。 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 4 | | | | 04 | | | | 大学生暑期社会实践 | | | | | | | | | | |  | | | | | | 2.4 | | | | | | | | | | | 2 | | | |  | | | | | | | | 利用暑期，进行社会实践，提交报告。 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 小计学分及学时数 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 10 | | | | 124 | | | | | | | |  | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 选  修  课 | | 1 | | | | 001 | | | | 演讲与口才 | | | | | | | | | | |  | | | | | | 2～5 | | | | | | | | | | | 2 | | | | 32 | | | | | | | |  | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 2 | | | | 002 | | | | 中国小说阅读与鉴赏 | | | | | | | | | | |  | | | | | | 2～5 | | | | | | | | | | | 2 | | | | 32 | | | | | | | |  | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 3 | | | | 003 | | | | 音乐欣赏 | | | | | | | | | | |  | | | | | | 2～5 | | | | | | | | | | | 2 | | | | 32 | | | | | | | |  | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 4 | | | | 004 | | | | 影视文学欣赏 | | | | | | | | | | |  | | | | | | 2～5 | | | | | | | | | | | 2 | | | | 32 | | | | | | | |  | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 5 | | | | 005 | | | | 应用写作 | | | | | | | | | | |  | | | | | | 2～5 | | | | | | | | | | | 2 | | | | 32 | | | | | | | |  | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 6 | | | | 006 | | | | 现代礼仪 | | | | | | | | | | |  | | | | | | 2～5 | | | | | | | | | | | 2 | | | | 32 | | | | | | | |  | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 7 | | | | 007 | | | | 中国古典诗词欣赏 | | | | | | | | | | |  | | | | | | 2～5 | | | | | | | | | | | 2 | | | | 32 | | | | | | | |  | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 8 | | | | 008 | | | | 中国近现代史纲要 | | | | | | | | | | |  | | | | | | 2～5 | | | | | | | | | | | 2 | | | | 32 | | | | | | | |  | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 9 | | | | 009 | | | | 中国传统文化 | | | | | | | | | | |  | | | | | | 2～5 | | | | | | | | | | | 2 | | | | 32 | | | | | | | |  | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 10 | | | | 010 | | | | 中国旅游资源概况 | | | | | | | | | | |  | | | | | | 2～5 | | | | | | | | | | | 2 | | | | 32 | | | | | | | |  | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 11 | | | | 011 | | | | ISO9000质量管理体系 | | | | | | | | | | |  | | | | | | 2～5 | | | | | | | | | | | 2 | | | | 32 | | | | | | | |  | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 12 | | | | 012 | | | | 高级文字排版 | | | | | | | | | | |  | | | | | | 2～5 | | | | | | | | | | | 2 | | | | 32 | | | | | | | |  | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 13 | | | | 013 | | | | 电子表格处理 | | | | | | | | | | |  | | | | | | 2～5 | | | | | | | | | | | 2 | | | | 32 | | | | | | | |  | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 14 | | | | 014 | | | | PS图像处理 | | | | | | | | | | |  | | | | | | 2～5 | | | | | | | | | | | 2 | | | | 32 | | | | | | | |  | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 15 | | | | 015 | | | | 高级PPT制作 | | | | | | | | | | |  | | | | | | 2～5 | | | | | | | | | | | 2 | | | | 32 | | | | | | | |  | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 16 | | | | 016 | | | | 计算机组装维修及网络操作 | | | | | | | | | | |  | | | | | | 2～5 | | | | | | | | | | | 2 | | | | 32 | | | | | | | |  | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 17 | | | | 017 | | | | 生活中的经济学 | | | | | | | | | | |  | | | | | | 2～5 | | | | | | | | | | | 2 | | | | 32 | | | | | | | |  | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 18 | | | | 018 | | | | 技术史漫谈 | | | | | | | | | | |  | | | | | | 2～5 | | | | | | | | | | | 2 | | | | 32 | | | | | | | |  | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 19 | | | | 019 | | | | 电影赏析 | | | | | | | | | | |  | | | | | | 2～5 | | | | | | | | | | | 2 | | | | 32 | | | | | | | |  | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 20 | | | | 020 | | | | 职业素质 | | | | | | | | | | |  | | | | | | 2～5 | | | | | | | | | | | 2 | | | | 32 | | | | | | | |  | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 21 | | | | 021 | | | | 创造性思维与创新方法 | | | | | | | | | | |  | | | | | | 2～5 | | | | | | | | | | | 2 | | | | 32 | | | | | | | |  | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 22 | | | | 022 | | | | 大学生创业基础 | | | | | | | | | | |  | | | | | | 2～5 | | | | | | | | | | | 2 | | | | 32 | | | | | | | |  | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 23 | | | | 023 | | | | 创新创业实践 | | | | | | | | | | |  | | | | | | 1～6 | | | | | | | | | | | 10 | | | |  | | | | | | | | 用于学生参加课题研究、项目实验、竞赛活动、发表论文等创新创业成果的学分折算 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 小计学分及学时数 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 44 | | | | 704 | | | | | | | |  | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| **合计学分及学时数** | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | **总学分147,必修课学分116,选修课学分31，其中专业选修课学分25，素质选修课学分6.总学时2652，理论学时1314 ，实践学时1338** | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

**说明：**1、选修课学分占到总学分的21﹪。

2、素质拓展课中的选修课不低于6个学分。

3、专业必修课73个学分。

4、学生毕业最低学分为147学分。

5、信号工技能训练、毕业实习两门专业必修课中融入专业创新创业训练，学分分别为1学分、2学分。

**城市轨道交通通信信号技术专业**

**教学标准**

**专业名称** 城市轨道交通通信信号技术

**专业代码** 600603

**入学要求** 普通高级中学毕业、中等职业学校毕业或具备同等学力

**修业年限** 三年

**职业面向**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| 所属专业大类（代码） | 所属专业类（代码） | 对应行业（代码） | 主要职业类别（代码） | 主要岗位类别（或技术领域） | 职业资格证书或技能等级证书举例 |
| 交通运输大类  （60） | 城市轨道交通类  （6006） | 道路  运输业  （54） | 轨道交通通信工  （6-29-03-09）  轨道交通信号工  （6-29-03-10） | 通信与信号设备安装  通信与信号设备调试  通信与信号设备维修养护 | 电工职业资格证 |

**培养目标与培养规格**

一、培养目标

本专业培养理想信念坚定，德、智、体、美、劳全面发展，具有一定的科学文化水平，良好的人文素质、职业道德和创新意识，精益求精的工匠精神，较强的就业能力和可持续发展能力；掌握本专业知识和技术技能，面向道路运输业的轨道交通通信工、轨道交通信号工等职业群，能够从事通信与信号设备的安装、调试、维修养护等工作的高素质技术技能人才。

二、培养规格

本专业毕业生应在素质、知识和能力等方面达到以下要求。

1.素质

（1）坚定拥护中国共产党领导和我国社会主义制度，在习近平新时代中国特色社会主义思想指引下，践行社会主义核心价值观，具有深厚的爱国情感和中华民族自豪感；

（2）崇尚宪法、遵法守纪、崇德向善、诚实守信、尊重生命、热爱劳动、履行道德准则和行为规范，具有社会责任感和社会参与意识；

（3）具有质量意识、环保意识、安全意识、信息素养、工匠、创新思维；

（4）勇于奋斗、乐观向上，具有自我管理能力、职业生涯规划意识，有较强的集体意识和团队合作精神；

（5）具有健康的体魄、心理和健全的人格，掌握基本运动知识和一两项运动技能，养成良好的健身与卫生习惯，良好的行为习惯；

（6）具有一定的审美和人文素养，能够形成一两项艺术特长或爱好。

2.知识

（1）掌握必备的思想政治理论、科学文化基础知识和中华优秀传统文化知识；

（2）熟悉与本专业相关的法律法规以及环境保护、安全消防等相关知识；

（3）掌握电工基础、模拟电子技术、数字电子技术基础理论和基本知识；

（4）掌握计算机网络、通信原理、无线通信基础理论和基本知识；

（5）掌握信号机、转辙机、轨道电路的基本知识；

（3）掌握列车自动监控系统、列车自动防护系统、列车自动驾驶系统基础理论知识；

（7）掌握计算机联锁系统的基本知识；

（8）掌握城市轨道交通专用通信设备基础理论和基本知识。

3.能力

（1）具有探究学习、终身学习、分析问题和解决问题的能力；

（2）具有良好的语言、文字表达能力和沟通能力，能够进行口语和书面表达与交流；

（3）具有本专业必需的信息技术应用维护能力，能够组建、配置和管理计算机网络；

（4）能够识读各类通信、信号设备的电路图和装配图；

（5）具有道岔信号设备检修及故障处理能力；

（6）具有计轴设备、联锁设备的检修及故障处理能力；

（7）具有列车自动控制系统中心信号设备、车载信号设备、轨旁信号设备的检修及故障处理能力；

（8）具有传输系统、无线通信系统、时钟系统、专用电话系统、闭路电视系统、广播系统、乘客信息系统检修能力；

（9）具有电源及地线系统检修能力。

**课程设置**

一、必修课程

1. 公共必修课程

|  |  |  |
| --- | --- | --- |
| 序号 | 课程名称 | 课时数 |
| 1 | 思想道德修养与法律基础及形势政策 | 64 |
| 2 | 毛泽东思想和中国特色社会主义理论体系概论及形势政策 | 72 |
| 3 | 高等数学 | 60 |
| 4 | 大学语文 | 60 |
| 5 | 公共英语 | 60 |
| 6 | 信息技术 | 68 |
| 7 | 体育 | 136 |
| 8 | 中华优秀传统文化 | 30 |
| 9 | 民族理论和政策 | 32 |
| 10 | 大学生职业发展与就业指导 | 34 |

2.专业必修课程

|  |  |  |
| --- | --- | --- |
| 序号 | 课程名称 | 课时数 |
| 1 | 电工基础 | 60 |
| 2 | 铁道概论 | 60 |
| 3 | 模拟电子技术 | 68 |
| 4 | 数字电子技术 | 72 |
| 5 | 计算机辅助设计 | 72 |
| 6 | 计算机网络技术 | 68 |
| 7 | 城轨信号基础设备维护 | 140 |
| 8 | 城轨联锁设备维护 | 144 |
| 9 | 城轨列车运行控制系统维护 | 144 |
| 10 | 城轨信号工程施工 | 136 |
| 11 | 城轨控制数据传输 | 64 |
| 12 | 职业技能训练 | 60 |
| 13 | 顶岗实习 | 540 |

3.素质拓展必修课程

|  |  |  |
| --- | --- | --- |
| 序号 | 课程名称 | 课时数 |
| 1 | 军训及军事理论教育 | 60 |
| 2 | 心理健康教育 | 32 |
| 3 | 大学生安全及健康教育 | 32 |
| 4 | 大学生暑期社会实践 |  |

二、选修课程

1. 专业选修课程

|  |  |  |
| --- | --- | --- |
| 序号 | 课程名称 | 课时数 |
| 1 | 区间信号自动控制系统维护 | 72 |
| 2 | 编组站自动控制系统维护 | 72 |
| 3 | 城轨电源设备维护 | 72 |
| 4 | 通信线路 | 72 |
| 5 | 高速铁路信号技术 | 32 |
| 6 | 铁路信号测量 | 64 |
| 7 | 调度集中和列车调度指挥系统 | 64 |
| 8 | 城轨专用通信设备维护 | 64 |
| 9 | 数据库应用 | 32 |
| 10 | 机车信号与列车运行监控装置 | 64 |
| 11 | 单片机应用技术 | 64 |
| 12 | 铁路信号规章 | 64 |

2. 素质拓展选修课程

|  |  |  |
| --- | --- | --- |
| 序号 | 课程名称 | 课时数 |
| 1 | 演讲与口才 | 32 |
| 2 | 中国小说阅读与鉴赏 | 32 |
| 3 | 音乐欣赏 | 32 |
| 4 | 影视文学欣赏 | 32 |
| 5 | 应用写作 | 32 |
| 6 | 现代礼仪 | 32 |
| 7 | 中国古典诗词欣赏 | 32 |
| 8 | 中国近现代史纲要 | 32 |
| 9 | 中国传统文化 | 32 |
| 10 | 中国旅游资源概况 | 32 |
| 11 | ISO9000质量管理体系 | 32 |
| 12 | 高级文字排版 | 32 |
| 13 | 电子表格处理 | 32 |
| 14 | PS图像处理 | 32 |
| 15 | 高级PPT制作 | 32 |
| 16 | 计算机组装维修及网络操作 | 32 |
| 17 | 生活中的经济学 | 32 |
| 18 | 技术史漫谈 | 32 |
| 19 | 电影赏析 | 32 |
| 20 | 职业素质 | 32 |
| 21 | 创造性思维与创新方法 | 32 |
| 22 | 大学生创业基础 | 32 |
| 23 | 创新创业实践 |  |

三、专业核心课程主要教学内容与要求

|  |  |  |
| --- | --- | --- |
| 序号 | 专业核心课程 | 主要教学内容与要求 |
| **1** | 城轨信号基础设备维护 | 继电器、信号机、转辙机、道岔锁闭装置、计轴设备的主要结构、原理、作用；轨道电路的基本原理、基本工作状态和工作参数；信号基础设备的日常养护与集中整修，常见故障处理。 |
| **2** | 城轨联锁设备维护 | 联锁概念、联锁图表、城市轨道交通列车运行进路控制、进路的特殊要求；继电联锁系统的组成及工作原理，计算机联锁系统的技术基础；车辆段计算机联锁系统的组成、工作原理、设备检修；正线列车自动控制系统中联锁设备认知、接口认知及电路识读；计算机联锁系统常见故障处理。 |
| **3** | 城轨列车运行控制系统维护 | 城市轨道交通列车自动控制系统的技术基础；列车自动控制系统的结构、功能，控制模式；列车自动监控设备、轨旁设备、车载设备的组成、工作原理及设备检修，列车自动控制系统数据下载、常见故障处理。 |
| **4** | 城轨控制数据传输 | 城市轨道交通通信传输系统的构成；SDH(同步数字体系)的基本概念、帧结构及复用，SDH 设备，SDH 传输网的结构及自愈功能，MSTP（基于SDH 的多业务传送平台）技术；波分复用的概念、系统结构及应用，OTN(光传送网)技术；传输线路设备的测试、检修及故障处理。 |
| **5** | 城轨电源设备维护 | 信号电源屏的技术条件、所采用的电力电子技术；信号电源屏的组成、基本原理、使用方法、检修及故障处理；蓄电池、不间断电源、通信电源的原理、结构、检修及故障处理；防雷元件、接地装置认知及测试。 |
| **6** | 城轨专用通信设备维护 | 专用通信系统的组成及承载业务；专用通信子系统的结构及组网模式；专用电话系统的组成、功能、工作原理、检修及故障处理；闭路电视监控系统的组成、功能、工作原理、检修及故障处理；乘客信息系统的组成、功能，地面及车载子系统的维护。 |

**学时安排**

每学年教学时间为40周，总学时数为154，实习按每周30学时计算。每学时为45分钟。18学时计为1个学分，总学分为148学分。军训、入学教育、社会实践、毕业设计（或毕业论文、毕业教育）等，以1周为1学分。公共基础课程学时占总学时的24%。专业选修课教学时数占总学时的比例均为14%。学生顶岗实习为6个月，可根据实际情况，采取工学交替、多学期、分段式等多种形式组织实施。

**教学进程总体安排**

见附件（教学进程表）

**实施保障**

一、师资队伍

1.队伍结构

学生数与本专业专任教师数比例不高于22:1，双师素质教师占专业教师比一般不低于60%，专任教师队伍要考虑职称、年龄，形成合理的梯队结构。

2.专任教师

具有高校教师资格和本专业领域有关证书；有理想信念、有道德情操、有扎实学识、有仁爱之心；具有轨道交通信号与控制、通信工程等相关专业本科及以上学历；具有扎实的轨道交通通信信号相关理论功底和实践能力；具有较强信息化教学能力，能够开展课程教学改革和科学研究；每5年累计不少于6个月的企业实践经历。

3.专业带头人

原则上应具有副高及以上职称，能够较好地把握国内外城市轨道交通通信信号技术行业、专业发展，能广泛联系行业企业，了解行业企业对城市轨道交通通信信号技术专业人才的需求实际，教学设计、专业研究能力强，组织开展教科研工作能力强，在本区域或本领域具有一定的专业影响力。

4.兼职教师

主要从城市轨道交通、铁路企业聘任，具备良好的思想政治素质、职业道德和工匠精神，具有扎实的城市轨道交通、铁路专业知识和丰富的实际工作经验，具有中级及以上相关专业职称，能承担专业课程教学、实习实训指导和学生职业发展规划指导等教学任务。

二、教学设施

主要包括能够满足正常的课程教学、实习实训所需的专业教室、实训室和实训基地。

1.专业教室基本条件

一般配备黑（白）板、多媒体计算机、投影设备、音响设备，互联网接入或WiFi 环境，并具有网络安全防护措施。安装应急照明装置并保持良好状态，符合紧急疏散要求、标志明显、保持逃生通道畅通无阻。

2.校内实训室基本要求

（1）钳工实训室：钳工台、台虎钳、台钻，以及手锯、锉刀、游标卡尺、角尺等常用工具量具。

（2）电工电子实训室：电工综合实训装置台、电子综合实训装置台、双踪示波器、万用表、钳形电流表、兆欧表、常用电子元器件、与或非门集成块、常用低压电器和三相异步电机等，以及常用工具、仪器仪表。

（3）计算机组装实训室：计算机散件、网卡、硬件诊断卡、维修工具等。

（4）网络技术实训室：配备网络服务器、计算机、路由器、交换机、无线访问接入点、无线控制器、无线网卡等，以及常用网络工具、测试仪表。

（5）信号基础实训室：电动、电液等常见类型的转辙机和道岔转换锁闭装置，轨道电路、色灯信号机、信号继电器等设备。

（6）联锁实训室：城市轨道交通常用的联锁系统(包括信号点灯电路、道岔控制电路、计轴设备)，综合后备控制盘、屏蔽门、防淹门接口电路，以及信号电源系统。

（7）列车自动控制系统实训室：城市轨道交通常见的列车运行自动控制系统中心信号设备、车载信号设备和轨旁信号设备。

（8）通信实训室：通信传输设备、无线集群设备、专用通信设备等，以及相应的测试仪器仪表。

（9）电源实训室:信号电源屏、蓄电池、不间断电源、通信电源、防雷元件、接地装置等，以及常用工具、测量仪器仪表。

3.校外实训基地基本要求

具有稳定的校外实训基地。能够开展城市轨道交通通信、城市轨道交通等实训活动，实训设施齐备，实训岗位、实训指导教师确定，实训管理及实施规章制度齐全。

4.学生实习基地基本要求

具有稳定的校外实习基地。能提供城市轨道交通通信、城市轨道交通等相关实习岗位，能涵盖当前城市轨道交通通信信号产业发展的主流技术，可接纳一定规模的学生实习；能够配备相应数量的指导教师对学生实习进行指导和管理；有保证实习生日常工作、学习、生活的规章制度，有安全、保险保障。

5.支持信息化教学方面的基本要求

具有利用数字化教学资源库、文献资料、常见问题解答等的信息化条件。引导鼓励教师开发并利用信息化教学资源、教学平台，创新教学方法、提升教学效果。

三、教学资源

主要包括能够满足学生专业学习、教师专业教学研究和教学实施需要的教材、图书及数字化资源等。

1．教材选用基本要求

按照国家规定选用优质教材，禁止不合格的教材进入课堂。学校应建立由专业教师、行业专家和教研人员等参与的教材选用机构，完善教材选用制度，经过规范程序择优选用教材。

2．图书文献配备基本要求

图书文献配备能满足人才培养、专业建设、教科研等工作的需要，方便师生查询、借阅。专业类图书主要包括：城市轨道交通行业政策法规、行业标准、技术规范以及相关专业技术手册等；轨道交通通信信号专业类图书和实务案例类图书；2 种以上轨道交通通信信号类专业学术期刊。

3．数字教学资源配置基本要求

建设、配备与本专业有关的音视频素材、教学课件、数字化教学案例库、虚拟仿真软件、数字教材等专业教学资源库，种类丰富、形式多样、使用便捷、动态更新、满足教学。

四、教学方法

1.教学方法、手段

采用模拟仿真、教学录像、PPT课件、FLASH动画课件、角色扮演、案例分析、分组讨论、维护设备感悟、规范演示、现场教学、实习实训等多样化教学方法开展教学活动。针对学生的基础能力和个性特点，因材施教达到教学目标，并形成可扩展的、可迁移的、可持续的职业能力。

2.教学组织形式

建议实施校企合作、工学结合、任务驱动、项目导向、顶岗实习等行动导向的教学模式，在“教学做一体化”实训室进行教学，学生边看、边做、边学，强化学生职业能力培养。教师作为学生活动的主导，成为学生学习的激励者、咨询者和指导者。

五、教学评价

1.教学评价

按照“职业能力为主、书本理论知识为辅，过程为主、结果导向”的思路，构建以职业能力培养为核心、以过程考核为重点的教学方式，从知识考核、实做考核、职业技能鉴定等方面对学生进行评价，突出考核的多样性和针对性，逐步使学生具备相应的知识结构、操作技能。

2.教学考核

以学习能力、职业能力和综合素质为评价核心，改革学生考核评价体系，做到“考核主体多元化、考核标准科学化、考核方式多样化”，实现学校考核与企业评价相融。

（1）考核主体多元化：考核标准基于职业岗位要求，包括专业能力、方法能力、社会能力多元考核为评价内容，通过学生自评、互评相结合，专任教师与行业企业兼职教师评价相结合。

（2）考核标准科学化：主动适应主要岗位的任职要求，根据不同课程的特点，引入企业考核标准优化考核内容，科学合理地制定考核标准。

（3）考核方式多样化：根据不同课程的特点和要求，综合运用笔试、口试、实做、系统设备故障处理、职业技能鉴定、答辩等多种形式考核学生的职业素养和职业能力，促进学生的全面发展。

六、质量管理

1.学校和二级院系应建立专业建设和教学过程质量监控机制，健全专业教学质量监控管理制度，完善课堂教学、教学评价、实习实训、毕业设计以及专业调研、人才培养方案更新、资源建设等方面质量标准建设，通过教学实施、过程监控、质量评价和持续改进，达成人才培养规格。

2.学校、二级院系及专业应完善教学管理机制，加强日常教学组织运行与管理，定期开展课程建设水平和教学质量诊断与改进，建立健全巡课、听课、评教、评学等制度，建立与企业联动的实践教学环节督导制度，严明教学纪律，强化教学组织功能，定期开展公开课、示范课等教研活动。

3.学校应建立毕业生跟踪反馈机制及社会评价机制，并对生源情况、在校生学业水平、毕业生就业情况等进行分析，定期评价人才培养质量和培养目标达成情况。

4.专业教研组织应充分利用评价分析结果有效改进专业教学，持续提高人才培养质量。

**毕业要求**

学生德、智、体、美、劳合格，在允许的修业年限内学完培养计划规定的全部课程，通过顶岗实践或毕业论文答辩，取得相应的职业资格证书，达到毕业最低学分（148分）要求，即获得毕业资格，准予毕业并颁发毕业证书。

**教 学 进 程 表**

**2018 级 城市轨道交通通信信号技术 专 业**

毕业最低学分：148分

专业代码： 600603

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **一、教学进程表** | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | **二、周数分配表** | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 学  年 | | 教 学 周 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 理论  及  分散  实践 | | | 集  中  实  践 | | | | 考  试 | | | 劳  动 | | | | 军  训 | | | 机  动 | | | | 毕  业  教  育 | | | 假  期 | | | 合  计 | | |
| 九月 | | | | | | | | 十月 | | | | | | | 十一月 | | | | | | | 十二月 | | | | | | | 一月 | | | | | | | | | 二月 | | | | | | | | 三月 | | | | | | | | | 四月 | | | | | | 五月 | | | | | | 六月 | | | | | | | | | | 七月 | | | | | | | | | | 八月 | | | | | | |
|  | | | 1 | 2 | | | 3 | 4 | | | 5 | 6 | 7 | 8 | 9 | | 10 | 11 | 12 | 13 | | 14 | | 15 | 16 | | | 17 | 18 | | | 19 | | 20 | | 21 | 22 | | | 23 | 24 | | 25 | 26 | | | | 27 | | | 28 | 29 | 30 | | 31 | | 32 | 33 | 34 | | 35 | | 36 | 37 | | 38 | 39 | | | 40 | 41 | 42 | | 43 | | | 44 | | | | 45 | | | 46 | | 47 | 48 | | | 49 | 50 | 51 | 52 | | | | K | | | S | | | | ∷ | | | × | | | | ★ | | | J | | | | T | | | = | | |  | | |
| 一 | | | ★2 | | | | 15 | | | | | | | | | | | | | | | | | | | | | | J2 | | | | | ∷ | | ==== 6 | | | | | | | | | | | | K17 | | | | | | | | | | | | | | | | | | | | | | | | | | | | × | | | | J | | | | ∷ | | ==== 6 | | | | | | | | | | | 32 | | | 0 | | | | 2 | | | 1 | | | | 2 | | | 3 | | | | 0 | | | 12 | | | 52 | | |
| 二 | | K18 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | J | | ∷ | | ==== 6 | | | | | | | | | | | K18 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | J | | | | ∷ | | ====6 | | | | | | | | | | | 36 | | | 0 | | | | 2 | | | 0 | | | | 0 | | | 2 | | | | 0 | | | 12 | | | 52 | | | |
| 三 | | K16 | | | | | | | | | | | | | | | | | | | | | | | | | S2 | | | | J | | ∷ | | ==== 6 | | | | | | | | | | | S18 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | J | | | | T | |  | | | | | | | | | | | 16 | | | 20 | | | | 1 | | | 0 | | | | 0 | | | 2 | | | | 1 | | | 6 | | | 46 | | | |
| **三、教学进度表** | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 合计 | | | | | | | | | | | | | | | | | | | | | 84 | | | 20 | | | | 5 | | | 1 | | | | 2 | | | 7 | | | | 1 | | | 30 | | | 150 | | | |
| 课程类型 | | 序  号 | | | 课程  代码 | | | | | 课 程 名 称 | | | | | | | | | | | 考核学期序 | | | | | | | | | | | | | | | | | 学 分 | | | | | | | 学 时 数 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 理论教学（含分散性实践教学）周学时 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 考 试 | | | | | | | | 考 查 | | | | | | | | | 总 计 | | | | | | | | | 理 论 | | | | | | 实 践 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 一 年 级 | | | | | | | | | | | | 二 年 级 | | | | | | | | | | | | | | 三 年 级 | | | | | | | | | | | |
| 合 计 | | | | | 习 题 课 | | | | 实 训 | | | | 现场教学 | | | | | | | | | 创新创业训练 | | | | | | | 1学期  15周 | | | | | 2学期  17周 | | | | | | | 3学期  18周 | | | | | | | 4学期  18周 | | | | | | | 5学期  16周 | | | | | 6学期  0周 | | | | | | |
| 公共必修课 | | 1 | | | 0001 | | | | | 思想道德修养与法律基础及形势政策 | | | | | | | | | | | 1 | | | | | | | | 2 | | | | | | | | | 4 | | | | | | | 64 | | | | | | | | | 50 | | | | | | 14 | | | | | 14 | | | |  | | | |  | | | | | | | | |  | | | | | | | 2 | | | | | 2 | | | | | | |  | | | | | | |  | | | | | | |  | | | | |  | | | | | | |
| 2 | | | 0002 | | | | | 毛泽东思想和中国特色社会主义理论体系概论及形势政策 | | | | | | | | | | | 3 | | | | | | | | 4 | | | | | | | | | 4 | | | | | | | 72 | | | | | | | | | 60 | | | | | | 12 | | | | | 12 | | | |  | | | |  | | | | | | | | |  | | | | | | |  | | | | |  | | | | | | | 2 | | | | | | | 2 | | | | | | |  | | | | |  | | | | | | |
| 3 | | | 0005 | | | | | 高等数学 | | | | | | | | | | | 1 | | | | | | | |  | | | | | | | | | 3 | | | | | | | 60 | | | | | | | | | 54 | | | | | | 6 | | | | | 6 | | | |  | | | |  | | | | | | | | |  | | | | | | | 4 | | | | |  | | | | | | |  | | | | | | |  | | | | | | |  | | | | |  | | | | | | |
| 4 | | | 0006 | | | | | 大学语文 | | | | | | | | | | |  | | | | | | | | 1 | | | | | | | | | 3 | | | | | | | 60 | | | | | | | | | 52 | | | | | | 8 | | | | | 8 | | | |  | | | |  | | | | | | | | |  | | | | | | | 4 | | | | |  | | | | | | |  | | | | | | |  | | | | | | |  | | | | |  | | | | | | |
| 5 | | | 0007 | | | | | 公共英语 | | | | | | | | | | | 1 | | | | | | | |  | | | | | | | | | 3 | | | | | | | 60 | | | | | | | | | 18 | | | | | | 42 | | | | | 42 | | | |  | | | |  | | | | | | | | |  | | | | | | | 4 | | | | |  | | | | | | |  | | | | | | |  | | | | | | |  | | | | |  | | | | | | |
| 6 | | | 0008 | | | | | 信息技术 | | | | | | | | | | |  | | | | | | | | 2 | | | | | | | | | 3 | | | | | | | 68 | | | | | | | | | 34 | | | | | | 34 | | | | | 34 | | | |  | | | |  | | | | | | | | |  | | | | | | |  | | | | | 4 | | | | | | |  | | | | | | |  | | | | | | |  | | | | |  | | | | | | |
| 7 | | | 0009 | | | | | 体育 | | | | | | | | | | | 3 | | | | | | | | 1.2.4 | | | | | | | | | 7 | | | | | | | 136 | | | | | | | | | 24 | | | | | | 112 | | | | |  | | | |  | | | | 112 | | | | | | | | |  | | | | | | | 2 | | | | | 2 | | | | | | | 2 | | | | | | | 2 | | | | | | |  | | | | |  | | | | | | |
| 8 | | | 0004 | | | | | 中华优秀传统文化 | | | | | | | | | | |  | | | | | | | | 1 | | | | | | | | | 2 | | | | | | | 30 | | | | | | | | | 30 | | | | | |  | | | | |  | | | |  | | | |  | | | | | | | | |  | | | | | | | 2 | | | | |  | | | | | | |  | | | | | | |  | | | | | | |  | | | | |  | | | | | | |
| 9 | | | 0011 | | | | | 民族理论和政策 | | | | | | | | | | |  | | | | | | | | 5 | | | | | | | | | 2 | | | | | | | 32 | | | | | | | | | 32 | | | | | |  | | | | |  | | | |  | | | |  | | | | | | | | |  | | | | | | |  | | | | |  | | | | | | |  | | | | | | |  | | | | | | | 2 | | | | |  | | | | | | |
| 10 | | | 0010 | | | | | 大学生职业发展与就业指导 | | | | | | | | | | |  | | | | | | | | 2 | | | | | | | | | 2 | | | | | | | 34 | | | | | | | | | 34 | | | | | |  | | | | |  | | | |  | | | |  | | | | | | | | |  | | | | | | |  | | | | | 2 | | | | | | |  | | | | | | |  | | | | | | |  | | | | |  | | | | | | |
| 小计学分及学时数 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 33 | | | | | | | 616 | | | | | | | | | 388 | | | | | | 228 | | | | | 116 | | | |  | | | | 112 | | | | | | | | |  | | | | | | | 18 | | | | | 10 | | | | | | | 4 | | | | | | | 4 | | | | | | | 2 | | | | | **0** | | | | | | |
| 专业必修课 | | 11 | | | 20001 | | | | | 电工基础 | | | | | | | | | | |  | | | | | | | | 1 | | | | | | | | | 3 | | | | | | | 60 | | | | | | | | | 40 | | | | | | 20 | | | | | 4 | | | | 16 | | | |  | | | | | | | | |  | | | | | | | 4 | | | | |  | | | | | | |  | | | | | | |  | | | | | | |  | | | | |  | | | | | | |
| 12 | | | 20002 | | | | | 铁道概论 | | | | | | | | | | |  | | | | | | | | 1 | | | | | | | | | 3 | | | | | | | 60 | | | | | | | | | 40 | | | | | | 20 | | | | | 4 | | | | 12 | | | | 4 | | | | | | | | |  | | | | | | | 4 | | | | |  | | | | | | |  | | | | | | |  | | | | | | |  | | | | |  | | | | | | |
| 13 | | | 20003 | | | | | 模拟电子技术 | | | | | | | | | | | 2 | | | | | | | |  | | | | | | | | | 4 | | | | | | | 68 | | | | | | | | | 48 | | | | | | 20 | | | | | 6 | | | | 14 | | | |  | | | | | | | | |  | | | | | | |  | | | | | 4 | | | | | | |  | | | | | | |  | | | | | | |  | | | | |  | | | | | | |
| 14 | | | 20004 | | | | | 数字电子技术 | | | | | | | | | | |  | | | | | | | | 3 | | | | | | | | | 4 | | | | | | | 72 | | | | | | | | | 48 | | | | | | 24 | | | | | 6 | | | | 18 | | | |  | | | | | | | | |  | | | | | | |  | | | | |  | | | | | | | 4 | | | | | | |  | | | | | | |  | | | | |  | | | | | | |
| 15 | | | 20005 | | | | | 计算机辅助设计 | | | | | | | | | | |  | | | | | | | | 4 | | | | | | | | | 4 | | | | | | | 72 | | | | | | | | | 20 | | | | | | 52 | | | | |  | | | | 52 | | | |  | | | | | | | | |  | | | | | | |  | | | | |  | | | | | | |  | | | | | | | 4 | | | | | | |  | | | | |  | | | | | | |
| 16 | | | 20031 | | | | | 计算机网络技术 | | | | | | | | | | | 2 | | | | | | | |  | | | | | | | | | 4 | | | | | | | 68 | | | | | | | | | 40 | | | | | | 28 | | | | |  | | | | 28 | | | |  | | | | | | | | |  | | | | | | |  | | | | | 4 | | | | | | |  | | | | | | |  | | | | | | |  | | | | |  | | | | | | |
| 17 | | | 20006 | | | | | 城轨信号基础设备维护 | | | | | | | | | | | 2 | | | | | | | | 3 | | | | | | | | | 8 | | | | | | | 140 | | | | | | | | | 90 | | | | | | 50 | | | | |  | | | | 50 | | | |  | | | | | | | | |  | | | | | | |  | | | | | 4 | | | | | | | 4 | | | | | | |  | | | | | | |  | | | | |  | | | | | | |
| 18 | | | 20007 | | | | | 城轨联锁设备维护 | | | | | | | | | | | 4 | | | | | | | | 3 | | | | | | | | | 8 | | | | | | | 144 | | | | | | | | | 102 | | | | | | 42 | | | | |  | | | | 42 | | | |  | | | | | | | | |  | | | | | | |  | | | | |  | | | | | | | 4 | | | | | | | 4 | | | | | | |  | | | | |  | | | | | | |
| 19 | | | 20018 | | | | | 城轨列车运行控制系统维护 | | | | | | | | | | | 3 | | | | | | | | 4 | | | | | | | | | 8 | | | | | | | 144 | | | | | | | | | 102 | | | | | | 42 | | | | |  | | | | 42 | | | |  | | | | | | | | |  | | | | | | |  | | | | |  | | | | | | | 4 | | | | | | | 4 | | | | | | |  | | | | |  | | | | | | |
| 20 | | | 20009 | | | | | 城轨信号工程施工 | | | | | | | | | | | 4 | | | | | | | | 5 | | | | | | | | | 8 | | | | | | | 136 | | | | | | | | | 100 | | | | | | 36 | | | | |  | | | | 36 | | | |  | | | | | | | | |  | | | | | | |  | | | | |  | | | | | | |  | | | | | | | 4 | | | | | | | 4 | | | | |  | | | | | | |
| 21 | | | 20012 | | | | | 城轨控制数据传输 | | | | | | | | | | | 5 | | | | | | | |  | | | | | | | | | 3 | | | | | | | 64 | | | | | | | | | 44 | | | | | | 20 | | | | |  | | | | 20 | | | |  | | | | | | | | |  | | | | | | |  | | | | |  | | | | | | |  | | | | | | |  | | | | | | | 4 | | | | |  | | | | | | |
| 22 | | | 20010 | | | | | 职业技能训练 | | | | | | | | | | |  | | | | | | | | 5 | | | | | | | | | 1+1 | | | | | | | 60 | | | | | | | | |  | | | | | | 60 | | | | |  | | | | **2周** | | | |  | | | | | | | | |  | | | | | | |  | | | | |  | | | | | | |  | | | | | | |  | | | | | | | **（2周）** | | | | |  | | | | | | |
| 23 | | | 20011 | | | | | 顶岗实习 | | | | | | | | | | |  | | | | | | | | 6 | | | | | | | | | 16+2 | | | | | | | 540 | | | | | | | | |  | | | | | | 540 | | | | |  | | | | **18周** | | | |  | | | | | | | | |  | | | | | | |  | | | | |  | | | | | | |  | | | | | | |  | | | | | | |  | | | | | **（18周）** | | | | | | |
| 小计学分及学时数 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 77 | | | | | | | 1628 | | | | | | | | | 674 | | | | | | 954 | | | | | 20 | | | | 930 | | | | 4 | | | | | | | | |  | | | | | | | 8 | | | | | 12 | | | | | | | 16 | | | | | | | 16 | | | | | | | 8 | | | | | **0** | | | | | | |
| 专业选修课 | | 24 | | | 20008 | | | | | 区间信号自动控制系统维护 | | | | | | | | | | |  | | | | | | | | 3 | | | | | | | | | 4 | | | | | | | 72 | | | | | | | | | 50 | | | | | | 22 | | | | |  | | | | 22 | | | |  | | | | | | | | |  | | | | | | |  | | | | |  | | | | | | | 4 | | | | | | |  | | | | | | |  | | | | |  | | | | | | |
| 25 | | | 20017 | | | | | 编组站自动控制系统维护 | | | | | | | | | | |  | | | | | | | | 3 | | | | | | | | | 4 | | | | | | | 72 | | | | | | | | | 50 | | | | | | 22 | | | | |  | | | | 22 | | | |  | | | | | | | | |  | | | | | | |  | | | | |  | | | | | | | 4 | | | | | | |  | | | | | | |  | | | | |  | | | | | | |
| 26 | | | 20014 | | | | | 城轨电源设备维护 | | | | | | | | | | | 4 | | | | | | | |  | | | | | | | | | 4 | | | | | | | 72 | | | | | | | | | 50 | | | | | | 22 | | | | |  | | | | 22 | | | |  | | | | | | | | |  | | | | | | |  | | | | |  | | | | | | |  | | | | | | | 4 | | | | | | |  | | | | |  | | | | | | |
| 27 | | | 20015 | | | | | 通信线路 | | | | | | | | | | | 4 | | | | | | | |  | | | | | | | | | 4 | | | | | | | 72 | | | | | | | | | 50 | | | | | | 22 | | | | |  | | | | 22 | | | |  | | | | | | | | |  | | | | | | |  | | | | |  | | | | | | |  | | | | | | | 4 | | | | | | |  | | | | |  | | | | | | |
| 28 | | | 20023 | | | | | 高速铁路信号技术 | | | | | | | | | | |  | | | | | | | | 5 | | | | | | | | | 2 | | | | | | | 32 | | | | | | | | | 22 | | | | | | 10 | | | | |  | | | | 10 | | | |  | | | | | | | | |  | | | | | | |  | | | | |  | | | | | | |  | | | | | | |  | | | | | | | 2 | | | | |  | | | | | | |
| 29 | | | 20016 | | | | | 铁路信号测量 | | | | | | | | | | | 5 | | | | | | | |  | | | | | | | | | 4 | | | | | | | 64 | | | | | | | | | 40 | | | | | | 24 | | | | |  | | | | 24 | | | |  | | | | | | | | |  | | | | | | |  | | | | |  | | | | | | |  | | | | | | |  | | | | | | | 4 | | | | |  | | | | | | |
| 30 | | | 20019 | | | | | 调度集中和列车调度指挥系统 | | | | | | | | | | | 5 | | | | | | | |  | | | | | | | | | 4 | | | | | | | 64 | | | | | | | | | 44 | | | | | | 20 | | | | |  | | | | 20 | | | |  | | | | | | | | |  | | | | | | |  | | | | |  | | | | | | |  | | | | | | |  | | | | | | | 4 | | | | |  | | | | | | |
| 31 | | | 20021 | | | | | 城轨专用通信设备维护 | | | | | | | | | | |  | | | | | | | | 5 | | | | | | | | | 4 | | | | | | | 64 | | | | | | | | | 34 | | | | | | 30 | | | | |  | | | | 30 | | | |  | | | | | | | | |  | | | | | | |  | | | | |  | | | | | | |  | | | | | | |  | | | | | | | 4 | | | | |  | | | | | | |
| 32 | | | 20013 | | | | | 数据库应用 | | | | | | | | | | |  | | | | | | | | 5 | | | | | | | | | 2 | | | | | | | 32 | | | | | | | | | 22 | | | | | | 10 | | | | |  | | | | 10 | | | |  | | | | | | | | |  | | | | | | |  | | | | |  | | | | | | |  | | | | | | |  | | | | | | | 2 | | | | |  | | | | | | |
| 33 | | | 20022 | | | | | 机车信号与列车运行监控装置 | | | | | | | | | | | 5 | | | | | | | |  | | | | | | | | | 4 | | | | | | | 64 | | | | | | | | | 40 | | | | | | 24 | | | | |  | | | | 24 | | | |  | | | | | | | | |  | | | | | | |  | | | | |  | | | | | | |  | | | | | | |  | | | | | | | 4 | | | | |  | | | | | | |
| 34 | | | 20020 | | | | | 单片机应用技术 | | | | | | | | | | | 5 | | | | | | | |  | | | | | | | | | 4 | | | | | | | 64 | | | | | | | | | 44 | | | | | | 20 | | | | |  | | | | 20 | | | |  | | | | | | | | |  | | | | | | |  | | | | |  | | | | | | |  | | | | | | |  | | | | | | | 4 | | | | |  | | | | | | |
| 35 | | | 20029 | | | | | 铁路信号规章 | | | | | | | | | | |  | | | | | | | | 5 | | | | | | | | | 4 | | | | | | | 64 | | | | | | | | | 34 | | | | | | 30 | | | | |  | | | | 30 | | | |  | | | | | | | | |  | | | | | | |  | | | | |  | | | | | | |  | | | | | | |  | | | | | | | 4 | | | | |  | | | | | | |
| 小计学分及学时数 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 44 | | | | | | | 736 | | | | | | | | | 480 | | | | | | 256 | | | | |  | | | | 256 | | | |  | | | | | | | | |  | | | | | | | 0 | | | | | 0 | | | | | | | 8(4) | | | | | | | 8(4) | | | | | | | 28(14) | | | | | 0 | | | | | | |
| **四、素质拓展课** | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 课程类型 | | 序  号 | | | | 课程代码 | | | | 课 程 名 称 | | | | | | | | | | | 考核学期序 | | | | | | | | | | | | | | | | | 学 分 | | | | 课  时 | | | | | | | 说 明 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 考 试 | | | | | 考 查 | | | | | | | | | | | |
| 必修  课 | | 1 | | | | 01 | | | | 军训及军事理论教育 | | | | | | | | | | |  | | | | | 1 | | | | | | | | | | | | 4 | | | | 60 | | | | | | | | 第1学期开设，含入学教育。 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 2 | | | | 02 | | | | 心理健康教育 | | | | | | | | | | |  | | | | | 2.3.4.5 | | | | | | | | | | | | 2 | | | | 32 | | | | | | | | 分专业在第2～5学期之一开设。 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 3 | | | | 03 | | | | 大学生安全及健康教育 | | | | | | | | | | |  | | | | | 1.2.3.4 | | | | | | | | | | | | 2 | | | | 32 | | | | | | | | 在1～4学期实施，以专题讲座的形式和每学期大学生第二课堂教育活动中开设。 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 4 | | | | 04 | | | | 大学生暑期社会实践 | | | | | | | | | | |  | | | | | 2.4 | | | | | | | | | | | | 2 | | | |  | | | | | | | | 利用暑期，进行社会实践，提交报告。 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 小计学分及学时数 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 10 | | | | 124 | | | | | | | |  | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 选  修  课 | | 1 | | | | 001 | | | | 演讲与口才 | | | | | | | | | | |  | | | | | 2～5 | | | | | | | | | | | | 2 | | | | 32 | | | | | | | |  | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 2 | | | | 002 | | | | 中国小说阅读与鉴赏 | | | | | | | | | | |  | | | | | 2～5 | | | | | | | | | | | | 2 | | | | 32 | | | | | | | |  | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 3 | | | | 003 | | | | 音乐欣赏 | | | | | | | | | | |  | | | | | 2～5 | | | | | | | | | | | | 2 | | | | 32 | | | | | | | |  | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 4 | | | | 004 | | | | 影视文学欣赏 | | | | | | | | | | |  | | | | | 2～5 | | | | | | | | | | | | 2 | | | | 32 | | | | | | | |  | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 5 | | | | 005 | | | | 应用写作 | | | | | | | | | | |  | | | | | 2～5 | | | | | | | | | | | | 2 | | | | 32 | | | | | | | |  | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 6 | | | | 006 | | | | 现代礼仪 | | | | | | | | | | |  | | | | | 2～5 | | | | | | | | | | | | 2 | | | | 32 | | | | | | | |  | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 7 | | | | 007 | | | | 中国古典诗词欣赏 | | | | | | | | | | |  | | | | | 2～5 | | | | | | | | | | | | 2 | | | | 32 | | | | | | | |  | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 8 | | | | 008 | | | | 中国近现代史纲要 | | | | | | | | | | |  | | | | | 2～5 | | | | | | | | | | | | 2 | | | | 32 | | | | | | | |  | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 9 | | | | 009 | | | | 中国传统文化 | | | | | | | | | | |  | | | | | 2～5 | | | | | | | | | | | | 2 | | | | 32 | | | | | | | |  | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 10 | | | | 010 | | | | 中国旅游资源概况 | | | | | | | | | | |  | | | | | 2～5 | | | | | | | | | | | | 2 | | | | 32 | | | | | | | |  | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 11 | | | | 011 | | | | ISO9000质量管理体系 | | | | | | | | | | |  | | | | | 2～5 | | | | | | | | | | | | 2 | | | | 32 | | | | | | | |  | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 12 | | | | 012 | | | | 高级文字排版 | | | | | | | | | | |  | | | | | 2～5 | | | | | | | | | | | | 2 | | | | 32 | | | | | | | |  | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 13 | | | | 013 | | | | 电子表格处理 | | | | | | | | | | |  | | | | | 2～5 | | | | | | | | | | | | 2 | | | | 32 | | | | | | | |  | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 14 | | | | 014 | | | | PS图像处理 | | | | | | | | | | |  | | | | | 2～5 | | | | | | | | | | | | 2 | | | | 32 | | | | | | | |  | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 15 | | | | 015 | | | | 高级PPT制作 | | | | | | | | | | |  | | | | | 2～5 | | | | | | | | | | | | 2 | | | | 32 | | | | | | | |  | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 16 | | | | 016 | | | | 计算机组装维修及网络操作 | | | | | | | | | | |  | | | | | 2～5 | | | | | | | | | | | | 2 | | | | 32 | | | | | | | |  | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 17 | | | | 017 | | | | 生活中的经济学 | | | | | | | | | | |  | | | | | 2～5 | | | | | | | | | | | | 2 | | | | 32 | | | | | | | |  | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 18 | | | | 018 | | | | 技术史漫谈 | | | | | | | | | | |  | | | | | 2～5 | | | | | | | | | | | | 2 | | | | 32 | | | | | | | |  | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 19 | | | | 019 | | | | 电影赏析 | | | | | | | | | | |  | | | | | 2～5 | | | | | | | | | | | | 2 | | | | 32 | | | | | | | |  | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 20 | | | | 020 | | | | 职业素质 | | | | | | | | | | |  | | | | | 2～5 | | | | | | | | | | | | 2 | | | | 32 | | | | | | | |  | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 21 | | | | 021 | | | | 创造性思维与创新方法 | | | | | | | | | | |  | | | | | 2～5 | | | | | | | | | | | | 2 | | | | 32 | | | | | | | |  | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 22 | | | | 022 | | | | 大学生创业基础 | | | | | | | | | | |  | | | | | 2～5 | | | | | | | | | | | | 2 | | | | 32 | | | | | | | |  | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 23 | | | | 023 | | | | 创新创业实践 | | | | | | | | | | |  | | | | | 1～6 | | | | | | | | | | | | 10 | | | |  | | | | | | | | 用于学生参加课题研究、项目实验、竞赛活动、发表论文等创新创业成果的学分折算 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 小计学分及学时数 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 44 | | | | 704 | | | | | | | |  | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| **合计学分及学时数** | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | **总学分148,必修课学分120,选修课学分28，其中专业选修课学分22，素质选修课学分6.总学时2612，理论学时1302，实践学时1310** | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

**说明：**1、选修课学分占到总学分的19﹪。

2、素质拓展课中的选修课不低于6个学分。

3、专业必修课77个学分。

4、学生毕业最低学分为148学分。

5、职业技能训练、毕业实习两门专业必修课中融入专业创新创业训练，学分分别为1学分、2学分。

**铁道供电技术专业**

**教学标准**

**专业名称** 铁道供电技术

**专业代码** 600103

**入学要求** 高中阶段教育毕业生或具有同等学力者

**修业年限** 三年

**职业面向**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| 所属专业大类（代码） | 所属专业类（代码） | 对应行业（代码） | 主要职业类别（代码） | 主要岗位类别（或技术领域） | 职业资格证书或技能等级证书举例 |
| 交通运输大类（60） | 铁道运输类（6001） | 铁路运输业  (53)  道路运输业  (54) | 铁道供电工程技术人员  (2-02-17-05)  变配电运行值班员  (6-28-01-14)  牵引电力线路安装维护  工 (6-29-02-13)  变电设备检修工  (6-31-01-08) | 接触网检修与施工  变配电所检 修与施工  电力线路检修  与安装 | 接触网工变配电  运行值班员变电  设备检修工  电力线路工 |

**培养目标与培养规格**

一、培养目标

培养思想政治坚定、德技并修、全面发展，适应铁道供电技术专业生产、建设、管理和服务第一线需要，具有社会主义核心价值观及良好的职业技能素质，掌握接触网、牵引供变电技术、继电保护原理等知识和技术技能，面向各铁路局、铁路工程局的变配电、接触网，及供配电的企事业单位等领域的高素质劳动者和技术技能人才。

二、培养规格

本专业毕业生应在素质、知识和能力等方面达到以下要求。

1.素质

（1）坚定拥护中国共产党领导和我国社会主义制度，在习近平新时代中国特色社会主义思想指引下，践行社会主义核心价值观，具有深厚的爱国情感和中华民族自豪感；

（2）崇尚宪法、遵法守纪、崇德向善、诚实守信、尊重生命、热爱劳动、履行道德准则和行为规范，具有社会责任感和社会参与意识；

（3）具有质量意识、环保意识、安全意识、信息素养、工匠、创新思维；

（4）勇于奋斗、乐观向上，具有自我管理能力、职业生涯规划意识，有较强的集体意识和团队合作精神；

（5）具有健康的体魄、心理和健全的人格，掌握基本运动知识和一两项运动技能，养成良好的健身与卫生习惯，良好的行为习惯；

（6）具有一定的审美和人文素养，能够形成一两项艺术特长或爱好。

2.知识

（1）掌握必备的思想政治理论、科学文化基础知识和中华优秀传统文化知识；

（2）熟悉与本专业相关的法律法规以及环境保护、安全消防等相关知识；

（3）具有本专业高级技术应用人才所必需具备的文化素质和专业平台知识。

（4）掌握本专业所必需的机械、电气、电工电子、控制系统等方面的基本知识；

（5）掌握牵引供电系统的结构、组成、设计施工、运行维护、故障处理基本知识。

（6）掌握接触网的结构、设备以及设备检修的基本知识。

3.能力

（1）具有探究学习、终身学习、分析问题和解决问题的能力；

（2）具有良好的语言、文字表达能力和沟通能力，能够进行口语和书面的表达与交流；

（3）具备接触网施工检修能力，接触网故障处理能力；

（4）具备变配电所的主接线及控制回路的识图能力；

（5）具备工作票及台账填写能力；变配电所的值班能力；

（6）具备变配电所设备的维护、检修及试验能力；

（7）掌握现代制造技术的基本知识，具备使用电气CAD软件的能力；

（8）具备牵引供电工程设计能力和供用电企业管理能力；

（9）具备计算机应用能力：操作系统的使用、办公软件的使用、常用工具软件的使用能力。

（10）具备正确的语言文字表达及读图、制图能力。

（11）具备正确使用手册、标准和与本专业有关技术资料的能力。

（12）具有借助工具书查阅设备说明书及本专业一般外文资料的初步能力。

（13）具有继续学习和适应职业变化的能力。

**课程设置**

一、必修课程

1. 公共必修课程

|  |  |  |
| --- | --- | --- |
| 序号 | 课程名称 | 课时数 |
| 1 | 思想道德修养与法律基础及形势政策 | 66 |
| 2 | 毛泽东思想和中国特色社会主义理论体系概论及形势政策 | 66 |
| 3 | 高等数学 | 60 |
| 4 | 大学语文 | 60 |
| 5 | 公共英语 | 60 |
| 6 | 信息技术 | 60 |
| 7 | 体育 | 120 |
| 8 | 中华优秀传统文化 | 30 |
| 9 | 民族理论和政策 | 36 |
| 10 | 大学生职业发展与就业指导 | 36 |

2.专业必修课程

|  |  |  |
| --- | --- | --- |
| 序号 | 课程名称 | 课时数 |
| 1 | 机械制图 | 60 |
| 2 | 机械基础 | 72 |
| 3 | 电工基础与测量 | 72 |
| 4 | 电机与变压器 | 72 |
| 5 | 电气控制 | 56 |
| 6 | 牵引供电系统 | 56 |
| 7 | 高电压设备维护与检修 | 64 |
| 8 | 电力内外线工程 | 60 |
| 9 | 接触网 | 90 |
| 10 | 牵引供电规程与规则 | 90 |
| 11 | 变电所综合自动化 | 64 |
| 12 | 牵引变电所运行 | 96 |
| 13 | 继电保护 | 96 |
| 14 | 钳工实习 | 60 |
| 15 | 电工电子实习 | 60 |
| 16 | 维修电工技能鉴定 | 60 |
| 17 | 接触网技能鉴定 | 60 |
| 18 | 顶岗实习 | 540 |

3.素质拓展必修课程

|  |  |  |
| --- | --- | --- |
| 序号 | 课程名称 | 课时数 |
| 1 | 军训及军事理论教育 | 60 |
| 2 | 心理健康教育 | 32 |
| 3 | 大学生安全及健康教育 | 32 |
| 4 | 大学生暑期社会实践 |  |

二、选修课程

1. 专业选修课程

|  |  |  |
| --- | --- | --- |
| 序号 | 课程名称 | 课时数 |
| 1 | 工程力学 | 36 |
| 2 | 电子技术 | 36 |
| 3 | 铁道概论 | 36 |
| 4 | 创新创业（电气PLC） | 36 |
| 5 | 电力电子技术 | 64 |
| 6 | 高压电气试验 | 64 |
| 7 | 供配电安全技术 | 64 |
| 8 | 电气工程CAD | 30 |
| 9 | 高电压工程 | 30 |
| 10 | 牵引供电工程概预算 | 30 |
| 11 | 工厂供配电技术 | 30 |
| 12 | 城市轨道交通供电系统运行与维修 | 32 |
| 13 | 高速铁路接触网 | 32 |
| 14 | 城市轨道交通供变电技术 | 64 |
| 15 | 城市轨道交通接触网技术 | 64 |

2. 素质拓展选修课程

|  |  |  |
| --- | --- | --- |
| 序号 | 课程名称 | 课时数 |
| 1 | 演讲与口才 | 32 |
| 2 | 中国小说阅读与鉴赏 | 32 |
| 3 | 音乐欣赏 | 32 |
| 4 | 影视文学欣赏 | 32 |
| 5 | 应用写作 | 32 |
| 6 | 现代礼仪 | 32 |
| 7 | 中国古典诗词欣赏 | 32 |
| 8 | 中国近现代史纲要 | 32 |
| 9 | 中国传统文化 | 32 |
| 10 | 中国旅游资源概况 | 32 |
| 11 | ISO9000质量管理体系 | 32 |
| 12 | 高级文字排版 | 32 |
| 13 | 电子表格处理 | 32 |
| 14 | PS图像处理 | 32 |
| 15 | 高级PPT制作 | 32 |
| 16 | 计算机组装维修及网络操作 | 32 |
| 17 | 生活中的经济学 | 32 |
| 18 | 技术史漫谈 | 32 |
| 19 | 电影赏析 | 32 |
| 20 | 职业素质 | 32 |
| 21 | 创造性思维与创新方法 | 32 |
| 22 | 大学生创业基础 | 32 |
| 23 | 创新创业实践 |  |

三、专业核心课程主要教学内容与要求

|  |  |  |
| --- | --- | --- |
| 序号 | 专业核心课程 | 主要教学内容与要求 |
| 1 | 接触网 | 接触网结构与原理；接触网主要参数测量接触网识图；接触网运行与值班；接触网巡视；接触网设备检修与故障处理；接触网施工；接触网运营管理；接触网“6C”等新技术。 |
| 2 | 牵引变电所运行 | 电气接线图；变配电所高压一次设备结构与原理；变配电所高压一次设备安装、运行与维护；变配电所交直流系统安装、运行与检修；变配电所值班(交接班、巡视与倒闸)；变配电所工作票的签发与受理；变配电所二次系统原理、安装与调试；远动系统运行与维护；变配电所设备故障应急处理； GIS 等变电新设备应用。 |
| 3 | 牵引供电规程与规则 | 安全规程体系；安全生产法；接触网安全工作规程；牵引变电所安全工作规程；铁路电力安全工作规程；铁路技规、事规与供用电调度规则等；电气化工程施工安全；应急预案与应急处理；安全管理基本知识。 |
| 4 | 高压设备维护与检修 | 常用电气设备辨识；电气绝缘试验原理与方法；电气设备特性试验原理与方法；电力变压器综合试验；高压开关电器综合试验；防雷设备测试等。 |
| 5 | 继电保护 | 常用继电保护知识，设备认识学习，继电保护实验及测试。 |

**学时安排**

每学年教学时间为40周，总学时数为2730，实习按每周30学时计算。每学时为45分钟。18学时计为1个学分，总学分为144学分。军训、入学教育、社会实践、毕业设计（或毕业论文、毕业教育）等，以1周为1学分。公共基础课程学时占总学时的22%。选修课教学时数占总学时的比例均为19%。学生顶岗实习为6个月，可根据实际情况，采取工学交替、多学期、分段式等多种形式组织实施。

**教学进程总体安排**

见附件（教学进程表）

**实施保障**

一、师资队伍

㈠专业生师比

专业教师总数不少于8人，专业生师比不低于18：1。

㈡师资要求

1．专业教师具有大学本科及以上学历并取得任职资格；从事专业课程教学的专任教师不少于8人。

2．高级职称教师≥20％，中级职称教师≥50％, 具有“双师型”素质的教师人数不低于60％；专业教师平均教龄不低于4年。

3．具有与本专业相关的职业工作经历或取得相应职业资格证书，熟悉本专业所面向的职业和行业企业，熟悉生产流程，掌握工作要求和质量标准。

4．具有较强的学习能力和终身学习意识。每年有一定数量的专业教师到相关企业进行相应的专业实践，从而提高教师们的实践能力。

5．掌握必要的职业教育理念和教学方法，具有开发职业课程的能力、教学设计与教学实施的能力。专业教师每年需完成国家或行业规定的继续教育计划，并经考核合格。

㈢企业兼职教师任职资格

根据教学需要，可聘请一定数量、相对稳定的兼职教师和兼职实习指导教师。兼职教师一般应从事本专业相关实践工作5年以上并具有大学专科以上文化程度或中级技术职务。掌握基本的教学方法。

二、教学设施

1.校内基础课教学实验室和教学设备的基本要求

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| 序号 | 实训、实习项目 | 设 备 名 称 | 单位 | 数量 | 面积m2 |
| 1 | 工程力学 | 万能试验机 | 台 | 4 | 250-280 |
| 蝶式引伸仪 | 套 | 4 |
| 电阻应变仪 | 台 | 4 |
| 位移传感器 | 台 | 4 |
| 扭转实验机 | 台 | 4 |
| 2 | 电工、电子技术 | 交流稳压电源、万用电桥、直流稳压电源、示波器、低频信号发生器、万用表、晶体管毫伏表、兆欧表、直流电压表、直流电流表、交流电流表、交流电动机、接触器、时间继电器、热继电器，所用各规格实验板、电工工具材料等 | 台  块  套 | 各1 | 250-280 |
| 3 | 机械基础 | 带传动、链传动、齿轮传动装置、减速器等 | 套 | 8 | 60-80 |

2.校内实训（含职业技能鉴定）基地的基本要求

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| 序号 | 实训、实习项目 | | | 设 备 名 称 | 单位 | 数量 | 面积m2 |
| 1 | 钳工实习 | | | 四工位钳工台案（带台钳） | 台 | 15 | 350 |
| 台钻 | 台 | 3 |
| 方箱、平板、划线工具 | 套 | 3 |
| 高度尺 | 把 | 2 |
| 游标卡尺 | 把 | 15 |
| 直角尺 | 把 | 15 |
| 万能角度尺 | 把 | 10 |
| 手锯、榔头 | 把 | 各50 |
| 各型锉 | 把 | 若干 |
| 丝锥、板牙 | 支 | 若干 |
| 塞尺、R规等 | 把 | 若干 |
| 手弧焊机 | 台 | 10 |
| 等离子切割机 | 台 | 2 |
| CO2半自动焊机 | 台 | 1 |
| 超声波探伤仪 | 台 | 1 |
| 磁力探伤仪 | 台 | 1 |
| 焊工工具材料 | 台 | 若干 |
| 2 | 电工实习 | | | 万用表 | 套 | 10 | 160 |
| 兆欧表 | 套 | 10 |
| 转速表 | 套 | 10 |
| 空气开关、按钮盒 | 套 | 10 |
| 单相电度表、三相电度表 | 套 | 10 |
| 单相插座、三相插座、灯座 | 套 | 10 |
| 日光灯组件 | 套 | 30 |
| 常用电工工具 | 套 | 10 |
| 红、黄、蓝、黑导线 |  | 若干 |
| 3 | | 接触网实训室 | 腕臂3套 | | | 腕臂地面组装 | |
| 电连接线30m | | | 制作电连接 | |
| 整体吊弦15根 | | | 整体吊弦的调节 | |
| 支柱5根,安全带10根 | | | 练习登杆作业 | |
| 工具5套 | | | 实训项目中使用 | |
| 部分接触网零部件 | | | 对接触网零部件的认识及功能了解 | |
| 4 | | 牵引变电所实训室 | 牵引变电所模拟系统一套  学生实验机50台 | | | 进行模拟牵引变电所的运行管理操作 | |

3.校外实习基地的基本要求

在与铁路供电段、电气化供配电部门等企业建立校企合作的基础上，进一步深化合作关系，学院按照企业需要开展企业员工的职业培训，与企业合作开展应用研究开发，使企业在分享学院资源优势的同时，参与学院的改革与发展。校外实习实训基地达到能使学生进行生产性实训及顶岗实习条件。

三、教学资源

1.教材资源

高等教育出版社、科学出版社、机械工业出版社、中国劳动社会保障出版社、西安电子科技大学出版社、电子工业出版社、中国铁道出版社等

2.图书资源

普通高等学校高等职业教育教学标准；变电所值班员技能鉴定用书；维修电工技能鉴定用书。

3.数字化（网络）资源

充分利用电子书籍、电子期刊、数据库、数字图书馆、教育网站和电子论坛等网上信息资源，使教学从单一媒体向多媒体转变；使教学活动从信息的单向传递向双向交换转变；使学生从单独的学习向合作学习转变。

四、教学方法

1.教学方法、手段建议

在教学过程中，应立足于加强学生实际操作能力的培养，采用项目教学，以任务引领型项目提高学生的学习兴趣。

在教学活动中要从学生实际出发，创设有助于学生自主学习的问题情境，引导学生通过实践、思考、探索、交流，获得知识，形成技能，发展思维，学会学习，“教、学、做、练”理实一体化，促进学生在教师指导下主动地、富有个性地学习。

在教学活动中要积极改进教学方法，课堂教学应多采用模型、实物，重视现代教育技术在教学中的应用，理论联系实际，启迪学生的科学思维，充分利用学院实训室和相关企业进行现场教学。

2.教学组织形式建议

建议班级教学、个别教学、现场教学混合运用。

五、教学评价

1.教学评价建议

对教师的评价考核，从工作态度、教学能力（运用各种适合的教学方法、手段，实际动手操作能力）、最新专业技术知识的学习应用、开展教学研究的成果等方面进行。

2.教学考核建议

(1)专业理论课程考核中，突出知识的掌握、相关问题的分析、判断、解决的能力。实践课程考核中，突出基本技能的掌握、熟练程度以及是否具有创新意识等并应包括与同学共同工作的团队协作精神、踏实认真的态度以及持之以恒的精神等。

(2)对专业教学评价，应对毕业生进行跟踪调查，可以是寻访或发收调查表的形式，主要项目应包括：毕业生在工作单位的工作态度、职业能力、水平、职业发展的可塑性以及对学校的教学要求及改进建议等。

**毕业要求**

学生德、智、体、美、劳合格，在允许的修业年限内学完培养计划规定的全部课程，通过顶岗实践或毕业论文答辩，取得相应的职业资格证书，达到毕业最低学分（144分）要求，即获得毕业资格，准予毕业并颁发毕业证书。

**教 学 进 程 表**

**2018 级 铁道供电技术 专 业**

毕业最低学分：144分

专业代码：600103

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **一、教学进程表** | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | **二、周数分配表** | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 学  年 | | 教 学 周 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 理论  及  分散  实践 | | | 集  中  实  践 | | | | 考  试 | | | 劳  动 | | | | 军  训 | | | 机  动 | | | | 毕  业  教  育 | | | 假  期 | | | 合  计 | | |
| 九月 | | | | | | | | | 十月 | | | | | | 十一月 | | | | | | | 十二月 | | | | | | | | | 一月 | | | | | | | | | 二月 | | | | | | | | | 三月 | | | | | | | | 四月 | | | | | | 五月 | | | | | | | | 六月 | | | | | | | | | 七月 | | | | | | | | | | | 八月 | | | | | | |
|  | | | 1 | 2 | | | 3 | 4 | | | 5 | 6 | 7 | 8 | 9 | | 10 | 11 | 12 | 13 | | 14 | | | 15 | 16 | | 17 | | | 18 | | | 19 | | 20 | | 21 | 22 | | | 23 | 24 | | 25 | | 26 | | 27 | | | | 28 | 29 | 30 | | 31 | | 32 | 33 | 34 | | 35 | | 36 | 37 | | 38 | 39 | | 40 | | 41 | | 42 | | 43 | | | 44 | | | | 45 | | | 46 | | 47 | 48 | | | 49 | 50 | 51 | 52 | | | | K | | | S | | | | ∷ | | | × | | | | ★ | | | J | | | | T | | | = | | |  | | |
| 一 | | | ★2 | | | | 15K | | | | | | | | | | | | | | | | | | | | | | | | J2 | | | | | ∷ | | ==== 6 | | | | | | | | | | | 18K | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | J | | | | ∷ | | ==== 6 | | | | | | | | | | | 33 | | | 0 | | | | 2 | | | 0 | | | | 2 | | | 3 | | | | 0 | | | 12 | | | 52 | | |
| 二 | | 14K | | | | | | | | | | | | | | | | | | | | | | 4S | | | | | | | | | J | | ∷ | | ==== 6 | | | | | | | | | | | 15K | | | | | | | | | | | | | | | | | | | | | | | | | | 2S | | | | | X | | | J | | | | ∷ | | ====6 | | | | | | | | | | 29 | | | 6 | | | | 2 | | | 1 | | | | 0 | | | 2 | | | | 0 | | | 12 | | | 52 | | | | |
| 三 | | 16K | | | | | | | | | | | | | | | | | | | | | | | | | | | 2S | | | | J | | ∷ | | ==== 6 | | | | | | | | | | | 18K | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | J | | | | T | |  | | | | | | | | | | 34 | | | 2 | | | | 1 | | | 0 | | | | 0 | | | 2 | | | | 1 | | | 6 | | | 46 | | | | |
| **三、教学进度表** | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 合计 | | | | | | | | | | | | | | | | | | | | 96 | | | 8 | | | | 5 | | | 1 | | | | 2 | | | 7 | | | | 1 | | | 30 | | | 150 | | | | |
| 课程类型 | | 序  号 | | | 课程  代码 | | | | 课 程 名 称 | | | | | | | | | | | | 考核学期序 | | | | | | | | | | | | | | | | | | | 学 分 | | | | | | 学 时 数 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 理论教学（含分散性实践教学）周学时 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 考 试 | | | | | | | | | 考 查 | | | | | | | | | | 总 计 | | | | | | | | | | 理 论 | | | | | | 实 践 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 一 年 级 | | | | | | | | | | | | | 二 年 级 | | | | | | | | | | | | | | 三 年 级 | | | | | | | | | | | |
| 合 计 | | | | | 习 题 课 | | | 实 训 | | | | | | 现场教学 | | | | | | | | | 创新创业训练 | | | | | | 1学期  15周 | | | | | | 2学期  18周 | | | | | | | 3学期  14周 | | | | | | | 4学期  15周 | | | | | | | 5学期  16周 | | | | 6学期  18周 | | | | | | | |
| 公共必修课 | | 1 | | | 0001 | | | | 思想道德修养与法律基础及形势政策 | | | | | | | | | | | | 1 | | | | | | | | | 2 | | | | | | | | | | 4 | | | | | | 66 | | | | | | | | | | 52 | | | | | | 14 | | | | | 14 | | |  | | | | | |  | | | | | | | | |  | | | | | | 2 | | | | | | 2 | | | | | | |  | | | | | | |  | | | | | | |  | | | |  | | | | | | | |
| 2 | | | 0002 | | | | 毛泽东思想和中国特色社会主义理论体系概论及形势政策 | | | | | | | | | | | | 3 | | | | | | | | | 4 | | | | | | | | | | 4 | | | | | | 58 | | | | | | | | | | 46 | | | | | | 12 | | | | | 12 | | |  | | | | | |  | | | | | | | | |  | | | | | |  | | | | | |  | | | | | | | 2 | | | | | | | 2 | | | | | | |  | | | |  | | | | | | | |
| 3 | | | 0005 | | | | 高等数学 | | | | | | | | | | | | 1 | | | | | | | | |  | | | | | | | | | | 3 | | | | | | 60 | | | | | | | | | | 54 | | | | | | 6 | | | | | 6 | | |  | | | | | |  | | | | | | | | |  | | | | | | 4 | | | | | |  | | | | | | |  | | | | | | |  | | | | | | |  | | | |  | | | | | | | |
| 4 | | | 0006 | | | | 大学语文 | | | | | | | | | | | |  | | | | | | | | | 1 | | | | | | | | | | 3 | | | | | | 60 | | | | | | | | | | 52 | | | | | | 8 | | | | | 8 | | |  | | | | | |  | | | | | | | | |  | | | | | | 4 | | | | | |  | | | | | | |  | | | | | | |  | | | | | | |  | | | |  | | | | | | | |
| 5 | | | 0007 | | | | 公共英语 | | | | | | | | | | | | 1 | | | | | | | | |  | | | | | | | | | | 3 | | | | | | 60 | | | | | | | | | | 18 | | | | | | 42 | | | | | 42 | | |  | | | | | |  | | | | | | | | |  | | | | | | 4 | | | | | |  | | | | | | |  | | | | | | |  | | | | | | |  | | | |  | | | | | | | |
| 6 | | | 0008 | | | | 信息技术 | | | | | | | | | | | |  | | | | | | | | | 1 | | | | | | | | | | 3 | | | | | | 60 | | | | | | | | | | 30 | | | | | | 30 | | | | | 30 | | |  | | | | | |  | | | | | | | | |  | | | | | | 4 | | | | | |  | | | | | | |  | | | | | | |  | | | | | | |  | | | |  | | | | | | | |
| 7 | | | 0009 | | | | 体育 | | | | | | | | | | | | 3 | | | | | | | | | 1.2.4 | | | | | | | | | | 7 | | | | | | 124 | | | | | | | | | | 8 | | | | | | 116 | | | | |  | | |  | | | | | | 116 | | | | | | | | |  | | | | | | 2 | | | | | | 2 | | | | | | | 2 | | | | | | | 2 | | | | | | |  | | | |  | | | | | | | |
| 8 | | | 0004 | | | | 中华优秀传统文化 | | | | | | | | | | | |  | | | | | | | | | 1 | | | | | | | | | | 2 | | | | | | 30 | | | | | | | | | | 30 | | | | | |  | | | | |  | | |  | | | | | |  | | | | | | | | |  | | | | | | 2 | | | | | |  | | | | | | |  | | | | | | |  | | | | | | |  | | | |  | | | | | | | |
| 9 | | | 0011 | | | | 民族理论和政策 | | | | | | | | | | | |  | | | | | | | | | 5 | | | | | | | | | | 2 | | | | | | 32 | | | | | | | | | | 32 | | | | | |  | | | | |  | | |  | | | | | |  | | | | | | | | |  | | | | | |  | | | | | |  | | | | | | |  | | | | | | |  | | | | | | | 2 | | | |  | | | | | | | |
| 10 | | | 0010 | | | | 大学生职业发展与就业指导 | | | | | | | | | | | |  | | | | | | | | | 2 | | | | | | | | | | 2 | | | | | | 36 | | | | | | | | | | 36 | | | | | |  | | | | |  | | |  | | | | | |  | | | | | | | | |  | | | | | |  | | | | | | 2 | | | | | | |  | | | | | | |  | | | | | | |  | | | |  | | | | | | | |
| 小计学分及学时数 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 33 | | | | | | 586 | | | | | | | | | | 358 | | | | | | 228 | | | | |  | | |  | | | | | |  | | | | | | | | |  | | | | | | 22 | | | | | | 6 | | | | | | | 4 | | | | | | | 4 | | | | | | | 2 | | | | **0** | | | | | | | |
| 专业必修课 | | 11 | | | 10001 | | | | 机械制图 | | | | | | | | | | | | 1 | | | | | | | | |  | | | | | | | | | | 2 | | | | | | 30 | | | | | | | | | | 16 | | | | | | 14 | | | | | 2 | | | 12 | | | | | |  | | | | | | | | |  | | | | | | 2 | | | | | |  | | | | | | |  | | | | | | |  | | | | | | |  | | | |  | | | | | | | |
| 12 | | | 10002 | | | | 机械基础 | | | | | | | | | | | | 1 | | | | | | | | |  | | | | | | | | | | 2 | | | | | | 30 | | | | | | | | | | 16 | | | | | | 14 | | | | | 2 | | | 12 | | | | | |  | | | | | | | | |  | | | | | | 2 | | | | | |  | | | | | | |  | | | | | | |  | | | | | | |  | | | |  | | | | | | | |
| 13 | | | 10002 | | | | 机械基础 | | | | | | | | | | | | 2 | | | | | | | | |  | | | | | | | | | | 4 | | | | | | 72 | | | | | | | | | | 40 | | | | | | 32 | | | | | 4 | | | 28 | | | | | |  | | | | | | | | |  | | | | | |  | | | | | | 4 | | | | | | |  | | | | | | |  | | | | | | |  | | | |  | | | | | | | |
| 14 | | | 10003 | | | | 电工基础与测量 | | | | | | | | | | | | 2 | | | | | | | | |  | | | | | | | | | | 4 | | | | | | 72 | | | | | | | | | | 40 | | | | | | 32 | | | | | 4 | | | 28 | | | | | |  | | | | | | | | |  | | | | | |  | | | | | | 4 | | | | | | |  | | | | | | |  | | | | | | |  | | | |  | | | | | | | |
| 15 | | | 10004 | | | | 电机与拖动 | | | | | | | | | | | | 2 | | | | | | | | |  | | | | | | | | | | 4 | | | | | | 72 | | | | | | | | | | 30 | | | | | | 42 | | | | | 4 | | | 38 | | | | | |  | | | | | | | | |  | | | | | |  | | | | | | 4 | | | | | | |  | | | | | | |  | | | | | | |  | | | |  | | | | | | | |
| 16 | | | 10005 | | | | √电气控制 | | | | | | | | | | | | 3 | | | | | | | | |  | | | | | | | | | | 2+1 | | | | | | 56 | | | | | | | | | | 20 | | | | | | 36 | | | | | 4 | | | 32 | | | | | |  | | | | | | | | |  | | | | | |  | | | | | |  | | | | | | | 4 | | | | | | |  | | | | | | |  | | | |  | | | | | | | |
| 17 | | | 10006 | | | | 牵引供电系统 | | | | | | | | | | | | 3 | | | | | | | | |  | | | | | | | | | | 3 | | | | | | 56 | | | | | | | | | | 30 | | | | | | 26 | | | | | 4 | | | 22 | | | | | |  | | | | | | | | |  | | | | | |  | | | | | |  | | | | | | | 4 | | | | | | |  | | | | | | |  | | | |  | | | | | | | |
| 18 | | | 10007 | | | | √高电压设备维护与检修\* | | | | | | | | | | | | 3 | | | | | | | | |  | | | | | | | | | | 4 | | | | | | 64 | | | | | | | | | | 30 | | | | | | 34 | | | | | 4 | | | 30 | | | | | |  | | | | | | | | |  | | | | | |  | | | | | |  | | | | | | | 6 | | | | | | |  | | | | | | |  | | | |  | | | | | | | |
| 19 | | | 10008 | | | | 电力内外线工程 | | | | | | | | | | | | 4 | | | | | | | | |  | | | | | | | | | | 3 | | | | | | 60 | | | | | | | | | | 30 | | | | | | 30 | | | | | 4 | | | 26 | | | | | |  | | | | | | | | |  | | | | | |  | | | | | |  | | | | | | |  | | | | | | | 4 | | | | | | |  | | | |  | | | | | | | |
| 20 | | | 10009 | | | | √接触网\* | | | | | | | | | | | | 4 | | | | | | | | |  | | | | | | | | | | 5 | | | | | | 90 | | | | | | | | | | 30 | | | | | | 60 | | | | | 4 | | | 56 | | | | | |  | | | | | | | | |  | | | | | |  | | | | | |  | | | | | | |  | | | | | | | 6 | | | | | | |  | | | |  | | | | | | | |
| 21 | | | 10010 | | | | 牵引供电规程与规则\* | | | | | | | | | | | | 4 | | | | | | | | |  | | | | | | | | | | 5 | | | | | | 90 | | | | | | | | | | 86 | | | | | | 4 | | | | | 4 | | |  | | | | | |  | | | | | | | | |  | | | | | |  | | | | | |  | | | | | | |  | | | | | | | 6 | | | | | | |  | | | |  | | | | | | | |
| 22 | | | 10011 | | | | 变电所综合自动化 | | | | | | | | | | | | 5 | | | | | | | | |  | | | | | | | | | | 4 | | | | | | 64 | | | | | | | | | | 30 | | | | | | 34 | | | | | 4 | | | 30 | | | | | |  | | | | | | | | |  | | | | | |  | | | | | |  | | | | | | |  | | | | | | |  | | | | | | | 4 | | | |  | | | | | | | |
| 23 | | | 10012 | | | | √牵引变电所运行\* | | | | | | | | | | | | 5 | | | | | | | | |  | | | | | | | | | | 5 | | | | | | 96 | | | | | | | | | | 30 | | | | | | 66 | | | | | 6 | | | 60 | | | | | |  | | | | | | | | |  | | | | | |  | | | | | |  | | | | | | |  | | | | | | |  | | | | | | | 6 | | | |  | | | | | | | |
| 24 | | | 10013 | | | | √继电保护\* | | | | | | | | | | | | 5 | | | | | | | | |  | | | | | | | | | | 5 | | | | | | 96 | | | | | | | | | | 30 | | | | | | 66 | | | | | 6 | | | 60 | | | | | |  | | | | | | | | |  | | | | | |  | | | | | |  | | | | | | |  | | | | | | |  | | | | | | | 6 | | | |  | | | | | | | |
| 25 | | | 10401 | | | | 钳工实习 | | | | | | | | | | | |  | | | | | | | | | 3 | | | | | | | | | | 2 | | | | | | 60 | | | | | | | | | | 0 | | | | | | 60 | | | | |  | | | 60 | | | | | |  | | | | | | | | |  | | | | | |  | | | | | |  | | | | | | | \*两周 | | | | | | |  | | | | | | |  | | | |  | | | | | | | |
| 26 | | | 10402 | | | | 电工电子实习 | | | | | | | | | | | |  | | | | | | | | | 3 | | | | | | | | | | 2 | | | | | | 60 | | | | | | | | | | 0 | | | | | | 60 | | | | |  | | | 60 | | | | | |  | | | | | | | | |  | | | | | |  | | | | | |  | | | | | | | \*两周 | | | | | | |  | | | | | | |  | | | |  | | | | | | | |
| 27 | | | 10403 | | | | 电工技能鉴定 | | | | | | | | | | | |  | | | | | | | | | 4 | | | | | | | | | | 2 | | | | | | 60 | | | | | | | | | | 0 | | | | | | 60 | | | | |  | | | 60 | | | | | |  | | | | | | | | |  | | | | | |  | | | | | |  | | | | | | |  | | | | | | | \*两周 | | | | | | |  | | | |  | | | | | | | |
| 28 | | | 10404 | | | | 接触网技能鉴定 | | | | | | | | | | | |  | | | | | | | | | 5 | | | | | | | | | | 2 | | | | | | 60 | | | | | | | | | | 0 | | | | | | 60 | | | | |  | | | 60 | | | | | |  | | | | | | | | |  | | | | | |  | | | | | |  | | | | | | |  | | | | | | |  | | | | | | | \*两周 | | | |  | | | | | | | |
| 29 | | | 10405 | | | | 顶岗实习 | | | | | | | | | | | |  | | | | | | | | | 6 | | | | | | | | | | 18 | | | | | | 540 | | | | | | | | | | 0 | | | | | | 540 | | | | |  | | | 540 | | | | | |  | | | | | | | | |  | | | | | |  | | | | | |  | | | | | | |  | | | | | | |  | | | | | | |  | | | | \*十八周 | | | | | | | |
| 小计学分及学时数 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 79 | | | | | | 1728 | | | | | | | | | | 458 | | | | | | 1270 | | | | | 56 | | | 1214 | | | | | |  | | | | | | | | |  | | | | | | 26 | | | | | | 18 | | | | | | | 18 | | | | | | | 20 | | | | | | | 18 | | | |  | | | | | | | |
| 专业选修课 | | 30 | | | 10019 | | | | 工程力学 | | | | | | | | | | | |  | | | | | | | | | 2 | | | | | | | | | | 2 | | | | | | 36 | | | | | | | | | | 18 | | | | | | 18 | | | | | 4 | | | 14 | | | | | |  | | | | | | | | |  | | | | | |  | | | | | | 2 | | | | | | |  | | | | | | |  | | | | | | |  | | | |  | | | | | | | |
| 31 | | | 10020 | | | | **电子技术及应用** | | | | | | | | | | | |  | | | | | | | | | 2 | | | | | | | | | | 2 | | | | | | 36 | | | | | | | | | | 18 | | | | | | 18 | | | | | 4 | | | 14 | | | | | |  | | | | | | | | |  | | | | | |  | | | | | | 2 | | | | | | |  | | | | | | |  | | | | | | |  | | | |  | | | | | | | |
| 32 | | | 10021 | | | | 铁道概论 | | | | | | | | | | | |  | | | | | | | | | 2 | | | | | | | | | | 2 | | | | | | 36 | | | | | | | | | | 18 | | | | | | 18 | | | | | 4 | | | 14 | | | | | |  | | | | | | | | |  | | | | | |  | | | | | | 2 | | | | | | |  | | | | | | |  | | | | | | |  | | | |  | | | | | | | |
| 33 | | | 10022 | | | | **创新创业（电气PLC）** | | | | | | | | | | | |  | | | | | | | | | 2 | | | | | | | | | | 2 | | | | | | 36 | | | | | | | | | | 10 | | | | | | 26 | | | | | 0 | | | 26 | | | | | |  | | | | | | | | |  | | | | | |  | | | | | | 2 | | | | | | |  | | | | | | |  | | | | | | |  | | | |  | | | | | | | |
|  | | 34 | | | 10023 | | | | 电力电子技术 | | | | | | | | | | | |  | | | | | | | | | 3 | | | | | | | | | | 4 | | | | | | 64 | | | | | | | | | | 30 | | | | | | 34 | | | | | 4 | | | 30 | | | | | |  | | | | | | | | |  | | | | | |  | | | | | |  | | | | | | | 4 | | | | | | |  | | | | | | |  | | | |  | | | | | | | |
|  | | 35 | | | 10024 | | | | 高压电气试验 | | | | | | | | | | | |  | | | | | | | | | 3 | | | | | | | | | | 4 | | | | | | 64 | | | | | | | | | | 30 | | | | | | 34 | | | | | 4 | | | 30 | | | | | |  | | | | | | | | |  | | | | | |  | | | | | |  | | | | | | | 4 | | | | | | |  | | | | | | |  | | | |  | | | | | | | |
|  | | 26 | | | 10025 | | | | **供配电安全技术** | | | | | | | | | | | |  | | | | | | | | | 3 | | | | | | | | | | 4 | | | | | | 64 | | | | | | | | | | 30 | | | | | | 34 | | | | | 4 | | | 30 | | | | | |  | | | | | | | | |  | | | | | |  | | | | | |  | | | | | | | 4 | | | | | | |  | | | | | | |  | | | |  | | | | | | | |
|  | | 27 | | | 10026 | | | | **电气CAD** | | | | | | | | | | | |  | | | | | | | | | 4 | | | | | | | | | | 2 | | | | | | 30 | | | | | | | | | | 10 | | | | | | 20 | | | | |  | | | 20 | | | | | |  | | | | | | | | |  | | | | | |  | | | | | |  | | | | | | |  | | | | | | | 2 | | | | | | |  | | | |  | | | | | | | |
|  | | 28 | | | 10027 | | | | 高电压工程 | | | | | | | | | | | |  | | | | | | | | | 4 | | | | | | | | | | 2 | | | | | | 30 | | | | | | | | | | 10 | | | | | | 20 | | | | | 4 | | | 16 | | | | | |  | | | | | | | | |  | | | | | |  | | | | | |  | | | | | | |  | | | | | | | 2 | | | | | | |  | | | |  | | | | | | | |
|  | | 29 | | | 10028 | | | | 牵引供电工程概预算 | | | | | | | | | | | |  | | | | | | | | | 4 | | | | | | | | | | 2 | | | | | | 30 | | | | | | | | | | 10 | | | | | | 20 | | | | | 4 | | | 16 | | | | | |  | | | | | | | | |  | | | | | |  | | | | | |  | | | | | | |  | | | | | | | 2 | | | | | | |  | | | |  | | | | | | | |
|  | | 30 | | | 10029 | | | | **工厂供配电技术** | | | | | | | | | | | |  | | | | | | | | | 4 | | | | | | | | | | 2 | | | | | | 30 | | | | | | | | | | 10 | | | | | | 20 | | | | | 4 | | | 16 | | | | | |  | | | | | | | | |  | | | | | |  | | | | | |  | | | | | | |  | | | | | | | 2 | | | | | | |  | | | |  | | | | | | | |
|  | | 31 | | | 10030 | | | | **城市轨道交通供电系统**  **运行与维修** | | | | | | | | | | | |  | | | | | | | | | 5 | | | | | | | | | | 2 | | | | | | 32 | | | | | | | | | | 16 | | | | | | 16 | | | | | 4 | | | 12 | | | | | |  | | | | | | | | |  | | | | | |  | | | | | |  | | | | | | |  | | | | | | |  | | | | | | | 2 | | | |  | | | | | | | |
|  | | 32 | | | 10031 | | | | 高速铁路接触网 | | | | | | | | | | | |  | | | | | | | | | 5 | | | | | | | | | | 2 | | | | | | 32 | | | | | | | | | | 16 | | | | | | 16 | | | | | 4 | | | 12 | | | | | |  | | | | | | | | |  | | | | | |  | | | | | |  | | | | | | |  | | | | | | |  | | | | | | | 2 | | | |  | | | | | | | |
|  | | 33 | | | 10032 | | | | 城市轨道交通供变电技术 | | | | | | | | | | | |  | | | | | | | | | 5 | | | | | | | | | | 4 | | | | | | 64 | | | | | | | | | | 20 | | | | | | 44 | | | | | 4 | | | 40 | | | | | |  | | | | | | | | |  | | | | | |  | | | | | |  | | | | | | |  | | | | | | |  | | | | | | | 4 | | | |  | | | | | | | |
|  | | 34 | | | 10033 | | | | **城市轨道交通接触网技术** | | | | | | | | | | | |  | | | | | | | | | 5 | | | | | | | | | | 4 | | | | | | 64 | | | | | | | | | | 20 | | | | | | 44 | | | | | 4 | | | 40 | | | | | |  | | | | | | | | |  | | | | | |  | | | | | |  | | | | | | |  | | | | | | |  | | | | | | | 4 | | | |  | | | | | | | |
| 小计学分及学时数至少修够18分 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 40 | | | | | | 648 | | | | | | | | | | 266 | | | | | | 382 | | | | | 52 | | | 330 | | | | | |  | | | | | | | | |  | | | | | | 26 | | | | | | 22 | | | | | | | 22 | | | | | | | 24 | | | | | | | 24 | | | |  | | | | | | | |
| **四、素质拓展课** | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 课程类型 | | 序  号 | | | | 课程代码 | | | 课 程 名 称 | | | | | | | | | | | | 考核学期序 | | | | | | | | | | | | | | | | | | | 学 分 | | | | 课  时 | | | | | | | 说 明 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 考 试 | | | | | | 考 查 | | | | | | | | | | | | |
| 必修  课 | | 1 | | | | 01 | | | 军训及军事理论教育 | | | | | | | | | | | |  | | | | | | 1 | | | | | | | | | | | | | 4 | | | | 60 | | | | | | | | 第1学期开设，含入学教育。 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 2 | | | | 02 | | | 心理健康教育 | | | | | | | | | | | |  | | | | | | 2.3.4.5 | | | | | | | | | | | | | 2 | | | | 32 | | | | | | | | 分专业在第2～5学期之一开设。 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 3 | | | | 03 | | | 大学生安全及健康教育 | | | | | | | | | | | |  | | | | | | 1.2.3.4 | | | | | | | | | | | | | 2 | | | | 32 | | | | | | | | 在1～4学期实施，以专题讲座的形式和每学期大学生第二课堂教育活动中开设。 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 4 | | | | 04 | | | 大学生暑期社会实践 | | | | | | | | | | | |  | | | | | | 2.4 | | | | | | | | | | | | | 2 | | | |  | | | | | | | | 利用暑期，进行社会实践，提交报告。 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 小计学分及学时数 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 10 | | | | 124 | | | | | | | |  | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 选  修  课 | | 1 | | | | 001 | | | 演讲与口才 | | | | | | | | | | | |  | | | | | | 2～5 | | | | | | | | | | | | | 2 | | | | 32 | | | | | | | |  | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 2 | | | | 002 | | | 中国小说阅读与鉴赏 | | | | | | | | | | | |  | | | | | | 2～5 | | | | | | | | | | | | | 2 | | | | 32 | | | | | | | |  | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 3 | | | | 003 | | | 音乐欣赏 | | | | | | | | | | | |  | | | | | | 2～5 | | | | | | | | | | | | | 2 | | | | 32 | | | | | | | |  | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 4 | | | | 004 | | | 影视文学欣赏 | | | | | | | | | | | |  | | | | | | 2～5 | | | | | | | | | | | | | 2 | | | | 32 | | | | | | | |  | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 5 | | | | 005 | | | 应用写作 | | | | | | | | | | | |  | | | | | | 2～5 | | | | | | | | | | | | | 2 | | | | 32 | | | | | | | |  | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 6 | | | | 006 | | | 现代礼仪 | | | | | | | | | | | |  | | | | | | 2～5 | | | | | | | | | | | | | 2 | | | | 32 | | | | | | | |  | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 7 | | | | 007 | | | 中国古典诗词欣赏 | | | | | | | | | | | |  | | | | | | 2～5 | | | | | | | | | | | | | 2 | | | | 32 | | | | | | | |  | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 8 | | | | 008 | | | 中国近现代史纲要 | | | | | | | | | | | |  | | | | | | 2～5 | | | | | | | | | | | | | 2 | | | | 32 | | | | | | | |  | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 9 | | | | 009 | | | 中国传统文化 | | | | | | | | | | | |  | | | | | | 2～5 | | | | | | | | | | | | | 2 | | | | 32 | | | | | | | |  | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 10 | | | | 010 | | | 中国旅游资源概况 | | | | | | | | | | | |  | | | | | | 2～5 | | | | | | | | | | | | | 2 | | | | 32 | | | | | | | |  | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 11 | | | | 011 | | | ISO9000质量管理体系 | | | | | | | | | | | |  | | | | | | 2～5 | | | | | | | | | | | | | 2 | | | | 32 | | | | | | | |  | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 12 | | | | 012 | | | 高级文字排版 | | | | | | | | | | | |  | | | | | | 2～5 | | | | | | | | | | | | | 2 | | | | 32 | | | | | | | |  | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 13 | | | | 013 | | | 电子表格处理 | | | | | | | | | | | |  | | | | | | 2～5 | | | | | | | | | | | | | 2 | | | | 32 | | | | | | | |  | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 14 | | | | 014 | | | PS图像处理 | | | | | | | | | | | |  | | | | | | 2～5 | | | | | | | | | | | | | 2 | | | | 32 | | | | | | | |  | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 15 | | | | 015 | | | 高级PPT制作 | | | | | | | | | | | |  | | | | | | 2～5 | | | | | | | | | | | | | 2 | | | | 32 | | | | | | | |  | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 16 | | | | 016 | | | 计算机组装维修及网络操作 | | | | | | | | | | | |  | | | | | | 2～5 | | | | | | | | | | | | | 2 | | | | 32 | | | | | | | |  | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 17 | | | | 017 | | | 生活中的经济学 | | | | | | | | | | | |  | | | | | | 2～5 | | | | | | | | | | | | | 2 | | | | 32 | | | | | | | |  | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 18 | | | | 018 | | | 技术史漫谈 | | | | | | | | | | | |  | | | | | | 2～5 | | | | | | | | | | | | | 2 | | | | 32 | | | | | | | |  | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 19 | | | | 019 | | | 电影赏析 | | | | | | | | | | | |  | | | | | | 2～5 | | | | | | | | | | | | | 2 | | | | 32 | | | | | | | |  | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 20 | | | | 020 | | | 职业素质 | | | | | | | | | | | |  | | | | | | 2～5 | | | | | | | | | | | | | 2 | | | | 32 | | | | | | | |  | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 21 | | | | 021 | | | 创造性思维与创新方法 | | | | | | | | | | | |  | | | | | | 2～5 | | | | | | | | | | | | | 2 | | | | 32 | | | | | | | |  | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 22 | | | | 022 | | | 大学生创业基础 | | | | | | | | | | | |  | | | | | | 2～5 | | | | | | | | | | | | | 2 | | | | 32 | | | | | | | |  | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 23 | | | | 023 | | | 创新创业实践 | | | | | | | | | | | |  | | | | | | 1～6 | | | | | | | | | | | | | 10 | | | |  | | | | | | | | 用于学生参加课题研究、项目实验、竞赛活动、发表论文等创新创业成果的学分折算 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 小计学分及学时数 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 44 | | | | 704 | | | | | | | |  | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| **合计学分及学时数** | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | **总学分144,必修课学分122,选修课学分22，其中专业选修课学分18，素质选修课学分4.总学时2730，理论学时992，实践学时1738** | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

**铁道机械化维修技术专业**

**教学标准**

**专业名称** 铁道机械化维修技术

**专业代码** 600105

**入学要求** 高中阶段教育毕业生或具有同等学力者

**修业年限** 三年

**职业面向**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| 所属专业大类（代码） | 所属专业类（代码） | 对应行业（代码） | 主要职业类别（代码） | 主要岗位类别（技术领域）举例 | 职业资格（职业技能等级）证书举例 |
| 交通运输大类（60） | 铁道运输类（6001） | 土木工程建筑业（48）  铁路运输业  （53） | 铁道工务工程技术人员  （2-02-17-06）  铁路自轮运转设备工  （6-29-02-01） | 大型养路机械司机  机械设备修理人员 | 大型养路机械司机证  大型养路机械操作工证  内燃机车钳工  内燃机车电工  制动钳工  机修钳工 |

**培养目标与培养规格**

一、培养目标

本专业培养理想信念坚定、德技并修、全面发展，具有一定的科学文化水平，良好的职业道德、工匠精神和创新精神，具有较强的就业能力、一定的创业能力和支撑终身发展的能力；适应铁路（及城市轨道交通）建设与工务部门快速发展的需要，掌握铁道机械化维修设备基本结构、工作原理、操作条件、维护标准等基本知识，具备大型养路机械运用、维修、管理等技能，面向铁道机械化维修技术专业领域的高素质劳动者和技术技能人才。

二、培养规格

本专业毕业生应在素质、知识和能力等方面达到以下要求。

1.素质

坚定拥护中国共产党领导，在习近平新时代中国特色社会主义思想指引下，践行社会主义核心价值观，具有深厚的爱国情感和中华民族自豪感；

崇尚宪法、遵法守纪、崇德向善、诚实守信、尊重生命、热爱劳动，履行道德准则和行为规范，具有社会责任感和社会参与意识；

具有质量意识、环保意识、安全意识、信息素养、工匠精神、创新思维；

具有自我管理能力、职业生涯规划的意识，有较强的集体意识和团队合作精神；

具有健康的体魄、心理和健全的人格，掌握基本运动知识和一两项运动技能，养成良好的健身与卫生习惯，良好的行为习惯；

具有一定的审美和人文素养，能够形成一两项艺术特长或爱好。

2.知识

掌握必备的思想政治理论、科学文化基础知识和中华优秀传统文化知识；

熟悉与本专业相关的法律法规以及环境保护、安全消防等相关知识；

掌握与职业基础技能相适应的机械基础、电工基础、电子技术与PLC、工程制图、铁道概论、液压气动等专业基础知识；

掌握与职业技术技能相适应的铁道机械化维修技术方面的专业理论知识；

掌握与本专业相关的管理知识；

掌握与本专业相关的安全、质量相关知识；

掌握本专业新技术、新工艺、新材料、新设备等方面知识；

熟悉与本专业有关的规章制度，了解施工技术管理相关知识；

了解电务、供电、信号、运输设备基本知识；

了解最新发布的涉及本专业的铁路行业标准、国家标准和国际标准。

3.能力

具有探究学习、终身学习、分析问题和解决问题的能力；

具有良好的语言、文字表达能力和沟通能力；

具有铁道线路施工图及工程机械设备机械图、电路图、液压图的判读能力；

具有铁路自轮运转设备（捣固车、清筛车、钢轨打磨车、配砟整形车、轨道动力稳定车等）驾驶能力；

具有铁路自轮运转设备（捣固车、清筛车、钢轨打磨车、配砟整形车、轨道动力稳定车等）施工操作能力；

具有铁路自轮运转设备（捣固车、清筛车、钢轨打磨车、配砟整形车、轨道动力稳定车等）养护及故障判断、维修能力；

具有铁路自轮运转设备（捣固车、清筛车、钢轨打磨车、配砟整形车、轨道动力稳定车等）运营管理能力；

具有运用铁路自轮运转设备（捣固车、清筛车、钢轨打磨车、配砟整形车、轨道动力稳定车等）进行铁路路基、桥隧、轨道等工程施工与维护的能力；

具有利用铁路安全生产及保护知识，分析铁路工程事故的能力；

能够进行口语和书面的表达与交流；能够用工程语言（图纸）与专业人员进行有效的沟通交流；

具有本专业需要的信息技术应用能力。

**课程设置**

一、必修课程

1. 公共必修课程

|  |  |  |
| --- | --- | --- |
| 序号 | 课程名称 | 课时数 |
| 1 | 思想道德修养与法律基础及形势政策 | 66 |
| 2 | 毛泽东思想和中国特色社会主义理论体系概论及形势政策 | 67 |
| 3 | 高等数学 | 60 |
| 4 | 大学语文 | 60 |
| 5 | 公共英语 | 60 |
| 6 | 信息技术 | 60 |
| 7 | 体育 | 120 |
| 8 | 中华优秀传统文化 | 30 |
| 9 | 民族理论和政策 | 42 |
| 10 | 大学生职业发展与就业指导 | 36 |

2.专业必修课程

|  |  |  |
| --- | --- | --- |
| 序号 | 课程名称 | 课时数 |
| 1 | 铁道概论 | 60 |
| 2 | 机械基础 | 72 |
| 3 | 电工电子技术 | 72 |
| 4 | 机械制图与CAD | 72 |
| 5 | 铁路线路养护维修 | 52 |
| 6 | 电器控制与PLC | 52 |
| 7 | ★☆大型养路机械液气压传动 | 72 |
| 8 | ★☆铁路大型捣固设备与运用 | 84 |
| 9 | ★☆铁路大型清筛设备及运用 | 84 |
| 10 | ★钢轨打磨设备及运用 | 52 |
| 11 | ★大型养路机械检修技术 | 56 |
| 12 | ★铁路大型养路机械应用管理 | 56 |
| 13 | ★大型养路机械电气控制技术 | 52 |
| 14 | 钳工实习QG | 56 |
| 15 | 机械装调实训JX | 56 |
| 16 | 机电一体化实训JD | 56 |
| 17 | 毕业顶岗实习 | 540 |

3.素质拓展必修课程

|  |  |  |
| --- | --- | --- |
| 序号 | 课程名称 | 课时数 |
| 1 | 军训及军事理论教育 | 60 |
| 2 | 心理健康教育 | 32 |
| 3 | 大学生安全及健康教育 | 32 |
| 4 | 大学生暑期社会实践 |  |

二、选修课程

1. 专业选修课程

|  |  |  |
| --- | --- | --- |
| 序号 | 课程名称 | 课时数 |
| 1 | 内燃机车运用与规章 | 42 |
| 2 | 大型养路机械空气制动机 | 56 |
| 3 | 钢轨焊接及探伤 | 72 |
| 4 | 内燃机构造与应用 | 52 |
| 5 | 轨道动力稳定车 | 42 |
| 6 | 配砟整形车 | 42 |
| 7 | 铁路工务安全与技术管理 | 56 |
| 8 | 焊工实习DH | 56 |
| 9 | 内燃机维修实训NR | 56 |
| 10 | 内燃机车钳工技能鉴定NRQG | 56 |
| 11 | 工程测量 | 52 |
| 12 | 铁路线路工 | 56 |
| 13 | 传感器与测量技术 | 52 |
| 14 | 大型养路机械工作装置故障预案 | 42 |
| 15 | 大修列车 | 42 |
| 16 | 线路常见病害预防与整治 | 42 |
| 17 | 创业创新训练（电气） | 42 |
| 18 | 创业创新训练（焊接） | 42 |

2. 素质拓展选修课程

|  |  |  |
| --- | --- | --- |
| 序号 | 课程名称 | 课时数 |
| 1 | 演讲与口才 | 32 |
| 2 | 中国小说阅读与鉴赏 | 32 |
| 3 | 音乐欣赏 | 32 |
| 4 | 影视文学欣赏 | 32 |
| 5 | 应用写作 | 32 |
| 6 | 现代礼仪 | 32 |
| 7 | 中国古典诗词欣赏 | 32 |
| 8 | 中国近现代史纲要 | 32 |
| 9 | 中国传统文化 | 32 |
| 10 | 中国旅游资源概况 | 32 |
| 11 | ISO9000质量管理体系 | 32 |
| 12 | 高级文字排版 | 32 |
| 13 | 电子表格处理 | 32 |
| 14 | PS图像处理 | 32 |
| 15 | 高级PPT制作 | 32 |
| 16 | 计算机组装维修及网络操作 | 32 |
| 17 | 生活中的经济学 | 32 |
| 18 | 技术史漫谈 | 32 |
| 19 | 电影赏析 | 32 |
| 20 | 职业素质 | 32 |
| 21 | 创造性思维与创新方法 | 32 |
| 22 | 大学生创业基础 | 32 |
| 23 | 创新创业实践 |  |

**学时安排**

每学年教学时间为40周，总学时数为2799，实习按每周28学时计算。每学时为45分钟。18学时计为1个学分，总学分为143学分。军训、入学教育、社会实践、毕业设计（或毕业论文、毕业教育）等，以1周为1学分。公共基础课程学时占总学时25.9%。选修课教学时数占总学时的比例24.65%。学生顶岗实习为6个月，可根据实际情况，采取工学交替、多学期、分段式等多种形式组织实施。

**教学进程总体安排**

见附件（教学进程表）

**实施保障**

一、师资队伍

1.专业师生比

专业教师总数不少于10人，专业生师比不低于18：1。

2.学历结构

专业教师具有大学本科及以上学历并取得任职资格。

企业兼任实践教师可适当降低学历水平要求。

1. 职称结构

专业教师具有高级职称教师≥20％，中级职称教师≥50％。

4.教育背景

专业教师具有铁路交通或机械类专业教育背景的不低于70%。

1. 教师水平要求

专业教师具有“双师型”素质的教师人数不低于60％；专业教师平均教龄不低于4年。

课程设置所规定课程中的60%以上授课任务，需由经过相关专业系统培训，具有中级及以上技术职务和一定实践经验的专任教师担任。

6.教师发展规划

专业教师每年需完成国家或行业规定的继续教育计划，并经考核合格。

每年有一定数量的专业教师到相关企业进行相应的专业实践，从而提高教师们的实践能力。

二、教学设施

1.校内基础课教学实验室和教学设备的基本要求

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| 序号 | 实验室名称 | 设备名称 | 单位 | 数量 |
| 1 | 第一、二、三、四、五、六、七、八、九机房，第一、二、三电子阅览室 | 计算机 | 台 | 751 |

2.校内实训（含职业技能鉴定）基地的基本要求

设备基本要求如下：

A实验室：

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| 序号 | 实验室名称 | 设备名称 | 单位 | 数量 |
| 1 | 力学实验室 | 万能试验机；蝶式引伸仪；电阻应变仪；位移传感器；扭转实验机。 | 台、套 | 各4 |
| 2 | 金属工艺学实验室 | 布氏硬度计；洛氏硬度计；冲击试验机；金相显微镜；金相试样制作设备；各种非合金钢；合金钢及灰口铸铁；可锻铸铁；球墨铸铁试样等。 | 台、套 | 各10 |
| 3 | 公差配合与测量技术实验室 | 游标卡尺、高度游标卡尺、千分尺、内径千分尺、内径百分表、百分表、千分表、磁力表座 | 台、套 | 各10 |
| 4 | 机械基础  实验室 | 带传动、链传动、齿轮传动装置、减速器等 | 台、套 | 各10 |
| 机械传动实验装置（钳工装配实验平台） | 台 | 3 |
| 5 | 电工实验室 | 交流稳压电源 | 台 | 2 |
| 万用电桥 | 台 | 20 |
| 直流稳压电源 | 台 | 30 |
| 低频信号发生器 | 台 | 30 |
| 示波器 | 台 | 25 |
| 万用表 | 块 | 30 |
| 兆欧表 | 块 | 30 |
| 直流电压表、直流电流表 | 块 | 各50 |
| 交流电压表、交流电流表 | 块 | 各50 |
| 接触器、时间继电器、热继电器 | 个 | 各50 |
| 交流电动机 | 台 | 50 |
| 各规格实验板 | 块 | 25 |
| 常用电工工具材料等。 | 套 | 30 |
| 6 | 电子技术  实验室 | 万用电桥 | 台 | 20 |
| 直流稳压电源 | 台 | 30 |
| 低频信号发生器 | 台 | 30 |
| 示波器 | 台 | 25 |
| 万用表 | 块 | 30 |
| 晶体管毫伏表 | 块 | 30 |
| 晶体管参数测试仪 | 台 | 2 |
| 直流电压表 | 块 | 30 |
| 直流电流表 | 块 | 30 |
| 常用电工工具材料等 | 套 | 30 |
| 7 | 机械制造技术实验室 | 卧式车床（CA6140） | 台 | 10 |
| 典型刀具 | 套 | 12 |
| 升降台铣床（或刨床） | 台 | 3 |
| 钻铣床 | 台 | 12 |
| 典型零件（轴、盘、套） | 套 | 5 |
| 8 | 液压传动与气动实验室 | 液压实验台；空气压缩机；液压泵、齿轮泵、叶片泵、 柱塞泵、螺杆泵、液压缸、液压马达、液压阀等典型元件、缸、阀、辅助元件、气缸气压阀、辅助件等、 | 台、套 | 各10 |
| 液压与气压传动实验装置 | 套 | 4 |
| 9 | 数控编程与操作实验室 | 数控车床 | 台 | 1 |
| 数控铣床 | 台 | 1 |
| 加工中心 | 台 | 1 |
| 数控线切割机床 | 台 | 1 |
| 经济型数控车、铣床 | 台 | 1 |
| 检具、夹具、寻边器等 | 套 | 5 |

B实习、实训室

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| 序号 | 实训室名称 | 设备名称 | 单位 | 数量 |
| 1 | 机械钳工  实训室 | 四工位钳工台案（带台钳） | 台 | 15 |
| 台钻 | 台 | 3 |
| 方箱、平板、划线工具 | 套 | 3 |
| 高度尺 | 把 | 2 |
| 游标卡尺 | 把 | 15 |
| 直角尺 | 把 | 15 |
| 万能角度尺 | 把 | 10 |
| 手锯、榔头 | 把 | 各50 |
| 各型锉 | 把 | 若干 |
| 丝锥、板牙 | 支 | 若干 |
| 塞尺、R规等 | 把 | 若干 |
| 手弧焊机 | 台 | 10 |
| 等离子切割机 | 台 | 2 |
| CO2半自动焊机 | 台 | 1 |
| 超声波探伤仪 | 台 | 1 |
| 磁力探伤仪 | 台 | 1 |
| 焊工工具材料 | 台 | 若干 |
| 2 | 电工技术  实训室 | 万用表 | 块 | 20 |
| 兆欧表 | 块 | 20 |
| 转速表 | 块 | 10 |
| 空气开关、按钮盒 | 套 | 各40 |
| 单相电度表、三相电度表 | 个 | 各30 |
| 单相插座、三相插座、灯座 | 个 | 各30 |
| 日光灯组件 | 套 | 30 |
| 常用电工工具 | 套 | 40 |
| 红、黄、蓝、黑导线 |  | 若干 |
| 交流电动机、接触器、时间继电器、热继电器，所用各规格实验板 | 套 | 各30 |
| 3 | 电子技术  实训室 | 台钻 | 台 | 4 |
| 万用表 | 块 | 25 |
| 毫伏表 | 台 | 25 |
| 低频信号发生器 | 台 | 25 |
| 万用电桥 | 台 | 25 |
| 直流稳压电源 | 台 | 25 |
| 示波器 | 台 | 25 |
| 晶体管毫伏表 | 台 | 25 |
| 电烙铁及烙铁架 | 套 | 25 |
| 改锥（十字、平口） | 套 | 25 |
| 电工工具材料等 | 套 | 25 |
| 实训台 | 台 | 25 |
| 4 | 机械加工  实习中心 | 机械加工各种规格的工具 | 件 | 若干 |
| 砂轮机 | 台 | 2 |
| 普通车床、普通铣床、刨床 | 台 | 30 |
| 机械加工刀具、量具 | 件 | 若干 |
| 机械零件毛坯。 | 件 | 若干 |
| 5 | 电气控制设备实训室 | 组合开关、空气开关 | 个 | 50 |
| 交流接触器 | 个 | 150 |
| 热继电器 | 个 | 50 |
| 异步电动机 | 台 | 20 |
| 万用表 | 块 | 30 |
| 兆欧表 | 套 | 30 |
| 按钮， | 个 | 50 |
| 常用电工工具 | 套 | 50 |
| 接线端子 | 个 | 200 |
| 熔断器 | 个 | 200 |
| 实训台 | 个 | 25 |
| 红、黄、蓝、黑导线 | 根 | 若干 |
| 6 | 数控加工  实习中心 | 数控车床﹝CK6140一台(GSK980TA 系统)，CK6136B两台（GSK928TE/TC系统）﹞ | 台 | 2 |
| 数控立卧铣床﹝XK6350D一台（KND-10M系统）﹞ | 台 | 1 |
| 方正计算机K100-5255一台（CAM软件） | 台 | 1 |
| 立式数控铣床（J1VMC40MB型 数控系统为FANUC 0i -MC系统） | 台 | 2 |
| 加工中心 | 台 | 2 |
| DK7732A±6º-3HF数控电火花线切割机床 | 台 | 1 |
| 经济型数控车、铣床 | 台 | 5 |
| 检具、夹具、寻边器等 | 套 | 5 |
| 7 | 机械设备修理工艺 | 旧普通车床 | 台 | 5 |
| 旧卧式升降台铣床 | 台 | 5 |
| 旧机床典型零部件 | 套 | 5 |
| 检验桥板、框式水平仪、条式水平仪，检验棒、检验平尺，检验角尺，检验平板，方箱、平尺、V型铁等修理工具 | 套 | 10 |
| 8 | 焊接技术  实训室 | 手工直流焊机 | 台 | 20 |
| 逆变式半自动气体保护焊机 | 台 | 20 |
| TIG焊机 | 台 | 5 |
| 等离子切割机 | 台 | 2 |
| 火焰切割机 | 台 | 2 |
| 气泵 | 台 | 2 |
| 砂轮切割机 | 台 | 3 |
| 角磨机 | 台 | 10 |
| 钳工案（带台钳，2工位或4工位） | 台 | 4 |
| 砂轮机 | 台 | 2 |
| 氧气、乙炔、二氧化碳、氩气瓶 | 台 | 各5个 |
| 9 | 可编程控制器实训室 | PLC实训实验台 | 台 | 15 |
| 计算机 1台 |  |  |
| FX2N一台 1台 |  |  |
| 开关电源1个 |  |  |
| 导线 若干 |  |  |
| 指示灯10个 |  |  |
| 按钮开关10个 |  |  |
| 继电器10个 |  |  |
| 10 | 抄平起拨道捣固车仿真模拟系统 | 3D仿真模拟计算机 | 套 | 50 |
| 11 | 抄平起拨道捣固车仿真实训平台 | 抄平起拨道捣固车1:1仿真平台 | 套 | 1 |

3.校外实习基地的基本要求

在努力完善学校各方面教学条件的基础上，还要努力与呼铁局机械工务段、内蒙古大养机公司以及神华神维公司、昆明中铁等企业建立校企合作关系。积极促使校企关系更加紧密，从而给学生们一个了解社会和行业的窗口，也对行业的施工环节及工作流程有进一步的认识。同时，可以做到校企零距离，使校企资源的共享。学校按照企业需要开展企业员工的职业培训，与企业合作开展应用研究与开发。企业也参与学校的改革与发展，为学生们顶岗实习创造条件。

三、教学资源

1.教材资源

采用高等教育出版社、中国铁道出版社、机械工业出版社、电子工业出版社、科学出版社、中国劳动社会保障出版社、西安电子科技大学出版社等高职高专“十三五”教材。

2.图书资源

学院拥有各类图书五十余万册，订阅专业期刊十余类。并与昆明中铁驾驶培训站共享图书教育资源。

3.数字化（网络）资源

充分利用电子书籍、电子期刊、数据库、数字图书馆、教育网站和电子论坛等网上信息资源，使教学从单一媒体向多媒体转变；使教学活动从信息的单向传递向双向交换转变；使学生从单独的学习向合作学习转变。

四、教学方法

1.教学方法、手段建议

在教学过程中注意发挥学生的主体作用和教师的主导作用，注重培养学生分析和解决问题能力，模拟现场真实工作，采用引导文教学法、角色扮演法、任务驱动法、案例教学法、项目教学法等一系列“理实一体化”的方法，引导学生完成学习性工作任务。

2.教学组织形式建议

发挥校内实训基地或理实一体化教室功用，利用多媒体课件、现场操作录像、教师演示操作、数字教学资源以及实训设备，按情境或项目组织教学。

五、教学评价

1.教学评价建议

⑴ 对学生应该进行全面综合、突出能力的考核。

A．专业理论课程考核中，突出知识的掌握、相关问题的分析、判断、解决的能力。

B．实践课程考核中，突出基本技能的掌握、熟练程度以及是否具有创新意识等。

考核中，还应包括与同学共同工作的团队协作精神、踏实认真的态度以及持之以恒的精神等。

⑵ 对教师的评价考核，从工作态度、教学能力（运用各种适合的教学方法、手段，实际动手操作能力）、最新专业技术知识的学习应用、开展教学研究的成果等方面进行。

⑶ 对专业教学评价，应对毕业生进行跟踪调查，可以是寻访或发收调查表的形式，主要项目应包括：毕业生在工作单位的工作态度、职业能力、水平、职业发展的可塑性以及对学校的教学要求及改进建议等。

2.教学考核建议

强调以职业能力为指向的过程考核、分阶段考核。

**毕业要求**

学生德、智、体、美、劳合格，在允许的修业年限内学完培养计划规定的全部课程，通过顶岗实践或毕业论文答辩，取得相应的职业资格证书，达到毕业最低学分143分要求，即获得毕业资格，准予毕业并颁发毕业证书。

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **教 学 进 程 表**  **2018 级 铁道机械化维修技术技术 专 业**  毕业最低学分：143分  专业代码：600105 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |  | | | | | | |
| **一、教学进程表** | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | **二、周数分配表** | | | | | | | | | | | | | | | |
| 学年 | 教学周 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 理论及分散实践 | 集中实践 | | 考试 | | 劳动 | | 军训 | | | | 机动 | | 毕业教育 | 假期 | 合计 | |
| 九月 | | | | | | | 十月 | | | | | 十一月 | | | | 十二月 | | | | | | | | 一月 | | | | | 二月 | | | | | | 三月 | | | | | | | 四月 | | | | | | | 五月 | | | | | | 六月 | | | | | 七月 | | | | | | | | | 八月 | | | | |
|  | 1 | | 2 | | 3 | 4 | | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | | 15 | 16 | 17 | | 18 | | 19 | 20 | 21 | 22 | | 23 | 24 | | 25 | 26 | | 27 | 28 | | 29 | | 30 | | 31 | 32 | | 33 | 34 | 35 | | 36 | 37 | | 38 | | 39 | 40 | 41 | | 42 | 43 | 44 | | 45 | | 46 | 47 | | | 48 | 49 | | 50 | 51 | 52 | K | S | | ∷ | | × | | ★ | | | | J | | T | = |  | |
| 一 | ★2 | | | | K15 | | | | | | | | | | | | | | | | | | J2 | | | ∷ | ==== 6 | | | | | | | | | K18 | | | | | | | | | | | | | | | | | | | | | | | | | | | J | | ∷ | ==== 6 | | | | | | | | | 33 |  | | 2 | |  | | 2 | | | | 3 | | 0 | 12 | 52 | |
| 二 | K13 | | | | | | | | | | | | | | | | QG | | | DH | | | × | | J | ∷ | ==== 6 | | | | | | | | | K14 | | | | | | | | | | | | | | | | | | | | | NR | | | JX | | | J | | ∷ | ==== 6 | | | | | | | | | 27 | 8 | | 2 | | 1 | | 0 | | | | 2 | | 0 | 12 | 52 | |
| 三 | K14 | | | | | | | | | | | | | | | | | | NRQG | | JD | | | | J | ∷ | ==== 6 | | | | | | | | | BY18 | | | | | | | | | | | | | | | | | | | | | | | | | | | J | | T |  | | | | | | | | | 14 | 22 | | 1 | |  | | 0 | | | | 2 | | 1 | 6 | 46 | |
| **三、教学进度表** | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 合计 | | | | | | | | | | | | | | 74 | 30 | | 5 | | 1 | | 2 | | | | 7 | | 1 | 30 | 150 | |
| 课程类型 | 序号 | | 课程代码 | | | 课程名称 | | | | | | | | | | | 考核学期序 | | | | | | | | | | | 学分 | | | | | | 学时数 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 理论教学（含分散性实践教学）周学时 | | | | | | | | | | | | | | | | | | | | |
| 考试 | | | | | | 考查 | | | | | 总计 | | | | | | | 理论 | | | | | | | 实践 | | | | | | | | | | | | | | | | | | | | | | 一年级 | | | | | | 二年级 | | | | | | | | 三年级 | | | | | | |
|  | |  | | |  | | | | | | | | | | |  | | | | | |  | | | | |  | | | | | |  | | | | | | |  | | | | | | | 合计 | | | | | 习题课 | | | | 实训 | | | | 现场教学 | | | | | 创业创新训练 | | | | 1学期15周 | | | 2学期18周 | | | 3学期13周 | | | | 4学期14周 | | | | 5学期14周 | | | | 6学期18周 | | |
| **公共必修课** | | 1 | | 0001 | | | 思想道德修养与法律基础及形势政策 | | | | | | | | | | | 1 | | | | | | 2 | | | | | 4 | | | | | | 66 | | | | | | | 52 | | | | | | | 14 | | | | | 14 | | | |  | | | |  | | | | |  | | | | 2 | | | 2 | | |  | | | |  | | | |  | | | |  | | |
| 2 | | 0002 | | | 毛泽东思想和中国特色社会主义理论体系概论及形势政策 | | | | | | | | | | | 3 | | | | | | 4 | | | | | 4 | | | | | | 67 | | | | | | | 55 | | | | | | | 12 | | | | | 12 | | | |  | | | |  | | | | |  | | | |  | | |  | | | 3 | | | | 2 | | | |  | | | |  | | |
| 3 | | 0005 | | | 高等数学 | | | | | | | | | | | 1 | | | | | |  | | | | | 3 | | | | | | 60 | | | | | | | 54 | | | | | | | 6 | | | | | 6 | | | |  | | | |  | | | | |  | | | | 4 | | |  | | |  | | | |  | | | |  | | | |  | | |
| 4 | | 0006 | | | 大学语文 | | | | | | | | | | |  | | | | | | 1 | | | | | 3 | | | | | | 60 | | | | | | | 52 | | | | | | | 8 | | | | | 8 | | | |  | | | |  | | | | |  | | | | 4 | | |  | | |  | | | |  | | | |  | | | |  | | |
| 5 | | 0007 | | | 公共英语 | | | | | | | | | | | 1 | | | | | |  | | | | | 3 | | | | | | 60 | | | | | | | 18 | | | | | | | 42 | | | | | 42 | | | |  | | | |  | | | | |  | | | | 4 | | |  | | |  | | | |  | | | |  | | | |  | | |
| 6 | | 0008 | | | 信息技术 | | | | | | | | | | |  | | | | | | 1 | | | | | 3 | | | | | | 60 | | | | | | | 30 | | | | | | | 30 | | | | | 30 | | | |  | | | |  | | | | |  | | | | 4 | | |  | | |  | | | |  | | | |  | | | |  | | |
| 7 | | 0009 | | | 体育 | | | | | | | | | | | 3 | | | | | | 1.2.4 | | | | | 7 | | | | | | 120 | | | | | | | 8 | | | | | | | 112 | | | | |  | | | |  | | | | 112 | | | | |  | | | | 2 | | | 2 | | | 2 | | | | 2 | | | |  | | | |  | | |
| 8 | | 0004 | | | 中华优秀传统文化 | | | | | | | | | | |  | | | | | | 1 | | | | | 2 | | | | | | 30 | | | | | | | 30 | | | | | | |  | | | | |  | | | |  | | | |  | | | | |  | | | | 2 | | |  | | |  | | | |  | | | |  | | | |  | | |
| 9 | | 0011 | | | 民族理论和政策 | | | | | | | | | | |  | | | | | | 2 | | | | | 2 | | | | | | 42 | | | | | | | 42 | | | | | | |  | | | | |  | | | |  | | | |  | | | | |  | | | |  | | |  | | |  | | | |  | | | | 3 | | | |  | | |
| 10 | | 0010 | | | 大学生职业发展与就业指导 | | | | | | | | | | |  | | | | | | 5 | | | | | 2 | | | | | | 36 | | | | | | | 36 | | | | | | |  | | | | |  | | | |  | | | |  | | | | |  | | | |  | | | 2 | | |  | | | |  | | | |  | | | |  | | |
| **小计学分及学时数** | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 33 | | | | | | 601 | | | | | | | 377 | | | | | | | 224 | | | | | 112 | | | | 0 | | | | 112 | | | | | 0 | | | | 22 | | | 6 | | | 5 | | | | 4 | | | | 3 | | | | 0 | | |
| **专业必修课** | | 11 | | 12001 | | | 铁道概论 | | | | | | | | | | |  | | | | | | 1 | | | | | 3 | | | | | | 60 | | | | | | | 50 | | | | | | | 10 | | | | |  | | | |  | | | | 10 | | | | |  | | | | 4 | | |  | | |  | | | |  | | | |  | | | |  | | |
| 12 | | 12002 | | | 机械基础 | | | | | | | | | | | 2 | | | | | |  | | | | | 4 | | | | | | 72 | | | | | | | 36 | | | | | | | 36 | | | | |  | | | |  | | | | 36 | | | | |  | | | |  | | | 4 | | |  | | | |  | | | |  | | | |  | | |
| 13 | | 12003 | | | 电工电子技术 | | | | | | | | | | | 2 | | | | | |  | | | | | 4 | | | | | | 72 | | | | | | | 36 | | | | | | | 36 | | | | |  | | | |  | | | | 36 | | | | |  | | | |  | | | 4 | | |  | | | |  | | | |  | | | |  | | |
| 14 | | 12004 | | | 机械制图与CAD | | | | | | | | | | |  | | | | | | 2 | | | | | 4 | | | | | | 72 | | | | | | | 36 | | | | | | | 36 | | | | |  | | | |  | | | | 36 | | | | |  | | | |  | | | 4 | | |  | | | |  | | | |  | | | |  | | |
| 15 | | 12005 | | | 铁路线路养护维修 | | | | | | | | | | |  | | | | | | 5 | | | | | 3 | | | | | | 52 | | | | | | | 42 | | | | | | | 10 | | | | |  | | | |  | | | | 10 | | | | |  | | | |  | | |  | | | 4 | | | |  | | | |  | | | |  | | |
| 16 | | 12006 | | | 电器控制与PLC | | | | | | | | | | |  | | | | | | 2 | | | | | 3 | | | | | | 52 | | | | | | | 42 | | | | | | | 10 | | | | |  | | | |  | | | | 10 | | | | |  | | | |  | | |  | | | 4 | | | |  | | | |  | | | |  | | |
| 17 | | 12007 | | | ★☆大型养路机械液气压传动 | | | | | | | | | | | 2 | | | | | |  | | | | | 4 | | | | | | 72 | | | | | | | 36 | | | | | | | 36 | | | | |  | | | |  | | | | 46 | | | | |  | | | |  | | | 4 | | |  | | | |  | | | |  | | | |  | | |
| 18 | | 12008 | | | ★☆铁路大型捣固设备与运用 | | | | | | | | | | | 4 | | | | | |  | | | | | 5 | | | | | | 84 | | | | | | | 42 | | | | | | | 42 | | | | |  | | | |  | | | | 42 | | | | |  | | | |  | | |  | | |  | | | | 6 | | | |  | | | |  | | |
| 19 | | 12009 | | | ★☆铁路大型清筛设备及运用 | | | | | | | | | | | 5 | | | | | |  | | | | | 5 | | | | | | 84 | | | | | | | 42 | | | | | | | 42 | | | | |  | | | |  | | | | 42 | | | | |  | | | |  | | |  | | |  | | | |  | | | | 6 | | | |  | | |
| 20 | | 12010 | | | ★钢轨打磨设备及运用 | | | | | | | | | | | 3 | | | | | |  | | | | | 3 | | | | | | 52 | | | | | | | 42 | | | | | | | 10 | | | | |  | | | |  | | | | 10 | | | | |  | | | |  | | |  | | | 4 | | | |  | | | |  | | | |  | | |
| 21 | | 12011 | | | ★大型养路机械检修技术 | | | | | | | | | | | 4 | | | | | |  | | | | | 3 | | | | | | 56 | | | | | | | 46 | | | | | | | 10 | | | | |  | | | |  | | | | 10 | | | | |  | | | |  | | |  | | |  | | | | 4 | | | |  | | | |  | | |
| 22 | | 12012 | | | ★铁路大型养路机械应用管理 | | | | | | | | | | | 5 | | | | | |  | | | | | 3 | | | | | | 56 | | | | | | | 56 | | | | | | |  | | | | |  | | | |  | | | |  | | | | |  | | | |  | | |  | | |  | | | |  | | | | 4 | | | |  | | |
| 23 | | 12013 | | | ★大型养路机械电气控制技术 | | | | | | | | | | | 3 | | | | | |  | | | | | 3 | | | | | | 52 | | | | | | | 26 | | | | | | | 26 | | | | |  | | | |  | | | | 26 | | | | |  | | | |  | | |  | | | 4 | | | |  | | | |  | | | |  | | |
| 24 | | 12401 | | | 钳工实习QG | | | | | | | | | | |  | | | | | | 3 | | | | | 2 | | | | | | 56 | | | | | | |  | | | | | | | 56 | | | | |  | | | | 56 | | | |  | | | | |  | | | |  | | |  | | | 2周 | | | |  | | | |  | | | |  | | |
| 25 | | 12403 | | | 机械装调实训JX | | | | | | | | | | |  | | | | | | 4 | | | | | 2 | | | | | | 56 | | | | | | |  | | | | | | | 56 | | | | |  | | | | 56 | | | |  | | | | |  | | | |  | | |  | | |  | | | | 2周 | | | |  | | | |  | | |
| 26 | | 12404 | | | 机电一体化实训JD | | | | | | | | | | |  | | | | | | 5 | | | | | 2 | | | | | | 56 | | | | | | |  | | | | | | | 56 | | | | |  | | | | 56 | | | |  | | | | |  | | | |  | | |  | | |  | | | |  | | | | 2周 | | | |  | | |
| 27 | | 12405 | | | 毕业顶岗实习BY | | | | | | | | | | |  | | | | | | 6 | | | | | 18 | | | | | | 540 | | | | | | |  | | | | | | | 540 | | | | |  | | | |  | | | | 540 | | | | |  | | | |  | | |  | | |  | | | |  | | | |  | | | | 18周 | | |
| **小计学分及学时数** | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 71 | | | | | | 1544 | | | | | | | 532 | | | | | | | 1012 | | | | |  | | | | 168 | | | | 854 | | | | |  | | | | 4 | | | 16 | | | 16 | | | | 10 | | | | 10 | | | | 0 | | |
| **专业选修课** | | 28 | | 12014 | | | 内燃机车运用与规章 | | | | | | | | | | |  | | | | | | 5 | | | | | 2 | | | | | | 42 | | | | | | | 42 | | | | | | |  | | | | |  | | | |  | | | |  | | | | |  | | | |  | | |  | | |  | | | |  | | | | 3 | | | |  | | |
| 29 | | 12015 | | | 大型养路机械空气制动机 | | | | | | | | | | | 4 | | | | | |  | | | | | 3 | | | | | | 56 | | | | | | | 46 | | | | | | | 10 | | | | |  | | | |  | | | | 10 | | | | |  | | | |  | | |  | | |  | | | | 4 | | | |  | | | |  | | |
| 30 | | 12016 | | | 钢轨焊接及探伤 | | | | | | | | | | |  | | | | | | 2 | | | | | 4 | | | | | | 72 | | | | | | | 42 | | | | | | | 30 | | | | |  | | | |  | | | | 10 | | | | |  | | | |  | | | 4 | | |  | | | |  | | | |  | | | |  | | |
| 31 | | 12017 | | | 内燃机构造与应用 | | | | | | | | | | |  | | | | | | 4 | | | | | 3 | | | | | | 52 | | | | | | | 46 | | | | | | | 10 | | | | |  | | | |  | | | | 10 | | | | |  | | | |  | | |  | | | 4 | | | |  | | | |  | | | |  | | |
| 32 | | 12018 | | | 轨道动力稳定车 | | | | | | | | | | |  | | | | | | 4 | | | | | 2 | | | | | | 42 | | | | | | | 29 | | | | | | | 10 | | | | |  | | | |  | | | | 10 | | | | |  | | | |  | | |  | | |  | | | | 3 | | | |  | | | |  | | |
| 33 | | 12019 | | | 配砟整形车 | | | | | | | | | | |  | | | | | | 4 | | | | | 2 | | | | | | 42 | | | | | | | 34 | | | | | | | 8 | | | | |  | | | |  | | | | 8 | | | | |  | | | |  | | |  | | |  | | | | 3 | | | |  | | | |  | | |
| 34 | | 12020 | | | 铁路工务安全与技术管理 | | | | | | | | | | | 5 | | | | | |  | | | | | 3 | | | | | | 56 | | | | | | | 46 | | | | | | | 10 | | | | |  | | | |  | | | | 10 | | | | |  | | | |  | | |  | | |  | | | |  | | | | 4 | | | |  | | |
| 35 | | 12402 | | | 焊工实习DH | | | | | | | | | | |  | | | | | | 3 | | | | | 2 | | | | | | 56 | | | | | | |  | | | | | | | 56 | | | | |  | | | | 56 | | | |  | | | | |  | | | |  | | |  | | | 2周 | | | |  | | | |  | | | |  | | |
| 36 | | 12406 | | | 内燃机维修实训NR | | | | | | | | | | |  | | | | | | 4 | | | | | 2 | | | | | | 56 | | | | | | |  | | | | | | | 56 | | | | |  | | | | 56 | | | |  | | | | |  | | | |  | | |  | | |  | | | | 2周 | | | |  | | | |  | | |
| 37 | | 12407 | | | 内燃机车钳工技能鉴定NRQG | | | | | | | | | | |  | | | | | | 5 | | | | | 2 | | | | | | 56 | | | | | | |  | | | | | | | 56 | | | | |  | | | | 56 | | | |  | | | | |  | | | |  | | |  | | |  | | | |  | | | | 2周 | | | |  | | |
| 38 | | 12021 | | | 工程测量 | | | | | | | | | | |  | | | | | | 3 | | | | | 3 | | | | | | 52 | | | | | | | 42 | | | | | | | 10 | | | | |  | | | |  | | | | 10 | | | | |  | | | |  | | |  | | | 4 | | | |  | | | |  | | | |  | | |
| 39 | | 12022 | | | 铁路线路工 | | | | | | | | | | |  | | | | | | 4 | | | | | 3 | | | | | | 56 | | | | | | | 46 | | | | | | | 10 | | | | |  | | | |  | | | | 10 | | | | |  | | | |  | | |  | | |  | | | | 4 | | | |  | | | |  | | |
| 40 | | 12023 | | | 传感器与测量技术 | | | | | | | | | | |  | | | | | | 5 | | | | | 2 | | | | | | 52 | | | | | | | 42 | | | | | | | 10 | | | | |  | | | |  | | | | 10 | | | | |  | | | |  | | |  | | | 4 | | | |  | | | |  | | | |  | | |
| 41 | | 12024 | | | 大型养路机械工作装置故障预案 | | | | | | | | | | |  | | | | | | 5 | | | | | 2 | | | | | | 42 | | | | | | | 34 | | | | | | | 8 | | | | |  | | | |  | | | | 8 | | | | |  | | | |  | | |  | | |  | | | |  | | | | 3 | | | |  | | |
| 42 | | 12025 | | | 大修列车 | | | | | | | | | | |  | | | | | | 5 | | | | | 2 | | | | | | 42 | | | | | | | 34 | | | | | | | 8 | | | | |  | | | |  | | | | 8 | | | | |  | | | |  | | |  | | |  | | | |  | | | | 3 | | | |  | | |
| 43 | | 12026 | | | 线路常见病害预防与整治 | | | | | | | | | | |  | | | | | | 5 | | | | | 2 | | | | | | 42 | | | | | | | 34 | | | | | | | 8 | | | | |  | | | |  | | | | 8 | | | | |  | | | |  | | |  | | |  | | | |  | | | | 3 | | | |  | | |
| 44 | | 12501 | | | 创业创新训练（电气） | | | | | | | | | | | 创业创新课程 | | | | | | 5 | | | | | 2 | | | | | | 42 | | | | | | | 34 | | | | | | | 8 | | | | |  | | | |  | | | | 8 | | | | |  | | | |  | | |  | | |  | | | |  | | | | 3 | | | |  | | |
| 45 | | 12502 | | | 创业创新训练（焊接） | | | | | | | | | | | 5 | | | | | 2 | | | | | | 42 | | | | | | | 34 | | | | | | | 8 | | | | |  | | | |  | | | | 8 | | | | |  | | | |  | | |  | | |  | | | |  | | | | 3 | | | |  | | |
| **小计学分及学时数** | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 25 | | | | | | 530 | | | | | | | 285 | | | | | | | 246 | | | | | 0 | | | | 168 | | | | 58 | | | | |  | | | |  | | | 4 | | | 4 | | | | 10 | | | | 7 | | | |  | | |
| **合计学分及学时数** | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 129 | | | | | | 2675 | | | | | | | 1194 | | | | | | | 1482 | | | | |  | | | |  | | | |  | | | | |  | | | | 26 | | | 26 | | | 25 | | | | 24 | | | | 20 | | | | 18周 | | |
| **四、素质拓展课** | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| **课程类型** | | 序号 | | 课程代码 | | | 课程名称 | | | | | | | | | | | 考核学期序 | | | | | | | | | | | 学分 | | | 课时 | | | | | | | | 说明 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 考试 | | | | 考查 | | | | | | |
|
|
| **必修课** | | 1 | | 01 | | | 军训及军事理论教育 | | | | | | | | | | |  | | | | 1 | | | | | | | 4 | | | 60（4:56） | | | | | | | | 第1学期开设，含入学教育。 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 2 | | 02 | | | 心理健康教育 | | | | | | | | | | |  | | | | 2.3.4.5 | | | | | | | 2 | | | 32（20:12） | | | | | | | | 分专业在第2～5学期之一开设。 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 3 | | 03 | | | 大学生安全及健康教育 | | | | | | | | | | |  | | | | 1.2.3.4 | | | | | | | 2 | | | 32（20:12） | | | | | | | | 在1～4学期实施，以专题讲座的形式和每学期大学生第二课堂教育活动中开设。 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 4 | | 04 | | | 大学生暑期社会实践 | | | | | | | | | | |  | | | | 2.4 | | | | | | | 2 | | |  | | | | | | | | 利用暑期，进行社会实践，提交报告。 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| **小计学分及学时数** | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 10 | | | 124 | | | | | | | |  | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| **选修课** | | 1 | | 001 | | | 演讲与口才 | | | | | | | | | | |  | | | | 2～5 | | | | | | | 2 | | | 32 | | | | | | | |  | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 2 | | 002 | | | 中国小说阅读与鉴赏 | | | | | | | | | | |  | | | | 2～5 | | | | | | | 2 | | | 32 | | | | | | | |  | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 3 | | 003 | | | 音乐欣赏 | | | | | | | | | | |  | | | | 2～5 | | | | | | | 2 | | | 32 | | | | | | | |  | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 4 | | 004 | | | 影视文学欣赏 | | | | | | | | | | |  | | | | 2～5 | | | | | | | 2 | | | 32 | | | | | | | |  | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 5 | | 005 | | | 应用写作 | | | | | | | | | | |  | | | | 2～5 | | | | | | | 2 | | | 32 | | | | | | | |  | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 6 | | 006 | | | 现代礼仪 | | | | | | | | | | |  | | | | 2～5 | | | | | | | 2 | | | 32 | | | | | | | |  | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 7 | | 007 | | | 中国古典诗词欣赏 | | | | | | | | | | |  | | | | 2～5 | | | | | | | 2 | | | 32 | | | | | | | |  | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 8 | | 008 | | | 中国近现代史纲要 | | | | | | | | | | |  | | | | 2～5 | | | | | | | 2 | | | 32 | | | | | | | |  | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 9 | | 009 | | | 中国传统文化 | | | | | | | | | | |  | | | | 2～5 | | | | | | | 2 | | | 32 | | | | | | | |  | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 10 | | 010 | | | 中国旅游资源概况 | | | | | | | | | | |  | | | | 2～5 | | | | | | | 2 | | | 32 | | | | | | | |  | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 11 | | 011 | | | ISO9000质量管理体系 | | | | | | | | | | |  | | | | 2～5 | | | | | | | 2 | | | 32 | | | | | | | |  | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 12 | | 012 | | | 高级文字排版 | | | | | | | | | | |  | | | | 2～5 | | | | | | | 2 | | | 32 | | | | | | | |  | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 13 | | 013 | | | 电子表格处理 | | | | | | | | | | |  | | | | 2～5 | | | | | | | 2 | | | 32 | | | | | | | |  | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 14 | | 014 | | | PS图像处理 | | | | | | | | | | |  | | | | 2～5 | | | | | | | 2 | | | 32 | | | | | | | |  | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 15 | | 015 | | | 高级PPT制作 | | | | | | | | | | |  | | | | 2～5 | | | | | | | 2 | | | 32 | | | | | | | |  | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 16 | | 016 | | | 计算机组装维修及网络操作 | | | | | | | | | | |  | | | | 2～5 | | | | | | | 2 | | | 32 | | | | | | | |  | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 17 | | 017 | | | 生活中的经济学 | | | | | | | | | | |  | | | | 2～5 | | | | | | | 2 | | | 32 | | | | | | | |  | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 18 | | 018 | | | 技术史漫谈 | | | | | | | | | | |  | | | | 2～5 | | | | | | | 2 | | | 32 | | | | | | | |  | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 19 | | 019 | | | 电影赏析 | | | | | | | | | | |  | | | | 2～5 | | | | | | | 2 | | | 32 | | | | | | | |  | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 20 | | 020 | | | 职业素质 | | | | | | | | | | |  | | | | 2～5 | | | | | | | 2 | | | 32 | | | | | | | |  | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 21 | | 021 | | | 创造性思维与创新方法 | | | | | | | | | | |  | | | | 2～5 | | | | | | | 2 | | | 32 | | | | | | | |  | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 22 | | 022 | | | 大学生创业基础 | | | | | | | | | | |  | | | | 2～5 | | | | | | | 2 | | | 32 | | | | | | | |  | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 23 | | 023 | | | 创新创业实践 | | | | | | | | | | |  | | | | 1～6 | | | | | | | 10 | | |  | | | | | | | | 用于学生参加课题研究、项目实验、竞赛活动、发表论文等创新创业成果的学分折算 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| **小计学分及学时数** | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 44 | | | 704 | | | | | | | |  | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| **合计学分及学时数** | | | | | | | | | | | | | | | | | | | | | | | | | | | | | **总学分** | | | | | | | | | | | | | | | | 143 | | | | | | | **必修课学分** | | | | | | | | | | | | 114 | | | | | | | | | | **选修课学分** | | | | | | | | | 29 | | | | | | | | |
| **总学时** | | | | | | | | | 2799 | | | | | | | **不含素质拓展选修课学时** | | | | | | | | | | | | | | | | | 64 | | | | | | **理论学时** | | | | | | 1238 | | | | | **实践学时** | | | | | | | | 1562 | | | | |

**说明：选修课29学分包括专业选修课学分25，素质选修课学分4.**

**城市轨道交通供配电技术专业**

**教学标准**

**专业名称** 城市轨道交通供配电技术

**专业代码** 600604

**入学要求** 高中阶段教育毕业生或具有同等学力者

**修业年限** 三年

**职业面向**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| 所属专业大类（代码） | 所属专业类  （代码） | 对应  行业  （代码） | 主要职业类别  （代码） | 主要岗位类别（或技术领域） | 职业资格证书或技能等级证书举例 |
| 交通运输大类（60） | 城市轨道交通类（6006） | 城市公共交通运输（541） | 机械设备修理人员（6-31-01）；  输配电及控制设备制造人员（6-24-02）。 | 地铁接触网工  变电站值班员  变电检修  电气试验 | 高、低压电工  变配电值班员  地铁接触网工 |

**培养目标与培养规格**

一、培养目标

本专业培养理想信念坚定，德、智、体、美、劳全面发展，具有一定的科学文化水平，良好的人文素质、职业道德和创新意识，精益求精的工匠精神，较强的就业能力和可持续发展能力；掌握本专业知识和技术技能，面向城轨交通供电职业群，能够从事城轨接触网，变电所运行和维护检修等工作的高素质技术技能人才。

二、培养规格

本专业毕业生应在素质、知识和能力等方面达到以下要求。

1.素质

（1）坚定拥护中国共产党领导和我国社会主义制度，在习近平新时代中国特色社会主义思想指引下，践行社会主义核心价值观，具有深厚的爱国情感和中华民族自豪感；

（2）崇尚宪法、遵法守纪、崇德向善、诚实守信、尊重生命、热爱劳动、履行道德准则和行为规范，具有社会责任感和社会参与意识；

（3）具有质量意识、环保意识、安全意识、信息素养、工匠、创新思维；

（4）勇于奋斗、乐观向上，具有自我管理能力、职业生涯规划意识，有较强的集体意识和团队合作精神；

（5）具有健康的体魄、心理和健全的人格，掌握基本运动知识和一两项运动技能，养成良好的健身与卫生习惯，良好的行为习惯；

（6）具有一定的审美和人文素养，能够形成一两项艺术特长或爱好。

2.知识

（1）掌握必备的思想政治理论、科学文化基础知识和中华优秀传统文化知识；

（2）熟悉与本专业相关的法律法规以及环境保护、安全消防等相关知识；

（3）掌握城轨接触网设备运行与检修知识

（4）掌握变电所一次设备结构、原理与运行要求。

（5）掌握变电所一二次设备的维护与检修知识。

（6）掌握变电所值班、巡视与倒闸作业标准。

3.能力

（1）具有探究学习、终身学习、分析问题和解决问题的能力；

（2）具有良好的语言、文字表达能力和沟通能力，能够进行口语和书面的表达与交流；

（3）会检修刚性接触悬挂、柔性接触悬挂的接触网基本设备，会进行第三轨的结构和设备的调整；

（4）会识别和应急处理接触网设备的异常情况；

（5）会识别变电所的各种仪表与信号指示，准确判断变配电设备的运行状态。

（6）能对变电所设备进行必要的检修和调整.

（7）会进行变配电所的交接班业务与设备巡视.

**课程设置**

一、必修课程

1. 公共必修课程

|  |  |  |
| --- | --- | --- |
| 序号 | 课程名称 | 课时数 |
| 1 | 思想道德修养与法律基础及形势政策 | 66 |
| 2 | 毛泽东思想和中国特色社会主义理论体系概论及形势政策 | 58 |
| 3 | 高等数学 | 60 |
| 4 | 大学语文 | 60 |
| 5 | 公共英语 | 60 |
| 6 | 信息技术 | 60 |
| 7 | 体育 | 124 |
| 8 | 中华优秀传统文化 | 30 |
| 9 | 民族理论和政策 | 32 |
| 10 | 大学生职业发展与就业指导 | 36 |

2.专业必修课程

|  |  |  |
| --- | --- | --- |
| 序号 | 课程名称 | 课时数 |
| 1 | 机械制图 | 60 |
| 2 | 电工基础与测量 | 72 |
| 3 | 电子技术及应用 | 72 |
| 4 | 机械基础 | 72 |
| 5 | 电力电子技术 | 56 |
| 6 | 电机与拖动 | 56 |
| 7 | 电气控制 | 56 |
| 8 | 城轨供配电安全技术 | 60 |
| 9 | 城轨接触网运行与维护 | 90 |
| 10 | 城轨变电所运行与维护 | 90 |
| 11 | 城市轨道交通继电保护 | 96 |
| 12 | 城轨电气设备测试 | 96 |
| 13 | 钳工实习 | 60 |
| 14 | 电工电子实习 | 60 |
| 15 | 电工技能鉴定 | 60 |
| 16 | 接触网技能鉴定 | 60 |
| 17 | 毕业顶岗实习 | 540 |

3.素质拓展必修课程

|  |  |  |
| --- | --- | --- |
| 序号 | 课程名称 | 课时数 |
| 1 | 军训及军事理论教育 | 60 |
| 2 | 心理健康教育 | 32 |
| 3 | 大学生安全及健康教育 | 32 |
| 4 | 大学生暑期社会实践 |  |

二、选修课程

1. 专业选修课程

|  |  |  |
| --- | --- | --- |
| 序号 | 课程名称 | 课时数 |
| 1 | 电气CAD | 36 |
| 2 | 工程力学 | 36 |
| 3 | 城轨交通概论 | 72 |
| 4 | 城市轨道交通传感器与检测技术 | 72 |
| 5 | 创新创业训练（PLC技术及应用） | 56 |
| 6 | 供配电识图 | 56 |
| 7 | 单片机技术及应用 | 56 |
| 8 | 城轨交通供电规程与规则 | 56 |
| 9 | 电力内外线工程 | 60 |
| 10 | 高电压工程 | 60 |
| 11 | 城市轨道交通接触网施工 | 64 |
| 12 | 城市轨道交通供配电技术 | 64 |
| 13 | 城轨供电系统运行与管理 | 64 |
| 14 | 变电所综合自动化 | 64 |

2.素质拓展选修课程

|  |  |  |
| --- | --- | --- |
| 序号 | 课程名称 | 课时数 |
| 1 | 演讲与口才 | 32 |
| 2 | 中国小说阅读与鉴赏 | 32 |
| 3 | 音乐欣赏 | 32 |
| 4 | 影视文学欣赏 | 32 |
| 5 | 应用写作 | 32 |
| 6 | 现代礼仪 | 32 |
| 7 | 中国古典诗词欣赏 | 32 |
| 8 | 中国近现代史纲要 | 32 |
| 9 | 中国传统文化 | 32 |
| 10 | 中国旅游资源概况 | 32 |
| 11 | ISO9000质量管理体系 | 32 |
| 12 | 高级文字排版 | 32 |
| 13 | 电子表格处理 | 32 |
| 14 | PS图像处理 | 32 |
| 15 | 高级PPT制作 | 32 |
| 16 | 计算机组装维修及网络操作 | 32 |
| 17 | 生活中的经济学 | 32 |
| 18 | 技术史漫谈 | 32 |
| 19 | 电影赏析 | 32 |
| 20 | 职业素质 | 32 |
| 21 | 创造性思维与创新方法 | 32 |
| 22 | 大学生创业基础 | 32 |
| 23 | 创新创业实践 |  |

三、专业核心课程主要教学内容与要求

|  |  |  |
| --- | --- | --- |
| 序号 | 专业核心课程 | 主要教学内容与要求 |
| 1 | 城轨接触网运行与维护 | 地铁接触网结构与设备检修。  要求学生具备地铁接触网值班、巡视、检测、维修及一般事故抢修的能力，具备接触网工的知识基础，综合能力达到地铁接触网工技能要求。 |
| 2 | 城轨变电所运行与维护 | 变电所一次，二次系统运行与维护；变电所值班（交接班、巡视与倒闸）。  能够胜任地铁变电所值班巡视、运行监控、维护检修及常见故障的处理等工作，具备地铁变电工的知识基础，综合能力达到变电所值班员中级岗位技能要求。 |
| 3 | 城市轨道交通继电保护 | 变电设备继电保护装置的检修和试验；继保装置整定值的录入与调整；远动设备的日常维护；  能够完成继电保护装置整组动作试验，对变电所二次系统进行维护及常见故障进行处理，具备地铁继电保护工的基础知识，综合能力达到变电所检修工中级岗位技能要求。 |
| 4 | 城轨电气设备测试 | 常用电气设备辨识；电力变压器试验；互感器试验；高压开关电器试验；防雷设备测试；电力电容器、电力电缆和套管及绝缘子试验等。  能够胜任牵引供电设备常规绝缘预防性试验、特性试验及故障测试分析等工作，具备电气试验员的知识基础，综合能力达到电气试验员岗位技能要求。 |

**学时安排**

每学年教学时间为40周，总学时数为2650，实习按每周30学时计算。每学时为45分钟。18学时计为1个学分，总学分为143学分。军训、入学教育、社会实践、毕业设计（或毕业论文、毕业教育）等，以1周为1学分。公共基础课程学时占总学时的22%。选修课教学时数占总学时的比例为19%。学生顶岗实习为6个月，可根据实际情况，采取工学交替、多学期、分段式等多种形式组织实施。

**教学进程总体安排**

见附件（教学进程表）

**实施保障**

1. 师资队伍

1.专业生师比

专业教师总数不少于8人，专业生师比不低于18：1。

2.师资要求

(1)专业教师具有大学本科及以上学历并取得任职资格；从事专业课程教学的专任教师不少于8人。

(2)高级职称教师≥20％，中级职称教师≥50％, 具有“双师型”素质的教师人数不低于60％；专业教师平均教龄不低于4年。

(3)具有与本专业相关的职业工作经历或取得相应职业资格证书，熟悉本专业所面向的职业和行业企业，熟悉生产流程，掌握工作要求和质量标准。

(4)具有较强的学习能力和终身学习意识。每年有一定数量的专业教师到相关企业进行相应的专业实践，从而提高教师们的实践能力。

(5)掌握必要的职业教育理念和教学方法，具有开发职业课程的能力、教学设计与教学实施的能力。专业教师每年需完成国家或行业规定的继续教育计划，并经考核合格。

3.企业兼职教师任职资格

根据教学需要，可聘请一定数量、相对稳定的兼职教师和兼职实习指导教师。兼职教师一般应从事本专业相关实践工作5年以上并具有大学专科以上文化程度或中级技术职务。掌握基本的教学方法。

二、教学设施

1.校内基础课教学实验室和教学设备的基本要求

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| 序 号 | 实 验 室 名 称 | 设 备 名 称 | 单 位 | 数 量 |
| 1 | 计算机机房 | 计 算 机 | 台 | 50 |

2.校内实训（含职业技能鉴定）基地的基本要求

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| 序号 | 实训室名称 | 设 备 名 称 | 单 位 | 数 量 |
| 1 | 钳工实训室 | 四工位钳工台案（带台钳） | 台 | 15 |
| 台钻 | 台 | 3 |
| 方箱、平板、划线工具 | 套 | 3 |
| 高度尺 | 把 | 2 |
| 游标卡尺 | 把 | 15 |
| 直角尺 | 把 | 15 |
| 万能角度尺 | 把 | 10 |
| 手锯、榔头 | 把 | 各50 |
| 各型锉 | 把 | 若干 |
| 丝锥、板牙 | 支 | 若干 |
| 塞尺、R规等 | 把 | 若干 |
| 手弧焊机 | 台 | 10 |
| 等离子切割机 | 台 | 2 |
| CO2半自动焊机 | 台 | 1 |
| 超声波探伤仪 | 台 | 1 |
| 磁力探伤仪 | 台 | 1 |
| 焊工工具材料 | 台 | 若干 |
| 2 | 电工技术实训室 | 万用表 | 块 | 20 |
| 兆欧表 | 块 | 20 |
| 转速表 | 块 | 10 |
| 空气开关、按钮盒 | 套 | 各40 |
| 单相电度表、三相电度表 | 个 | 各30 |
| 单相插座、三相插座、灯座 | 个 | 各30 |
| 日光灯组件 | 套 | 30 |
| 常用电工工具 | 套 | 40 |
| 红、黄、蓝、黑导线 |  | 若干 |
| 交流电动机、接触器、时间继电器、热继电器，所用各规格实验板 | 套 | 各30 |
| 3 | 电子技术实训室 | 台钻 | 台 | 4 |
| 万用表 | 块 | 25 |
| 毫伏表 | 台 | 25 |
| 低频信号发生器 | 台 | 25 |
| 万用电桥 | 台 | 25 |
| 直流稳压电源 | 台 | 25 |
| 示波器 | 台 | 25 |
| 晶体管毫伏表 | 台 | 25 |
| 电烙铁及烙铁架 | 套 | 25 |
| 改锥（十字、平口） | 套 | 25 |
| 电工工具材料等 | 套 | 25 |
| 实训台 | 台 | 25 |
| 4 | 单片机实训室 | MCS-51或AVRMEDIA单片机实验组合教具、仿真器 | 套 | 10套 |
| 自动扶梯模型 | 套 | 10套 |
| 5 | 电机及拖动实训室 | 电机及拖动实训台 | 台 | 25 |
| 万用表 | 块 | 25 |
| 常用电工工具 | 套 | 25 |
| 6 | 电气控制实训室 | 组合开关、空气开关 | 个 | 50 |
| 交流接触器 | 个 | 150 |
| 热继电器 | 个 | 50 |
| 异步电动机 | 台 | 20 |
| 万用表 | 块 | 30 |
| 兆欧表 | 套 | 30 |
| 按钮， | 个 | 50 |
| 常用电工工具 | 套 | 50 |
| 接线端子 | 个 | 200 |
| 熔断器 | 个 | 200 |
| 实训台 | 个 | 25 |
| 红、黄、蓝、黑导线 | 根 | 若干 |
| 7 | PLC实训室 | PLC综合实验台 | 套 | 10 |
| 8 | 接触网基础技能实训室 | 支柱 | 套 | 5 |
| 柔性接触网零配件 | 套 | 2 |
| 第三接触轨零配件 | 套 | 2 |
| 刚性悬挂零配件 | 套 | 1 |
| 多媒体教学系统 | 套 | 1 |
| 接触网紧线器 | 套 | 6 |
| 接触网力矩扳手 | 套 | 6 |
| 9 | 牵引变电所实训室 | 牵引变电所主变保护测控屏 | 套 | 1 |
| 牵引变电所馈线保护测控屏 | 套 | 1 |
| 交直流电源 | 套 | 1 |
| 牵引变电所当地监控台 | 套 | 1 |
| 牵引变电所远动调度系统 | 套 | 1 |
| 27.5kV真空断路器 | 套 | 1 |
| 室内隔离开关 | 套 | 1 |
| 10 | 高压测试实训室 | 绝缘电阻测试仪 | 台 | 2 |
| 抗干扰介质损耗测试仪 | 台 | 1 |
| 试验变压器 | 台 | 1 |
| 接地电阻测试仪 | 台 | 2 |
| 高压放电球、放电针 | 套 | 1 |
| 全自动变比组别极性测试仪 | 台 | 1 |
| 绝缘手套、绝缘鞋等安全工具 | 套 | 4 |
| 多媒体教学系统 | 套 | 1 |

3.校外实习基地的基本要求

(1)顶岗实习基地应具备相应的实习条件，能为师生提供基本的食宿条件，同时能配备满足现场实习指导要求的，有丰富实践经验的企业指导教师。

(2)在国铁企业与地铁企业建立专业认识实习基地，一次可容纳不少于50人开展专业认识实习，供学生现场体验企业真实的生产环境，了解企业生产设备及牵引供电系统的运行与管理。

三、教学资源

1.教材资源

高等教育出版社、科学出版社、机械工业出版社、中国劳动社会保障出版社、西安电子科技大学出版社、电子工业出版社、中国铁道出版社等发行的轨道交通供配电专业规划教材。

2.图书资源

普通高等学校高等职业教育教学标准；变电所值班员技能鉴定用书；维修电工技能鉴定用书。

3.数字化（网络）资源

数字化教学资源库，技能鉴定电子题库

四、教学方法

1.教学方法、手段建议

项目教学，案例教学，分组讨论教学等。

2.教学组织形式建议

建议实施校企合作、工学结合、任务驱动、项目导向、顶岗实习等行动导向的教学模式，在“教、学、做”一体的实训基地进行教学，学生边看边学、边做边学，强化学生职业能力培养。教师作为学生学习活动的主导，成为学生学习的激励者、咨询者和指导者。

五、教学评价

1.教学评价建议

教学评价从多方面展开，包括学生评价，教师评价，校内督导评价，企业用人单位评价等。

2.教学考核建议

(1)专业理论课程考核中，突出知识的掌握、相关问题的分析、判断、解决的能力。

(2)实践课程考核中，突出基本技能的掌握、熟练程度以及是否具有创新意识等。

考核中，还应包括与同学共同工作的团队协作精神、踏实认真的态度以及持之以恒的精神等，建议实行过程评价，包括学生自评，互评及教师评价。

**毕业要求**

学生德、智、体、美、劳合格，在允许的修业年限内学完培养计划规定的全部课程，通过顶岗实践或毕业论文答辩，取得相应的职业资格证书，达到毕业最低学分（143分）要求，即获得毕业资格，准予毕业并颁发毕业证书。

**教 学 进 程 表**

**2018 级 城市轨道交通供配电技术 专 业**

毕业最低学分：143分

专业代码： 600604

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **一、教学进程表** | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | **二、周数分配表** | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 学  年 | 教 学 周 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 理论  及  分散  实践 | | | 集  中  实  践 | | | | 考  试 | | | 劳  动 | | | | 军  训 | | | 机  动 | | | | 毕  业  教  育 | | 假  期 | | | 合  计 | |
| 九月 | | | | | | 十月 | | | | | | | 十一月 | | | | | | | | 十二月 | | | | | | | 一月 | | | | | | | | | 二月 | | | | | | | | | 三月 | | | | | | | | 四月 | | | | | | 五月 | | | | | | | | | 六月 | | | | | | | | 七月 | | | | | | | | | | 八月 | | | | | | |
|  | 1 | 2 | | | 3 | 4 | | | 5 | 6 | 7 | 8 | 9 | | | 10 | 11 | 12 | 13 | | 14 | | 15 | 16 | | 17 | 18 | | | | 19 | | 20 | | 21 | 22 | | | 23 | 24 | | 25 | 26 | | | 27 | | | | 28 | 29 | 30 | | 31 | | 32 | 33 | 34 | | 35 | | | 36 | 37 | | 38 | 39 | | 40 | | | 41 | 42 | | 43 | | 44 | | | | 45 | | | 46 | | 47 | 48 | | | 49 | 50 | 51 | 52 | | | K | | | S | | | | ∷ | | | × | | | | ★ | | J | | | T | | | | = | | |  |
| 一 | ★2 | | | | 15 | | | | | | | | | | | | | | | | | | | | | | J2 | | | | | | ∷ | | ==== 6 | | | | | | | | | | | 18 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | J | | | | | ∷ | | ==== 6 | | | | | | | | | | 33 | | | 0 | | | | 2 | | | 0 | | | | 2 | | 3 | | | 0 | | | | 12 | | | 52 |
| 二 | K14 | | | | | | | | | | | | | | S4 | | | | | | | | | | | | | | | J | | ∷ | | ==== 6 | | | | | | | | | | | K15 | | | | | | | | | | | | | | | | | S2 | | | | | | | | | × | | | | | | | | | J | | | ∷ | | ====6 | | | | | | | | | | 29 | | 6 | | | | 2 | | | 1 | | | | 0 | | | 2 | | | 0 | | | 12 | | | 52 | | |
| 三 | K16 | | | | | | | | | | | | | | S2 | | | | | | | | | | | | | | | J | | ∷ | | ==== 6 | | | | | | | | | | | S18 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | J | | | T | |  | | | | | | | | | | 16 | | 20 | | | | 1 | | | 0 | | | | 0 | | | 2 | | | 1 | | | 6 | | | 46 | | |
| **三、教学进度表** | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 合计 | | | | | | | | | | | | | | | | | | | 78 | | 8 | | | | 5 | | | 1 | | | | 2 | | | 7 | | | 1 | | | 30 | | | 150 | | |
| 课程类型 | 序  号 | | 课程  代码 | | | | | 课 程 名 称 | | | | | | | | | | | | 考核学期序 | | | | | | | | | | | | | | | | | 学 分 | | | | | | | 学 时 数 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 理论教学（含分散性实践教学）周学时 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 考 试 | | | | | | | | 考 查 | | | | | | | | | 总 计 | | | | | | | | | 理 论 | | | | | | 实 践 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 一 年 级 | | | | | | | | | | | 二 年 级 | | | | | | | | | | | | | 三 年 级 | | | | | | | | | |
| 合 计 | | | | | | 习 题 课 | | | 实 训 | | | | | | 现场教学 | | | | | | | | 创新创业训练 | | | | | | | 1学期  15周 | | | | | 2学期  18周 | | | | | | 3学期  14周 | | | | | | | 4学期  15周 | | | | | | 5学期  16周 | | | | 6学期  18周 | | | | | |
| 公共必修课 | 1 | | 0001 | | | | | 思想道德修养与法律基础及形势政策 | | | | | | | | | | | | 1 | | | | | | | | 2 | | | | | | | | | 4 | | | | | | | 66 | | | | | | | | | 52 | | | | | | 14 | | | | | | 14 | | |  | | | | | |  | | | | | | | |  | | | | | | | 2 | | | | | 2 | | | | | |  | | | | | | |  | | | | | |  | | | |  | | | | | |
| 2 | | 0002 | | | | | 毛泽东思想和中国特色社会主义理论体系概论及形势政策 | | | | | | | | | | | | 3 | | | | | | | | 4 | | | | | | | | | 4 | | | | | | | 58 | | | | | | | | | 46 | | | | | | 12 | | | | | | 12 | | |  | | | | | |  | | | | | | | |  | | | | | | |  | | | | |  | | | | | | 2 | | | | | | | 2 | | | | | |  | | | |  | | | | | |
| 3 | | 0005 | | | | | 高等数学 | | | | | | | | | | | | 1 | | | | | | | |  | | | | | | | | | 3 | | | | | | | 60 | | | | | | | | | 54 | | | | | | 6 | | | | | | 6 | | |  | | | | | |  | | | | | | | |  | | | | | | | 4 | | | | |  | | | | | |  | | | | | | |  | | | | | |  | | | |  | | | | | |
| 4 | | 0006 | | | | | 大学语文 | | | | | | | | | | | |  | | | | | | | | 1 | | | | | | | | | 3 | | | | | | | 60 | | | | | | | | | 52 | | | | | | 8 | | | | | | 8 | | |  | | | | | |  | | | | | | | |  | | | | | | | 4 | | | | |  | | | | | |  | | | | | | |  | | | | | |  | | | |  | | | | | |
| 5 | | 0007 | | | | | 公共英语 | | | | | | | | | | | | 1 | | | | | | | |  | | | | | | | | | 3 | | | | | | | 60 | | | | | | | | | 18 | | | | | | 42 | | | | | | 42 | | |  | | | | | |  | | | | | | | |  | | | | | | | 4 | | | | |  | | | | | |  | | | | | | |  | | | | | |  | | | |  | | | | | |
| 6 | | 0008 | | | | | 信息技术 | | | | | | | | | | | |  | | | | | | | | 1 | | | | | | | | | 3 | | | | | | | 60 | | | | | | | | | 30 | | | | | | 30 | | | | | | 30 | | |  | | | | | |  | | | | | | | |  | | | | | | | 4 | | | | |  | | | | | |  | | | | | | |  | | | | | |  | | | |  | | | | | |
| 7 | | 0009 | | | | | 体育 | | | | | | | | | | | | 3 | | | | | | | | 1.2.4 | | | | | | | | | 7 | | | | | | | 124 | | | | | | | | | 8 | | | | | | 116 | | | | | |  | | |  | | | | | | 112 | | | | | | | |  | | | | | | | 2 | | | | | 2 | | | | | | 2 | | | | | | | 2 | | | | | |  | | | |  | | | | | |
| 8 | | 0004 | | | | | 中华优秀传统文化 | | | | | | | | | | | |  | | | | | | | | 1 | | | | | | | | | 2 | | | | | | | 30 | | | | | | | | | 30 | | | | | |  | | | | | |  | | |  | | | | | |  | | | | | | | |  | | | | | | | 2 | | | | |  | | | | | |  | | | | | | |  | | | | | |  | | | |  | | | | | |
| 9 | | 0011 | | | | | 民族理论和政策 | | | | | | | | | | | |  | | | | | | | | 5 | | | | | | | | | 2 | | | | | | | 32 | | | | | | | | | 32 | | | | | |  | | | | | |  | | |  | | | | | |  | | | | | | | |  | | | | | | |  | | | | |  | | | | | |  | | | | | | |  | | | | | | 2 | | | |  | | | | | |
| 10 | | 0010 | | | | | 大学生职业发展与就业指导 | | | | | | | | | | | |  | | | | | | | | 2 | | | | | | | | | 2 | | | | | | | 36 | | | | | | | | | 36 | | | | | |  | | | | | |  | | |  | | | | | |  | | | | | | | |  | | | | | | |  | | | | | 2 | | | | | |  | | | | | | |  | | | | | |  | | | |  | | | | | |
| 小计学分及学时数 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 33 | | | | | | | 586 | | | | | | | | | 358 | | | | | | 228 | | | | | |  | | |  | | | | | |  | | | | | | | |  | | | | | | | 22 | | | | | 6 | | | | | | 4 | | | | | | | 4 | | | | | | 2 | | | | 0 | | | | | |
| 专业必修课 | 11 | | 27001 | | | | | 机械制图 | | | | | | | | | | | |  | | | | | | | | 1 | | | | | | | | | 3 | | | | | | | 60 | | | | | | | | | 60 | | | | | |  | | | | | |  | | |  | | | | | |  | | | | | | | |  | | | | | | | 4 | | | | |  | | | | | |  | | | | | | |  | | | | | |  | | | |  | | | | | |
| 12 | | 27002 | | | | | 电工基础与测量 | | | | | | | | | | | | 2 | | | | | | | |  | | | | | | | | | 4 | | | | | | | 72 | | | | | | | | | 60 | | | | | | 12 | | | | | |  | | |  | | | | | |  | | | | | | | |  | | | | | | |  | | | | | 4 | | | | | |  | | | | | | |  | | | | | |  | | | |  | | | | | |
| 13 | | 27003 | | | | | **电子技术及应用** | | | | | | | | | | | | 2 | | | | | | | |  | | | | | | | | | 4 | | | | | | | 72 | | | | | | | | | 64 | | | | | | 8 | | | | | |  | | |  | | | | | |  | | | | | | | |  | | | | | | |  | | | | | 4 | | | | | |  | | | | | | |  | | | | | |  | | | |  | | | | | |
| 14 | | 27004 | | | | | 机械基础 | | | | | | | | | | | | 2 | | | | | | | |  | | | | | | | | | 4 | | | | | | | 72 | | | | | | | | | 56 | | | | | | 16 | | | | | |  | | | 16 | | | | | |  | | | | | | | |  | | | | | | |  | | | | | 4 | | | | | |  | | | | | | |  | | | | | |  | | | |  | | | | | |
| 15 | | 27005 | | | | | 电力电子技术 | | | | | | | | | | | | 3 | | | | | | | |  | | | | | | | | | 3 | | | | | | | 56 | | | | | | | | | 40 | | | | | | 16 | | | | | |  | | |  | | | | | |  | | | | | | | |  | | | | | | |  | | | | |  | | | | | | 4 | | | | | | |  | | | | | |  | | | |  | | | | | |
| 16 | | 27006 | | | | | 电机与拖动 | | | | | | | | | | | | 3 | | | | | | | |  | | | | | | | | | 3 | | | | | | | 56 | | | | | | | | | 48 | | | | | | 8 | | | | | |  | | |  | | | | | |  | | | | | | | |  | | | | | | |  | | | | |  | | | | | | 4 | | | | | | |  | | | | | |  | | | |  | | | | | |
| 17 | | 27007 | | | | | 电气控制 | | | | | | | | | | | |  | | | | | | | | 3 | | | | | | | | | 3 | | | | | | | 56 | | | | | | | | | 20 | | | | | | 36 | | | | | |  | | |  | | | | | |  | | | | | | | |  | | | | | | |  | | | | |  | | | | | | 4 | | | | | | |  | | | | | |  | | | |  | | | | | |
| 18 | | 27009 | | | | | 城轨供配电安全技术 | | | | | | | | | | | | 4 | | | | | | | |  | | | | | | | | | 3 | | | | | | | 60 | | | | | | | | | 60 | | | | | |  | | | | | |  | | |  | | | | | |  | | | | | | | |  | | | | | | |  | | | | |  | | | | | |  | | | | | | | 4 | | | | | |  | | | |  | | | | | |
| 19 | | 27010 | | | | | **城轨接触网运行与维护** | | | | | | | | | | | | 4 | | | | | | | |  | | | | | | | | | 5 | | | | | | | 90 | | | | | | | | | 40 | | | | | | 50 | | | | | |  | | |  | | | | | |  | | | | | | | |  | | | | | | |  | | | | |  | | | | | |  | | | | | | | 6 | | | | | |  | | | |  | | | | | |
| 20 | | 27011 | | | | | **城轨变电所运行与维护** | | | | | | | | | | | | 4 | | | | | | | |  | | | | | | | | | 5 | | | | | | | 90 | | | | | | | | | 40 | | | | | | 50 | | | | | |  | | |  | | | | | |  | | | | | | | |  | | | | | | |  | | | | |  | | | | | |  | | | | | | | 6 | | | | | |  | | | |  | | | | | |
| 21 | | 27012 | | | | | **城市轨道交通继电保护** | | | | | | | | | | | | 5 | | | | | | | |  | | | | | | | | | 5 | | | | | | | 96 | | | | | | | | | 40 | | | | | | 56 | | | | | |  | | |  | | | | | |  | | | | | | | |  | | | | | | |  | | | | |  | | | | | |  | | | | | | |  | | | | | | 6 | | | |  | | | | | |
| 22 | | 27013 | | | | | **城轨电气设备测试** | | | | | | | | | | | | 5 | | | | | | | |  | | | | | | | | | 5 | | | | | | | 96 | | | | | | | | | 40 | | | | | | 56 | | | | | |  | | |  | | | | | |  | | | | | | | |  | | | | | | |  | | | | |  | | | | | |  | | | | | | |  | | | | | | 6 | | | |  | | | | | |
| 23 | | 27029 | | | | | 钳工实习 | | | | | | | | | | | |  | | | | | | | | 3 | | | | | | | | | 2 | | | | | | | 60 | | | | | | | | |  | | | | | | 60 | | | | | |  | | |  | | | | | |  | | | | | | | |  | | | | | | |  | | | | |  | | | | | |  | | | | | | |  | | | | | |  | | | |  | | | | | |
| 24 | | 27030 | | | | | 电工电子实习 | | | | | | | | | | | |  | | | | | | | | 3 | | | | | | | | | 2 | | | | | | | 60 | | | | | | | | |  | | | | | | 60 | | | | | |  | | |  | | | | | |  | | | | | | | |  | | | | | | |  | | | | |  | | | | | |  | | | | | | |  | | | | | |  | | | |  | | | | | |
| 25 | | 27031 | | | | | 电工技能鉴定 | | | | | | | | | | | |  | | | | | | | | 4 | | | | | | | | | 2 | | | | | | | 60 | | | | | | | | |  | | | | | | 60 | | | | | |  | | |  | | | | | |  | | | | | | | |  | | | | | | |  | | | | |  | | | | | |  | | | | | | |  | | | | | |  | | | |  | | | | | |
| 26 | | 27032 | | | | | 接触网技能鉴定 | | | | | | | | | | | |  | | | | | | | | 5 | | | | | | | | | 2 | | | | | | | 60 | | | | | | | | |  | | | | | | 60 | | | | | |  | | |  | | | | | |  | | | | | | | |  | | | | | | |  | | | | |  | | | | | |  | | | | | | |  | | | | | |  | | | |  | | | | | |
| 27 | | 27034 | | | | | 毕业顶岗实习 | | | | | | | | | | | |  | | | | | | | | 6 | | | | | | | | | 18 | | | | | | | 540 | | | | | | | | |  | | | | | | 540 | | | | | |  | | |  | | | | | |  | | | | | | | |  | | | | | | |  | | | | |  | | | | | |  | | | | | | |  | | | | | |  | | | |  | | | | | |
| 小计学分及学时数 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 73 | | | | | | | 1656 | | | | | | | | | 568 | | | | | | 1088 | | | | | |  | | |  | | | | | |  | | | | | | | |  | | | | | | | 26 | | | | | 18 | | | | | | 16 | | | | | | | 20 | | | | | | 14 | | | | **0** | | | | | |
| 专业选修课 | 28 | | 27014 | | | | | **电气CAD** | | | | | | | | | | | |  | | | | | | | | 2 | | | | | | | | | 2 | | | | | | | 36 | | | | | | | | |  | | | | | | 36 | | | | | |  | | |  | | | | | |  | | | | | | | |  | | | | | | |  | | | | | 2 | | | | | |  | | | | | | |  | | | | | |  | | | |  | | | | | |
| 29 | | 27015 | | | | | 工程力学 | | | | | | | | | | | |  | | | | | | | | 2 | | | | | | | | | 2 | | | | | | | 36 | | | | | | | | | 28 | | | | | | 8 | | | | | | 8 | | |  | | | | | |  | | | | | | | |  | | | | | | |  | | | | | 2 | | | | | |  | | | | | | |  | | | | | |  | | | |  | | | | | |
| 30 | | 27016 | | | | | **城轨交通概论** | | | | | | | | | | | |  | | | | | | | | 2 | | | | | | | | | 4 | | | | | | | 72 | | | | | | | | | 72 | | | | | |  | | | | | |  | | |  | | | | | |  | | | | | | | |  | | | | | | |  | | | | | 4 | | | | | |  | | | | | | |  | | | | | |  | | | |  | | | | | |
| 31 | | 27018 | | | | | 城市轨道交通传感器与检测技术 | | | | | | | | | | | |  | | | | | | | | 2 | | | | | | | | | 4 | | | | | | | 72 | | | | | | | | | 66 | | | | | | 6 | | | | | |  | | |  | | | | | |  | | | | | | | |  | | | | | | |  | | | | | 4 | | | | | |  | | | | | | |  | | | | | |  | | | |  | | | | | |
| 32 | | 27017 | | | | | **创新创业训练（PLC技术及应用）** | | | | | | | | | | | |  | | | | | | | | 3 | | | | | | | | | 3 | | | | | | | 56 | | | | | | | | |  | | | | | | 56 | | | | | |  | | |  | | | | | |  | | | | | | | | 56 | | | | | | |  | | | | |  | | | | | | 4 | | | | | | |  | | | | | |  | | | |  | | | | | |
| 33 | | 27019 | | | | | 供配电识图 | | | | | | | | | | | |  | | | | | | | | 3 | | | | | | | | | 3 | | | | | | | 56 | | | | | | | | | 20 | | | | | | 36 | | | | | |  | | |  | | | | | |  | | | | | | | |  | | | | | | |  | | | | |  | | | | | | 4 | | | | | | |  | | | | | |  | | | |  | | | | | |
| 34 | | 27022 | | | | | 单片机技术及应用 | | | | | | | | | | | |  | | | | | | | | 3 | | | | | | | | | 3 | | | | | | | 56 | | | | | | | | | 36 | | | | | | 20 | | | | | |  | | |  | | | | | |  | | | | | | | |  | | | | | | |  | | | | |  | | | | | | 4 | | | | | | |  | | | | | |  | | | |  | | | | | |
| 35 | | 27023 | | | | | **城轨交通供电规程与规则** | | | | | | | | | | | |  | | | | | | | | 3 | | | | | | | | | 3 | | | | | | | 56 | | | | | | | | | 56 | | | | | |  | | | | | |  | | |  | | | | | |  | | | | | | | |  | | | | | | |  | | | | |  | | | | | | 4 | | | | | | |  | | | | | |  | | | |  | | | | | |
| 36 | | 27024 | | | | | **电力内外线工程** | | | | | | | | | | | |  | | | | | | | | 4 | | | | | | | | | 3 | | | | | | | 60 | | | | | | | | | 30 | | | | | | 30 | | | | | |  | | |  | | | | | |  | | | | | | | |  | | | | | | |  | | | | |  | | | | | |  | | | | | | | 4 | | | | | |  | | | |  | | | | | |
| 37 | | 27020 | | | | | 高电压工程 | | | | | | | | | | | |  | | | | | | | | 4 | | | | | | | | | 3 | | | | | | | 60 | | | | | | | | | 60 | | | | | |  | | | | | |  | | |  | | | | | |  | | | | | | | |  | | | | | | |  | | | | |  | | | | | |  | | | | | | | 4 | | | | | |  | | | |  | | | | | |
| 38 | | 27021 | | | | | 城市轨道交通接触网施工 | | | | | | | | | | | |  | | | | | | | | 5 | | | | | | | | | 3 | | | | | | | 64 | | | | | | | | | 64 | | | | | |  | | | | | |  | | |  | | | | | |  | | | | | | | |  | | | | | | |  | | | | |  | | | | | |  | | | | | | |  | | | | | | 4 | | | |  | | | | | |
| 39 | | 27025 | | | | | 城市轨道交通供配电技术 | | | | | | | | | | | |  | | | | | | | | 5 | | | | | | | | | 4 | | | | | | | 64 | | | | | | | | | 64 | | | | | |  | | | | | |  | | |  | | | | | |  | | | | | | | |  | | | | | | |  | | | | |  | | | | | |  | | | | | | |  | | | | | | 4 | | | |  | | | | | |
| 40 | | 27026 | | | | | **城轨供电系统运行与管理** | | | | | | | | | | | |  | | | | | | | | 5 | | | | | | | | | 4 | | | | | | | 64 | | | | | | | | | 64 | | | | | |  | | | | | |  | | |  | | | | | |  | | | | | | | |  | | | | | | |  | | | | |  | | | | | |  | | | | | | |  | | | | | | 4 | | | |  | | | | | |
| 41 | | 27027 | | | | | **变电所综合自动化** | | | | | | | | | | | |  | | | | | | | | 5 | | | | | | | | | 4 | | | | | | | 64 | | | | | | | | | 64 | | | | | |  | | | | | |  | | |  | | | | | |  | | | | | | | |  | | | | | | |  | | | | |  | | | | | |  | | | | | | |  | | | | | | 4 | | | |  | | | | | |
| 小计学分及学时数(至少修满23学分) | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 45 | | | | | | | 816 | | | | | | | | | 624 | | | | | | 192 | | | | | |  | | |  | | | | | |  | | | | | | | |  | | | | | | | 26 | | | | | 24 | | | | | | 24 | | | | | | | 24 | | | | | | 22 | | | |  | | | | | |
| 23 | | | | | | | 408 | | | | | | | | | 286 | | | | | | 122 | | | | | |  | | |  | | | | | |  | | | | | | | |  | | | | | | |  | | | | | |
| **四、素质拓展课** | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 课程类型 | 序  号 | | | 课程代码 | | | | 课 程 名 称 | | | | | | | | | | | | 考核学期序 | | | | | | | | | | | | | | | | | 学 分 | | | | 课  时 | | | | | | | 说 明 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 考 试 | | | | | 考 查 | | | | | | | | | | | |
| 必修  课 | 1 | | | 01 | | | | 军训及军事理论教育 | | | | | | | | | | | |  | | | | | 1 | | | | | | | | | | | | 4 | | | | 60 | | | | | | | | 第1学期开设，含入学教育。 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 2 | | | 02 | | | | 心理健康教育 | | | | | | | | | | | |  | | | | | 2.3.4.5 | | | | | | | | | | | | 2 | | | | 32 | | | | | | | | 分专业在第2～5学期之一开设。 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 3 | | | 03 | | | | 大学生安全及健康教育 | | | | | | | | | | | |  | | | | | 1.2.3.4 | | | | | | | | | | | | 2 | | | | 32 | | | | | | | | 在1～4学期实施，以专题讲座的形式和每学期大学生第二课堂教育活动中开设。 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 4 | | | 04 | | | | 大学生暑期社会实践 | | | | | | | | | | | |  | | | | | 2.4 | | | | | | | | | | | | 2 | | | |  | | | | | | | | 利用暑期，进行社会实践，提交报告。 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 小计学分及学时数 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 10 | | | | 124 | | | | | | | |  | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 选  修  课 | 1 | | | 001 | | | | 演讲与口才 | | | | | | | | | | | |  | | | | | 2～5 | | | | | | | | | | | | 2 | | | | 32 | | | | | | | |  | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 2 | | | 002 | | | | 中国小说阅读与鉴赏 | | | | | | | | | | | |  | | | | | 2～5 | | | | | | | | | | | | 2 | | | | 32 | | | | | | | |  | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 3 | | | 003 | | | | 音乐欣赏 | | | | | | | | | | | |  | | | | | 2～5 | | | | | | | | | | | | 2 | | | | 32 | | | | | | | |  | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 4 | | | 004 | | | | 影视文学欣赏 | | | | | | | | | | | |  | | | | | 2～5 | | | | | | | | | | | | 2 | | | | 32 | | | | | | | |  | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 5 | | | 005 | | | | 应用写作 | | | | | | | | | | | |  | | | | | 2～5 | | | | | | | | | | | | 2 | | | | 32 | | | | | | | |  | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 6 | | | 006 | | | | 现代礼仪 | | | | | | | | | | | |  | | | | | 2～5 | | | | | | | | | | | | 2 | | | | 32 | | | | | | | |  | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 7 | | | 007 | | | | 中国古典诗词欣赏 | | | | | | | | | | | |  | | | | | 2～5 | | | | | | | | | | | | 2 | | | | 32 | | | | | | | |  | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 8 | | | 008 | | | | 中国近现代史纲要 | | | | | | | | | | | |  | | | | | 2～5 | | | | | | | | | | | | 2 | | | | 32 | | | | | | | |  | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 9 | | | 009 | | | | 中国传统文化 | | | | | | | | | | | |  | | | | | 2～5 | | | | | | | | | | | | 2 | | | | 32 | | | | | | | |  | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 10 | | | 010 | | | | 中国旅游资源概况 | | | | | | | | | | | |  | | | | | 2～5 | | | | | | | | | | | | 2 | | | | 32 | | | | | | | |  | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 11 | | | 011 | | | | ISO9000质量管理体系 | | | | | | | | | | | |  | | | | | 2～5 | | | | | | | | | | | | 2 | | | | 32 | | | | | | | |  | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 12 | | | 012 | | | | 高级文字排版 | | | | | | | | | | | |  | | | | | 2～5 | | | | | | | | | | | | 2 | | | | 32 | | | | | | | |  | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 13 | | | 013 | | | | 电子表格处理 | | | | | | | | | | | |  | | | | | 2～5 | | | | | | | | | | | | 2 | | | | 32 | | | | | | | |  | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 14 | | | 014 | | | | PS图像处理 | | | | | | | | | | | |  | | | | | 2～5 | | | | | | | | | | | | 2 | | | | 32 | | | | | | | |  | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 15 | | | 015 | | | | 高级PPT制作 | | | | | | | | | | | |  | | | | | 2～5 | | | | | | | | | | | | 2 | | | | 32 | | | | | | | |  | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 16 | | | 016 | | | | 计算机组装维修及网络操作 | | | | | | | | | | | |  | | | | | 2～5 | | | | | | | | | | | | 2 | | | | 32 | | | | | | | |  | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 17 | | | 017 | | | | 生活中的经济学 | | | | | | | | | | | |  | | | | | 2～5 | | | | | | | | | | | | 2 | | | | 32 | | | | | | | |  | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 18 | | | 018 | | | | 技术史漫谈 | | | | | | | | | | | |  | | | | | 2～5 | | | | | | | | | | | | 2 | | | | 32 | | | | | | | |  | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 19 | | | 019 | | | | 电影赏析 | | | | | | | | | | | |  | | | | | 2～5 | | | | | | | | | | | | 2 | | | | 32 | | | | | | | |  | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 20 | | | 020 | | | | 职业素质 | | | | | | | | | | | |  | | | | | 2～5 | | | | | | | | | | | | 2 | | | | 32 | | | | | | | |  | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 21 | | | 021 | | | | 创造性思维与创新方法 | | | | | | | | | | | |  | | | | | 2～5 | | | | | | | | | | | | 2 | | | | 32 | | | | | | | |  | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 22 | | | 022 | | | | 大学生创业基础 | | | | | | | | | | | |  | | | | | 2～5 | | | | | | | | | | | | 2 | | | | 32 | | | | | | | |  | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 23 | | | 023 | | | | 创新创业实践 | | | | | | | | | | | |  | | | | | 1～6 | | | | | | | | | | | | 10 | | | |  | | | | | | | | 用于学生参加课题研究、项目实验、竞赛活动、发表论文等创新创业成果的学分折算 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 小计学分及学时数（至少修10学分） | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 44 | | | | 704 | | | | | | | |  | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| **合计学分及学时数** | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | **总学分143,必修课学分116,选修课学分27，其中专业选修课学分23，素质选修课学分4.总学时2650，理论学时1212，实践学时1438** | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

**城市轨道交通机电技术专业**

**教学标准**

**专业名称** 城市轨道交通机电技术

**专业代码** 600602

**入学要求** 高中阶段教育毕业生或具有同等学力者

**修业年限** 三年

**职业面向**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| 所属专业大类（代码） | 所属专业类（代码） | 对应行业  （代码） | 主要职业类别（代码） | 主要岗位类别（或技术领域） | 职业资格证书或技能等级证书举例 |
| 60  交通运输大类 | 6006  城市轨道交通类 | 600602  城市轨道交通机电技术 | 6-18机械制造基础加工人员；6-23城轨机电设备修理人员；2-02安全工程技术人员 | AFC检修工，屏蔽门检修工，消防/环控检修工，电扶梯检修工，给排水维修工，通风空调维修工等。 | 电工证，机械制图员（CAD），普通钳工证，电梯操作维修工证等。 |

**培养目标与培养规格**

一、培养目标

本专业培养理想信念坚定，德、智、体、美、劳全面发展，具有一定的科学文化水平，良好的人文素质、职业道德和创新意识，精益求精的工匠精神，较强的就业能力和可持续发展能力；掌握本专业知识和技术技能，面向轨道交通行业及相关的设备制造与施工企业职业群，能够从事轨道交通机电设备及其系统的调试、故障检测分析、维护及维修、应急处理等工作的高素质技术技能人才。

二、培养规格

本专业毕业生应在素质、知识和能力等方面达到以下要求。。

1.素质

（1）坚定拥护中国共产党领导和我国社会主义制度，在习近平新时代中国特色社会主义思想指引下，践行社会主义核心价值观，具有深厚的爱国情感和中华民族自豪感；

（2）崇尚宪法、遵法守纪、崇德向善、诚实守信、尊重生命、热爱劳动、履行道德准则和行为规范，具有社会责任感和社会参与意识；

（3）具有质量意识、环保意识、安全意识、信息素养、工匠、创新思维；

（4）勇于奋斗、乐观向上，具有自我管理能力、职业生涯规划意识，有较强的集体意识和团队合作精神；

（5）具有健康的体魄、心理和健全的人格，掌握基本运动知识和一两项运动技能，养成良好的健身与卫生习惯，良好的行为习惯；

（6）具有一定的审美和人文素养，能够形成一两项艺术特长或爱好。

2.知识

（1）掌握必备的思想政治理论、科学文化基础知识和中华优秀传统文化知识；

（2）熟悉与本专业相关的法律法规以及环境保护、安全消防等相关知识；

（3）掌握本专业人才培养目标所需要的基础知识，包括：高等数学、外语、计算机、政治等知识。

（4）掌握本专业培养目标所必须的专业基础知识，包括：机械基础、电工基础、电子技术及应用、电机与拖动、单片机技术与应用、城市轨道交通电气控制与PLC、城市轨道交通概论等基本知识。

（5）掌握本专业人才培养目标所需要的专业知识，包括：城市轨道交通通风空调与给排水系统运行与维护、屏蔽门技术及检修、城市轨道交通电梯系统运行与维护技术、城市轨道交通自动售检票系统、城市轨道交通车站消防自动控制系统等专业知识。

3.能力

（1）具有探究学习、终身学习、分析问题和解决问题的能力；

（2）具有良好的语言、文字表达能力和沟通能力，能够进行口语和书面的表达与交流；

（3）基础能力：分析计算能力、计算机操作、办公自动化应用能力、电钳工工具操作使用能力、机电系统工作原理分析能力等。

（4）专业技术能力：轨道交通机电设备运行、维护、故障检测、维修能力、轨道交通机电系统扩容能力、轨道交通机电设备管理能力等。

（5）拓展能力：轨道交通机电系统初步设计能力、轨道交通机电系统功能改造能力等。

（6）社会能力：积极的情感态度，在工作中始终具有积极向上的工作和学习态度；一定的交往能力，能够与他人进行思想沟通、技术交流；团队协作精神，能够在工作中服从组织、配合团队完成生产任务。

**课程设置**

一、必修课程

1. 公共必修课程

|  |  |  |
| --- | --- | --- |
| 序号 | 课程名称 | 课时数 |
| 1 | 思想道德修养与法律基础及形势政策 | 66 |
| 2 | 毛泽东思想和中国特色社会主义理论体系概论及形势政策 | 56 |
| 3 | 高等数学 | 60 |
| 4 | 大学语文 | 60 |
| 5 | 公共英语 | 60 |
| 6 | 信息技术 | 60 |
| 7 | 体育 | 122 |
| 8 | 中华优秀传统文化 | 30 |
| 9 | 民族理论和政策 | 32 |
| 10 | 大学生职业发展与就业指导 | 36 |

2.专业必修课程

|  |  |  |
| --- | --- | --- |
| 序号 | 课程名称 | 课时数 |
| 1 | 机械制图 | 60 |
| 2 | 工程力学 | 36 |
| 3 | 电工基础 | 72 |
| 4 | 机械基础 | 100 |
| 5 | 电子技术及应用 | 56 |
| 6 | 电机及拖动 | 56 |
| 7 | 单片机技术与应用 | 56 |
| 8 | ★城市轨道交通电气控制与PLC | 84 |
| 9 | ★城市轨道交通环境控制系统运行与维护 | 56 |
| 10 | ★屏蔽门技术及检修 | 56 |
| 11 | ★城市轨道交通电梯系统运行与维护技术 | 64 |
| 12 | ★城市轨道交通自动售检票系统 | 64 |
| 13 | ★城市轨道交通车站消防自动控制系统 | 64 |
| 14 | 钳工培训技能鉴定考核A | 60 |
| 15 | 电子与传感器课程创新实训B | 28 |
| 16 | 屏蔽门技能实训C | 56 |
| 17 | 维修电工培训技能鉴定考核D | 56 |
| 18 | 电梯安装维修工培训技能鉴定考核E | 28 |
| 19 | 自动售检票系统及检修技能实习F | 28 |
| 20 | 毕业顶岗实习G | 540 |

3.素质拓展必修课程

|  |  |  |
| --- | --- | --- |
| 序号 | 课程名称 | 课时数 |
| 1 | 军训及军事理论教育 | 60 |
| 2 | 心理健康教育 | 32 |
| 3 | 大学生安全及健康教育 | 32 |
| 4 | 大学生暑期社会实践 |  |

二、选修课程

1. 专业选修课程

|  |  |  |
| --- | --- | --- |
| 序号 | 课程名称 | 课时数 |
| 1 | \*城市轨道交通概论 | 72 |
| 2 | 铁道概论 | 72 |
| 3 | \*工业机器人 | 72 |
| 4 | 通用机械设备 | 72 |
| 5 | \*液压与气动 | 56 |
| 6 | 电工仪表与测量 | 56 |
| 7 | \*机械CAD | 56 |
| 8 | \*城市轨道交通变配电技术 | 56 |
| 9 | 创新创业训练（电气） | 56 |
| 10 | 创新创业训练（焊接） | 56 |
| 11 | \*城市轨道交通综合监控系统 | 64 |
| 12 | \*城市轨道交通车辆电气控制 | 64 |
| 13 | 公差配合与测量技术 | 64 |
| 14 | 机电设备故障诊断与维修 | 64 |
| 15 | \*城市轨道交通安全管理 | 32 |
| 16 | 机械车削技术 | 32 |

2. 素质拓展选修课程

|  |  |  |
| --- | --- | --- |
| 序号 | 课程名称 | 课时数 |
| 1 | 演讲与口才 | 32 |
| 2 | 中国小说阅读与鉴赏 | 32 |
| 3 | 音乐欣赏 | 32 |
| 4 | 影视文学欣赏 | 32 |
| 5 | 应用写作 | 32 |
| 6 | 现代礼仪 | 32 |
| 7 | 中国古典诗词欣赏 | 32 |
| 8 | 中国近现代史纲要 | 32 |
| 9 | 中国传统文化 | 32 |
| 10 | 中国旅游资源概况 | 32 |
| 11 | ISO9000质量管理体系 | 32 |
| 12 | 高级文字排版 | 32 |
| 13 | 电子表格处理 | 32 |
| 14 | PS图像处理 | 32 |
| 15 | 高级PPT制作 | 32 |
| 16 | 计算机组装维修及网络操作 | 32 |
| 17 | 生活中的经济学 | 32 |
| 18 | 技术史漫谈 | 32 |
| 19 | 电影赏析 | 32 |
| 20 | 职业素质 | 32 |
| 21 | 创造性思维与创新方法 | 32 |
| 22 | 大学生创业基础 | 32 |
| 23 | 创新创业实践 |  |

三、专业核心课程主要教学内容与要求

|  |  |  |
| --- | --- | --- |
| 序号 | 专业核心课程 | 主要教学内容与要求 |
| 1 | 城市轨道交通电气控制与PLC | 主要教学内容：与城轨相关的常用低压电器的结构、工作原理、型号和规格及其选择、调整和使用方法；继电器-接触器控制系统的基本环节；通用机械设备电气控制电路；可编程控制器的产生、发展，要求掌握可编程序控制器的工作原理、基本构成、主要技术指标及应用环境，掌握可编程控制器的步进、顺序控制指令。  教学要求：使学生初步具有对常用机械加工设备、通用机械设备等常见电气故障进行分析和处理的能力；能够编制状态转移图程序，解决中等程度的实际控制问题；能运用可编程控制器进行继电器控制系统的改造。 |
| 2 | 城市轨道交通环境控制系统运行与维护 | 主要教学内容：空气污染物及室内空气品质；民用建筑通风；空气的热湿处理；空气调节系统；净化空调；空调冷源设备与水系统；通风与空调节能新技术；给排水设备系统概述；室外给水系统管理与维修；室内给水系统管理与维修；室内排水系统管理与维修；室外排水系统管理与维修。  教学要求：熟悉空气调节系统、净化空调、空调风系统、空调冷源设备与水系统、通风与空调节能新技术等知识；掌握给排水主要设备的操作、安装调试、检修及故障处理，培养学生分析问题和解决问题的能力。 |
| 3 | 屏蔽门技术及检修 | 主要教学内容：屏蔽门系统运行管理，屏蔽门系统设备，系统接口；屏蔽门系统设备维护与故障处理。  教学要求：学生掌握屏蔽门系统设备维护与故障处理，屏蔽门系统测试、安装、调试及故障处理，屏蔽门系统设备检修及故障处理等技能知识。 |
| 4 | 城市轨道交通电梯系统运行与维护技术 | 主要教学内容：地铁车站自动扶梯设备结构；地铁车站自动扶梯控制原理；地铁车站自动扶梯运行维护；地铁车站自动扶梯故障处理；地铁车站垂直电梯系统；地铁车站垂直电梯控制原理；地铁车站垂直电梯运行维护；地铁车站垂直电梯故障处理。  教学要求：掌握城市轨道交通各种电梯的结构、原理，会分析产生故障的原因，维修和排除故障。 |
| 5 | 城市轨道交通自动售检票系统 | 主要教学内容：乘客信息系统；城市轨道交通安全常识；自动售检票系统；票卡媒介；自动售票机；半自动售票机；自动检票机。  教学要求：熟悉车票、自动售票机、人工售票机、检票机、车站计算机和中央计算机系统等系统，灵活运用，操作自如，会排除常见故障。 |
| 6 | 城市轨道交通车站消防自动控制系统 | 主要教学内容：轨道交通火灾自动报警系统；机电设备监控系统；轨道交通防排烟系统；轨道交通车站固定灭火系统；移动灭火系统；消防报警系统与其他系统的联动；轨道交通消防系统运行管理。  教学要求：掌握轨道交通车站消防自控系统的组成，各分系统的工作原理、组成设备和运行知识，懂得消防系统与其他系统的联动控制，熟悉轨道交通消防系统的运行管理。 |

**学时安排**

每学年教学时间为40周，总学时数为2738，校内实习按每周28学时计算，顶岗实习按每周30学时计算。每学时为45分钟。18学时计为1个学分，总学分为144学分。军训、入学教育、社会实践、毕业设计（或毕业论文、毕业教育）等，以1周为1学分。公共基础课程学时占总学时的25.8%。选修课教学时数占总学时的比例均为15.2%。学生顶岗实习为6个月，可根据实际情况，采取工学交替、多学期、分段式等多种形式组织实施。

**教学进程总体安排**

见附件（教学进程表）

**实施保障**

1. 师资队伍

1.专业生师比

专业教师总数不少于8人，专业生师比不低于18：1。

2.师资要求

(1)专业教师具有大学本科及以上学历并取得任职资格；专业带头人具有高级职称，从事专业课程教学的专任教师不少于8人。

(2)高级职称教师≥20％，中级职称教师≥50％, 具有“双师型”素质的教师人数不低于60％；专业教师平均教龄不低于4年。

(3)具有与本专业相关的职业工作经历或取得相应职业资格证书，熟悉本专业所面向的职业和行业企业，熟悉生产流程，掌握工作要求和质量标准。

(4)具有较强的学习能力和终身学习意识。每年有一定数量的专业教师到相关企业进行相应的专业实践，从而提高教师们的实践能力。

(5)掌握必要的职业教育理念和教学方法，具有开发职业课程的能力、教学设计与教学实施的能力。专业教师每年需完成国家或行业规定的继续教育计划，并经考核合格。

3.企业兼职教师任职资格

根据教学需要，可聘请一定数量、相对稳定的兼职教师和兼职实习指导教师。兼职教师一般应从事本专业相关实践工作5年以上并具有大学专科以上文化程度或中级技术职务。

二、教学设施

1.校内基础课教学实验室和教学设备的基本要求

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| 序 号 | 实 验 室 名 称 | 设 备 名 称 | 单 位 | 数 量 |
| 1 | 计算机机房 | 计 算 机 | 台 | 50 |

2.校内实训（含职业技能鉴定）基地的基本要求

设备基本要求如下：

(1)实验室：

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| 序号 | 实验室名称 | 设 备 名 称 | 单 位 | 数 量 |
| 1 | 力学实验室 | 万能试验机；蝶式引伸仪；电阻应变仪；位移传感器；扭转实验机。 | 台、套 | 各4 |
| 2 | 城市轨道传感器实验室 | 城市轨道机电设备传感器综合实验器材 | 台、套 | 各20 |
| 3 | 单片机实验室 | MCS-51单片机实验箱 | 台、套 | 各20 |
| 4 | 机械基础实验室 | 带传动、链传动、齿轮传动装置、减速器等 | 台、套 | 各20 |
| 5 | 电工实验室 | 交流稳压电源 | 台 | 2 |
| 万用电桥 | 台 | 20 |
| 直流稳压电源 | 台 | 30 |
| 低频信号发生器 | 台 | 30 |
| 示波器 | 台 | 25 |
| 万用表 | 块 | 30 |
| 兆欧表 | 块 | 30 |
| 直流电压表、直流电流表 | 块 | 各50 |
| 交流电压表、交流电流表 | 块 | 各50 |
| 接触器、时间继电器、热继电器 | 个 | 各50 |
| 交流电动机 | 台 | 50 |
| 各规格实验板 | 块 | 25 |
| 常用电工工具材料等。 | 套 | 30 |
| 6 | 电子技术实验室 | 万用电桥 | 台 | 20 |
| 直流稳压电源 | 台 | 30 |
| 低频信号发生器 | 台 | 30 |
| 示波器 | 台 | 25 |
| 万用表 | 块 | 30 |
| 晶体管毫伏表 | 块 | 30 |
| 晶体管参数测试仪 | 台 | 2 |
| 直流电压表 | 块 | 30 |
| 直流电流表 | 块 | 30 |
| 常用电工工具材料等 | 套 | 30 |
| 7 | 城轨车辆电气实验室 | 电气控制实训装置、常用车辆电器、电器维修作业工具 | 套 | 40 |
| 8 | 电机及拖动实验室 | 电机及电气技术实验装置 | 台 | 10 |
| 9 | 电梯和自动扶梯实验室 | 升降电梯模型、自动扶梯仿真模型 | 台、套 | 各10 |
| 10 | 城市轨道交通自动售检票实验室 | 自动售检票系统 | 套 | 各10 |
| 11 | 城市轨道交通综合监控实验室 | 城市轨道交通综合监控系统 | 套 | 2套 |

(2)实习、实训室

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| 序号 | 实训室名称 | 设 备 名 称 | 单 位 | 数 量 |
| 1 | 装配钳工实训室 | 机械装调技术综合实训装置 | 台 | 15 |
| 台钻 | 台 | 3 |
| 方箱、平板、划线工具 | 套 | 3 |
| 高度尺 | 把 | 2 |
| 游标卡尺 | 把 | 15 |
| 直角尺 | 把 | 15 |
| 万能角度尺 | 把 | 10 |
| 手锯、榔头 | 把 | 各50 |
| 各型锉 | 把 | 若干 |
| 丝锥、板牙 | 支 | 若干 |
| 塞尺、R规等 | 把 | 若干 |
| 内六角扳手 | 套 | 15 |
| 拉马 | 套 | 15 |
| 2 | 电工技术实训室 | 万用表 | 块 | 20 |
| 兆欧表 | 块 | 20 |
| 转速表 | 块 | 10 |
| 空气开关、按钮盒 | 套 | 各40 |
| 单相电度表、三相电度表 | 个 | 各30 |
| 单相插座、三相插座、灯座 | 个 | 各30 |
| 日光灯组件 | 套 | 30 |
| 常用电工工具 | 套 | 40 |
| 红、黄、蓝、黑导线 |  | 若干 |
| 交流电动机、接触器、时间继电器、热继电器，所用各规格实验板 | 套 | 各30 |
| 3 | 电子技术实训室 | 台钻 | 台 | 4 |
| 万用表 | 块 | 25 |
| 毫伏表 | 台 | 25 |
| 低频信号发生器 | 台 | 25 |
| 万用电桥 | 台 | 25 |
| 直流稳压电源 | 台 | 25 |
| 示波器 | 台 | 25 |
| 晶体管毫伏表 | 台 | 25 |
| 电烙铁及烙铁架 | 套 | 25 |
| 改锥（十字、平口） | 套 | 25 |
| 电工工具材料等 | 套 | 25 |
| 实训台 | 台 | 25 |
| 4 | 电梯和自动扶梯实训室 | 18层电梯模型 | 套 | 10套 |
| 自动扶梯模型 | 套 | 10套 |
| 5 | 电机及拖动实训室 | 电机及拖动实训台 | 台 | 25 |
| 万用表 | 块 | 25 |
| 常用电工工具 | 套 | 25 |
| 6 | 城市轨道车辆电气控制实训室 | 组合开关、空气开关 | 个 | 50 |
| 交流接触器 | 个 | 150 |
| 热继电器 | 个 | 50 |
| 异步电动机 | 台 | 20 |
| 万用表 | 块 | 30 |
| 兆欧表 | 套 | 30 |
| 按钮， | 个 | 50 |
| 常用电工工具 | 套 | 50 |
| 接线端子 | 个 | 200 |
| 熔断器 | 个 | 200 |
| 实训台 | 个 | 25 |
| 红、黄、蓝、黑导线 | 根 | 若干 |
| 7 | 城市轨道交通自动售检票实训室 | 自动售检票系统 | 套 | 10 |
| 8 | 城市轨道交通综合监控实训室 | 城市轨道交通综合监控系统 | 套 | 2 |
| 9 | 城市轨道交通屏蔽门实训室 | 城市轨道交通屏蔽门、塞拉门实训系统 | 套 | 2 |

3.校外实习基地的基本要求

在努力完善学校各方面教学条件的基础上，还要努力与自治区内尤其是包头地铁企业建立校企合作关系。积极促使校企关系更加紧密从而给学生们一个了解社会和企业的窗口，也对企业的生产环节及生产流程有进一步的认识。同时，可以做到校企零距离，使校企资源共享。学校按照企业需要开展企业员工的职业培训，与企业合作开展应用研究与开发。企业也参与学校的改革与发展，为学生们顶岗实习创造条件。

三、教学资源

1.教材资源

高等教育出版社、科学出版社、机械工业出版社、中国劳动社会保障出版社、西安电子科技大学出版社、电子工业出版社、中国铁道出版社、学院自编教材等发行的城市轨道交通机电专业规划教材。

2.图书资源

普通高等学校高等职业教育教学标准；装配钳工技能鉴定用书；维修电工技能鉴定用书，城市轨道交通岗位技能培训教材。

3.数字化（网络）资源

充分利用电子书籍、电子期刊、数据库、数字图书馆、教育网站和电子论坛等网上信息资源，使教学从单一媒体向多媒体转变；使教学活动从信息的单向传递向双向交换转变；使学生从单独的学习向合作学习转变。

四、教学方法

1.教学方法、手段建议

在教学过程中注意发挥学生的主体作用和教师的主导作用，注重培养学生分析和解决问题能力，模拟现场真实工作，采用引导文教学法、角色扮演法、任务驱动法、案例教学法、项目教学法等一系列“理实一体化”的方法，引导学生完成学习性工作任务。

2.教学组织形式建议

建议实施校企合作、工学结合、任务驱动、项目导向、顶岗实习等行动导向的教学模式，在“教、学、做”一体的实训基地进行教学，学生边看边学、边做边学，强化学生职业能力培养。教师作为学生学习活动的主导，成为学生学习的激励者、咨询者和指导者。

五、教学评价

1.教学评价建议

教学评价从多方面展开，包括学生评价，教师评价，校内督导评价，同行评价，企业用人单位评价等。

2.教学考核建议

对学生应该进行全面综合、突出能力的考核。

(1)专业理论课程考核中，突出知识的掌握、相关问题的分析、判断、解决的能力。

(2)实践课程考核中，突出基本技能的掌握、熟练程度以及是否具有创新意识等。

考核中，还应包括与同学共同工作的团队协作精神、踏实认真的态度以及持之以恒的精神等，建议实行过程考核及阶段性考核。

六、质量管理

建立健全院、系两级的质量保障体系。以保障和提高教学质量为目标，运用系统方法，依靠必要的组织结构，统筹考虑影响教学质量的各主要因素，结合教学诊断与改进、质量年报等职业院校自主保证人才培养质量的工作，统筹管理学校各部门、各环节的教学质量管理活动，形成任务、职责、权限明确，相互协调、相互促进的质量管理有机整体。

**毕业要求**

学生德、智、体、美、劳合格，在允许的修业年限内学完培养计划规定的全部课程，通过顶岗实践或毕业论文答辩，取得相应的职业资格证书，达到毕业最低学分（144分）要求，即获得毕业资格，准予毕业并颁发毕业证书。

**教 学 进 程 表**

**2018 级 城市轨道交通机电技术 专 业**

毕业最低学分：144分

专业代码： 600602

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **一、教学进程表** | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | **二、周数分配表** | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 学  年 | | 教 学 周 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 理论  及  分散  实践 | | | | 集  中  实  践 | | | | 考  试 | | | | 劳  动 | | | | | 军  训 | | | | 机  动 | | | | | 毕  业  教  育 | | | 假  期 | | | 合  计 | | |
| 九月 | | | | | | | 十月 | | | | | | 十一月 | | | | | | | 十二月 | | | | | | | | 一月 | | | | | | | | | 二月 | | | | | | | | | 三月 | | | | | | | 四月 | | | | | 五月 | | | | | | 六月 | | | | | | | | | | | 七月 | | | | | | | | | | 八月 | | | | | | | | |
|  | 1 | | 2 | | | 3 | 4 | | | 5 | 6 | 7 | 8 | 9 | | 10 | 11 | 12 | 13 | | 14 | | 15 | | 16 | | 17 | | | 18 | | 19 | 20 | | 21 | | 22 | | | 23 | 24 | | 25 | | 26 | 27 | | | | 28 | 29 | 30 | | 31 | | 32 | 33 | 34 | 35 | | 36 | 37 | | 38 | 39 | | 40 | | 41 | | 42 | | 43 | | | 44 | | | | 45 | | 46 | | 47 | | 48 | | | 49 | 50 | 51 | 52 | | | K | | | S | | | | | ∷ | | | | × | | | | | ★ | | | | J | | | | | T | | | = | | | |  | | |
| 一 | ★2 | | | | | 15 | | | | | | | | | | | | | | | | | | | | | | | | J2 | | | ∷ | | ==== 6 | | | | | | | | | | | 18 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | J | | | | ∷ | | ==== 6 | | | | | | | | | | | 33 | | | 0 | | | | | 2 | | | | 0 | | | | | 2 | | | | 3 | | | | | 0 | | | 12 | | | | 52 | | |
| 二 | 14 | | | | | | | | | | | | | | | | | | | | | | | X | | A | | | B | | J | | | ∷ | | ==== 6 | | | | | | | | | | | 14 | | | | | | | | | | | | | | | | | | | | | | | C | | | | D | | | | | J | | | | ∷ | | ====6 | | | | | | | | | | | 28 | | | 7 | | | | 2 | | | 1 | | | | | 0 | | | | 2 | | | | | 0 | | | 12 | | | | 52 | | | |
| 三 | 16 | | | | | | | | | | | | | | | | | | | | | | | | | | | F | E | | J | | | ∷ | | ==== 6 | | | | | | | | | | | G18 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | J | | | | T | |  | | | | | | | | | | | 15 | | | 21 | | | | 1 | | | 0 | | | | | 0 | | | | 2 | | | | | 1 | | | 6 | | | | 46 | | | |
| **三、教学进度表** | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 合计 | | | | | | | | | | | | | | | | | | | 76 | | | 28 | | | | | 5 | | | 1 | | | | | 2 | | | | 7 | | | | | 1 | | | | 30 | | | 150 | | | |
| 课程类型 | 序  号 | | | 课程  代码 | | | | 课 程 名 称 | | | | | | | | | | | | 考核学期序 | | | | | | | | | | | | | | | | | | 学 分 | | | | | | 学 时 数 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 理论教学（含分散性实践教学）周学时 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 考 试 | | | | | | | | | 考 查 | | | | | | | | | 总 计 | | | | | | | | | 理 论 | | | | | | 实 践 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 一 年 级 | | | | | | | | | | | | | 二 年 级 | | | | | | | | | | | | | | | | | 三 年 级 | | | | | | | | | | | |
| 合 计 | | | | 习 题 课 | | | | | 实 训 | | | | 现场教学 | | | | | | | | | 创新创业训练 | | | | | | | 1学期  15周 | | | | | 2学期  18周 | | | | | | | | 3学期  14周 | | | | | | | | 4学期  14周 | | | | | | | | | 5学期  16周 | | | | | 6学期  18周 | | | | | | |
| 公共必修课 | 1 | | | 0001 | | | | 思想道德修养与法律基础及形势政策 | | | | | | | | | | | | 1 | | | | | | | | | 2 | | | | | | | | | 4 | | | | | | 66 | | | | | | | | | 52 | | | | | | 14 | | | | 14 | | | | |  | | | |  | | | | | | | | |  | | | | | | | 2 | | | | | 2 | | | | | | | |  | | | | | | | |  | | | | | | | | |  | | | | |  | | | | | | |
| 2 | | | 0002 | | | | 毛泽东思想和中国特色社会主义理论体系概论及形势政策 | | | | | | | | | | | | 3 | | | | | | | | | 4 | | | | | | | | | 3 | | | | | | 56 | | | | | | | | | 48 | | | | | | 8 | | | | 8 | | | | |  | | | |  | | | | | | | | |  | | | | | | |  | | | | |  | | | | | | | | 2 | | | | | | | | 2 | | | | | | | | |  | | | | |  | | | | | | |
| 3 | | | 0005 | | | | 高等数学 | | | | | | | | | | | | 1 | | | | | | | | |  | | | | | | | | | 3 | | | | | | 60 | | | | | | | | | 54 | | | | | | 6 | | | | 6 | | | | |  | | | |  | | | | | | | | |  | | | | | | | 4 | | | | |  | | | | | | | |  | | | | | | | |  | | | | | | | | |  | | | | |  | | | | | | |
| 4 | | | 0006 | | | | 大学语文 | | | | | | | | | | | |  | | | | | | | | | 1 | | | | | | | | | 3 | | | | | | 60 | | | | | | | | | 52 | | | | | | 8 | | | | 8 | | | | |  | | | |  | | | | | | | | |  | | | | | | | 4 | | | | |  | | | | | | | |  | | | | | | | |  | | | | | | | | |  | | | | |  | | | | | | |
| 5 | | | 0007 | | | | 公共英语 | | | | | | | | | | | | 1 | | | | | | | | |  | | | | | | | | | 3 | | | | | | 60 | | | | | | | | | 18 | | | | | | 42 | | | | 42 | | | | |  | | | |  | | | | | | | | |  | | | | | | | 4 | | | | |  | | | | | | | |  | | | | | | | |  | | | | | | | | |  | | | | |  | | | | | | |
| 6 | | | 0008 | | | | 信息技术 | | | | | | | | | | | |  | | | | | | | | | 1 | | | | | | | | | 3 | | | | | | 60 | | | | | | | | | 30 | | | | | | 30 | | | | 30 | | | | |  | | | |  | | | | | | | | |  | | | | | | | 4 | | | | |  | | | | | | | |  | | | | | | | |  | | | | | | | | |  | | | | |  | | | | | | |
| 7 | | | 0009 | | | | 体育 | | | | | | | | | | | | 3 | | | | | | | | | 1.2.4 | | | | | | | | | 7 | | | | | | 122 | | | | | | | | | 8 | | | | | | 114 | | | |  | | | | |  | | | | 114 | | | | | | | | |  | | | | | | | 2 | | | | | 2 | | | | | | | | 2 | | | | | | | | 2 | | | | | | | | |  | | | | |  | | | | | | |
| 8 | | | 0004 | | | | 中华优秀传统文化 | | | | | | | | | | | |  | | | | | | | | | 1 | | | | | | | | | 2 | | | | | | 30 | | | | | | | | | 30 | | | | | |  | | | |  | | | | |  | | | |  | | | | | | | | |  | | | | | | | 2 | | | | |  | | | | | | | |  | | | | | | | |  | | | | | | | | |  | | | | |  | | | | | | |
| 9 | | | 0011 | | | | 民族理论和政策 | | | | | | | | | | | |  | | | | | | | | | 5 | | | | | | | | | 2 | | | | | | 32 | | | | | | | | | 32 | | | | | |  | | | |  | | | | |  | | | |  | | | | | | | | |  | | | | | | |  | | | | |  | | | | | | | |  | | | | | | | |  | | | | | | | | | 2 | | | | |  | | | | | | |
| 10 | | | 0010 | | | | 大学生职业发展与就业指导 | | | | | | | | | | | |  | | | | | | | | | 2 | | | | | | | | | 2 | | | | | | 36 | | | | | | | | | 36 | | | | | |  | | | |  | | | | |  | | | |  | | | | | | | | |  | | | | | | |  | | | | | 2 | | | | | | | |  | | | | | | | |  | | | | | | | | |  | | | | |  | | | | | | |
| 小计学分及学时数 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 32 | | | | | | 582 | | | | | | | | | 360 | | | | | | 222 | | | | 108 | | | | |  | | | | 114 | | | | | | | | | 472 | | | | | | | 22 | | | | | 6 | | | | | | | | 4 | | | | | | | | 4 | | | | | | | | | 2 | | | | | **0** | | | | | | |
| 专业必修课 | 11 | | | 31001 | | | | 机械制图 | | | | | | | | | | | | 1 | | | | | | | | |  | | | | | | | | | 3 | | | | | | 60 | | | | | | | | | 8 | | | | | | 52 | | | | 20 | | | | |  | | | | 22 | | | | | | | | | 10 | | | | | | | 4 | | | | |  | | | | | | | |  | | | | | | | |  | | | | | | | | |  | | | | |  | | | | | | |
| 12 | | | 31002 | | | | 工程力学 | | | | | | | | | | | |  | | | | | | | | | 2 | | | | | | | | | 2 | | | | | | 36 | | | | | | | | | 24 | | | | | | 12 | | | | 4 | | | | |  | | | | 8 | | | | | | | | |  | | | | | | |  | | | | | 2 | | | | | | | |  | | | | | | | |  | | | | | | | | |  | | | | |  | | | | | | |
| 13 | | | 31003 | | | | 电工基础 | | | | | | | | | | | | 2 | | | | | | | | |  | | | | | | | | | 4 | | | | | | 72 | | | | | | | | | 52 | | | | | | 20 | | | | 6 | | | | |  | | | | 14 | | | | | | | | |  | | | | | | |  | | | | | 4 | | | | | | | |  | | | | | | | |  | | | | | | | | |  | | | | |  | | | | | | |
| 14 | | | 31004 | | | | 机械基础 | | | | | | | | | | | | 2 | | | | | | | | | 3 | | | | | | | | | 6 | | | | | | 100 | | | | | | | | | 72 | | | | | | 28 | | | | 6 | | | | |  | | | | 22 | | | | | | | | |  | | | | | | |  | | | | | 4 | | | | | | | | 2 | | | | | | | |  | | | | | | | | |  | | | | |  | | | | | | |
| 15 | | | 31005 | | | | 电子技术及应用 | | | | | | | | | | | | 3 | | | | | | | | |  | | | | | | | | | 3 | | | | | | 56 | | | | | | | | | 40 | | | | | | 16 | | | | 4 | | | | |  | | | | 12 | | | | | | | | |  | | | | | | |  | | | | |  | | | | | | | | 4\* | | | | | | | |  | | | | | | | | |  | | | | |  | | | | | | |
| 16 | | | 31006 | | | | 电机及拖动 | | | | | | | | | | | | 3 | | | | | | | | |  | | | | | | | | | 3 | | | | | | 56 | | | | | | | | | 42 | | | | | | 14 | | | | 4 | | | | |  | | | | 10 | | | | | | | | |  | | | | | | |  | | | | |  | | | | | | | | 4 | | | | | | | |  | | | | | | | | |  | | | | |  | | | | | | |
| 17 | | | 31007 | | | | 单片机原理与应用 | | | | | | | | | | | |  | | | | | | | | | 3 | | | | | | | | | 3 | | | | | | 56 | | | | | | | | | 28 | | | | | | 28 | | | |  | | | | |  | | | | 12 | | | | | | | | | 16 | | | | | | |  | | | | |  | | | | | | | | 4 | | | | | | | |  | | | | | | | | |  | | | | |  | | | | | | |
| 18 | | | 31008 | | | | ★城市轨道交通电气控制与PLC | | | | | | | | | | | | 4 | | | | | | | | |  | | | | | | | | | 5 | | | | | | 84 | | | | | | | | | 44 | | | | | | 40 | | | | 4 | | | | |  | | | | 18 | | | | | | | | | 18 | | | | | | |  | | | | |  | | | | | | | |  | | | | | | | | 6\* | | | | | | | | |  | | | | |  | | | | | | |
| 19 | | | 31009 | | | | ★城市轨道交通环境控制系统运行与维护 | | | | | | | | | | | | 4 | | | | | | | | |  | | | | | | | | | 3 | | | | | | 56 | | | | | | | | | 38 | | | | | | 18 | | | | 4 | | | | |  | | | | 14 | | | | | | | | |  | | | | | | |  | | | | |  | | | | | | | |  | | | | | | | | 4 | | | | | | | | |  | | | | |  | | | | | | |
| 20 | | | 31010 | | | | ★屏蔽门技术及检修 | | | | | | | | | | | | 4 | | | | | | | | |  | | | | | | | | | 3 | | | | | | 56 | | | | | | | | | 38 | | | | | | 18 | | | | 4 | | | | |  | | | | 14 | | | | | | | | |  | | | | | | |  | | | | |  | | | | | | | |  | | | | | | | | 4\* | | | | | | | | |  | | | | |  | | | | | | |
| 21 | | | 31011 | | | | ★城市轨道交通电梯系统运行与维护技术 | | | | | | | | | | | | 5 | | | | | | | | |  | | | | | | | | | 4 | | | | | | 64 | | | | | | | | | 40 | | | | | | 24 | | | | 4 | | | | |  | | | | 20 | | | | | | | | |  | | | | | | |  | | | | |  | | | | | | | |  | | | | | | | |  | | | | | | | | | 4\* | | | | |  | | | | | | |
| 22 | | | 31012 | | | | ★城市轨道交通自动售检票系统 | | | | | | | | | | | | 5 | | | | | | | | |  | | | | | | | | | 4 | | | | | | 64 | | | | | | | | | 54 | | | | | | 10 | | | | 2 | | | | |  | | | | 8 | | | | | | | | |  | | | | | | |  | | | | |  | | | | | | | |  | | | | | | | |  | | | | | | | | | 4\* | | | | |  | | | | | | |
| 23 | | | 31013 | | | | ★城市轨道交通车站消防自动控制系统 | | | | | | | | | | | | 5 | | | | | | | | |  | | | | | | | | | 4 | | | | | | 64 | | | | | | | | | 54 | | | | | | 10 | | | | 2 | | | | |  | | | | 8 | | | | | | | | |  | | | | | | |  | | | | |  | | | | | | | |  | | | | | | | |  | | | | | | | | | 4 | | | | |  | | | | | | |
| 24 | | | 31401 | | | | 钳工培训技能鉴定考核A | | | | | | | | | | | |  | | | | | | | | | 3 | | | | | | | | | 2 | | | | | | 56 | | | | | | | | |  | | | | | | 56 | | | |  | | | | | 2周 | | | |  | | | | | | | | |  | | | | | | |  | | | | |  | | | | | | | | 2周 | | | | | | | |  | | | | | | | | |  | | | | |  | | | | | | |
| 25 | | | 31402 | | | | 电子与传感器课程创新实训B | | | | | | | | | | | |  | | | | | | | | | 3 | | | | | | | | | 1 | | | | | | 28 | | | | | | | | |  | | | | | | 28 | | | |  | | | | | 1周 | | | |  | | | | | | | | |  | | | | | | |  | | | | |  | | | | | | | | 1周 | | | | | | | |  | | | | | | | | |  | | | | |  | | | | | | |
| 26 | | | 31403 | | | | 屏蔽门技能实训C | | | | | | | | | | | |  | | | | | | | | | 4 | | | | | | | | | 2 | | | | | | 56 | | | | | | | | |  | | | | | | 56 | | | |  | | | | | 2周 | | | |  | | | | | | | | |  | | | | | | |  | | | | |  | | | | | | | |  | | | | | | | | 2周 | | | | | | | | |  | | | | |  | | | | | | |
| 27 | | | 31404 | | | | 电工培训技能鉴定考核D | | | | | | | | | | | |  | | | | | | | | | 4 | | | | | | | | | 2 | | | | | | 56 | | | | | | | | |  | | | | | | 56 | | | |  | | | | | 2周 | | | |  | | | | | | | | |  | | | | | | |  | | | | |  | | | | | | | |  | | | | | | | | 2周 | | | | | | | | |  | | | | |  | | | | | | |
| 28 | | | 31405 | | | | 电梯安装与维修实训E | | | | | | | | | | | |  | | | | | | | | | 5 | | | | | | | | | 1 | | | | | | 28 | | | | | | | | |  | | | | | | 28 | | | |  | | | | | 1周 | | | |  | | | | | | | | |  | | | | | | |  | | | | |  | | | | | | | |  | | | | | | | |  | | | | | | | | | 1周 | | | | |  | | | | | | |
| 29 | | | 31406 | | | | 自动售检票系统及检修技能实训F | | | | | | | | | | | |  | | | | | | | | | 5 | | | | | | | | | 1 | | | | | | 28 | | | | | | | | |  | | | | | | 28 | | | |  | | | | | 1周 | | | |  | | | | | | | | |  | | | | | | |  | | | | |  | | | | | | | |  | | | | | | | |  | | | | | | | | | 1周 | | | | |  | | | | | | |
| 30 | | | 31407 | | | | 毕业顶岗实习G | | | | | | | | | | | |  | | | | | | | | | 6 | | | | | | | | | 18 | | | | | | 540 | | | | | | | | |  | | | | | | 540 | | | |  | | | | | 18周 | | | |  | | | | | | | | |  | | | | | | |  | | | | |  | | | | | | | |  | | | | | | | |  | | | | | | | | |  | | | | | 18周 | | | | | | |
| 小计学分及学时数 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 74 | | | | | | 1616 | | | | | | | | | 534 | | | | | | 1082 | | | | 64 | | | | | 27周 | | | | 182 | | | | | | | | | 44 | | | | | | | 26 | | | | | 16 | | | | | | | | 18 | | | | | | | | 18 | | | | | | | | | 14 | | | | |  | | | | | | |
| 专业选修课 | 31 | | | 31014 | | | | \*城市轨道交通概论 | | | | | | | | | | | |  | | | | | | | | | 2 | | | | | | | | | 4 | | | | | | 72 | | | | | | | | | 64 | | | | | | 8 | | | | 8 | | | | |  | | | |  | | | | | | | | |  | | | | | | |  | | | | | 4 | | | | | | | |  | | | | | | | |  | | | | | | | | |  | | | | |  | | | | | | |
| 32 | | | 31015 | | | | 铁道概论 | | | | | | | | | | | |  | | | | | | | | | 2 | | | | | | | | | 4 | | | | | | 72 | | | | | | | | | 64 | | | | | | 8 | | | | 8 | | | | |  | | | |  | | | | | | | | |  | | | | | | |  | | | | | 4 | | | | | | | |  | | | | | | | |  | | | | | | | | |  | | | | |  | | | | | | |
| 33 | | | 31016 | | | | \*工业机器人技术 | | | | | | | | | | | |  | | | | | | | | | 4 | | | | | | | | | 4 | | | | | | 72 | | | | | | | | | 36 | | | | | | 36 | | | |  | | | | |  | | | | 36 | | | | | | | | |  | | | | | | |  | | | | | 4 | | | | | | | |  | | | | | | | |  | | | | | | | | |  | | | | |  | | | | | | |
| 34 | | | 31017 | | | | 通用机械设备 | | | | | | | | | | | |  | | | | | | | | | 4 | | | | | | | | | 4 | | | | | | 72 | | | | | | | | | 60 | | | | | | 12 | | | |  | | | | |  | | | | 12 | | | | | | | | |  | | | | | | |  | | | | | 4 | | | | | | | |  | | | | | | | |  | | | | | | | | |  | | | | |  | | | | | | |
| 35 | | | 31018 | | | | \*液压与气动 | | | | | | | | | | | |  | | | | | | | | | 3 | | | | | | | | | 3 | | | | | | 56 | | | | | | | | | 40 | | | | | | 16 | | | | 4 | | | | |  | | | | 12 | | | | | | | | |  | | | | | | |  | | | | |  | | | | | | | | 4 | | | | | | | |  | | | | | | | | |  | | | | |  | | | | | | |
| 36 | | | 31019 | | | | 电工仪表与测量 | | | | | | | | | | | |  | | | | | | | | | 3 | | | | | | | | | 3 | | | | | | 56 | | | | | | | | | 40 | | | | | | 16 | | | | 4 | | | | |  | | | | 12 | | | | | | | | |  | | | | | | |  | | | | |  | | | | | | | | 4 | | | | | | | |  | | | | | | | | |  | | | | |  | | | | | | |
| 37 | | | 31020 | | | | 机械CAD | | | | | | | | | | | |  | | | | | | | | | 4 | | | | | | | | | 4 | | | | | | 56 | | | | | | | | | 16 | | | | | | 40 | | | |  | | | | |  | | | | 40 | | | | | | | | |  | | | | | | |  | | | | |  | | | | | | | |  | | | | | | | | 4 | | | | | | | | |  | | | | |  | | | | | | |
| 38 | | | 31021 | | | | \*城市轨道交通变配电技术 | | | | | | | | | | | |  | | | | | | | | | 4 | | | | | | | | | 5 | | | | | | 56 | | | | | | | | | 46 | | | | | | 10 | | | | 4 | | | | |  | | | | 6 | | | | | | | | |  | | | | | | |  | | | | |  | | | | | | | |  | | | | | | | | 4 | | | | | | | | |  | | | | |  | | | | | | |
| 39 | | | 31022 | | | | 创新创业训练（电气） | | | | | | | | | | | |  | | | | | | | | | 4 | | | | | | | | | 4 | | | | | | 56 | | | | | | | | | 0 | | | | | | 56 | | | |  | | | | |  | | | | 56 | | | | | | | | |  | | | | | | |  | | | | |  | | | | | | | |  | | | | | | | | 4 | | | | | | | | |  | | | | |  | | | | | | |
| 40 | | | 31023 | | | | 创新创业训练（焊接） | | | | | | | | | | | |  | | | | | | | | | 4 | | | | | | | | | 4 | | | | | | 56 | | | | | | | | | 0 | | | | | | 56 | | | |  | | | | |  | | | | 56 | | | | | | | | |  | | | | | | |  | | | | |  | | | | | | | |  | | | | | | | | 4 | | | | | | | | |  | | | | |  | | | | | | |
| 41 | | | 31024 | | | | \*城市轨道交通综合监控系统 | | | | | | | | | | | |  | | | | | | | | | 5 | | | | | | | | | 3 | | | | | | 64 | | | | | | | | | 44 | | | | | | 20 | | | |  | | | | |  | | | | 20 | | | | | | | | |  | | | | | | |  | | | | |  | | | | | | | |  | | | | | | | |  | | | | | | | | | 4 | | | | |  | | | | | | |
| 42 | | | 31025 | | | | \*城市轨道交通车辆电气控制 | | | | | | | | | | | |  | | | | | | | | | 5 | | | | | | | | | 3 | | | | | | 64 | | | | | | | | | 52 | | | | | | 12 | | | |  | | | | |  | | | | 12 | | | | | | | | |  | | | | | | |  | | | | |  | | | | | | | |  | | | | | | | |  | | | | | | | | | 4 | | | | |  | | | | | | |
| 43 | | | 31026 | | | | 公差配合与测量技术 | | | | | | | | | | | |  | | | | | | | | | 5 | | | | | | | | | 3 | | | | | | 64 | | | | | | | | | 52 | | | | | | 12 | | | |  | | | | |  | | | | 12 | | | | | | | | |  | | | | | | |  | | | | |  | | | | | | | |  | | | | | | | |  | | | | | | | | | 4 | | | | |  | | | | | | |
| 44 | | | 31027 | | | | 机电设备故障诊断与维修 | | | | | | | | | | | |  | | | | | | | | | 5 | | | | | | | | | 3 | | | | | | 64 | | | | | | | | | 54 | | | | | | 10 | | | |  | | | | |  | | | | 10 | | | | | | | | |  | | | | | | |  | | | | |  | | | | | | | |  | | | | | | | |  | | | | | | | | | 4 | | | | |  | | | | | | |
| 45 | | | 31028 | | | | \*城市轨道交通安全管理 | | | | | | | | | | | |  | | | | | | | | | 5 | | | | | | | | | 2 | | | | | | 32 | | | | | | | | | 22 | | | | | | 10 | | | |  | | | | |  | | | | 10 | | | | | | | | |  | | | | | | |  | | | | |  | | | | | | | |  | | | | | | | |  | | | | | | | | | 2 | | | | |  | | | | | | |
| 46 | | | 31029 | | | | 机械车削技术 | | | | | | | | | | | |  | | | | | | | | | 5 | | | | | | | | | 2 | | | | | | 32 | | | | | | | | | 22 | | | | | | 10 | | | |  | | | | |  | | | | 10 | | | | | | | | |  | | | | | | |  | | | | |  | | | | | | | |  | | | | | | | |  | | | | | | | | | 2 | | | | |  | | | | | | |
| 小计学分及学时数 （至少修满学分24学分） | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 55 | | | | | | 944 | | | | | | | | | 612 | | | | | | 332 | | | | 28 | | | | |  | | | | 304 | | | | | | | | |  | | | | | | | 26 | | | | | 24 | | | | | | | | 22 | | | | | | | | 22 | | | | | | | | | 24 | | | | |  | | | | | | |
| 24 | | | | | | 416 | | | | | | | | | 304 | | | | | | 112 | | | | 16 | | | | |  | | | | 96 | | | | | | | | |  | | | | | | |
| **四、素质拓展课** | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 课程类型 | 序  号 | | | | 课程代码 | | | 课 程 名 称 | | | | | | | | | | | | 考核学期序 | | | | | | | | | | | | | | | | | | 学 分 | | | | 课  时 | | | | | | | 说 明 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 考 试 | | | | | | 考 查 | | | | | | | | | | | |  | | | |  | | | | | | |  | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 必修  课 | 1 | | | | 01 | | | 军训及军事理论教育 | | | | | | | | | | | |  | | | | | | 1 | | | | | | | | | | | | 4 | | | | 60 | | | | | | | 第1学期开设，含入学教育。 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 2 | | | | 02 | | | 心理健康教育 | | | | | | | | | | | |  | | | | | | 2.3.4.5 | | | | | | | | | | | | 2 | | | | 32 | | | | | | | 分专业在第2～5学期之一开设。 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 3 | | | | 03 | | | 大学生安全及健康教育 | | | | | | | | | | | |  | | | | | | 1.2.3.4 | | | | | | | | | | | | 2 | | | | 32 | | | | | | | 在1～4学期实施，以专题讲座的形式和每学期大学生第二课堂教育活动中开设。 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|  | 4 | | | | 04 | | | 大学生暑期社会实践 | | | | | | | | | | | |  | | | | | | 2.4 | | | | | | | | | | | | 2 | | | |  | | | | | | | 利用暑期，进行社会实践，提交报告。 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 小计学分及学时数 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 10 | | | | 124 | | | | | | |  | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 选  修  课 | 1 | | | | 001 | | | 演讲与口才 | | | | | | | | | | | |  | | | | | | 2～5 | | | | | | | | | | | | 2 | | | | 32 | | | | | | |  | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 2 | | | | 002 | | | 中国小说阅读与鉴赏 | | | | | | | | | | | |  | | | | | | 2～5 | | | | | | | | | | | | 2 | | | | 32 | | | | | | |  | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 3 | | | | 003 | | | 音乐欣赏 | | | | | | | | | | | |  | | | | | | 2～5 | | | | | | | | | | | | 2 | | | | 32 | | | | | | |  | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 4 | | | | 004 | | | 影视文学欣赏 | | | | | | | | | | | |  | | | | | | 2～5 | | | | | | | | | | | | 2 | | | | 32 | | | | | | |  | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 5 | | | | 005 | | | 应用写作 | | | | | | | | | | | |  | | | | | | 2～5 | | | | | | | | | | | | 2 | | | | 32 | | | | | | |  | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 6 | | | | 006 | | | 现代礼仪 | | | | | | | | | | | |  | | | | | | 2～5 | | | | | | | | | | | | 2 | | | | 32 | | | | | | |  | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 7 | | | | 007 | | | 中国古典诗词欣赏 | | | | | | | | | | | |  | | | | | | 2～5 | | | | | | | | | | | | 2 | | | | 32 | | | | | | |  | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 8 | | | | 008 | | | 中国近现代史纲要 | | | | | | | | | | | |  | | | | | | 2～5 | | | | | | | | | | | | 2 | | | | 32 | | | | | | |  | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 9 | | | | 009 | | | 中国传统文化 | | | | | | | | | | | |  | | | | | | 2～5 | | | | | | | | | | | | 2 | | | | 32 | | | | | | |  | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 10 | | | | 010 | | | 中国旅游资源概况 | | | | | | | | | | | |  | | | | | | 2～5 | | | | | | | | | | | | 2 | | | | 32 | | | | | | |  | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 11 | | | | 011 | | | ISO9000质量管理体系 | | | | | | | | | | | |  | | | | | | 2～5 | | | | | | | | | | | | 2 | | | | 32 | | | | | | |  | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 12 | | | | 012 | | | 高级文字排版 | | | | | | | | | | | |  | | | | | | 2～5 | | | | | | | | | | | | 2 | | | | 32 | | | | | | |  | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 13 | | | | 013 | | | 电子表格处理 | | | | | | | | | | | |  | | | | | | 2～5 | | | | | | | | | | | | 2 | | | | 32 | | | | | | |  | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 14 | | | | 014 | | | PS图像处理 | | | | | | | | | | | |  | | | | | | 2～5 | | | | | | | | | | | | 2 | | | | 32 | | | | | | |  | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 15 | | | | 015 | | | 高级PPT制作 | | | | | | | | | | | |  | | | | | | 2～5 | | | | | | | | | | | | 2 | | | | 32 | | | | | | |  | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 16 | | | | 016 | | | 计算机组装维修及网络操作 | | | | | | | | | | | |  | | | | | | 2～5 | | | | | | | | | | | | 2 | | | | 32 | | | | | | |  | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 17 | | | | 017 | | | 生活中的经济学 | | | | | | | | | | | |  | | | | | | 2～5 | | | | | | | | | | | | 2 | | | | 32 | | | | | | |  | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 18 | | | | 018 | | | 技术史漫谈 | | | | | | | | | | | |  | | | | | | 2～5 | | | | | | | | | | | | 2 | | | | 32 | | | | | | |  | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 19 | | | | 019 | | | 电影赏析 | | | | | | | | | | | |  | | | | | | 2～5 | | | | | | | | | | | | 2 | | | | 32 | | | | | | |  | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 20 | | | | 020 | | | 职业素质 | | | | | | | | | | | |  | | | | | | 2～5 | | | | | | | | | | | | 2 | | | | 32 | | | | | | |  | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 21 | | | | 021 | | | 创造性思维与创新方法 | | | | | | | | | | | |  | | | | | | 2～5 | | | | | | | | | | | | 2 | | | | 32 | | | | | | |  | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 22 | | | | 022 | | | 大学生创业基础 | | | | | | | | | | | |  | | | | | | 2～5 | | | | | | | | | | | |  | | | |  | | | | | | |  | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 小计学分及学时数 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 44 | | | | 74 | | | | | | |  | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| **合计学分及学时数（不含素质选修课时）** | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | **总学分最低140，必修课学分116，选修课学分24。总学时2738，理论学时1242 ，实践学时1496；理论：实践=1:1.2** | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| **合计学分及学时数** | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | **毕业生最低修满144学分。必修课学分116，选修课学分28。总学时2738，理论学时1242 ，实践学时1496；理论：实践=1:1.2** | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

**机电设备维修与管理专业**

**教学标准**

**专业名称** 机电设备维修与管理

**专业代码** 560203

**入学要求** 高中阶段教育毕业生或具有同等学力者

**修业年限** 三年

**职业面向**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| 所属专业大类（代码） | 所属专业类（代码） | 对应行业（代码） | 主要职业类别（代码） | 主要岗位类别（或技术领域） | 职业资格证书或技能等级证书举例 |
| 56装备制造大类 | 5602机电设备类 | 34通用设备制造业35专用设备制造业37铁路、船舶、航空航天和其他运输设备制造业 | 6-18机械制造基础加工人员6-20通用设备制造人员6-21专用设备制造人员  6-23铁路、船舶、航空航天和其他运输设备制造人员  6-24电气机械和器材制造人员 | 机电设备维修工；  机械加工操作工；  机电设备电气维修工；  机车车辆维修工。 | 钳工、电工 |

**培养目标与培养规格**

一、培养目标

本专业培养理想信念坚定，德、智、体、美、劳全面发展，具有一定的科学文化水平，良好的人文素质、职业道德和创新意识，精益求精的工匠精神，较强的就业能力和可持续发展能力；掌握本专业知识和技术技能，面向机械、冶金、铁路行业等职业群，能够从事机电设备维修、机械加工操作、机电设备电气维修、机车车辆维修等工作的高素质技术技能人才。

二、培养规格

本专业毕业生应在素质、知识和能力等方面达到以下要求。

1.素质

（1）坚定拥护中国共产党领导和我国社会主义制度，在习近平新时代中国特色社会主义思想指引下，践行社会主义核心价值观，具有深厚的爱国情感和中华民族自豪感；

（2）崇尚宪法、遵法守纪、崇德向善、诚实守信、尊重生命、热爱劳动、履行道德准则和行为规范，具有社会责任感和社会参与意识；

（3）具有质量意识、环保意识、安全意识、信息素养、工匠、创新思维；

（4）勇于奋斗、乐观向上，具有自我管理能力、职业生涯规划意识，有较强的集体意识和团队合作精神；

（5）具有健康的体魄、心理和健全的人格，掌握基本运动知识和一两项运动技能，养成良好的健身与卫生习惯，良好的行为习惯；

（6）具有一定的审美和人文素养，能够形成一两项艺术特长或爱好。

2.知识

（1）掌握必备的思想政治理论、科学文化基础知识和中华优秀传统文化知识；

（2）熟悉与本专业相关的法律法规以及环境保护、安全消防等相关知识；

（3）具有本专业所必须的文化基础知识。

（4）掌握本专业所必须的机械制图、工程力学、金属工艺学、机械原理、电工基础、电子技术、公差与配合等方面的专业理论基础知识。

（5）掌握电机与拖动、电气控制、机械制造技术、液压与气动、机电设备故障诊断与维修、单片机原理与应用、数控机床、可编程序控制器、数控编程与操作、通用机械设备原理与结构、机车车辆构造与维修等专业知识和技能。

（6）了解有关专业知识及维修工艺发展的新动向。

3.能力

（1）具有探究学习、终身学习、分析问题和解决问题的能力；

（2）具有良好的语言、文字表达能力和沟通能力，能够进行口语和书面的表达与交流；

（3）具备对新知识、新技能的学习能力和创新创业能力；

（4）具备计算机应用和信息处理能力，能够运用软件进行设备管理工作；

（5）具备制定工作计划并按计划实施及评估工作结果的能力；

（6）具有机车车辆轮对数控加工、轴承装置检修、机电设备安装调试、维护保养、维修、设备管理技能；

（7）具有掌握机械制图、机械设计、机械加工、电工电子、液压与气动技术等知识能力；

（8）具有设备电气控制与驱动、设备安装、设备维修和设备故障诊断等能力；

（9）具有查找、整理和阅读分析专业技术资料的方法及能力。

**课程设置**

一、必修课程

1. 公共必修课程

|  |  |  |
| --- | --- | --- |
| 序号 | 课程名称 | 课时数 |
| 1 | 思想道德修养与法律基础及形势政策 | 66 |
| 2 | 毛泽东思想和中国特色社会主义理论体系概论及形势政策 | 56 |
| 3 | 高等数学 | 60 |
| 4 | 大学语文 | 60 |
| 5 | 公共英语 | 60 |
| 6 | 信息技术 | 60 |
| 7 | 体育 | 122 |
| 8 | 中华优秀传统文化 | 30 |
| 9 | 民族理论和政策 | 32 |
| 10 | 大学生职业发展与就业指导 | 36 |

2.专业必修课程

|  |  |  |
| --- | --- | --- |
| 序号 | 课程名称 | 课时数 |
| 1 | 机械制图 | 60 |
| 2 | 电工基础 | 72 |
| 3 | 工程力学 | 72 |
| 4 | 机械基础 | 100 |
| 5 | 公差配合与测量 | 56 |
| 6 | ★机械制造技术 | 84 |
| 7 | 液压与气动 | 56 |
| 8 | ★电机及拖动 | 56 |
| 9 | ★电气控制 | 84 |
| 10 | ★车辆设备构造与维修 | 84 |
| 11 | ★机电设备故障诊断与维修 | 64 |
| 12 | ★可编程控制器 | 64 |
| 13 | \*钳工培训技能鉴定考核A | 56 |
| 14 | 电子与传感器课程创新实训B | 28 |
| 15 | 机械加工创新实习C | 56 |
| 16 | 电工培训技能鉴定考核D | 56 |
| 17 | 毕业顶岗实习G | 540 |

3.素质拓展必修课程

|  |  |  |
| --- | --- | --- |
| 序号 | 课程名称 | 课时数 |
| 1 | 军训及军事理论教育 | 60 |
| 2 | 心理健康教育 | 32 |
| 3 | 大学生安全及健康教育 | 32 |
| 4 | 大学生暑期社会实践 |  |

二、选修课程

1. 专业选修课程

|  |  |  |
| --- | --- | --- |
| 序号 | 课程名称 | 课时数 |
| 1 | \*金属工艺学 | 72 |
| 2 | 金属材料及热处理 | 72 |
| 3 | \*电子技术及应用 | 56 |
| 4 | 电工仪表与测量 | 56 |
| 5 | \*现代数控机床 | 56 |
| 6 | \*工业机器人技术 | 28 |
| 7 | 传感器与检测技术 | 56 |
| 8 | UG软件 | 28 |
| 9 | 创新创业训练（电气） | 56 |
| 10 | 创新创业训练（焊接） | 56 |
| 11 | \*数控编程与操作 | 64 |
| 12 | \*单片机原理与应用 | 64 |
| 13 | \*铁道概论 | 64 |
| 14 | 数控机床故障与维修 | 64 |
| 15 | 工厂供配电技术 | 64 |
| 16 | 3D打印技术 | 64 |
| 17 | 机械创新设计 | 64 |
| 18 | \*数控加工创新实习F | 56 |
| 19 | 机械装调实训 | 56 |

2. 素质拓展选修课程

|  |  |  |
| --- | --- | --- |
| 序号 | 课程名称 | 课时数 |
| 1 | 演讲与口才 | 32 |
| 2 | 中国小说阅读与鉴赏 | 32 |
| 3 | 音乐欣赏 | 32 |
| 4 | 影视文学欣赏 | 32 |
| 5 | 应用写作 | 32 |
| 6 | 现代礼仪 | 32 |
| 7 | 中国古典诗词欣赏 | 32 |
| 8 | 中国近现代史纲要 | 32 |
| 9 | 中国传统文化 | 32 |
| 10 | 中国旅游资源概况 | 32 |
| 11 | ISO9000质量管理体系 | 32 |
| 12 | 高级文字排版 | 32 |
| 13 | 电子表格处理 | 32 |
| 14 | PS图像处理 | 32 |
| 15 | 高级PPT制作 | 32 |
| 16 | 计算机组装维修及网络操作 | 32 |
| 17 | 生活中的经济学 | 32 |
| 18 | 技术史漫谈 | 32 |
| 19 | 电影赏析 | 32 |
| 20 | 职业素质 | 32 |
| 21 | 创造性思维与创新方法 | 32 |
| 22 | 大学生创业基础 | 32 |
| 23 | 创新创业实践 |  |

三、专业核心课程主要教学内容与要求

|  |  |  |
| --- | --- | --- |
| 序号 | 专业核心课程 | 主要教学内容与要求 |
| 1 | 机械制造技术 | 主要讲授机械制造的概念；金属切削的基本知识，金属切削原理、刀具的基础知识；金属切削机床的类型、主要结构、性能，机床夹具的基础知识；机械加工工艺规程；机械加工质量分析；典型零件加工工艺；机械装配工艺基础知识等内容。 |
| 2 | 电机及拖动 | 主要讲授变压器和直流电机、交流电动机的基本原理、基本特性及各种运行状态下拖动的基本理论和方法。常用控制电机的基本结构、工作原理及工作特性。使学生理解变压器的运行特性，直流电机、交流异步电动机的工作特性和起动、调速和制动方法。 |
| 3 | 电气控制 | 讲授常用低压电器的结构、工作原理、型号和规格及其选择、调整和使用方法。掌握继电器-接触器控制系统的基本环节，熟悉几种通用机械设备电气控制电路。使学生初步具有对常用机械加工设备、通用机械设备等常见电气故障进行分析和处理的能力。 |
| 4 | 车辆设备构造与维修 | 主要讲授起重机械、泵、空气压缩机等方面的基本知识，重点对这些设备的构造、工作原理、性能、类型、选择方法以及使用维护；铁路货车车辆轮对及轴箱装置、转向架、车钩缓冲装置等零部件构造与维修。 |
| 5 | 机电设备故障诊断与维修 | 主要讲授机械设备故障诊断与维修的基本知识、机械设备状态监测与故障诊断技术、机械的拆卸与装配、机械零件修复技术、机床的故障诊断与检修、自动化生产线技术、 电气设备故障诊断与检修等内容。 |
| 6 | 可编程控制器 | 主要讲授可编程控制器的产生、发展，要求掌握可编程序控制器的工作原理、基本构成、主要技术指标及应用环境，掌握可编程控制器的步进、顺序控制指令，能够编制状态转移图程序，解决中等程度的实际控制问题，能运用可编程控制器进行继电器控制系统的改造，了解可编程控制器的安装和维护。 |

**学时安排**

每学年教学时间为40周，总学时数为2754，校内实习按每周28学时计算，顶岗实习按每周30学时计算。每学时为45分钟。18学时计为1个学分，总学分为146学分。军训、入学教育、社会实践、毕业设计（或毕业论文、毕业教育）等，以1周为1学分。公共基础课程学时占总学时的25.64%。选修课教学时数占总学时的比例均为16.7%。学生顶岗实习为6个月，可根据实际情况，采取工学交替、多学期、分段式等多种形式组织实施。

**教学进程总体安排**

见附件（教学进程表）

**实施保障**

1. 教师队伍

1.专业生师比

专业教师总数不少于8人，专业生师比不低于18：1。

2.师资要求

(1)专业教师具有大学本科及以上学历并取得任职资格；专业带头人具有高级职称，从事专业课程教学的专任教师不少于8人。

(2)高级职称教师≥20％，中级职称教师≥50％, 具有“双师型”素质的教师人数不低于60％；专业教师平均教龄不低于4年。

(3)具有与本专业相关的职业工作经历或取得相应职业资格证书，熟悉本专业所面向的职业和行业企业，熟悉生产流程，掌握工作要求和质量标准。

(4)具有较强的学习能力和终身学习意识。每年有一定数量的专业教师到相关企业进行相应的专业实践，从而提高教师们的实践能力。

(5)掌握必要的职业教育理念和教学方法，具有开发职业课程的能力、教学设计与教学实施的能力。专业教师每年需完成国家或行业规定的继续教育计划，并经考核合格。

3.企业兼职教师任职资格

根据教学需要，可聘请一定数量、相对稳定的兼职教师和兼职实习指导教师。兼职教师一般应从事本专业相关实践工作5年以上并具有大学专科以上文化程度或中级技术职务。

二、教学设施

1.校内基础课教学实验室和教学设备的基本要求

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| 序 号 | 实 验 室 名 称 | 设 备 名 称 | 单 位 | 数 量 |
| 1 | 计算机机房 | 计 算 机 | 台 | 50 |

2.校内实训（含职业技能鉴定）基地的基本要求

设备基本要求如下：

(1)实验室：

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| 序号 | 实验室名称 | 设 备 名 称 | 单 位 | 数 量 |
| 1 | 力学实验室 | 万能试验机；蝶式引伸仪；电阻应变仪；位移传感器；扭转实验机。 | 台、套 | 各4 |
| 2 | 金属工艺学实验室 | 布氏硬度计；洛氏硬度计；冲击试验机；金相显微镜；  金相试样制作设备；各种非合金钢；合金钢及灰口铸铁；可锻铸铁；球墨铸铁试样等。 | 台、套 | 各10 |
| 3 | 公差配合与测量技术实验室 | 游标卡尺、高度游标卡尺、千分尺、内径千分尺、内径百分表、百分表、千分表、磁力表座 | 台、套 | 各10 |
| 4 | 机械基础实验室 | 带传动、链传动、齿轮传动装置、减速器等 | 台、套 | 各10 |
| 机械传动实验装置（钳工装配实验平台） | 台 | 3 |
| 5 | 电工实验室 | 交流稳压电源 | 台 | 2 |
| 万用电桥 | 台 | 20 |
| 直流稳压电源、低频信号发生器、示波器、万用表、兆欧表 | 台、块 | 各30 |
| 直流电压表、直流电流表 | 块 | 各50 |
| 交流电压表、交流电流表 | 块 | 各50 |
| 接触器、时间继电器、热继电器 | 个 | 各50 |
| 交流电动机 | 台 | 50 |
| 各规格实验板 | 块 | 25 |
| 常用电工工具材料等。 | 套 | 30 |
| 6 | 电子技术实验室 | 万用电桥 | 台 | 20 |
| 直流稳压电源、低频信号发生器、示波器、万用表、晶体管毫伏表 | 台、块 | 各30 |
| 晶体管参数测试仪 | 台 | 2 |
| 直流电压表 | 块 | 30 |
| 直流电流表 | 块 | 30 |
| 常用电工工具材料等 | 套 | 30 |
| 7 | 机械制造技术实验室 | 卧式车床（CA6140） | 台 | 10 |
| 典型刀具 | 套 | 12 |
| 升降台铣床（或刨床） | 台 | 3 |
| 钻铣床 | 台 | 12 |
| 典型零件（轴、盘、套） | 套 | 5 |
| 8 | 电机及拖动实验室 | 电机及电气技术实验装置 | 台 | 10 |
| 9 | 液压传动与气动实验室 | 液压实验台；空气压缩机；液压泵、齿轮泵、叶片泵、 柱塞泵、螺杆泵、液压缸、液压马达、液压阀等典型元件、缸、阀、辅助元件、气缸气压阀、辅助件等、 | 台、套 | 各10 |
| 液压与气压传动实验装置 | 套 | 4 |
| 10 | 数控机床实验室 | 数控机床模拟操作软件（韩国Cubictek公司V-CNC 4.0版 41套SIEMENS、FANUC系统） | 套 | 40 |
| 自动编程软件 | 套 | 40 |
| XK-2001电气智能实验教学系统（计算机） | 台 | 15 |
| 数控车床﹝CK6140 (GSK980TA 系统) | 台 | 1 |
| CK6136B（GSK928TE/TC系统） | 台 | 2 |
| 数控立卧铣床﹝XK6350D（KND-10M系统）﹞ | 台 | 1 |
| 方正计算机K100-5255（CAM软件） | 台 | 1 |
| 立式数控铣床（J1VMC40MB型 数控系统为FANUC 0i -MC系统） | 台 | 1 |
| 加工中心 DK7732A±6º-3HF数控电火花线切割机床 | 台 | 1 |
| 经济型数控车、铣床 | 台 | 各2 |
| 检具、夹具、寻边器等 | 套 | 各5 |
| 11 | 数控编程与操作实验室 | 数控车床 | 台 | 1 |
| 数控铣床 | 台 | 1 |
| 加工中心 | 台 | 1 |
| 数控线切割机床 | 台 | 1 |
| 经济型数控车、铣床 | 台 | 1 |
| 检具、夹具、寻边器等 | 套 | 5 |

(2)实习、实训室

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| 序号 | 实训室名称 | 设 备 名 称 | 单 位 | 数 量 |
| 1 | 机械钳工实训室 | 四工位钳工台案（带台钳） | 台 | 15 |
| 台钻 | 台 | 3 |
| 方箱、平板、划线工具 | 套 | 3 |
| 高度尺 | 把 | 2 |
| 游标卡尺 | 把 | 15 |
| 直角尺 | 把 | 15 |
| 万能角度尺 | 把 | 10 |
| 手锯、榔头 | 把 | 各50 |
| 各型锉；丝锥、板牙；塞尺、R规等 | 把、支 | 若干 |
| 手弧焊机 | 台 | 10 |
| 等离子切割机 | 台 | 2 |
| CO2半自动焊机、超声波探伤仪、磁力探伤仪 | 台 | 各1 |
| 焊工工具材料 | 台 | 若干 |
| 2 | 电工技术实训室 | 万用表 | 块 | 20 |
| 兆欧表 | 块 | 20 |
| 转速表 | 块 | 10 |
| 空气开关、按钮盒 | 套 | 各40 |
| 单相电度表、三相电度表 | 个 | 各30 |
| 单相插座、三相插座、灯座 | 个 | 各30 |
| 日光灯组件 | 套 | 30 |
| 常用电工工具 | 套 | 40 |
| 红、黄、蓝、黑导线 |  | 若干 |
| 交流电动机、接触器、时间继电器、热继电器，所用各规格实验板 | 套 | 各30 |
| 3 | 电子技术实训室 | 台钻 | 台 | 4 |
| 万用表、毫伏表、低频信号发生器、万用电  桥、直流稳压电源、示波器、晶体管毫伏表 | 块、台 | 各25 |
| 电烙铁及烙铁架 | 套 | 25 |
| 改锥（十字、平口） | 套 | 25 |
| 电工工具材料等 | 套 | 25 |
| 实训台 | 台 | 25 |
| 4 | 机械加工实习中心 | 机械加工各种规格的工具 | 件 | 若干 |
| 砂轮机 | 台 | 2 |
| 普通车床、普通铣床、刨床 | 台 | 30 |
| 机械加工刀具、量具 | 件 | 若干 |
| 机械零件毛坯。 | 件 | 若干 |
| 5 | 电机及拖动实训室 | 电机及拖动实训台 | 台 | 25 |
| 万用表 | 块 | 25 |
| 常用电工工具 | 套 | 25 |
| 6 | 工厂电气控制设备实训室 | 组合开关、空气开关 | 个 | 50 |
| 交流接触器 | 个 | 150 |
| 热继电器 | 个 | 50 |
| 异步电动机 | 台 | 20 |
| 万用表 | 块 | 30 |
| 兆欧表 | 套 | 30 |
| 按钮， | 个 | 50 |
| 常用电工工具 | 套 | 50 |
| 接线端子 | 个 | 200 |
| 熔断器 | 个 | 200 |
| 实训台 | 个 | 25 |
| 红、黄、蓝、黑导线 | 根 | 若干 |
| 7 | 数控加工实习中心 | 数控车床﹝CK6140一台(GSK980TA 系统)，CK6136B两台（GSK928TE/TC系统）﹞ | 台 | 2 |
| 数控立卧铣床﹝XK6350D一台（KND-10M系统）﹞ | 台 | 1 |
| 方正计算机K100-5255一台（CAM软件） | 台 | 1 |
| 立式数控铣床（J1VMC40MB型 数控系统为FANUC 0i -MC系统） | 台 | 2 |
| 加工中心 | 台 | 2 |
| DK7732A±6º-3HF数控电火花线切割机床 | 台 | 1 |
| 经济型数控车、铣床 | 台 | 5 |
| 检具、夹具、寻边器等 | 套 | 5 |
| 8 | 机械设备修理工艺 | 旧普通车床 | 台 | 5 |
| 旧卧式升降台铣床 | 台 | 5 |
| 旧机床典型零部件 | 套 | 5 |
| 检验桥板、框式水平仪、条式水平仪，检验棒、检验平尺，检验角尺，检验平板，方箱、平尺、V型铁等修理工具 | 套 | 10 |
| 9 | 焊接技术实训室 | 手工直流焊机 | 台 | 20 |
| 逆变式半自动气体保护焊机 | 台 | 20 |
| TIG焊机5台；等离子切割机2台；火焰切割机2台；气泵2台；砂轮切割机3台；角磨机10台；钳工案（带台钳，2工位或4工位）4台；  砂轮机2台 |  |  |
| 氧气、乙炔、二氧化碳、氩气瓶 | 台 | 各5个 |
| 10 | 可编程控制器实训室 | Plc实训实验台 | 台 | 15 |
| 计算机 1台 ；FX2N一台 1台；开关电源1个；  导线 若干；指示灯10个；按钮开关10个；  继电器10个； |  |  |
| 11 | 车辆机械实训室 | 1.轴箱装置1台  2.轮对2台  3.车钩装置（自动式车钩、半自动式车钩、半永久牵引杆）1套 |  |  |
| 12 | 通用机械设备实训室 | 起重机械、运输机械、泵、风机、空气压缩机等设备各4台 |  |  |

3.校外实习基地的基本要求

在努力完善学校各方面教学条件的基础上，还要努力与开发区多家机械制造、模具加工，以及铁路车辆段、机务段等企业建立校企合作关系。积极促使校企关系更加紧密，从而给学生们一个了解社会和企业的窗口，也对企业的生产环节及生产流程有进一步的认识。同时，可以做到校企零距离，使校企资源的共享。学校按照企业需要开展企业员工的职业培训，与企业合作开展应用研究与开发。企业也参与学校的改革与发展，为学生们顶岗实习创造条件。

三、教学资源

1.教材资源

高等教育出版社、科学出版社、机械工业出版社、中国劳动社会保障出版社、西安电子科技大学出版社、电子工业出版社、中国铁道出版社、学院自编教材等发行的机电设备维修与管理专业规划教材。

2.图书资源

普通高等学校高等职业教育教学标准；机修钳工技能鉴定用书；维修电工技能鉴定用书。

3.数字化（网络）资源

充分利用电子书籍、电子期刊、数据库、数字图书馆、教育网站和电子论坛等网上信息资源，数字化教学资源库，技能鉴定电子题库，使教学从单一媒体向多媒体转变；使教学活动从信息的单向传递向双向交换转变；使学生从单独的学习向合作学习转变。

四、教学方法

1.教学方法、手段建议

在教学过程中注意发挥学生的主体作用和教师的主导作用，注重培养学生分析和解决问题能力，模拟现场真实工作，采用引导文教学法、角色扮演法、任务驱动法、案例教学法、项目教学法等一系列“理实一体化”的方法，引导学生完成学习性工作任务。

2.教学组织形式建议

建议实施校企合作、工学结合、任务驱动、项目导向、顶岗实习等行动导向的教学模式，在“教、学、做”一体的实训基地进行教学，学生边看边学、边做边学，强化学生职业能力培养。教师作为学生学习活动的主导，成为学生学习的激励者、咨询者和指导者。

五、教学评价

1.教学评价建议

教学评价从多方面展开，包括学生评价，教师评价，校内督导评价，同行评价，企业用人单位评价等。

2.教学考核建议

对学生应该进行全面综合、突出能力的考核。

(1)专业理论课程考核中，突出知识的掌握、相关问题的分析、判断、解决的能力。

(2)实践课程考核中，突出基本技能的掌握、熟练程度以及是否具有创新意识等。

考核中，还应包括与同学共同工作的团队协作精神、踏实认真的态度以及持之以恒的精神等，建议实行过程考核及阶段性考核。

六、质量管理

建立健全院、系两级的质量保障体系。以保障和提高教学质量为目标，运用系统方法，依靠必要的组织结构，统筹考虑影响教学质量的各主要因素，结合教学诊断与改进、质量年报等职业院校自主保证人才培养质量的工作，统筹管理学校各部门、各环节的教学质量管理活动，形成任务、职责、权限明确，相互协调、相互促进的质量管理有机整体。

**毕业要求**

学生德、智、体、美、劳合格，在允许的修业年限内学完培养计划规定的全部课程，通过顶岗实践或毕业论文答辩，取得相应的职业资格证书，达到毕业最低学分（146分）要求，即获得毕业资格，准予毕业并颁发毕业证书。

**教 学 进 程 表**

**2018 级 机电设备维修与管理 专 业**

毕业最低学分：146分

专业代码：560203

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **一、教学进程表** | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | **二、周数分配表** | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 学  年 | 教 学 周 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 理论  及  分散  实践 | | | 集  中  实  践 | | | | 考  试 | | | 劳  动 | | | | 军  训 | | | 机  动 | | | | 毕  业  教  育 | | 假  期 | | | 合  计 | | |
| 九月 | | | | | | 十月 | | | | | | | 十一月 | | | | | | | 十二月 | | | | | | | | | | 一月 | | | | | | | | | 二月 | | | | | | | | | 三月 | | | | | | | 四月 | | | | | | 五月 | | | | | | 六月 | | | | | | | | | | | 七月 | | | | | | | | | | 八月 | | | | | |
|  | 1 | 2 | | | 3 | 4 | | | 5 | 6 | 7 | 8 | 9 | | 10 | 11 | 12 | 13 | | 14 | | 15 | | 16 | | | 17 | | | 18 | | | 19 | | 20 | | 21 | 22 | | | 23 | 24 | | 25 | 26 | | | 27 | | | 28 | 29 | 30 | | 31 | | 32 | 33 | 34 | | 35 | | 36 | 37 | | 38 | 39 | | | 40 | 41 | | 42 | | 43 | | | 44 | | | | 45 | | | 46 | | 47 | 48 | | 49 | 50 | 51 | 52 | | | K | | | S | | | | ∷ | | | × | | | | ★ | | J | | | T | | | | = | | |  | |
| 一 | ★2 | | | | 15 | | | | | | | | | | | | | | | | | | | | | | | | | J2 | | | | | ∷ | | ==== 6 | | | | | | | | | | | 18 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | J | | | | | ∷ | | ==== 6 | | | | | | | | | 33 | | | 0 | | | | 2 | | | 0 | | | | 2 | | 3 | | | 0 | | | | 12 | | | 52 | |
| 二 | 14 | | | | | | | | | | | | | | | | | | | | | | X | | A | | | | B | | | J | | ∷ | | ==== 6 | | | | | | | | | | | 14 | | | | | | | | | | | | | | | | | | | | | | | | | C | | | | D | | | | | J | | | ∷ | | ====6 | | | | | | | | | 28 | | 7 | | | | 2 | | | 1 | | | | 0 | | | 2 | | | 0 | | | 12 | | | 52 | | | |
| 三 | 16  E | | | | | | | | | | | | | | | | | | | | | | | | | | | F | | | | J | | ∷ | | ==== 6 | | | | | | | | | | | G18 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | J | | | T | |  | | | | | | | | | 16 | | 20 | | | | 1 | | | 0 | | | | 0 | | | 2 | | | 1 | | | 6 | | | 46 | | | |
| **三、教学进度表** | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 合计 | | | | | | | | | | | | | | | | | | 77 | | 27 | | | | 5 | | | 1 | | | | 2 | | | 7 | | | 1 | | | 30 | | | 150 | | | |
| 课程类型 | 序  号 | | 课程  代码 | | | | | 课 程 名 称 | | | | | | | | | | | 考核学期序 | | | | | | | | | | | | | | | | | | | | 学 分 | | | | | | | 学 时 数 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 理论教学（含分散性实践教学）周学时 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 考 试 | | | | | | | | | | 考 查 | | | | | | | | | | 总 计 | | | | | | | | 理 论 | | | | | | 实 践 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 一 年 级 | | | | | | | | | | | 二 年 级 | | | | | | | | | | | | | 三 年 级 | | | | | | | | | | |
| 合 计 | | | | | 习 题 课 | | | | 实 训 | | | | | 现场教学 | | | | | | | | | 创新创业训练 | | | | | | 1学期  15周 | | | | | 2学期  18周 | | | | | | 3学期  14周 | | | | | | | 4学期  14周 | | | | | | 5学期  16周 | | | | 6学期  18周 | | | | | | |
| 公共必修课 | 1 | | 0001 | | | | | 思想道德修养与法律基础及形势政策 | | | | | | | | | | | 1 | | | | | | | | | | 2 | | | | | | | | | | 4 | | | | | | | 66 | | | | | | | | 52 | | | | | | 14 | | | | | 14 | | | |  | | | | |  | | | | | | | | |  | | | | | | 2 | | | | | 2 | | | | | |  | | | | | | |  | | | | | |  | | | |  | | | | | | |
| 2 | | 0002 | | | | | 毛泽东思想和中国特色社会主义理论体系概论及形势政策 | | | | | | | | | | | 3 | | | | | | | | | | 4 | | | | | | | | | | 3 | | | | | | | 56 | | | | | | | | 48 | | | | | | 8 | | | | | 8 | | | |  | | | | |  | | | | | | | | |  | | | | | |  | | | | |  | | | | | | 2 | | | | | | | 2 | | | | | |  | | | |  | | | | | | |
| 3 | | 0005 | | | | | 高等数学 | | | | | | | | | | | 1 | | | | | | | | | |  | | | | | | | | | | 3 | | | | | | | 60 | | | | | | | | 54 | | | | | | 6 | | | | | 6 | | | |  | | | | |  | | | | | | | | |  | | | | | | 4 | | | | |  | | | | | |  | | | | | | |  | | | | | |  | | | |  | | | | | | |
| 4 | | 0006 | | | | | 大学语文 | | | | | | | | | | |  | | | | | | | | | | 1 | | | | | | | | | | 3 | | | | | | | 60 | | | | | | | | 52 | | | | | | 8 | | | | | 8 | | | |  | | | | |  | | | | | | | | |  | | | | | | 4 | | | | |  | | | | | |  | | | | | | |  | | | | | |  | | | |  | | | | | | |
| 5 | | 0007 | | | | | 公共英语 | | | | | | | | | | | 1 | | | | | | | | | |  | | | | | | | | | | 3 | | | | | | | 60 | | | | | | | | 18 | | | | | | 42 | | | | | 42 | | | |  | | | | |  | | | | | | | | |  | | | | | | 4 | | | | |  | | | | | |  | | | | | | |  | | | | | |  | | | |  | | | | | | |
| 6 | | 0008 | | | | | 信息技术 | | | | | | | | | | |  | | | | | | | | | | 1 | | | | | | | | | | 3 | | | | | | | 60 | | | | | | | | 30 | | | | | | 30 | | | | | 30 | | | |  | | | | |  | | | | | | | | |  | | | | | | 4 | | | | |  | | | | | |  | | | | | | |  | | | | | |  | | | |  | | | | | | |
| 7 | | 0009 | | | | | 体育 | | | | | | | | | | | 3 | | | | | | | | | | 1.2.4 | | | | | | | | | | 7 | | | | | | | 122 | | | | | | | | 8 | | | | | | 114 | | | | |  | | | |  | | | | | 114 | | | | | | | | |  | | | | | | 2 | | | | | 2 | | | | | | 2 | | | | | | | 2 | | | | | |  | | | |  | | | | | | |
| 8 | | 0004 | | | | | 中华优秀传统文化 | | | | | | | | | | |  | | | | | | | | | | 1 | | | | | | | | | | 2 | | | | | | | 30 | | | | | | | | 30 | | | | | |  | | | | |  | | | |  | | | | |  | | | | | | | | |  | | | | | | 2 | | | | |  | | | | | |  | | | | | | |  | | | | | |  | | | |  | | | | | | |
| 9 | | 0011 | | | | | 民族理论和政策 | | | | | | | | | | |  | | | | | | | | | | 5 | | | | | | | | | | 2 | | | | | | | 32 | | | | | | | | 32 | | | | | |  | | | | |  | | | |  | | | | |  | | | | | | | | |  | | | | | |  | | | | |  | | | | | |  | | | | | | |  | | | | | | 2 | | | |  | | | | | | |
| 10 | | 0010 | | | | | 大学生职业发展与就业指导 | | | | | | | | | | |  | | | | | | | | | | 2 | | | | | | | | | | 2 | | | | | | | 36 | | | | | | | | 36 | | | | | |  | | | | |  | | | |  | | | | |  | | | | | | | | |  | | | | | |  | | | | | 2 | | | | | |  | | | | | | |  | | | | | |  | | | |  | | | | | | |
| 小计学分及学时数 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 32 | | | | | | | 582 | | | | | | | | 360 | | | | | | 222 | | | | | 108 | | | |  | | | | | 114 | | | | | | | | | 472 | | | | | | 22 | | | | | 6 | | | | | | 4 | | | | | | | 4 | | | | | | 2 | | | | **0** | | | | | | |
| 专业必修课 | 11 | | 03001 | | | | | 机械制图 | | | | | | | | | | |  | | | | | | | | | | 1 | | | | | | | | | | 3 | | | | | | | 60 | | | | | | | | 8 | | | | | | 52 | | | | | 20 | | | |  | | | | | 22 | | | | | | | | | 10 | | | | | | 4 | | | | |  | | | | | |  | | | | | | |  | | | | | |  | | | |  | | | | | | |
| 12 | | 03002 | | | | | 电工基础 | | | | | | | | | | | 2 | | | | | | | | | |  | | | | | | | | | | 4 | | | | | | | 72 | | | | | | | | 52 | | | | | | 20 | | | | | 6 | | | |  | | | | | 14 | | | | | | | | |  | | | | | |  | | | | | 4 | | | | | |  | | | | | | |  | | | | | |  | | | |  | | | | | | |
| 13 | | 03003 | | | | | 工程力学 | | | | | | | | | | |  | | | | | | | | | | 2 | | | | | | | | | | 4 | | | | | | | 72 | | | | | | | | 60 | | | | | | 12 | | | | | 4 | | | |  | | | | | 8 | | | | | | | | |  | | | | | |  | | | | | 4 | | | | | |  | | | | | | |  | | | | | |  | | | |  | | | | | | |
| 14 | | 03004 | | | | | 机械基础 | | | | | | | | | | | 2 | | | | | | | | | | 3 | | | | | | | | | | 6 | | | | | | | 100 | | | | | | | | 72 | | | | | | 28 | | | | | 6 | | | |  | | | | | 22 | | | | | | | | |  | | | | | |  | | | | | 4 | | | | | | 2 | | | | | | |  | | | | | |  | | | |  | | | | | | |
| 15 | | 03005 | | | | | 公差配合与测量 | | | | | | | | | | | 3 | | | | | | | | | |  | | | | | | | | | | 3 | | | | | | | 56 | | | | | | | | 44 | | | | | | 12 | | | | | 2 | | | |  | | | | | 10 | | | | | | | | |  | | | | | |  | | | | |  | | | | | | 4 | | | | | | |  | | | | | |  | | | |  | | | | | | |
| 16 | | 03006 | | | | | ★机械制造技术 | | | | | | | | | | | 3 | | | | | | | | | |  | | | | | | | | | | 5 | | | | | | | 84 | | | | | | | | 20 | | | | | | 64 | | | | | 4 | | | |  | | | | | 60 | | | | | | | | |  | | | | | |  | | | | |  | | | | | | 6 | | | | | | | \* | | | | | |  | | | |  | | | | | | |
| 17 | | 03007 | | | | | 液压与气动 | | | | | | | | | | |  | | | | | | | | | | 3 | | | | | | | | | | 3 | | | | | | | 56 | | | | | | | | 22 | | | | | | 34 | | | | | 4 | | | |  | | | | | 30 | | | | | | | | |  | | | | | |  | | | | |  | | | | | | 4 | | | | | | |  | | | | | |  | | | |  | | | | | | |
| 18 | | 03008 | | | | | ★电机及拖动 | | | | | | | | | | | 4 | | | | | | | | | |  | | | | | | | | | | 3 | | | | | | | 56 | | | | | | | | 42 | | | | | | 14 | | | | | 4 | | | |  | | | | | 10 | | | | | | | | |  | | | | | |  | | | | |  | | | | | |  | | | | | | | 4 | | | | | |  | | | |  | | | | | | |
| 19 | | 03009 | | | | | ★电气控制 | | | | | | | | | | | 4 | | | | | | | | | |  | | | | | | | | | | 5 | | | | | | | 84 | | | | | | | | 28 | | | | | | 56 | | | | | 4 | | | |  | | | | | 52 | | | | | | | | |  | | | | | |  | | | | |  | | | | | |  | | | | | | | 6\* | | | | | |  | | | |  | | | | | | |
| 20 | | 03010 | | | | | ★车辆设备构造与维修 | | | | | | | | | | | 4 | | | | | | | | | |  | | | | | | | | | | 5 | | | | | | | 84 | | | | | | | | 60 | | | | | | 24 | | | | | 4 | | | |  | | | | | 20 | | | | | | | | |  | | | | | |  | | | | |  | | | | | |  | | | | | | | 6 | | | | | |  | | | |  | | | | | | |
| 21 | | 03011 | | | | | ★机电设备故障诊断与维修 | | | | | | | | | | | 5 | | | | | | | | | |  | | | | | | | | | | 4 | | | | | | | 64 | | | | | | | | 50 | | | | | | 14 | | | | | 2 | | | |  | | | | | 12 | | | | | | | | |  | | | | | |  | | | | |  | | | | | |  | | | | | | |  | | | | | | 4 | | | |  | | | | | | |
| 22 | | 03012 | | | | | ★可编程控制器 | | | | | | | | | | | 5 | | | | | | | | | |  | | | | | | | | | | 4 | | | | | | | 64 | | | | | | | | 34 | | | | | | 30 | | | | | 2 | | | |  | | | | | 28 | | | | | | | | |  | | | | | |  | | | | |  | | | | | |  | | | | | | |  | | | | | | 4 | | | |  | | | | | | |
| 23 | | 03401 | | | | | \*钳工培训技能鉴定考核A | | | | | | | | | | |  | | | | | | | | | | 3 | | | | | | | | | | 2 | | | | | | | 56 | | | | | | | |  | | | | | | 56 | | | | |  | | | | 2周 | | | | |  | | | | | | | | |  | | | | | |  | | | | |  | | | | | | 2周 | | | | | | |  | | | | | |  | | | |  | | | | | | |
| 24 | | 03402 | | | | | 电子与传感器课程创新实训B | | | | | | | | | | |  | | | | | | | | | | 3 | | | | | | | | | | 1 | | | | | | | 28 | | | | | | | |  | | | | | | 28 | | | | |  | | | | 1周 | | | | |  | | | | | | | | |  | | | | | |  | | | | |  | | | | | | 1周 | | | | | | |  | | | | | |  | | | |  | | | | | | |
| 25 | | 03403 | | | | | 机械加工创新实习C | | | | | | | | | | |  | | | | | | | | | | 4 | | | | | | | | | | 2 | | | | | | | 56 | | | | | | | |  | | | | | | 56 | | | | |  | | | | 2周 | | | | |  | | | | | | | | |  | | | | | |  | | | | |  | | | | | |  | | | | | | | 2周 | | | | | |  | | | |  | | | | | | |
| 26 | | 03404 | | | | | 电工培训技能鉴定考核D | | | | | | | | | | |  | | | | | | | | | | 4 | | | | | | | | | | 2 | | | | | | | 56 | | | | | | | |  | | | | | | 56 | | | | |  | | | | 2周 | | | | |  | | | | | | | | |  | | | | | |  | | | | |  | | | | | |  | | | | | | | 2周 | | | | | |  | | | |  | | | | | | |
| 27 | | 03405 | | | | | 毕业顶岗实习G | | | | | | | | | | |  | | | | | | | | | | 6 | | | | | | | | | | 18 | | | | | | | 540 | | | | | | | |  | | | | | | 540 | | | | |  | | | | 18周 | | | | |  | | | | | | | | |  | | | | | |  | | | | |  | | | | | |  | | | | | | |  | | | | | |  | | | | 18周 | | | | | | |
| 小计学分及学时数 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 74 | | | | | | | 1588 | | | | | | | | 492 | | | | | | 1096 | | | | | 62 | | | | 25周 | | | | | 288 | | | | | | | | | 10 | | | | | | 26 | | | | | 18 | | | | | | 20 | | | | | | | 20 | | | | | | 10 | | | |  | | | | | | |
| 专业选修课 | 28 | | 03014 | | | | | \*金属工艺学 | | | | | | | | | | | 2 | | | | | | | | | |  | | | | | | | | | | 4 | | | | | | | 72 | | | | | | | | 58 | | | | | | 14 | | | | | 4 | | | |  | | | | | 10 | | | | | | | | |  | | | | | |  | | | | | 4 | | | | | | \* | | | | | | |  | | | | | |  | | | |  | | | | | | |
| 29 | | 03015 | | | | | 金属材料及热处理 | | | | | | | | | | | 2 | | | | | | | | | |  | | | | | | | | | | 4 | | | | | | | 72 | | | | | | | | 58 | | | | | | 14 | | | | | 4 | | | |  | | | | | 10 | | | | | | | | |  | | | | | |  | | | | | 4 | | | | | |  | | | | | | |  | | | | | |  | | | |  | | | | | | |
| 30 | | 03016 | | | | | \*电子技术及应用 | | | | | | | | | | |  | | | | | | | | | | 3 | | | | | | | | | | 3 | | | | | | | 56 | | | | | | | | 40 | | | | | | 16 | | | | | 4 | | | |  | | | | | 12 | | | | | | | | |  | | | | | |  | | | | |  | | | | | | 4 | | | | | | |  | | | | | |  | | | |  | | | | | | |
| 31 | | 03017 | | | | | 电工仪表与测量 | | | | | | | | | | |  | | | | | | | | | | 3 | | | | | | | | | | 3 | | | | | | | 56 | | | | | | | | 40 | | | | | | 16 | | | | | 4 | | | |  | | | | | 12 | | | | | | | | |  | | | | | |  | | | | |  | | | | | | 4 | | | | | | |  | | | | | |  | | | |  | | | | | | |
| 32 | | 03018 | | | | | \*现代数控机床 | | | | | | | | | | |  | | | | | | | | | | 4 | | | | | | | | | | 3 | | | | | | | 56 | | | | | | | | 46 | | | | | | 10 | | | | | 2 | | | |  | | | | | 8 | | | | | | | | |  | | | | | |  | | | | |  | | | | | |  | | | | | | | 4 | | | | | |  | | | |  | | | | | | |
| 33 | | 03019 | | | | | \*工业机器人技术 | | | | | | | | | | |  | | | | | | | | | | 4 | | | | | | | | | | 2 | | | | | | | 28 | | | | | | | | 8 | | | | | | 20 | | | | |  | | | |  | | | | | 20 | | | | | | | | |  | | | | | |  | | | | |  | | | | | |  | | | | | | | 2 | | | | | |  | | | |  | | | | | | |
| 34 | | 03020 | | | | | 传感器与检测技术 | | | | | | | | | | |  | | | | | | | | | | 4 | | | | | | | | | | 3 | | | | | | | 56 | | | | | | | | 46 | | | | | | 10 | | | | |  | | | |  | | | | | 10 | | | | | | | | |  | | | | | |  | | | | |  | | | | | |  | | | | | | | 4 | | | | | |  | | | |  | | | | | | |
| 35 | | 03021 | | | | | UG软件 | | | | | | | | | | |  | | | | | | | | | | 4 | | | | | | | | | | 2 | | | | | | | 28 | | | | | | | | 14 | | | | | | 14 | | | | |  | | | |  | | | | | 14 | | | | | | | | |  | | | | | |  | | | | |  | | | | | |  | | | | | | | 2 | | | | | |  | | | |  | | | | | | |
| 36 | | 03022 | | | | | 创新创业训练（电气） | | | | | | | | | | |  | | | | | | | | | | 4 | | | | | | | | | | 3 | | | | | | | 56 | | | | | | | | 0 | | | | | | 56 | | | | |  | | | |  | | | | | 56 | | | | | | | | |  | | | | | |  | | | | |  | | | | | |  | | | | | | | 4 | | | | | |  | | | |  | | | | | | |
| 37 | | 03023 | | | | | 创新创业训练（焊接） | | | | | | | | | | |  | | | | | | | | | | 4 | | | | | | | | | | 3 | | | | | | | 56 | | | | | | | | 0 | | | | | | 56 | | | | |  | | | |  | | | | | 56 | | | | | | | | |  | | | | | |  | | | | |  | | | | | |  | | | | | | | 4 | | | | | |  | | | |  | | | | | | |
| 38 | | 03013 | | | | | \*数控编程与操作 | | | | | | | | | | | 5 | | | | | | | | | |  | | | | | | | | | | 4 | | | | | | | 64 | | | | | | | | 40 | | | | | | 24 | | | | | 4 | | | |  | | | | | 20 | | | | | | | | |  | | | | | |  | | | | |  | | | | | |  | | | | | | |  | | | | | | 4\* | | | |  | | | | | | |
| 39 | | 03024 | | | | | \*单片机原理与应用 | | | | | | | | | | |  | | | | | | | | | | 5 | | | | | | | | | | 4 | | | | | | | 64 | | | | | | | | 24 | | | | | | 40 | | | | |  | | | |  | | | | | 40 | | | | | | | | |  | | | | | |  | | | | |  | | | | | |  | | | | | | |  | | | | | | 4 | | | |  | | | | | | |
| 40 | | 03025 | | | | | \*铁道概论 | | | | | | | | | | |  | | | | | | | | | | 5 | | | | | | | | | | 4 | | | | | | | 64 | | | | | | | | 56 | | | | | | 8 | | | | |  | | | |  | | | | | 8 | | | | | | | | |  | | | | | |  | | | | |  | | | | | |  | | | | | | |  | | | | | | 4 | | | |  | | | | | | |
| 41 | | 03026 | | | | | 数控机床故障与维修 | | | | | | | | | | | 5 | | | | | | | | | |  | | | | | | | | | | 4 | | | | | | | 64 | | | | | | | | 54 | | | | | | 10 | | | | |  | | | |  | | | | | 10 | | | | | | | | |  | | | | | |  | | | | |  | | | | | |  | | | | | | |  | | | | | | 4 | | | |  | | | | | | |
| 42 | | 03027 | | | | | 工厂供配电技术 | | | | | | | | | | |  | | | | | | | | | | 5 | | | | | | | | | | 4 | | | | | | | 64 | | | | | | | | 52 | | | | | | 12 | | | | |  | | | |  | | | | | 12 | | | | | | | | |  | | | | | |  | | | | |  | | | | | |  | | | | | | |  | | | | | | 4 | | | |  | | | | | | |
| 43 | | 03028 | | | | | 3D打印技术 | | | | | | | | | | |  | | | | | | | | | | 5 | | | | | | | | | | 4 | | | | | | | 64 | | | | | | | | 54 | | | | | | 10 | | | | |  | | | |  | | | | | 10 | | | | | | | | |  | | | | | |  | | | | |  | | | | | |  | | | | | | |  | | | | | | 4 | | | |  | | | | | | |
| 44 | | 03029 | | | | | 机械创新设计 | | | | | | | | | | |  | | | | | | | | | | 5 | | | | | | | | | | 4 | | | | | | | 64 | | | | | | | | 54 | | | | | | 10 | | | | |  | | | |  | | | | | 10 | | | | | | | | |  | | | | | |  | | | | |  | | | | | |  | | | | | | |  | | | | | | 4 | | | |  | | | | | | |
| 45 | | 03406 | | | | | \*数控加工创新实习F | | | | | | | | | | |  | | | | | | | | | | 5 | | | | | | | | | | 2 | | | | | | | 56 | | | | | | | |  | | | | | | 56 | | | | |  | | | | 2周 | | | | |  | | | | | | | | |  | | | | | |  | | | | |  | | | | | |  | | | | | | |  | | | | | | 2周 | | | |  | | | | | | |
| 46 | | 03407 | | | | | 机械装调实训 | | | | | | | | | | |  | | | | | | | | | | 5 | | | | | | | | | | 2 | | | | | | | 56 | | | | | | | |  | | | | | | 56 | | | | | 114 | | | | 2周 | | | | |  | | | | | | | | |  | | | | | |  | | | | |  | | | | | |  | | | | | | |  | | | | | | 2周 | | | |  | | | | | | |
| 小计学分及学时数 （至少修满学分26学分） | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 62 | | | | | | | 1096 | | | | | | | | 644 | | | | | | 452 | | | | | 22 | | | | 4周 | | | | | 318 | | | | | | | | |  | | | | | | 26 | | | | | 22 | | | | | | 24 | | | | | | | 26 | | | | | | 22 | | | |  | | | | | | |
| 26 | | | | | | | 460 | | | | | | | | 272 | | | | | | 188 | | | | | 14 | | | | 2周 | | | | | 118 | | | | | | | | |  | | | | | |
| **四、素质拓展课** | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 课程类型 | 序  号 | | | 课程代码 | | | | 课 程 名 称 | | | | | | | | | | | 考核学期序 | | | | | | | | | | | | | | | | | | | | 学 分 | | | | 课  时 | | | | | | | 说 明 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 考 试 | | | | | | | 考 查 | | | | | | | | | | | | |
| 必修  课 | 1 | | | 01 | | | | 军训及军事理论教育 | | | | | | | | | | |  | | | | | | | 1 | | | | | | | | | | | | | 4 | | | | 60 | | | | | | | 第1学期开设，含入学教育。 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 2 | | | 02 | | | | 心理健康教育 | | | | | | | | | | |  | | | | | | | 2.3.4.5 | | | | | | | | | | | | | 2 | | | | 32 | | | | | | | 分专业在第2～5学期之一开设。 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 3 | | | 03 | | | | 大学生安全及健康教育 | | | | | | | | | | |  | | | | | | | 1.2.3.4 | | | | | | | | | | | | | 2 | | | | 32 | | | | | | | 在1～4学期实施，以专题讲座的形式和每学期大学生第二课堂教育活动中开设。 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|  | 4 | | | 04 | | | | 大学生暑期社会实践 | | | | | | | | | | |  | | | | | | | 2.4 | | | | | | | | | | | | | 2 | | | |  | | | | | | | 利用暑期，进行社会实践，提交报告。 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 小计学分及学时数 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 10 | | | | 124 | | | | | | |  | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 选  修  课 | 1 | | | 001 | | | | 演讲与口才 | | | | | | | | | | |  | | | | | | | 2～5 | | | | | | | | | | | | | 2 | | | | 32 | | | | | | |  | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 2 | | | 002 | | | | 中国小说阅读与鉴赏 | | | | | | | | | | |  | | | | | | | 2～5 | | | | | | | | | | | | | 2 | | | | 32 | | | | | | |  | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 3 | | | 003 | | | | 音乐欣赏 | | | | | | | | | | |  | | | | | | | 2～5 | | | | | | | | | | | | | 2 | | | | 32 | | | | | | |  | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 4 | | | 004 | | | | 影视文学欣赏 | | | | | | | | | | |  | | | | | | | 2～5 | | | | | | | | | | | | | 2 | | | | 32 | | | | | | |  | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 5 | | | 005 | | | | 应用写作 | | | | | | | | | | |  | | | | | | | 2～5 | | | | | | | | | | | | | 2 | | | | 32 | | | | | | |  | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 6 | | | 006 | | | | 现代礼仪 | | | | | | | | | | |  | | | | | | | 2～5 | | | | | | | | | | | | | 2 | | | | 32 | | | | | | |  | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 7 | | | 007 | | | | 中国古典诗词欣赏 | | | | | | | | | | |  | | | | | | | 2～5 | | | | | | | | | | | | | 2 | | | | 32 | | | | | | |  | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 8 | | | 008 | | | | 中国近现代史纲要 | | | | | | | | | | |  | | | | | | | 2～5 | | | | | | | | | | | | | 2 | | | | 32 | | | | | | |  | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 9 | | | 009 | | | | 中国传统文化 | | | | | | | | | | |  | | | | | | | 2～5 | | | | | | | | | | | | | 2 | | | | 32 | | | | | | |  | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 10 | | | 010 | | | | 中国旅游资源概况 | | | | | | | | | | |  | | | | | | | 2～5 | | | | | | | | | | | | | 2 | | | | 32 | | | | | | |  | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 11 | | | 011 | | | | ISO9000质量管理体系 | | | | | | | | | | |  | | | | | | | 2～5 | | | | | | | | | | | | | 2 | | | | 32 | | | | | | |  | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 12 | | | 012 | | | | 高级文字排版 | | | | | | | | | | |  | | | | | | | 2～5 | | | | | | | | | | | | | 2 | | | | 32 | | | | | | |  | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 13 | | | 013 | | | | 电子表格处理 | | | | | | | | | | |  | | | | | | | 2～5 | | | | | | | | | | | | | 2 | | | | 32 | | | | | | |  | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 14 | | | 014 | | | | PS图像处理 | | | | | | | | | | |  | | | | | | | 2～5 | | | | | | | | | | | | | 2 | | | | 32 | | | | | | |  | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 15 | | | 015 | | | | 高级PPT制作 | | | | | | | | | | |  | | | | | | | 2～5 | | | | | | | | | | | | | 2 | | | | 32 | | | | | | |  | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 16 | | | 016 | | | | 计算机组装维修及网络操作 | | | | | | | | | | |  | | | | | | | 2～5 | | | | | | | | | | | | | 2 | | | | 32 | | | | | | |  | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 17 | | | 017 | | | | 生活中的经济学 | | | | | | | | | | |  | | | | | | | 2～5 | | | | | | | | | | | | | 2 | | | | 32 | | | | | | |  | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 18 | | | 018 | | | | 技术史漫谈 | | | | | | | | | | |  | | | | | | | 2～5 | | | | | | | | | | | | | 2 | | | | 32 | | | | | | |  | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 19 | | | 019 | | | | 电影赏析 | | | | | | | | | | |  | | | | | | | 2～5 | | | | | | | | | | | | | 2 | | | | 32 | | | | | | |  | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 20 | | | 020 | | | | 职业素质 | | | | | | | | | | |  | | | | | | | 2～5 | | | | | | | | | | | | | 2 | | | | 32 | | | | | | |  | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 21 | | | 021 | | | | 创造性思维与创新方法 | | | | | | | | | | |  | | | | | | | 2～5 | | | | | | | | | | | | | 2 | | | | 32 | | | | | | |  | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 22 | | | 022 | | | | 大学生创业基础 | | | | | | | | | | |  | | | | | | | 2～5 | | | | | | | | | | | | | 2 | | | | 32 | | | | | | |  | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 23 | | | 023 | | | | 创新创业实践 | | | | | | | | | | |  | | | | | | | 1～6 | | | | | | | | | | | | | 10 | | | |  | | | | | | | 用于学生参加课题研究、项目实验、竞赛活动、发表论文等创新创业成果的学分折算 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 小计学分及学时数 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 44 | | | | 704 | | | | | | |  | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| **合计学分及学时数（不含素质选修课时）** | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | **总学分最低142学分。必修课学分116，选修课26学分。总学时2754，理论学时1168 ，实践学时1586；理论：实践=1:1.36** | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| **合计学分及学时数** | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | **毕业生最低修满146学分。必修课学分116，选修课30学分。总学时2754，理论学时1168 ，实践学时1586；理论：实践=1:1.36** | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

**焊接技术与自动化专业**

**教学标准**

**专业名称** 焊接技术与自动化

**专业代码** 560110

**入学要求** 高中阶段教育毕业生或具有同等学力者

**修业年限** 三年

**职业面向**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| 所属专业大类（代码） | 所属专业类（代码） | 对应行业（代码） | 主要职业类别（代码） | 主要岗位类别  （或技术领域） | 职业资格证书或技能等级证书举例 |
| 装备制造大类（56） | 机械设计制造类（5601） | 金属制品业（33）  通用设备制造业（34）  专用设备制造业  （35） | 机械热加工人员（6-18-02）  机械工程技术人员（2-02-07） | 焊接工艺技术员  结构设计技术员  焊接生产管理技术员  焊接检验与质量管理员  焊机与焊材销售技术支持技术员 | 焊工  无损检测工 |

**培养目标与培养规格**

一、培养目标

本专业培养理想信念坚定，德、智、体、美、劳全面发展，具有一定的科学文化水平，良好的人文素质、职业道德和创新意识，精益求精的工匠精神，较强的就业能力和可持续发展能力；掌握本专业知识和技术技能，面向通用设备制造和铁路设备制造与维护领域的焊接加工人员、焊接工程技术人员等职业群，能够从事焊接工艺生产、焊接结构设计、焊接生产管理、焊接质量检验等工作的高素质技术技能人才。

二、培养规格

本专业毕业生应在素质、知识和能力等方面达到以下要求。

1.素质

（1）坚定拥护中国共产党领导和我国社会主义制度，在习近平新时代中国特色社会主义思想指引下，践行社会主义核心价值观，具有深厚的爱国情感和中华民族自豪感；

（2）崇尚宪法、遵法守纪、崇德向善、诚实守信、尊重生命、热爱劳动、履行道德准则和行为规范，具有社会责任感和社会参与意识；

（3）具有质量意识、环保意识、安全意识、信息素养、工匠、创新思维；

（4）勇于奋斗、乐观向上，具有自我管理能力、职业生涯规划意识，有较强的集体意识和团队合作精神；

（5）具有健康的体魄、心理和健全的人格，掌握基本运动知识和一两项运动技能，养成良好的健身与卫生习惯，良好的行为习惯；

（6）具有一定的审美和人文素养，能够形成一两项艺术特长或爱好。

2.知识

（1）掌握必备的思想政治理论、科学文化基础知识和中华优秀传统文化知识；

（2）熟悉与本专业相关的法律法规以及环境保护、安全消防、文明生产等相关知识；

（3）掌握装备制造行业从业人员必需的机械制图、计算机辅助设计、机械基础、电工电子技术，金属学及热处理等通用知识。

（4）掌握与职业岗位相适应的焊接冶金、焊接方法、焊接设备、焊接工艺、焊接生产及检验等方面的专业知识

（5）掌握铁路装备制造与维护、焊接生产管理、质量管理等知识。

（6）掌握与焊接生产相关的各种国家标准和行业企业标准。

（7）了解焊接新技术、新工艺的发展现状及应用状况

3.能力

（1）具有探究学习、终身学习、分析问题和解决问题的能力；

（2）具有良好的语言、文字表达能力和沟通能力，能够进行口语和书面的表达与交流；

（3）具备本专业必需的信息技术应用和维护能力；

（4）具备基本的识图与绘图能力；

（5）具备焊工或无损检测工（UT、RT、MT、PT）的基本能力；

（6）具备根据生产需求选择恰当焊接技术与设备的能力；

（7）具备根据产品工作要求选择焊接方法与材料的能力；

（8）具备根据生产需求制定焊接生产工艺规程的能力；

（9）具备进行焊接现场质量控制、安全管理与质量检验的能力。

**课程设置**

一、必修课程

1. 公共必修课程

|  |  |  |
| --- | --- | --- |
| 序号 | 课程名称 | 课时数 |
| 1 | 思想道德修养与法律基础及形势政策 | 66 |
| 2 | 毛泽东思想和中国特色社会主义理论体系概论及形势政策 | 66 |
| 3 | 高等数学 | 60 |
| 4 | 大学语文 | 60 |
| 5 | 公共英语 | 60 |
| 6 | 信息技术 | 60 |
| 7 | 体育 | 132 |
| 8 | 中华优秀传统文化 | 30 |
| 9 | 民族理论和政策 | 32 |
| 10 | 大学生职业发展与就业指导 | 36 |

2.专业必修课程

|  |  |  |
| --- | --- | --- |
| 序号 | 课程名称 | 课时数 |
| 1 | 焊接概论 | 60 |
| 2 | 焊工识图与CAD | 108 |
| 3 | 电工电子技术 | 72 |
| 4 | 机械基础 | 72 |
| 5 | 金属学与材料加工 | 72 |
| 6 | 金属熔焊原理 | 68 |
| 7 | 金属材料焊接工艺 | 64 |
| 8 | 弧焊电源及维护 | 68 |
| 9 | 焊接方法与设备使用 | 166 |
| 10 | 焊接质量检验 | 64 |
| 11 | 焊接结构生产与创新训练 | 64 |
| 12 | 中级工技能鉴定培训 | 60 |
| 13 | 顶岗实习 | 540 |

3.素质拓展必修课程

|  |  |  |
| --- | --- | --- |
| 序号 | 课程名称 | 课时数 |
| 1 | 军训及军事理论教育 | 60 |
| 2 | 心理健康教育 | 32 |
| 3 | 大学生安全及健康教育 | 32 |
| 4 | 大学生暑期社会实践 |  |

二、选修课程

1. 专业选修课程

|  |  |  |
| --- | --- | --- |
| 序号 | 课程名称 | 课时数 |
| 1 | 铁道概论 | 68 |
| 2 | 冷作加工与装焊 | 68 |
| 3 | 可编程控制器 | 68 |
| 4 | 车辆构造与维护 | 64 |
| 5 | 焊接设备故障诊断与维护 | 64 |
| 6 | 工业机器人基础 | 64 |
| 7 | 气焊与气割技术 | 64 |
| 8 | 埋弧焊技术 | 64 |
| 9 | 焊接机器人基本操作 | 64 |
| 10 | 机械制造基础 | 64 |
| 11 | 有色金属焊接技术 | 64 |
| 12 | 焊接机器人离线编程 | 64 |
| 13 | 钢轨焊接与探伤 | 64 |
| 14 | 特种设备焊接技术 | 64 |
| 15 | 现代高效焊接技术 | 64 |
| 16 | 特种焊接技术 | 64 |
| 17 | 焊接修复技术 | 64 |
| 18 | 焊接机器人  仿真技术应用 | 64 |
| 19 | 先进制造技术 | 64 |
| 20 | 焊接施工组织与管理 | 64 |
| 21 | 焊接专业英语 | 64 |
| 22 | 大型焊轨设备 | 64 |
| 23 | 焊接工装夹具设计及应用 | 64 |
| 24 | 工作站系统集成与应用 | 64 |
| 25 | 金属构造综合实训 | 60 |
| 26 | 数控加工综合实习 | 60 |
| 27 | 焊接机器人综合实训 | 60 |

2. 素质拓展选修课程

|  |  |  |
| --- | --- | --- |
| 序号 | 课程名称 | 课时数 |
| 1 | 演讲与口才 | 32 |
| 2 | 中国小说阅读与鉴赏 | 32 |
| 3 | 音乐欣赏 | 32 |
| 4 | 影视文学欣赏 | 32 |
| 5 | 应用写作 | 32 |
| 6 | 现代礼仪 | 32 |
| 7 | 中国古典诗词欣赏 | 32 |
| 8 | 中国近现代史纲要 | 32 |
| 9 | 中国传统文化 | 32 |
| 10 | 中国旅游资源概况 | 32 |
| 11 | ISO9000质量管理体系 | 32 |
| 12 | 高级文字排版 | 32 |
| 13 | 电子表格处理 | 32 |
| 14 | PS图像处理 | 32 |
| 15 | 高级PPT制作 | 32 |
| 16 | 计算机组装维修及网络操作 | 32 |
| 17 | 生活中的经济学 | 32 |
| 18 | 技术史漫谈 | 32 |
| 19 | 电影赏析 | 32 |
| 20 | 职业素质 | 32 |
| 21 | 创造性思维与创新方法 | 32 |
| 22 | 大学生创业基础 | 32 |
| 23 | 创新创业实践 |  |

三、专业核心课程主要教学内容与要求

|  |  |  |
| --- | --- | --- |
| 序号 | 专业核心课程 | 主要教学内容与要求 |
| 1 | 金属熔焊原理 | 焊接的物理本质，熔焊加热特点及接头的形成，焊接化学冶金特点，焊接材料的牌号、种类、特点、性能及选用，熔池凝固和焊缝固态相变，焊接热影响区的组织与性能，焊接裂纹的种类、特征、影响因素及防止措施。 |
| 2 | 金属材料焊接工艺 | 常用金属材料的焊接性，以及如何根据金属材料的焊接性选择焊接方法、焊接材料、预热、后热及其他焊接工艺措施等，包括金属材料焊接性及分析试验方法、非合金钢（碳素钢）及其焊接工艺、合金结构钢及其焊接工艺、不锈钢及其焊接工艺、耐热钢及其焊接工艺、铸铁及其焊接工艺和非铁金属材料（有色金属）及其焊接工艺。 |
| 3 | 弧焊电源及维护 | 弧焊电源原理及焊接设备概况、焊接工艺装备、焊条电弧焊设备、惰性气体保护焊设备、CO2气体保护焊设备及其他常用焊接及切割设备构造与维护等。 |
| 4 | 焊接方法与设备使用 | 常用焊接方法的原理、特点、焊接材料、设备及工艺等知识，包括：焊条电弧焊，熔化极气体保护焊，钨极惰性气体保护焊的工艺方法及操作，埋弧焊，气焊与气割，等离子弧焊及切割，电阻焊和其他焊接、切割方法与工艺。 |
| 5 | 焊接质量检验 | 焊接结构生产中常用的检验方法的原理、设备及工艺规范。包括外观、射线、超声、磁粉、渗透、耐压、力学、腐蚀等常用检验方法的国家相关法规和标准。 |
| 6 | 焊接结构生产与创新训练 | 焊接接头的基本知识，焊接应力与变形产生的原因、影响因素及控制措施。焊接结构轻度的基本理论，主要焊接结构的备料、成型、装配及焊接工艺的编制，典型焊接结构生产工艺的编制，焊接辅助设备的选择与使用及焊接结构件的自主创新设计。 |

**学时安排**

每学年教学时间为40周，总学时数为2780，实习按每周30学时计算。每学时为45分钟。18学时计为1个学分，总学分为149学分。军训、入学教育、社会实践、毕业设计（或毕业论文、毕业教育）等，以1周为1学分。公共基础课程学时占总学时的21.6%。选修课教学时数占总学时的比例为26.4%。学生顶岗实习为6个月，可根据实际情况，采取工学交替、多学期、分段式等多种形式组织实施。

**教学进程总体安排**

见附件（教学进程表）

**实施保障**

一、师资队伍

教师应具备高校教师资格，具有焊接技术与工程或材料成型及控制工程等相关专业本科及以上学历或本专业领域有关证书，具有扎实的焊接技术与工程相关理论功底和实践能力，具有较强信息化教学能力，能够开展课程教学改革和科学研究。每5年累计不少于6个月的企业实践经历。

专业教师配备标准：按一届一个教学班计，每个教学班40名学生，三届120名学生，至少需要配备7名教师，专业核心课程任课教师不少于3名，专业生师比不超过18：1。

师资结构：专任教师中“双师”素质教师不低于60%。兼职教师数占专业课与实践指导教师合计数之比不低于10%，企业兼职教师承担教学课程学时比例应不低于专业课程总课时的30%。兼职教师由来自企业的工程师、技师或中、高级工担任。兼职教师承担专业课程讲授、实训、实习指导及实践性教学文件的编写、审定。

专业带头人：具有副高及以上职称，能够较好地把握国内外焊接技术与自动化行业、专业发展，能广泛联系行业企业，了解行业企业对焊接技术与自动化专业人才的需求实际，教学设计、专业研究能力强，组织开展教科研工作能力强，在本区域或本领域具有一定的专业影响力。

二、教学设施

1.校内基础课教学实验室和教学设备的基本要求

具备满足40名学生进行实践教学的计算机房、零件测绘与CAD实训室、电工及电子实训室、机械基础实训室、金属材料及金相实验室等，达到基本配置。

2. 校内专业实训基地的基本要求

设备基本要求如下：

|  |  |  |  |
| --- | --- | --- | --- |
| 序  号 | 实训室名称 | 设备名称及基本配置数量 | 承担课程 |
| 1 | 机原机零  一体化教室 | 典型零件实物及模型、典型传动系统模型、机械结构综合示教系统、减速器、油泵、典型机床实物或模型、绘图仪器等绘图用具。 | 焊工识图与CAD  机械基础 |
| 2 | 电工电子  实训室 | 电工电子综合实训装置、各类典型弧焊电源（能展示内部结构）等，保证每工位2~4名学生。 | 电工电子技术  弧焊电源与维护 |
| 3 | 金工实训中心 | 车床、铣床、刨床、摇臂钻、钳工实训台、热处理炉等金工实习实训设备，保证每4人一工位。 | 金属学与材料加工  冷作成型加工 |
| 4 | 焊接实训中心 | 配备焊条电弧焊、熔化极气体保护焊、非熔化极气体保护焊、埋弧自动焊等焊接设备；手工、半自动及数控切割设备；相关操作工装及排烟除尘设备设施。设备数量保证上课学生每 2～4 人 1 台。  尽可能做成理论实践一体化实训中心。 | 焊条电弧焊技术  气体保护焊技术  焊接结构生产创新训练 |
| 5 | 无损检测  实训室 | 磁粉探伤仪、超声波探伤仪、X射线探伤仪及隔离室，配备相关的仪器仪表、标准试块、观片灯等辅助探伤器材。设有专业的探伤工作台，环境内恒温恒湿，上下水齐全。按每6人一工位配置。 | 焊接质量检验 |
| 6 | 工业机器人  实训室 | 不同类型的焊接机器人、多轴焊接变位器，配备辅助设施保证正常焊接。配置为每4人一工位。 | 工业机器人基础  焊接机器人基本操作  焊接机器人离线编程 |

3. 校外实训基地的基本要求

依托行业，与技术和管理水平先进的企业紧密合作，建立校外实训基地，行成对校内实训基地的有效补充。为学生生产性实训和顶岗实习、专职教师的“双师”素质培养提供场所，为专业课程建设提供软资源支持和保障。

本专业校外实训基地不得少于4家。

三、教学资源

1.教材资源

采用高等教育出版社、中国铁道出版社、机械工业出版社、电子工业出版社、科学出版社、中国劳动社会保障出版社、西安电子科技大学出版社等高职高专“十三五”教材。

教学团队自编符合教学实际情况的校本教材。

2.图书资源

学院拥有各类图书五十余万册，订阅专业期刊十余类。并与昆明中铁驾驶培训站共享图书教育资源。

3.数字化（网络）资源

充分利用电子书籍、电子期刊、数据库、数字图书馆、教育网站和电子论坛等网上信息资源，使教学从单一媒体向多媒体转变；使教学活动从信息的单向传递向双向交换转变；使学生从单独的学习向合作学习转变。

四、教学方法

1.教学方法、手段建议

在教学过程中注意发挥学生的主体作用和教师的主导作用，注重培养学生分析和解决问题能力，模拟现场真实工作和技能鉴定的要求，采用“理实一体化”的方法，引导学生完成学习性工作任务，实现“课岗证融合”。

2.教学组织形式建议

发挥校内实训基地或理实一体化教室功用，利用多媒体课件、现场操作录像、教师演示操作学生训练、数字教学资源以及实训设备，按情境或项目组织教学。

五、教学评价

1.评价的模式

学院评价与社会评价相结合，终结性评价与过程性评价相结合，个体评价与小组评价相结合，理论学习评价与实践技能评价相结合，素质评价、知识评价、能力(技能)评价并重。

2.评价的方式

结合岗位职业能力考核标准，按照“职业能力为主、知识为辅，过程为主、结果为辅”的原则，构建以职业能力考核为核心、以过程考核为重点的考核评价方式，从知识考核、实做考核、职业技能鉴定等方面对学生进行评价，突出考核的针对性和多样性，逐步使学生具备相应的知识结构、操作技能，实现对学生学习过程的跟踪和全面评价。

根据课程不同的教学目标，采用笔试、口试和现场操作、作品评价等多种方法，实行整体性、过程性评价。实训教学考试实行考试标准社会化，如本专业技能操作考试采用人力资源和社会保障部中级工考试标准。

六、质量管理

1.建立专业建设和教学质量诊断与改进机制，健全专业教质量监控管理制度，完善课堂教学、教学评价、实习实训、毕业设计以及专业调研、人才培养方案更新、资源建设等方面质量标准建设，通过教学实施、过程监控、质量评价和持续改进，达成人才培养规格

2.完善教学管理机制，加强日常教学组织运行与管理，严明教学纪律，强化教学组织功能，建立健全督导、听课、评教等制度，定期开展公开课、示范课等教研活动

3.建立毕业生跟踪反馈机制及社会评价机制，并对生源情况、在校生学业水平、毕业生就业情况等进行分析，定期评价人才培养质量和培养目标达成情况。

4.专业教研团队应充分利用评价分析结果有效改进专业教学，持续提高人才培养质量。

**毕业要求**

学生德、智、体、美、劳合格，在允许的修业年限内学完培养计划规定的全部课程，通过顶岗实践或毕业论文答辩，取得相应的职业资格证书，达到毕业最低学分149分要求，即获得毕业资格，准予毕业并颁发毕业证书。

**教 学 进 程 表**

**2018 级 焊接技术与自动化 专 业**

**毕业最低学分：149分**

**专业代码：560110**

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **一、教学进程表** | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | **二、周数分配表** | | | | | | | | | | | | | | | | | | | | | | | | | |
| 学  年 | 教 学 周 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 理论  及  分散  实践 | | | 集  中  实  践 | | | 考  试 | | | 劳  动 | | | | 军  训 | | | 机  动 | | | | 毕  业  教  育 | | 假  期 | | 合  计 | |
| 九月 | | | | | | | | | 十月 | | | | | | | | 十一月 | | | | | | | 十二月 | | | | | | | | | 一月 | | | | | | | | | 二月 | | | | | | | | 三月 | | | | | | 四月 | | | | | | 五月 | | | | | | | 六月 | | | | | | | | 七月 | | | | | | | | | 八月 | | | | | | | |
|  | | | 1 | 2 | | | | 3 | 4 | | | 5 | | 6 | 7 | 8 | 9 | | 10 | 11 | 12 | 13 | | 14 | | | 15 | 16 | | 17 | | 18 | | | | 19 | 20 | | 21 | | 22 | | | 23 | 24 | | 25 | 26 | 27 | | | 28 | 29 | 30 | | 31 | | 32 | 33 | 34 | | 35 | | 36 | 37 | | 38 | 39 | 40 | | 41 | 42 | | 43 | | | 44 | | 45 | | | 46 | | 47 | | 48 | | | 49 | 50 | 51 | 52 | | K | | S | | | | ∷ | | | × | | | | ★ | | | J | | | | T | | | = | |  | |
| 一 | | | ★2 | | | | | 15 | | | | | | | | | | | | | | | | | | | | | | | | J2 | | | | | ∷ | | ==== 6 | | | | | | | | | | 18 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | J | | | ∷ | | ==== 6 | | | | | | | | | | 33 | | 0 | | | | 2 | | | 0 | | | | 2 | | | 3 | | | | 0 | | | 12 | | 52 | |
| 二 | | 17 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | × | | | J | | ∷ | | ==== 6 | | | | | | | | | | 16 | | | | | | | | | | | | | | | | | | | | | | | | | S2 | | | | | J | | | ∷ | | ====6 | | | | | | | | | | 33 | | 2 | | | 2 | | 1 | | | | 0 | | | 2 | | | | 0 | | | 12 | | 52 | | |
| 三 | | 16 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | S2 | | | | | J | | ∷ | | ==== 6 | | | | | | | | | | 18 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | J | | | T | |  | | | | | | | | | | 34 | | 2 | | | 1 | | 0 | | | | 0 | | | 2 | | | | 1 | | | 6 | | 46 | | |
| **三、教学进度表** | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 合计 | | | | | | | | | | | | | | | | | | | 100 | | 4 | | | 5 | | 1 | | | | 2 | | | 7 | | | | 1 | | | 30 | | 150 | | |
| 课程类型 | | 序  号 | | | | 课程  代码 | | | | | 课 程 名 称 | | | | | | | | | | | | 考核学期序 | | | | | | | | | | | | | | | | | | | 学 分 | | | | | | 学 时 数 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 理论教学（含分散性实践教学）周学时 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 考 试 | | | | | | | | | | 考 查 | | | | | | | | | 总 计 | | | | | | | 理 论 | | | | | | 实 践 | | | | | | | | | | | | | | | | | | | | | | | | | | | 一 年 级 | | | | | | | | | | | 二 年 级 | | | | | | | | | | | | | 三 年 级 | | | | | | | | |
| 合 计 | | | | | 习 题 课 | | | 实 训 | | | | 现场教学 | | | | | | | | 创新创业训练 | | | | | | | 1学期  15周 | | | | | 2学期  18周 | | | | | | 3学期  17周 | | | | | | 4学期  16周 | | | | | | | 5学期  16周 | | | | 6学期  18周 | | | | |
| 公共必修课 | | 1 | | | | 0001 | | | | | 思想道德修养与法律基础及形势政策 | | | | | | | | | | | | 1 | | | | | | | | | | 2 | | | | | | | | | 4 | | | | | | 66 | | | | | | | 52 | | | | | | 14 | | | | | 14 | | |  | | | |  | | | | | | | |  | | | | | | | 2 | | | | | 2 | | | | | |  | | | | | |  | | | | | | |  | | | |  | | | | |
| 2 | | | | 0002 | | | | | 毛泽东思想和中国特色社会主义理论体系概论及形势政策 | | | | | | | | | | | | 3 | | | | | | | | | | 4 | | | | | | | | | 4 | | | | | | 66 | | | | | | | 55 | | | | | | 12 | | | | | 12 | | |  | | | |  | | | | | | | |  | | | | | | |  | | | | |  | | | | | | 2 | | | | | | 2 | | | | | | |  | | | |  | | | | |
| 3 | | | | 0005 | | | | | 高等数学 | | | | | | | | | | | | 1 | | | | | | | | | |  | | | | | | | | | 3 | | | | | | 60 | | | | | | | 54 | | | | | | 6 | | | | | 6 | | |  | | | |  | | | | | | | |  | | | | | | | 4 | | | | |  | | | | | |  | | | | | |  | | | | | | |  | | | |  | | | | |
| 4 | | | | 0006 | | | | | 大学语文 | | | | | | | | | | | |  | | | | | | | | | | 1 | | | | | | | | | 3 | | | | | | 60 | | | | | | | 52 | | | | | | 8 | | | | | 8 | | |  | | | |  | | | | | | | |  | | | | | | | 4 | | | | |  | | | | | |  | | | | | |  | | | | | | |  | | | |  | | | | |
| 5 | | | | 0007 | | | | | 公共英语 | | | | | | | | | | | | 1 | | | | | | | | | |  | | | | | | | | | 3 | | | | | | 60 | | | | | | | 18 | | | | | | 42 | | | | | 42 | | |  | | | |  | | | | | | | |  | | | | | | | 4 | | | | |  | | | | | |  | | | | | |  | | | | | | |  | | | |  | | | | |
| 6 | | | | 0008 | | | | | 信息技术 | | | | | | | | | | | |  | | | | | | | | | | 1 | | | | | | | | | 3 | | | | | | 60 | | | | | | | 30 | | | | | | 30 | | | | | 30 | | |  | | | |  | | | | | | | |  | | | | | | | 4 | | | | |  | | | | | |  | | | | | |  | | | | | | |  | | | |  | | | | |
| 7 | | | | 0009 | | | | | 体育 | | | | | | | | | | | | 3 | | | | | | | | | | 1.2.4 | | | | | | | | | 7 | | | | | | 132 | | | | | | | 8 | | | | | | 112 | | | | |  | | |  | | | | 112 | | | | | | | |  | | | | | | | 2 | | | | | 2 | | | | | | 2 | | | | | | 2 | | | | | | |  | | | |  | | | | |
| 8 | | | | 0004 | | | | | 中华优秀传统文化 | | | | | | | | | | | |  | | | | | | | | | | 1 | | | | | | | | | 2 | | | | | | 30 | | | | | | | 30 | | | | | |  | | | | |  | | |  | | | |  | | | | | | | |  | | | | | | | 2 | | | | |  | | | | | |  | | | | | |  | | | | | | |  | | | |  | | | | |
| 9 | | | | 0011 | | | | | 民族理论和政策 | | | | | | | | | | | |  | | | | | | | | | | 5 | | | | | | | | | 2 | | | | | | 32 | | | | | | | 42 | | | | | |  | | | | |  | | |  | | | |  | | | | | | | |  | | | | | | |  | | | | |  | | | | | |  | | | | | |  | | | | | | | 2 | | | |  | | | | |
| 10 | | | | 0010 | | | | | 大学生职业发展与就业指导 | | | | | | | | | | | |  | | | | | | | | | | 2 | | | | | | | | | 2 | | | | | | 36 | | | | | | | 36 | | | | | |  | | | | |  | | |  | | | |  | | | | | | | |  | | | | | | |  | | | | | 2 | | | | | |  | | | | | |  | | | | | | |  | | | |  | | | | |
| 小计学分及学时数 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 33 | | | | | | 602 | | | | | | | 377 | | | | | | 224 | | | | | 112 | | | 0 | | | | 112 | | | | | | | | 0 | | | | | | | 22 | | | | | 6 | | | | | | 4 | | | | | | 4 | | | | | | | 2 | | | | 0 | | | | |
| 专业必修课 | | 11 | | | 33001 | | | | | | | | 焊接概论 | | | | | | | | | | | | | 1 | | | | | | | | |  | | | | | | | 3 | | | | | | 60 | | | | | | | 46 | | | | | | 14 | | | | | 4 | | |  | | | | 10 | | | | | | | |  | | | | | | | 4 | | | | |  | | | | | |  | | | | | |  | | | | | | |  | | | |  | | | | |
| 12 | | | 33002 | | | | | | | | 焊工识图与CAD | | | | | | | | | | | | | 2 | | | | | | | | |  | | | | | | | 6 | | | | | | 108 | | | | | | | 54 | | | | | | 54 | | | | |  | | |  | | | | 54 | | | | | | | |  | | | | | | |  | | | | | 6 | | | | | |  | | | | | |  | | | | | | |  | | | |  | | | | |
| 13 | | | 33003 | | | | | | | | 电工电子技术 | | | | | | | | | | | | | 2 | | | | | | | | |  | | | | | | | 4 | | | | | | 72 | | | | | | | 26 | | | | | | 46 | | | | |  | | |  | | | | 46 | | | | | | | |  | | | | | | |  | | | | | 4 | | | | | |  | | | | | |  | | | | | | |  | | | |  | | | | |
| 14 | | | 33004 | | | | | | | | 机械基础 | | | | | | | | | | | | |  | | | | | | | | | 2 | | | | | | | 4 | | | | | | 72 | | | | | | | 58 | | | | | | 14 | | | | | 4 | | |  | | | | 10 | | | | | | | |  | | | | | | |  | | | | | 4 | | | | | |  | | | | | |  | | | | | | |  | | | |  | | | | |
| 15 | | | 33005 | | | | | | | | 金属学与材料加工 | | | | | | | | | | | | | 2 | | | | | | | | |  | | | | | | | 4 | | | | | | 72 | | | | | | | 34 | | | | | | 38 | | | | | 2 | | |  | | | | 36 | | | | | | | |  | | | | | | |  | | | | | 4 | | | | | |  | | | | | |  | | | | | | |  | | | |  | | | | |
| 16 | | | 33006 | | | | | | | | ★金属熔焊原理 | | | | | | | | | | | | | 3 | | | | | | | | |  | | | | | | | 4 | | | | | | 68 | | | | | | | 56 | | | | | | 12 | | | | | 4 | | |  | | | | 8 | | | | | | | |  | | | | | | |  | | | | |  | | | | | | 4 | | | | | |  | | | | | | |  | | | |  | | | | |
| 17 | | | 33007 | | | | | | | | ★金属材料焊接工艺 | | | | | | | | | | | | | 4 | | | | | | | | |  | | | | | | | 4 | | | | | | 64 | | | | | | | 52 | | | | | | 12 | | | | | 4 | | |  | | | | 8 | | | | | | | |  | | | | | | |  | | | | |  | | | | | |  | | | | | | 4 | | | | | | |  | | | |  | | | | |
| 18 | | | 33008 | | | | | | | | ★弧焊电源及维护 | | | | | | | | | | | | | 3 | | | | | | | | |  | | | | | | | 4 | | | | | | 68 | | | | | | | 32 | | | | | | 36 | | | | | 4 | | |  | | | | 32 | | | | | | | |  | | | | | | |  | | | | |  | | | | | | 4 | | | | | |  | | | | | | |  | | | |  | | | | |
| 19 | | | 33009 | | | | | | | | ★焊接方法与设备使用 | | | | | | | | | | | | | 4 | | | | | | | | | 3 | | | | | | | 9 | | | | | | 166 | | | | | | | 34 | | | | | | 132 | | | | |  | | |  | | | | 132 | | | | | | | |  | | | | | | |  | | | | |  | | | | | | 6 | | | | | | 4 | | | | | | |  | | | |  | | | | |
| 20 | | | 33010 | | | | | | | | ★焊接质量检验 | | | | | | | | | | | | | 5 | | | | | | | | |  | | | | | | | 4 | | | | | | 64 | | | | | | | 22 | | | | | | 42 | | | | |  | | |  | | | | 42 | | | | | | | |  | | | | | | |  | | | | |  | | | | | |  | | | | | |  | | | | | | | 4 | | | |  | | | | |
| 21 | | | 33011 | | | | | | | | ★焊接结构生产  与创新训练 | | | | | | | | | | | | | 5 | | | | | | | | |  | | | | | | | 4 | | | | | | 64 | | | | | | | 30 | | | | | | 34 | | | | | 4 | | |  | | | | 10 | | | | | | | | 20 | | | | | | |  | | | | |  | | | | | |  | | | | | |  | | | | | | | 4 | | | |  | | | | |
| 22 | | | 33401 | | | | | | | | 中级工技能鉴定培训 | | | | | | | | | | | | |  | | | | | | | | |  | | | | | | | 2 | | | | | | 60 | | | | | | | 0 | | | | | | 60 | | | | |  | | | 60 | | | |  | | | | | | | |  | | | | | | |  | | | | |  | | | | | |  | | | | | | 2周 | | | | | | |  | | | |  | | | | |
| 23 | | | 33402 | | | | | | | | 顶岗实习 | | | | | | | | | | | | |  | | | | | | | | |  | | | | | | | 18 | | | | | | 540 | | | | | | | 0 | | | | | | 540 | | | | |  | | | 540 | | | |  | | | | | | | |  | | | | | | |  | | | | |  | | | | | |  | | | | | |  | | | | | | |  | | | | 18周 | | | | |
| 小计学分及学时数 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 70 | | | | | | 1478 | | | | | | | 444 | | | | | | 1034 | | | | | 26 | | | 600 | | | | 388 | | | | | | | | 20 | | | | | | | 4 | | | | | 18 | | | | | | 14 | | | | | | 8 | | | | | | | 8 | | | | 0 | | | | |
| 专业选修课 | | 24 | | | 33012 | | | | | | | | 铁道概论 | | | | | | | | | | | | |  | | | | | | | | | 3 | | | | | | | 4 | | | | | | 68 | | | | | | | 58 | | | | | | 10 | | | | |  | | |  | | | | 10 | | | | | | | |  | | | | | | |  | | | | |  | | | | | | 4 | | | | | |  | | | | | | |  | | | |  | | | | |
| 25 | | | 33013 | | | | | | | | 冷作加工与装焊 | | | | | | | | | | | | |  | | | | | | | | | 3 | | | | | | | 4 | | | | | | 68 | | | | | | | 58 | | | | | | 10 | | | | |  | | |  | | | | 10 | | | | | | | |  | | | | | | |  | | | | |  | | | | | | 4 | | | | | |  | | | | | | |  | | | |  | | | | |
| 26 | | | 33014 | | | | | | | | 可编程控制器 | | | | | | | | | | | | |  | | | | | | | | | 3 | | | | | | | 4 | | | | | | 68 | | | | | | | 58 | | | | | | 10 | | | | |  | | |  | | | | 10 | | | | | | | |  | | | | | | |  | | | | |  | | | | | | 4 | | | | | |  | | | | | | |  | | | |  | | | | |
| 27 | | | 33015 | | | | | | | | 车辆构造与维护 | | | | | | | | | | | | | 4 | | | | | | | | |  | | | | | | | 4 | | | | | | 64 | | | | | | | 54 | | | | | | 10 | | | | |  | | |  | | | | 10 | | | | | | | |  | | | | | | |  | | | | |  | | | | | |  | | | | | | 4 | | | | | | |  | | | |  | | | | |
| 28 | | | 33016 | | | | | | | | 焊接设备故障  诊断与维护 | | | | | | | | | | | | | 4 | | | | | | | | |  | | | | | | | 4 | | | | | | 64 | | | | | | | 54 | | | | | | 10 | | | | |  | | |  | | | | 10 | | | | | | | |  | | | | | | |  | | | | |  | | | | | |  | | | | | | 4 | | | | | | |  | | | |  | | | | |
| 29 | | | 33017 | | | | | | | | 工业机器人基础 | | | | | | | | | | | | | 4 | | | | | | | | |  | | | | | | | 4 | | | | | | 64 | | | | | | | 54 | | | | | | 10 | | | | |  | | |  | | | | 10 | | | | | | | |  | | | | | | |  | | | | |  | | | | | |  | | | | | | 4 | | | | | | |  | | | |  | | | | |
| 30 | | | 33018 | | | | | | | | 气焊与气割技术 | | | | | | | | | | | | |  | | | | | | | | | 4 | | | | | | | 4 | | | | | | 64 | | | | | | | 54 | | | | | | 10 | | | | |  | | |  | | | | 10 | | | | | | | |  | | | | | | |  | | | | |  | | | | | |  | | | | | | 4 | | | | | | |  | | | |  | | | | |
| 31 | | | 33019 | | | | | | | | 埋弧焊技术 | | | | | | | | | | | | |  | | | | | | | | | 4 | | | | | | | 4 | | | | | | 64 | | | | | | | 54 | | | | | | 10 | | | | |  | | |  | | | | 10 | | | | | | | |  | | | | | | |  | | | | |  | | | | | |  | | | | | | 4 | | | | | | |  | | | |  | | | | |
| 32 | | | 33020 | | | | | | | | 焊接机器人基本操作 | | | | | | | | | | | | |  | | | | | | | | | 4 | | | | | | | 4 | | | | | | 64 | | | | | | | 54 | | | | | | 10 | | | | |  | | |  | | | | 10 | | | | | | | |  | | | | | | |  | | | | |  | | | | | |  | | | | | | 4 | | | | | | |  | | | |  | | | | |
| 33 | | | 33021 | | | | | | | | 机械制造基础 | | | | | | | | | | | | |  | | | | | | | | | 4 | | | | | | | 4 | | | | | | 64 | | | | | | | 54 | | | | | | 10 | | | | |  | | |  | | | | 10 | | | | | | | |  | | | | | | |  | | | | |  | | | | | |  | | | | | | 4 | | | | | | |  | | | |  | | | | |
| 34 | | | 33022 | | | | | | | | 有色金属焊接技术 | | | | | | | | | | | | |  | | | | | | | | | 4 | | | | | | | 4 | | | | | | 64 | | | | | | | 54 | | | | | | 10 | | | | |  | | |  | | | | 10 | | | | | | | |  | | | | | | |  | | | | |  | | | | | |  | | | | | | 4 | | | | | | |  | | | |  | | | | |
| 35 | | | 33023 | | | | | | | | 焊接机器人离线编程 | | | | | | | | | | | | |  | | | | | | | | | 4 | | | | | | | 4 | | | | | | 64 | | | | | | | 54 | | | | | | 10 | | | | |  | | |  | | | | 10 | | | | | | | |  | | | | | | |  | | | | |  | | | | | |  | | | | | | 4 | | | | | | |  | | | |  | | | | |
| 36 | | | 33024 | | | | | | | | 钢轨焊接与探伤 | | | | | | | | | | | | | 5 | | | | | | | | |  | | | | | | | 4 | | | | | | 64 | | | | | | | 54 | | | | | | 10 | | | | |  | | |  | | | | 10 | | | | | | | |  | | | | | | |  | | | | |  | | | | | |  | | | | | |  | | | | | | | 4 | | | |  | | | | |
| 37 | | | 33025 | | | | | | | | 特种设备焊接技术 | | | | | | | | | | | | | 5 | | | | | | | | |  | | | | | | | 4 | | | | | | 64 | | | | | | | 54 | | | | | | 10 | | | | |  | | |  | | | | 10 | | | | | | | |  | | | | | | |  | | | | |  | | | | | |  | | | | | |  | | | | | | | 4 | | | |  | | | | |
| 38 | | | 33026 | | | | | | | | 现代高效焊接技术 | | | | | | | | | | | | | 5 | | | | | | | | |  | | | | | | | 4 | | | | | | 64 | | | | | | | 54 | | | | | | 10 | | | | |  | | |  | | | | 10 | | | | | | | |  | | | | | | |  | | | | |  | | | | | |  | | | | | |  | | | | | | | 4 | | | |  | | | | |
| 39 | | | 33027 | | | | | | | | 特种焊接技术 | | | | | | | | | | | | |  | | | | | | | | | 5 | | | | | | | 4 | | | | | | 64 | | | | | | | 54 | | | | | | 10 | | | | |  | | |  | | | | 10 | | | | | | | |  | | | | | | |  | | | | |  | | | | | |  | | | | | |  | | | | | | | 4 | | | |  | | | | |
| 40 | | | 33028 | | | | | | | | 焊接修复技术 | | | | | | | | | | | | |  | | | | | | | | | 5 | | | | | | | 4 | | | | | | 64 | | | | | | | 54 | | | | | | 10 | | | | |  | | |  | | | | 10 | | | | | | | |  | | | | | | |  | | | | |  | | | | | |  | | | | | |  | | | | | | | 4 | | | |  | | | | |
| 41 | | | 33029 | | | | | | | | 焊接机器人  仿真技术应用 | | | | | | | | | | | | |  | | | | | | | | | 5 | | | | | | | 4 | | | | | | 64 | | | | | | | 54 | | | | | | 10 | | | | |  | | |  | | | | 10 | | | | | | | |  | | | | | | |  | | | | |  | | | | | |  | | | | | |  | | | | | | | 4 | | | |  | | | | |
| 42 | | | 33030 | | | | | | | | 先进制造技术 | | | | | | | | | | | | |  | | | | | | | | | 5 | | | | | | | 4 | | | | | | 64 | | | | | | | 54 | | | | | | 10 | | | | |  | | |  | | | | 10 | | | | | | | |  | | | | | | |  | | | | |  | | | | | |  | | | | | |  | | | | | | | 4 | | | |  | | | | |
| 43 | | | 33031 | | | | | | | | 焊接施工组织与管理 | | | | | | | | | | | | |  | | | | | | | | | 5 | | | | | | | 4 | | | | | | 64 | | | | | | | 54 | | | | | | 10 | | | | |  | | |  | | | | 10 | | | | | | | |  | | | | | | |  | | | | |  | | | | | |  | | | | | |  | | | | | | | 4 | | | |  | | | | |
| 44 | | | 33032 | | | | | | | | 焊接专业英语 | | | | | | | | | | | | |  | | | | | | | | | 5 | | | | | | | 4 | | | | | | 64 | | | | | | | 54 | | | | | | 10 | | | | |  | | |  | | | | 10 | | | | | | | |  | | | | | | |  | | | | |  | | | | | |  | | | | | |  | | | | | | | 4 | | | |  | | | | |
| 45 | | | 33033 | | | | | | | | 大型焊轨设备 | | | | | | | | | | | | |  | | | | | | | | | 5 | | | | | | | 4 | | | | | | 64 | | | | | | | 54 | | | | | | 10 | | | | |  | | |  | | | | 10 | | | | | | | |  | | | | | | |  | | | | |  | | | | | |  | | | | | |  | | | | | | | 4 | | | |  | | | | |
| 46 | | | 33034 | | | | | | | | 焊接工装夹具  设计及应用 | | | | | | | | | | | | |  | | | | | | | | | 5 | | | | | | | 4 | | | | | | 64 | | | | | | | 54 | | | | | | 10 | | | | |  | | |  | | | | 10 | | | | | | | |  | | | | | | |  | | | | |  | | | | | |  | | | | | |  | | | | | | | 4 | | | |  | | | | |
| 47 | | | 33035 | | | | | | | | 工作站系统  集成与应用 | | | | | | | | | | | | |  | | | | | | | | | 5 | | | | | | | 4 | | | | | | 64 | | | | | | | 54 | | | | | | 10 | | | | |  | | |  | | | | 10 | | | | | | | |  | | | | | | |  | | | | |  | | | | | |  | | | | | |  | | | | | | | 4 | | | |  | | | | |
| 48 | | | 33403 | | | | | | | | 金属构造综合实训 | | | | | | | | | | | | |  | | | | | | | | | 5 | | | | | | | 2 | | | | | | 60 | | | | | | |  | | | | | | 60 | | | | |  | | | 60 | | | |  | | | | | | | |  | | | | | | |  | | | | |  | | | | | |  | | | | | |  | | | | | | | 2周 | | | |  | | | | |
| 49 | | | 33404 | | | | | | | | 数控加工综合实习 | | | | | | | | | | | | |  | | | | | | | | | 5 | | | | | | | 2 | | | | | | 60 | | | | | | |  | | | | | | 60 | | | | |  | | | 60 | | | |  | | | | | | | |  | | | | | | |  | | | | |  | | | | | |  | | | | | |  | | | | | | | 2周 | | | |  | | | | |
| 50 | | | 33405 | | | | | | | | 焊接机器人综合实训 | | | | | | | | | | | | |  | | | | | | | | | 5 | | | | | | | 2 | | | | | | 60 | | | | | | |  | | | | | | 60 | | | | |  | | | 60 | | | |  | | | | | | | |  | | | | | | |  | | | | |  | | | | | |  | | | | | |  | | | | | | | 2周 | | | |  | | | | |
| 小计学分及学时数 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 34 | | | | | | 576 | | | | | | | 436 | | | | | | 140 | | | | |  | | | 60 | | | | 80 | | | | | | | |  | | | | | | |  | | | | |  | | | | | | 4 | | | | | | 12 | | | | | | | 12 | | | |  | | | | |
| 合计学分及学时数 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 137 | | | | | | 2656 | | | | | | | 1257 | | | | | | 1398 | | | | | 138 | | | 660 | | | | 580 | | | | | | | | 20 | | | | | | | 26 | | | | | 24 | | | | | | 22 | | | | | | 24 | | | | | | | 22 | | | | 18周 | | | | |
| **四、素质拓展课** | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 课程类型 | | 序  号 | | | | | 课程代码 | | | | | | 课 程 名 称 | | | | | | | | | | | | | 考核学期序 | | | | | | | | | | | | | | | | 学分 | | | | 课  时 | | 说 明 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 考 试 | | | 考 查 | | | | | | | | | | | | |  | | | |  | |  | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 必修  课 | | 1 | | | | | 01 | | | | | | 军训及军事理论教育 | | | | | | | | | | | | |  | | | 1 | | | | | | | | | | | | | 4 | | | | 60 | | 第1学期开设，含入学教育。 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 2 | | | | | 02 | | | | | | 心理健康教育 | | | | | | | | | | | | |  | | | 2.3.4.5 | | | | | | | | | | | | | 2 | | | | 32 | | 分专业在第2～5学期之一开设。 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 3 | | | | | 03 | | | | | | 大学生安全及健康教育 | | | | | | | | | | | | |  | | | 1.2.3.4 | | | | | | | | | | | | | 2 | | | | 32 | | 在1～4学期实施，以专题讲座的形式和每学期大学生第二课堂教育活动中开设. | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 4 | | | | | 04 | | | | | | 大学生暑期社会实践 | | | | | | | | | | | | |  | | | 2.4 | | | | | | | | | | | | | 2 | | | |  | | 利用暑期，进行社会实践，提交报告。 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 小计学分及学时数 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 10 | | | | 124 | |  | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 选  修  课 | | 1 | | | | | 001 | | | | | | 演讲与口才 | | | | | | | | | | | | |  | | | 2～5 | | | | | | | | | | | | | 2 | | | | 32 | |  | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 2 | | | | | 002 | | | | | | 中国小说阅读与鉴赏 | | | | | | | | | | | | |  | | | 2～5 | | | | | | | | | | | | | 2 | | | | 32 | |  | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 3 | | | | | 003 | | | | | | 音乐欣赏 | | | | | | | | | | | | |  | | | 2～5 | | | | | | | | | | | | | 2 | | | | 32 | |  | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 4 | | | | | 004 | | | | | | 影视文学欣赏 | | | | | | | | | | | | |  | | | 2～5 | | | | | | | | | | | | | 2 | | | | 32 | |  | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 5 | | | | | 005 | | | | | | 应用写作 | | | | | | | | | | | | |  | | | 2～5 | | | | | | | | | | | | | 2 | | | | 32 | |  | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 6 | | | | | 006 | | | | | | 现代礼仪 | | | | | | | | | | | | |  | | | 2～5 | | | | | | | | | | | | | 2 | | | | 32 | |  | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 7 | | | | | 007 | | | | | | 中国古典诗词欣赏 | | | | | | | | | | | | |  | | | 2～5 | | | | | | | | | | | | | 2 | | | | 32 | |  | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 8 | | | | | 008 | | | | | | 中国近现代史纲要 | | | | | | | | | | | | |  | | | 2～5 | | | | | | | | | | | | | 2 | | | | 32 | |  | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 9 | | | | | 009 | | | | | | 中国传统文化 | | | | | | | | | | | | |  | | | 2～5 | | | | | | | | | | | | | 2 | | | | 32 | |  | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 10 | | | | | 010 | | | | | | 中国旅游资源概况 | | | | | | | | | | | | |  | | | 2～5 | | | | | | | | | | | | | 2 | | | | 32 | |  | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 11 | | | | | 011 | | | | | | ISO9000质量管理体系 | | | | | | | | | | | | |  | | | 2～5 | | | | | | | | | | | | | 2 | | | | 32 | |  | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 12 | | | | | 012 | | | | | | 高级文字排版 | | | | | | | | | | | | |  | | | 2～5 | | | | | | | | | | | | | 2 | | | | 32 | |  | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 13 | | | | | 013 | | | | | | 电子表格处理 | | | | | | | | | | | | |  | | | 2～5 | | | | | | | | | | | | | 2 | | | | 32 | |  | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 14 | | | | | 014 | | | | | | PS图像处理 | | | | | | | | | | | | |  | | | 2～5 | | | | | | | | | | | | | 2 | | | | 32 | |  | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 15 | | | | | 015 | | | | | | 高级PPT制作 | | | | | | | | | | | | |  | | | 2～5 | | | | | | | | | | | | | 2 | | | | 32 | |  | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 16 | | | | | 016 | | | | | | 计算机组装维修及网络操作 | | | | | | | | | | | | |  | | | 2～5 | | | | | | | | | | | | | 2 | | | | 32 | |  | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 17 | | | | | 017 | | | | | | 生活中的经济学 | | | | | | | | | | | | |  | | | 2～5 | | | | | | | | | | | | | 2 | | | | 32 | |  | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 18 | | | | | 018 | | | | | | 技术史漫谈 | | | | | | | | | | | | |  | | | 2～5 | | | | | | | | | | | | | 2 | | | | 32 | |  | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 19 | | | | | 019 | | | | | | 电影赏析 | | | | | | | | | | | | |  | | | 2～5 | | | | | | | | | | | | | 2 | | | | 32 | |  | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 20 | | | | | 020 | | | | | | 职业素质 | | | | | | | | | | | | |  | | | 2～5 | | | | | | | | | | | | | 2 | | | | 32 | |  | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 21 | | | | | 021 | | | | | | 创造性思维与创新方法 | | | | | | | | | | | | |  | | | 2～5 | | | | | | | | | | | | | 2 | | | | 32 | |  | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 22 | | | | | 022 | | | | | | 大学生创业基础 | | | | | | | | | | | | |  | | | 2～5 | | | | | | | | | | | | | 2 | | | | 32 | |  | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 23 | | | | | 023 | | | | | | 创新创业实践 | | | | | | | | | | | | |  | | | 1～6 | | | | | | | | | | | | | 10 | | | |  | | 用于学生参加课题研究、项目实验、竞赛活动、发表论文等创新创业成果的学分折算 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 小计学分及学时数 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 44 | | | | 704 | |  | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| **合计学分及学时数** | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | **总学分149,必修课学分113,选修课学分36，其中专业选修课学分34，素质选修课学分2；总学时2780，理论学时1301，实践学时1478** | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

**建筑工程技术专业**

**教学标准**

**专业名称** 建筑工程技术

**专业代码** 540301

**入学要求** 高中阶段教育毕业生或具有同等学力者

**修业年限** 三年

**职业面向**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| 所属专业大类（代码） | 所属专业类  （代码） | 对应行业  （代码） | 主要职业类别  （代码） | 主要岗位类别  （或技术领域） | 职业资格证书  或技能等级证书举例 |
| 54土木建筑 | 5403土建施工类 | 48土木工程建筑业  49建筑安装业 | GBM 2—02—18建筑工程技术人员  GBM 6—29—03 建筑安装施工人员 | 建筑工程施工员、资料员、质量员、安全员、材料员等 | 施工员（土建）、安全员、资料员、材料员、质量员 |

**培养目标与培养规格**

（一）培养目标

本专业坚持立德树人，培养理想信念坚定，德、智、体、美、劳全面发展，具有一定的科学文化水平、良好的人文素质、职业道德和创新意识，精益求精的工匠精神，较强的就业能力和可持续发展能力；掌握本专业必备的工程识图、测绘、材料检测、施工技术等专业基础知识和主要技术技能，面向建筑施工企业及其他相关企事业单位的施工员、资料员职业岗位群，能够从事技术及管理工作的高素质技术技能人才。

（二）培养规格

本专业毕业生应在素质、知识和能力等方面达到以下要求。

1.素质

（1）坚定拥护中国共产党领导和我国社会主义制度，在习近平新时代中国特色社会主义思想指引下，践行社会主义核心价值观，具有深厚的爱国情感和中华民族自豪感；

（2）崇尚宪法、遵法守纪、崇德向善、诚实守信、尊重生命、热爱劳动、履行道德准则和行为规范，具有社会责任感和社会参与意识；

（3）具有质量意识、环保意识、安全意识、信息素养、工匠、创新思维；

（4）勇于奋斗、乐观向上，具有自我管理能力、职业生涯规划意识，有较强的集体意识和团队合作精神；

（5）具有健康的体魄、心理和健全的人格，掌握基本运动知识和一两项运动技能，养成良好的健身与卫生习惯，良好的行为习惯；

（6）具有一定的审美和人文素养，能够形成一两项艺术特长或爱好。

2.知识

（1）掌握必备的思想政治理论、科学文化基础知识和中华优秀传统文化知识；

（2）熟悉与本专业相关的法律法规以及环境保护、安全消防等相关知识；

（3）掌握投影和制图标准、房屋建筑构造、建筑结构的基本理论和专业知识；

（4）掌握建筑材料与检测、施工测量、建筑施工、建筑工程计量与计价、施工组织与管理、质量检验、施工安全管理等专业知识；

（5）具有建筑水电设备等基本知识；

（6）了解建筑施工新技术、新材料、新工艺和新设备的相关信息。

3.能力

（1）具有探究学习、终身学习、分析问题和解决问题的能力；

（2）具有良好的语言、文字表达能力和沟通能力，能够进行口语和书面的表达与交流；

（3）能熟练识读、准确理解和绘制建筑施工图、结构施工图、设备施工图；

（4）能对建筑施工现场常用建筑材料及制品进行选用、进场验收、性能检测和保管；

（5）能进行建筑施工测量；

（6）能参与编制专项施工方案和一般单位工程施工组织设计；

（7）能按照工程质量、安全、进度、环保和职业健康要求科学的组织建筑施工和指导施工作业；

（8）能对建筑工程进行施工质量和施工安全检查；

（9）能依据有关技术标准的规定分析解决一般的施工技术问题；

（10）能根据工程实际编制、收集、整理和上交工程技术资料；

（11）能编制工程量清单报价，参与工程招投标、施工成本控制及竣工结算；

（12）能熟练操作计算机进行信息技术搜索和处理；

（13）能应用BIM等信息化技术、计算机及相关软件完成岗位工作；

（14）能适应不同岗位需求变化和不断创新创业；

（15）具有良好的人际交往能力和团队协作精神。

**课程设置**

（一）必修课程

1. 公共必修课程

|  |  |  |
| --- | --- | --- |
| 序号 | 课程名称 | 课时数 |
| 1 | 思想道德修养与法律基础及形势政策 | 60 |
| 2 | 毛泽东思想和中国特色社会主义理论体系概论及形势政策 | 64 |
| 3 | 高等数学 | 60 |
| 4 | 大学语文 | 60 |
| 5 | 公共英语 | 60 |
| 6 | 信息技术 | 60 |
| 7 | 体育 | 124 |
| 8 | 中华优秀传统文化 | 30 |
| 9 | 民族理论和政策 | 40 |
| 10 | 大学生职业发展与就业指导 | 30 |

2.专业必修课程

|  |  |  |
| --- | --- | --- |
| 序号 | 课程名称 | 课时数 |
| 1 | 建筑识图与构造 | 116 |
| 2 | 建筑材料 | 56 |
| 3 | 建筑工程测量 | 80 |
| 4 | 建筑力学 | 86 |
| 5 | 计算机辅助设计 | 54 |
| 6 | 房屋设备 | 72 |
| 7 | 地基与基础 | 48 |
| 8 | 建筑结构 | 100 |
| 9 | 建筑施工技术 | 138 |
| 10 | 建筑工程预算 | 108 |
| 11 | 建筑施工组织 | 78 |
| 12 | 建筑工程资料管理 | 40 |
| 13 | 测量实习 C | 84 |
| 14 | 工种实习 G | 84 |
| 15 | 综合实训Z | 224 |
| 16 | 顶岗实习 D | 540 |

3.素质拓展必修课程

|  |  |  |
| --- | --- | --- |
| 序号 | 课程名称 | 课时数 |
| 1 | 军训及军事理论教育 | 60 |
| 2 | 心理健康教育 | 32 |
| 3 | 大学生安全及健康教育 | 32 |
| 4 | 大学生暑期社会实践 |  |

（二）选修课程

1.专业选修课程

|  |  |  |
| --- | --- | --- |
| 序号 | 课程名称 | 课时数 |
| 1 | 铁道概论 | 30 |
| 2 | 英语强化训练 | 30 |
| 3 | 工程应用文写作 | 30 |
| 4 | 建筑法规 | 30 |
| 5 | 铁道建筑 | 34 |
| 6 | 测绘新技术应用 | 34 |
| 7 | 绿色生态建筑 | 34 |
| 8 | 建筑CAD应用技巧 | 34 |
| 9 | 建筑节能技术 | 30 |
| 10 | 铁路运输房建设备大修维修规则（2013版） | 30 |
| 11 | 建设行业施工现场专业人员职业资格培训（通用知识） | 40 |
| 12 | 建设行业施工现场专业人员职业资格培训（专业技能） | 40 |
| 13 | 钢结构构造与识图 | 40 |
| 14 | BIM技术 | 50 |
| 15 | 钢结构设计 | 40 |
| 16 | 装配式混凝土工程技术 | 40 |
| 17 | 铁路房屋修缮 | 20 |
| 18 | 专业软件的应用 | 20 |
| 19 | 工程招投标与合同管理 | 20 |
| 20 | 工程监理概论 | 20 |

2.素质拓展选修课程

|  |  |  |
| --- | --- | --- |
| 序号 | 课程名称 | 课时数 |
| 1 | 演讲与口才 | 32 |
| 2 | 中国小说阅读与鉴赏 | 32 |
| 3 | 音乐欣赏 | 32 |
| 4 | 影视文学欣赏 | 32 |
| 5 | 应用写作 | 32 |
| 6 | 现代礼仪 | 32 |
| 7 | 中国古典诗词欣赏 | 32 |
| 8 | 中国近现代史纲要 | 32 |
| 9 | 中国传统文化 | 32 |
| 10 | 中国旅游资源概况 | 32 |
| 11 | ISO9000质量管理体系 | 32 |
| 12 | 高级文字排版 | 32 |
| 13 | 电子表格处理 | 32 |
| 14 | PS图像处理 | 32 |
| 15 | 高级PPT制作 | 32 |
| 16 | 计算机组装维修及网络操作 | 32 |
| 17 | 生活中的经济学 | 32 |
| 18 | 技术史漫谈 | 32 |
| 19 | 电影赏析 | 32 |
| 20 | 职业素质 | 32 |
| 21 | 创造性思维与创新方法 | 32 |
| 22 | 大学生创业基础 | 32 |
| 23 | 创新创业实践 |  |

（三）专业核心课程主要教学内容与要求

|  |  |  |
| --- | --- | --- |
| 序号 | 专业核心课程 | 主要教学内容与要求 |
| 1 | 建筑识图与构造 | （1）主要教学内容  ①制图的基本知识与技能；  ②投影的基本知识；  ③建筑分类、等级与组成；  ④基础构造、墙体构造、楼板构造、门窗构造、屋顶构造、楼梯及其他垂直交通设施构造、基本装饰构造、装配式建筑构造；  ⑤建筑节能构造；  ⑥单层工业厂房构造。  （2）教学要求  熟悉建筑制图标准的相关内容；掌握投影的基本知识、剖面图、断面图画法；熟知建筑构造要求及做法；能准确识读和绘制建筑施工图。 |
| 2 | 建筑工程测量 | （1）主要教学内容  ①水准仪、经纬仪、全站仪、测距仪的功能、构造、应用、调试与安装；  ②距离测量，水准测量原理与方法，高程测设与抄平测量；  ③水平角、竖直角的观测，水平点位与设计水平角的测设，倾斜与位移观测；  ④应用全站仪进行施工测量。  （2）教学要求  能够正确地使用测量仪器和工具，掌握常规测量仪器的操作技能，掌握高程、角度、距离测量与测设方法，具备控制测量、施工放线的基本操作技能。 |
| 3 | 建筑结构 | （1）主要教学内容  ①常见结构体系的认知；  ②荷载的概念、分类与计算；  ③砌体结构材料及基本设计原则，砌体结构常见基本构件的设计；  ④混凝土结构材料及基本设计原则，混凝土基本构件的设计；  ⑤混凝土结构平法施工图识读与绘制。  （2）教学要求  熟知建筑结构构造与必要的基本理论知识，能够利用国家标准、规范、标准图集等工具书获取专业知识信息，具备熟练识读、绘制结构施工图以及基本受力构件承载力复验的能力。 |
| 4 | 建筑施工技术 | （1）主要教学内容  ①常见基础的施工，深基坑支护与降水技术；  ②常见砌体工程的施工，钢筋的加工、绑扎与安装，模板的设计、铺设与拆除，混凝土的配合比设计、运输、浇筑、振捣与养护；  ③常见屋面的排水与防水施工，楼地面的防水施工，室内外一般装饰的施工，脚手架搭设，构件吊装与运输，装配式混凝土结构施工要点；  ④装配式建筑施工。  （2）教学要求  了解常用施工机具的性能，掌握建筑工程主要分部分项工程施工方法、施工工艺、质量验收标准和安全措施等专业知识和技能，能编写施工技术交底并组织实施。 |
| 5 | 建筑工程预算 | （1）主要教学内容  ①定额的概念、种类与应用；  ②工程量与建筑面积计算规则及方法，建筑及装饰工程的工程量计算，工程量清单计价的方法和程序；  ③定额计价的方法和程序，投标报价的基本概念，投标报价的编制。  （2）教学要求  掌握工程项目计量与计价的一般规律和法则，能套用建筑工程定额，能理解工程量计算规则及有关规范，能计算建筑工程施工费用，掌握使用软件编制施工图预算的方法和步骤，熟练使用规范、定额、建筑结构标准图集、施工手册，能完成工程量清单的编制和招标文件。 |
| 6 | 建筑施工组织 | （1）主要教学内容  ①施工方案的编制原理与基本规则；  ②施工进度计划的编制与应用；  ③施工现场的规划布置与现场平面图绘制。  （2）教学要求  掌握施工组织设计的概念、作用、内容和编制步骤、方法；掌握施工横道图基本概念、参数的确定、绘制原则和方法；掌握网络计划的绘制方法和六个时间参数的计算，能进行网络计划优化；掌握施工方案的编制依据、内容、方法，能编制某单位工程施工组织设计。 |

**学时安排**

每学年教学时间为40周，总学时数为2804学时，实习按每周30学时计算。每学时为45分钟。18学时计为1个学分，毕业最低总学分为152学分。军训、入学教育、社会实践、毕业设计（或毕业论文、毕业教育）等，以1周为1学分。公共基础课程学时占总学时的25.4％；选修课学分数占总学分的比例均为11.3％。学生顶岗实习为6个月，可根据实际情况，采取工学交替、多学期、分段式等多种形式组织实施。

**教学进程总体安排**

教学进程表见附件

**实施保障**

（一）师资队伍

1.专业生师比

主要专任专业教师不少于10人，专业生师比不大于18：1。

2.师资要求

专业带头人1～2名，应具有高级职称，并具备较高的教学水平和实践能力，具有行业企业技术服务或技术研发经历，在本行业及专业领域具有较大的影响力。能够主持专业建设规划、教学方案设计、专业建设工作，能够为企业提供技术服务，主持市地级及以上教学或应用技术科研项目或担任院级及以上精品课程负责人。专业带头人必须是“双师型”教师。

专任教师应具有与本专业相关的大学本科以上学历，且具有两年以上企业工作经历。专任教师团队中具有硕士学位的教师占专任教师的比例应达到30％及以上，高级职称不少于40％，专任教师中具备“双师”素质教师占专业课教师的比例不低于60％。

3.企业兼职教师任职资格

兼职教师应是来自行业企业一线的高水平专业技术人员或能工巧匠，具有5年以上的工程技术及施工管理实践经验，本科学历，工程师及以上职称，每学期企业兼职教师任课比例不少于35％。

（二）教学设施

主要包括教室、校内实训室、校外实训基地和信息化教学设施。

1.专业教室应达到的基本条件：满足教学需要并配备有教具、多媒体教学设备。

2.校内实训室（基地）应达到的基本要求:

校内实训室应水电设施齐全，实训条件应满足《高等职业教育建筑工程技术专业校内实训及校内实训基地建设导则》的有关要求。实训环境按照建筑行业施工现场设置，能够容纳30—40人同时进行建筑材料的认知与检测、施工图识读与绘制、计算机辅助设计、工程测量、工程计量与计价、施工组织与管理、资料管理的实训。为确保学生实训效果，应配备一定数量的指导教师进行实训指导。

校内实训室教学设备的基本要求详见表1。

表1 校内实训室教学设备的基本要求

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| 序号 | 实训室名称 | 设备名称 | 单位 | 基本配置数量 | 实训项目 |
| 1 | 建筑材料试验室 | 水泥见证取样工器具 | 套 | 10 | 水泥性能检测 |
| 水泥稠度负压筛析仪 | 台 | 2 |
| 水泥净浆搅拌机 | 台 | 8 |
| 水泥胶砂搅拌机 | 台 | 8 |
| 雷氏沸煮箱 | 台 | 4 |
| 水泥胶砂振实台 | 台 | 4 |
| 天平 | 台 | 10 |
| 标准筛或水筛 | 套 | 8 |
| 水泥标准稠度测定仪 | 台 | 8 |
| 水泥全自动压力机 | 台 | 2 |
| 新标准水泥跳桌 | 台 | 4 |
| 三联试模 | 套 | 40 |
| 播料器 | 套 | 8 |
| 刮平尺 | 套 | 8 |
| 水泥抗压夹具 | 个 | 8 |
| 电动抗折试验机 | 台 | 3 |
| 砂浆稠度仪 | 台 | 4 | 砂浆和易性检测 |
| 砂浆分层度仪 | 台 | 4 |
| 砂、石取样器具 | 套 | 10 | 砂、石筛分析 |
| 分样筛振摆仪 | 台 | 4 |
| 电热鼓风干燥箱 | 台 | 1 |
| 砂、石标准筛 | 套 | 8 |
| 搪瓷盘 | 个 | 10个 |
| 天平 | 台 | 8 |
| 标准筛 | 套 | 20 | 材料物理性能检测 |
| 砂子标准漏斗 | 只 | 20 |
| 比重瓶/广口瓶 | 套 | 20 |
| 容量筒（金属） | 套 | 20 |
| 天平 | 台 | 适量 |
| 滴管 | 个 | 10 |
| 毛刷 | 个 | 20 |
| 搪瓷长方盘 | 个 | 40 |
| 铝铲 | 把 | 10 |
| 针状规准仪与片状规准仪 | 套 | 10 |
| 压碎指标值测定仪 | 个 | 10 |
| 低温制冷仪 | 台 | 1 |
| 柔度棒或弯板（半径为15mm、25mm） | 个 | 10 |
| 温度计 |  |  |
| 不透水仪 | 台 | 1 |
| 鼓风烘箱 | 台 | 1 |
| 烘箱 | 台 | 1 |
| 拌和板 | 个 | 10 | 混凝土拌合物和易性检测 |
| 拌铲 | 把 | 30 |
| 混凝土搅拌机（容积75～100L） | 台 | 4 |
| 坍落度筒 | 个 | 10 |
| 弹头形捣棒 | 个 | 10 |
| 维勃稠度仪 | 台 | 10 |
| 量筒 |  | 若干 |
| 钢抹子 | 把 | 10 |
| 钢尺 | 把 | 10把 |
| 磅称（称量50kg，感量50g） | 台 | 10台 |
| 2 | 养护室 | 水泥混凝土恒温恒湿养护箱 | 台 | 2 | 标准试件养护 |
| 水泥快速养护箱 | 台 | 2 |
| 标准恒温恒湿养护箱 | 台 | 1 |
| 3 | 力学试验室 | 电子万能材料试验机 | 台 | 1 | 混凝土力学性能检测、热轧钢筋力学性能检测、砂浆力学性能检测、防水卷材力学性能检测 |
| 电子数显万能材料试验机 | 台 | 1 |
| 弯曲夹具 | 台 | 1 |
| 洛氏硬度仪 | 台 | 1 |
| 高强度螺栓智能检测仪 | 台 | 1 |
| 液压式压力试验机 | 台 | 1 |
| 液压式万能材料试验机 | 台 | 1 |
| 电脑恒加荷压力试验机 | 台 | 1 |
| 电脑恒压力试验机 | 台 | 1 |
| 混凝土标准试模 | 台 | 60 |
| 电子秤 | 台 | 4 |
| 拌合槽 | 台 | 4 |
| 4 | 土力学试验室 | 光电液塑限测定仪 | 台 | 1 | 土工实训 |
| 电子天平 | 台 | 1 |
| 双联固结仪 | 台 | 1 |
| 三轴剪力仪 | 台 | 1 |
| 应变式电动手摇直剪仪 | 台 | 10 |
| 手动液塑限仪 | 台 | 8 |
| 5 | 工种训练实训室 | 钢筋工作台 | 台 | 6 | 钢筋工艺实训 |
| 钢筋切断机 | 台 | 2 |
| 钢筋调直机 | 台 | 2 |
| 钢筋弯曲机 | 台 | 2 |
| 电焊机 | 台 | 8 |
| 电渣压力焊机 | 台 | 2 |
| 钢筋套丝机 | 台 | 2 |
| 检测工具 | 套 | 6 |
| 砌筑工具 | 套 | 10 | 砌筑工艺实训 |
| 检测工具 | 套 | 5 |
| 皮数杆 | 根 | 40 |
| 泥桶 | 个 | 40 |
| 门型脚手架 | 套 | 10 |
| 手动弹涂器 | 个 | 20 |
| 自动安平标线仪（选配） | 台 | 2 |
| 手持激光测距仪（选配） | 台 | 4 |
| 翻斗车 | 辆 | 4 |
| 磅称 | 台 | 10 |
| 砂浆搅拌机 | 台 | 1 |
| 抹灰工具 | 套 | 10 | 抹灰工艺实训 |
| 检测工具 | 套 | 5 |
| 拌合工具 | 套 | 10 |
| 工具式钢模板及木模板 | 套 | 10 | 模板工艺实训 |
| 钢管脚手架 | 套 | 10 | 架子工艺实训 |
| 混凝土搅拌机 | 台 | 1 | 混凝土工艺实训 |
| 振捣棒 | 根 | 4 |
| 检测工具 | 套 | 6 |
| 操作工具 | 套 | 10 |
| 翻斗车 | 辆 | 4 |
| 磅称 | 台 | 10 |
| 钢模板 |  | 适量 |
| 6 | 工程资料实训室 | 多媒体教学设备 | 套 | 1 | 建筑工程资料实训 |
| 工程资料管理软件（网络版） | 套 | 1 |
| 打印机 | 台 | 1 |
| 施工质量验收规范 | 套 | 2 |
| 7 | 工程预算实训室 | 多媒体教学设备 | 套 | 1 | 建筑工程预算实训 |
| 工程预算软件（网络版） | 套 | 1 |
| 打印机 | 台 | 1 |
| 国家规范及资料、预算定额 | 套 | 5 |
| 施工图纸 | 套 | 40 |
| 8 | 校内实训中心 | 框架结构构造与施工工艺模型 | 套 | 1 | 框架结构实训 |
| 框架结构节点 | 个 | 4 |
| 砖混结构构造与施工工艺模型 | 套 | 1 | 砖混结构实训 |
| 砖混结构节点 | 个 | 4 |
| 钢结构构造与施工工艺模型 | 套 | 1 | 钢结构工程实训 |
| 钢结构节点 | 个 | 4 |
| 基础构造与施工工艺模型 | 套 | 1 | 基础工程实训 |
| 基础节点 | 个 | 4 |
| 防水构造与施工工艺模型 | 套 | 1 | 防水工程实训 |
| 防水节点 | 个 | 4 |
| 深基坑构造与施工工艺模型 | 套 | 1 | 深基坑实训 |
| 深基坑节点； | 个 | 4 |
| 9 | 虚拟实训室 | 多媒体教学设备 | 套 | 2 | 虚拟工艺实训 |
| 数码照相机（单反配变焦） | 台 | 1 |
| 数码摄像机（800万像素以上） | 台 | 1 |
| 工程打印机 | 台 | 1 |
| 扫描仪 | 台 | 1 |
| 投影仪 | 台 | 1 |
| 虚拟软件 | 套 | 1 |

3.校外实习基地的基本要求

建筑工程技术专业校外实训基地应建立在二级及以上资质的房屋建筑工程施工总承包和专业承包企业, 企业应有良好信誉，资信状况良好。实训基地除能提供与本专业培养目标相适应的职业岗位，对学生实施轮岗实训外，还要能够满足教师挂职锻炼、横向课题研究、产教结合及教学案例的搜集等需求。实训基地应具备符合学生实训的场所和设施，具备必要的学习及生活条件，由学校及企业合作完成实训教学任务，每个实习基地至少配置2名企业技术人员对学生进行实训指导，确保学生顶岗实习半年以上。

4.支持信息化教学方面的基本要求

具备开展信息化教学的网络条件和数字化教学资源。引导鼓励教师、学生利用专业资源库、在线开放课程教学资源同时开展线上线下教学活动，提高学习效益。

（三）教学资源

主要包括能够满足学生专业学习、教师专业教学研究和教学实施需要的教材、图书及数字资源等。

1.教材资源

学校要建立教材选用制度，优先从国家和省部两级规划教材目录中选用教材，优先选用国家精品的教材。鼓励与行业企业合作开发特色鲜明的专业课校本教材。

2.图书资源

图书资料包括：专业书刊、法律法规、规范规程、教学文件、电化教学资料、教学应用资料等。生均纸质图书藏量30册以上，其中专业图书不少于60％，同时适用本专业的相关书籍不应少于3000册；本专业的相关报刊总类不少于20种，其中专业期刊不少于10种；有较齐全、一定数量的国内外交流资料，有专业课教学必备的教学图纸、标准图集、规范、预算定额等资料。

3.数字化（网络）资源

以优质数字化教学资源库建设为载体，以课程为主要表现形式，以素材资源为补充，利用网络学习平台建设共享性教学资源库。资源库内容涵盖学历教育与职业培训，开发专业教学软件包，包括课程标准资源库、试题库、案例库、课件库、专业教学素材库、教学视频库等，并及时更新和修订。通过专业教学网站登载，构建共享型专业学习软件包，为网络学习、函授学习、终身学习、学生自主学习提供条件，实现校内、校外资源共享。

（四）教学方法

1.教学方法、手段建议

鼓励采用“教学做”一体化、情景教学法、项目教学法、案例教学法、讨论式教学法、启发引导式教学法、现场教学等方法实施教学。

提倡传统教学手段和现代信息技术手段互补。充分利用“数字化校园”网络教学平台建设，实现课程资源数字化，建设共享型课程资源。建立远程教育服务平台，开设师生网络交流论坛。利用多媒体技术，上传视频及图片资源，为学生自学与进一步学习提供条件，开辟自主学习新途径。

2.教学组织形式建议

认真贯彻“合作办学、合作育人、合作就业、合作发展”的理念，按照 “依托行业、对接产业、定位职业、服务社会”的专业建设思路，参照本专业教学标准，校企共同制定人才培养方案和专业核心课程教学设计，建立实训基地，企业专家参与人才培养的全过程。教师应以行动导向、任务驱动实施课程教学，形成以教师为主导、学生为主体、“教学做”合一的教学模式。

（五）教学评价

加强质量管理体系建设，重视过程监控，逐步完善以学校为核心、教育行政部门为主导，社会和企业积极参与的教学质量保障体系。创建以能力为核心、以过程为重点、能激励学生学习兴趣和自主学习能力发展的多方位考察、多元化评价的学习绩效考核评价体系，促进学生知识应用能力和健康人格的发展，促进教师不断提高教育教学水平。在构建评价指标体系的过程中，要深入建筑企业，对建筑工程技术专业所对应的职业岗位职责及知识、能力和技能要求进行细致的调研与分析，分解知识与能力的考核要素，吸纳用人单位专家参与教学质量评价，确保学生职业能力培养的质量。

学习绩效考核评价体系遵循“能力为主、知识为辅；过程为主、结果为辅；应会为主，应知为辅；定量为主，定性为辅”的原则，合理确定专业理论考核和职业能力考核的权重，并结合企业考核标准确定能力考核要素，使学习效果评价与岗位职业标准相吻合。改革考核评价方式，在企业专家的共同参与下，采用现场实操、答辩等多种方式进行考核。

（六）质量管理

1.遵循高等职业教育的基本规律，以教学管理基本原则为指导，建立专业建设和教学过程质量监控机制，加强各项教学管理规章制度建设，完善教学质量监控与保障体系。

2.完善教学管理机制，加强日常教学组织运行与管理，建立健全巡课和听课制度，严明教学纪律和课堂纪律，形成教学督导、教师、学生、社会教学评价体系以及完整的信息反馈系统。

3.建立毕业生跟踪反馈机制及社会评价机制，加强对毕业生质量跟踪调查和收集企业对专业人才需求反馈的信息，定期评价人才培养质量和培养目标达成情况。针对不同生源特点，明确教学管理重点与制定管理模式。

4.实行学分制、教考分离等有利于学生个性发展和一体化课程的改革，确保人才培养质量。

5.充分利用评价分析结果有效改进专业教学，加强专业建设，持续提高人才培养质量。

**毕业要求**

学生德、智、体、美、劳合格，在允许的修业年限内学完培养计划规定的全部课程，通过顶岗实践或毕业论文答辩，取得相应的职业资格证书，达到毕业最低学分（152分）要求，即获得毕业资格，准予毕业并颁发毕业证书。

**教 学 进 程 表**

**2018 级 建筑工程技术 专 业**

毕业最低学分：152分

专业代码： 540301

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **一、教学进程表** | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | **二、周数分配表** | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 学  年 | | 教 学 周 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 理论  及  分散  实践 | | | | 集  中  实  践 | | | 考  试 | | | | 劳  动 | | | | 军  训 | | | 机  动 | | | | 毕  业  教  育 | | | 假  期 | | | | 合  计 | | | |
| 九月 | | | | | | | | 十月 | | | | | | | 十一月 | | | | | | | 十二月 | | | | | | | | | 一月 | | | | | | | | 二月 | | | | | | | 三月 | | | | | | | | | 四月 | | | | | | 五月 | | | | | | | 六月 | | | | | | | 七月 | | | | | | | | | | 八月 | | | | | |
|  | | | 1 | 2 | | | 3 | 4 | | | 5 | 6 | 7 | 8 | 9 | 10 | | | 11 | 12 | 13 | | 14 | | 15 | 16 | | 17 | | | 18 | | | 19 | | 20 | | 21 | | 22 | | 23 | 24 | 25 | 26 | | 27 | | | | 28 | 29 | 30 | | | 31 | | 32 | 33 | 34 | | 35 | | 36 | 37 | | 38 | 39 | 40 | | 41 | | 42 | 43 | 44 | | | 45 | | 46 | | 47 | | | 48 | | | 49 | 50 | | 51 | 52 | | K | | | | S | | | ∷ | | | | × | | | | ★ | | | J | | | | T | | | = | | | |  | | |
| 一 | | | ★2 | | | | 15 | | | | | | | | | | | | | | | | | | | | | | | | J2 | | | | | ∷ | | ==== 6 | | | | | | | | | 15 | | | | | | | | | | | | | | | | | | | | | | | | | | C3 | | | | | J | | ∷ | | ==== 6 | | | | | | | | | | | | 30 | | | | 3 | | | 2 | | | | 0 | | | | 2 | | | 3 | | | | 0 | | | 12 | | | | 52 | | |
| 二 | 17 | | | | | | | | | | | | | | | | | | | | | | | | | | | | × | | | J | | | ∷ | | ==== 6 | | | | | | | | | | | | G3 | | | | | 15 | | | | | | | | | | | | | | | | | | | | | | | | | | | J | | | ∷ | | ====6 | | | | | | | | | | 32 | | | 3 | | | | 2 | | | 1 | | | | 0 | | | 2 | | | | 0 | | | 12 | | | | 52 | |
| 三 | 10 | | | | | | | | | | | | | | | | | Z8 | | | | | | | | | | | | | | J | | | ∷ | | ==== 6 | | | | | | | | | | | | D18 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | J | | | T | |  | | | | | | | | | | 10 | | | 26 | | | | 1 | | | 0 | | | | 0 | | | 2 | | | | 1 | | | 6 | | | | 46 | |
| **三、教学进度表** | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 合计 | | | | | | | | | | | | | | | | | 72 | | | 32 | | | | 5 | | | 1 | | | | 2 | | | 7 | | | | 1 | | | 30 | | | | 150 | |
| 课程类型 | 序  号 | | | | 课程  代码 | | | | 课 程 名 称 | | | | | | | | | | | | | 考核学期序 | | | | | | | | | | | | | | | | | 学 分 | | | | | | | 学 时 数 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 理论教学（含分散性实践教学）周学时 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 考 试 | | | | | | | | 考 查 | | | | | | | | | 总 计 | | | | | | | | | 理论 | | | | | | 实 践 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 一 年 级 | | | | | | | | | | | | 二 年 级 | | | | | | | | | | | | 三 年 级 | | | | | | | | | | | |
| 合 计 | | | | | 习 题 课 | | | | | | 实 训 | | | | 现场教学 | | | | | | | 创新创业训练 | | | | | | | 1学期  15周 | | | | | 2学期  15周 | | | | | | | 3学期  17周 | | | | | 4学期  15周 | | | | | | | 5学期  10周 | | | | | | | 6学期  0周 | | | | |
| 公共必修课 | 1 | | | | 0009 | | | | 体育 | | | | | | | | | | | | | 3 | | | | | | | | 1.2.4 | | | | | | | | | 7 | | | | | | | 124 | | | | | | | | | 8 | | | | | | 116 | | | | |  | | | | | |  | | | | 116 | | | | | | |  | | | | | | | 2 | | | | | 2 | | | | | | | 2 | | | | | 2 | | | | | | |  | | | | | | |  | | | | |
| 2 | | | | 0001 | | | | 思想道德修养与法律基础及形势政策 | | | | | | | | | | | | | 1 | | | | | | | | 2 | | | | | | | | | 4 | | | | | | | 60 | | | | | | | | | 52 | | | | | | 8 | | | | | 8 | | | | | |  | | | |  | | | | | | |  | | | | | | | 2 | | | | | 2 | | | | | | |  | | | | |  | | | | | | |  | | | | | | |  | | | | |
| 3 | | | | 0002 | | | | 毛泽东思想和中国特色社会主义理论体系概论及形势政策 | | | | | | | | | | | | | 3 | | | | | | | | 4 | | | | | | | | | 4 | | | | | | | 64 | | | | | | | | | 54 | | | | | | 10 | | | | | 10 | | | | | |  | | | |  | | | | | | |  | | | | | | |  | | | | |  | | | | | | | 2 | | | | | 2 | | | | | | |  | | | | | | |  | | | | |
| 4 | | | | 0005 | | | | 高等数学 | | | | | | | | | | | | | 1 | | | | | | | |  | | | | | | | | | 3 | | | | | | | 60 | | | | | | | | | 54 | | | | | | 6 | | | | | 6 | | | | | |  | | | |  | | | | | | |  | | | | | | | 4 | | | | |  | | | | | | |  | | | | |  | | | | | | |  | | | | | | |  | | | | |
| 5 | | | | 0006 | | | | 大学语文 | | | | | | | | | | | | |  | | | | | | | | 1 | | | | | | | | | 3 | | | | | | | 60 | | | | | | | | | 52 | | | | | | 8 | | | | | 8 | | | | | |  | | | |  | | | | | | |  | | | | | | | 4 | | | | |  | | | | | | |  | | | | |  | | | | | | |  | | | | | | |  | | | | |
| 6 | | | | 0007 | | | | 公共英语 | | | | | | | | | | | | | 1 | | | | | | | |  | | | | | | | | | 3 | | | | | | | 60 | | | | | | | | | 18 | | | | | | 42 | | | | | 42 | | | | | |  | | | |  | | | | | | |  | | | | | | | 4 | | | | |  | | | | | | |  | | | | |  | | | | | | |  | | | | | | |  | | | | |
| 7 | | | | 0008 | | | | 信息技术 | | | | | | | | | | | | |  | | | | | | | | 1 | | | | | | | | | 3 | | | | | | | 60 | | | | | | | | | 30 | | | | | | 30 | | | | | 30 | | | | | |  | | | |  | | | | | | |  | | | | | | | 4 | | | | |  | | | | | | |  | | | | |  | | | | | | |  | | | | | | |  | | | | |
| 8 | | | | 0004 | | | | 中华优秀传统文化 | | | | | | | | | | | | |  | | | | | | | | 1 | | | | | | | | | 2 | | | | | | | 30 | | | | | | | | | 30 | | | | | |  | | | | |  | | | | | |  | | | |  | | | | | | |  | | | | | | | 2 | | | | |  | | | | | | |  | | | | |  | | | | | | |  | | | | | | |  | | | | |
| 9 | | | | 0010 | | | | 大学生职业发展与就业指导 | | | | | | | | | | | | |  | | | | | | | | 2 | | | | | | | | | 2 | | | | | | | 30 | | | | | | | | | 30 | | | | | |  | | | | |  | | | | | |  | | | |  | | | | | | |  | | | | | | |  | | | | | 2 | | | | | | |  | | | | |  | | | | | | |  | | | | | | |  | | | | |
| 10 | | | | 0011 | | | | 民族理论和政策 | | | | | | | | | | | | |  | | | | | | | | 5 | | | | | | | | | 2 | | | | | | | 40 | | | | | | | | | 40 | | | | | |  | | | | |  | | | | | |  | | | |  | | | | | | |  | | | | | | |  | | | | |  | | | | | | |  | | | | |  | | | | | | | 4 | | | | | | |  | | | | |
| 小计学分及学时数 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | **33** | | | | | | | **588** | | | | | | | | | **368** | | | | | | **220** | | | | | **104** | | | | | |  | | | | **116** | | | | | | |  | | | | | | | **22** | | | | | **6** | | | | | | | **4** | | | | | **4** | | | | | | | **4** | | | | | | | **0** | | | | |
| 专业必修课 | 11 | | | |  | | | | 建筑识图与构造 | | | | | | | | | | | | | 1.2 | | | | | | | |  | | | | | | | | | 7 | | | | | | | 116 | | | | | | | | | 60 | | | | | | 56 | | | | | 12 | | | | | | 30 | | | | 10 | | | | | | | 4 | | | | | | | 4 | | | | | 7周×8 | | | | | | |  | | | | |  | | | | | | |  | | | | | | |  | | | | |
| 12 | | | |  | | | | 建筑材料 | | | | | | | | | | | | | 2 | | | | | | | |  | | | | | | | | | 3 | | | | | | | 56 | | | | | | | | | 38 | | | | | | 18 | | | | |  | | | | | | 18 | | | |  | | | | | | |  | | | | | | |  | | | | | 7周×8 | | | | | | |  | | | | |  | | | | | | |  | | | | | | |  | | | | |
| 13 | | | |  | | | | 建筑工程测量 | | | | | | | | | | | | | 2 | | | | | | | |  | | | | | | | | | 5 | | | | | | | 80 | | | | | | | | | 48 | | | | | | 32 | | | | |  | | | | | | 32 | | | |  | | | | | | |  | | | | | | |  | | | | | 8周×10 | | | | | | |  | | | | |  | | | | | | |  | | | | | | |  | | | | |
| 14 | | | |  | | | | 建筑力学 | | | | | | | | | | | | | 3 | | | | | | | | 2 | | | | | | | | | 5 | | | | | | | 86 | | | | | | | | | 64 | | | | | | 22 | | | | | 14 | | | | | | 8 | | | |  | | | | | | |  | | | | | | |  | | | | | 8周×4 | | | | | | | 9周×6 | | | | |  | | | | | | |  | | | | | | |  | | | | |
| 15 | | | |  | | | | 计算机辅助设计 | | | | | | | | | | | | |  | | | | | | | | 3 | | | | | | | | | 2 | | | | | | | 54 | | | | | | | | | 24 | | | | | | 30 | | | | |  | | | | | | 30 | | | |  | | | | | | |  | | | | | | |  | | | | |  | | | | | | | 9周×6 | | | | |  | | | | | | |  | | | | | | |  | | | | |
| 16 | | | |  | | | | 房屋设备 | | | | | | | | | | | | |  | | | | | | | | 3 | | | | | | | | | 4 | | | | | | | 72 | | | | | | | | | 38 | | | | | | 34 | | | | | 10 | | | | | | 24 | | | |  | | | | | | |  | | | | | | |  | | | | |  | | | | | | | 9周×8 | | | | |  | | | | | | |  | | | | | | |  | | | | |
| 17 | | | |  | | | | 地基与基础 | | | | | | | | | | | | |  | | | | | | | | 3 | | | | | | | | | 3 | | | | | | | 48 | | | | | | | | | 26 | | | | | | 22 | | | | |  | | | | | | 22 | | | |  | | | | | | |  | | | | | | |  | | | | |  | | | | | | | 8周×6 | | | | |  | | | | | | |  | | | | | | |  | | | | |
| 18 | | | |  | | | | 建筑结构 | | | | | | | | | | | | | 3 | | | | | | | | 4 | | | | | | | | | 6 | | | | | | | 100 | | | | | | | | | 46 | | | | | | 54 | | | | | 6 | | | | | | 32 | | | | 12 | | | | | | | 4 | | | | | | |  | | | | |  | | | | | | | 8周×8 | | | | | 9周×4 | | | | | | |  | | | | | | |  | | | | |
| 19 | | | |  | | | | 建筑施工技术 | | | | | | | | | | | | | 4 | | | | | | | | 3 | | | | | | | | | 8 | | | | | | | 138 | | | | | | | | | 88 | | | | | | 50 | | | | |  | | | | | | 24 | | | | 22 | | | | | | | 4 | | | | | | |  | | | | |  | | | | | | | 8周×6 | | | | | 9周×10 | | | | | | |  | | | | | | |  | | | | |
| 20 | | | |  | | | | 建筑工程预算 | | | | | | | | | | | | | 4 | | | | | | | |  | | | | | | | | | 7 | | | | | | | 108 | | | | | | | | | 56 | | | | | | 52 | | | | |  | | | | | | 48 | | | |  | | | | | | | 4 | | | | | | |  | | | | |  | | | | | | |  | | | | | 9周×4  6周×12 | | | | | | |  | | | | | | |  | | | | |
| 21 | | | |  | | | | 建筑施工组织 | | | | | | | | | | | | | 4 | | | | | | | |  | | | | | | | | | 5 | | | | | | | 78 | | | | | | | | | 40 | | | | | | 38 | | | | | 6 | | | | | | 28 | | | |  | | | | | | | 4 | | | | | | |  | | | | |  | | | | | | |  | | | | | 9周×2  6周×10 | | | | | | |  | | | | | | |  | | | | |
| 22 | | | |  | | | | 建筑工程资料管理 | | | | | | | | | | | | | 5 | | | | | | | |  | | | | | | | | | 3 | | | | | | | 40 | | | | | | | | | 22 | | | | | | 18 | | | | |  | | | | | | 18 | | | |  | | | | | | |  | | | | | | |  | | | | |  | | | | | | |  | | | | |  | | | | | | | 4 | | | | | | |  | | | | |
| 23 | | | |  | | | | 测量实习 C | | | | | | | | | | | | |  | | | | | | | | 2 | | | | | | | | | 3 | | | | | | | 84 | | | | | | | | |  | | | | | | 84 | | | | |  | | | | | | 84 | | | |  | | | | | | |  | | | | | | |  | | | | |  | | | | | | |  | | | | |  | | | | | | |  | | | | | | |  | | | | |
| 24 | | | |  | | | | 工种实习 G | | | | | | | | | | | | |  | | | | | | | | 4 | | | | | | | | | 3 | | | | | | | 84 | | | | | | | | |  | | | | | | 84 | | | | |  | | | | | | 84 | | | |  | | | | | | |  | | | | | | |  | | | | |  | | | | | | |  | | | | |  | | | | | | |  | | | | | | |  | | | | |
| 25 | | | |  | | | | 综合实训Z | | | | | | | | | | | | |  | | | | | | | | 5 | | | | | | | | | 8 | | | | | | | 224 | | | | | | | | |  | | | | | | 224 | | | | |  | | | | | | 224 | | | |  | | | | | | |  | | | | | | |  | | | | |  | | | | | | |  | | | | |  | | | | | | |  | | | | | | |  | | | | |
| 26 | | | |  | | | | 顶岗实习 D | | | | | | | | | | | | |  | | | | | | | | 6 | | | | | | | | | 18 | | | | | | | 540 | | | | | | | | |  | | | | | | 540 | | | | |  | | | | | | 540 | | | |  | | | | | | |  | | | | | | |  | | | | |  | | | | | | |  | | | | |  | | | | | | |  | | | | | | |  | | | | |
| 小计学分及学时数 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | **90** | | | | | | | **1908** | | | | | | | | | **550** | | | | | | **1358** | | | | | **48** | | | | | | **1246** | | | | **44** | | | | | | | **20** | | | | | | |  | | | | |  | | | | | | |  | | | | |  | | | | | | |  | | | | | | |  | | | | |
| 专业选修课 | 27 | | | |  | | | | 铁道概论 | | | | | | | | | | | | |  | | | | | | | | 1 | | | | | | | | | 2 | | | | | | | 30 | | | | | | | | | 22 | | | | | | 8 | | | | |  | | | | | |  | | | | 8 | | | | | | |  | | | | | | | 2 | | | | |  | | | | | | |  | | | | |  | | | | | | |  | | | | | | |  | | | | |
| 28 | | | |  | | | | 英语强化训练 | | | | | | | | | | | | |  | | | | | | | | 2 | | | | | | | | | 2 | | | | | | | 30 | | | | | | | | | 14 | | | | | | 16 | | | | |  | | | | | |  | | | | 16 | | | | | | |  | | | | | | |  | | | | | 2 | | | | | | |  | | | | |  | | | | | | |  | | | | | | |  | | | | |
| 29 | | | |  | | | | 工程应用文写作 | | | | | | | | | | | | |  | | | | | | | | 2 | | | | | | | | | 2 | | | | | | | 30 | | | | | | | | | 14 | | | | | | 16 | | | | |  | | | | | |  | | | | 16 | | | | | | |  | | | | | | |  | | | | | 2 | | | | | | |  | | | | |  | | | | | | |  | | | | | | |  | | | | |
| 30 | | | |  | | | | 建筑法规 | | | | | | | | | | | | |  | | | | | | | | 2 | | | | | | | | | 2 | | | | | | | 30 | | | | | | | | | 30 | | | | | |  | | | | |  | | | | | |  | | | |  | | | | | | |  | | | | | | |  | | | | | 2 | | | | | | |  | | | | |  | | | | | | |  | | | | | | |  | | | | |
| 31 | | | |  | | | | 铁道建筑 | | | | | | | | | | | | |  | | | | | | | | 3 | | | | | | | | | 2 | | | | | | | 34 | | | | | | | | | 24 | | | | | | 10 | | | | |  | | | | | |  | | | | 10 | | | | | | |  | | | | | | |  | | | | |  | | | | | | | 2 | | | | |  | | | | | | |  | | | | | | |  | | | | |
| 32 | | | |  | | | | 测绘新技术应用 | | | | | | | | | | | | |  | | | | | | | | 3 | | | | | | | | | 2 | | | | | | | 34 | | | | | | | | | 12 | | | | | | 22 | | | | |  | | | | | | 22 | | | |  | | | | | | |  | | | | | | |  | | | | |  | | | | | | | 2 | | | | |  | | | | | | |  | | | | | | |  | | | | |
| 33 | | | |  | | | | 绿色生态建筑 | | | | | | | | | | | | |  | | | | | | | | 3 | | | | | | | | | 2 | | | | | | | 34 | | | | | | | | | 26 | | | | | | 8 | | | | |  | | | | | |  | | | | 8 | | | | | | |  | | | | | | |  | | | | |  | | | | | | | 2 | | | | |  | | | | | | |  | | | | | | |  | | | | |
| 34 | | | |  | | | | 建筑CAD应用技巧 | | | | | | | | | | | | |  | | | | | | | | 3 | | | | | | | | | 2 | | | | | | | 34 | | | | | | | | | 12 | | | | | | 22 | | | | |  | | | | | | 22 | | | |  | | | | | | |  | | | | | | |  | | | | |  | | | | | | | 2 | | | | |  | | | | | | |  | | | | | | |  | | | | |
| 35 | | | |  | | | | 建筑节能技术 | | | | | | | | | | | | |  | | | | | | | | 4 | | | | | | | | | 2 | | | | | | | 30 | | | | | | | | | 22 | | | | | | 8 | | | | |  | | | | | |  | | | | 8 | | | | | | |  | | | | | | |  | | | | |  | | | | | | |  | | | | | 2 | | | | | | |  | | | | | | |  | | | | |
| 36 | | | |  | | | | 铁路运输房建设备大修维修规则（2013版） | | | | | | | | | | | | |  | | | | | | | | 4 | | | | | | | | | 2 | | | | | | | 30 | | | | | | | | | 30 | | | | | |  | | | | |  | | | | | |  | | | |  | | | | | | |  | | | | | | |  | | | | |  | | | | | | |  | | | | | 2 | | | | | | |  | | | | | | |  | | | | |
| 37 | | | |  | | | | 建设行业施工现场专业人员职业资格培训（通用知识） | | | | | | | | | | | | |  | | | | | | | | 5 | | | | | | | | | 2 | | | | | | | 40 | | | | | | | | | 40 | | | | | |  | | | | |  | | | | | |  | | | |  | | | | | | |  | | | | | | |  | | | | |  | | | | | | |  | | | | |  | | | | | | | 4 | | | | | | |  | | | | |
| 38 | | | |  | | | | 建设行业施工现场专业人员职业资格培训（专业技能） | | | | | | | | | | | | |  | | | | | | | | 5 | | | | | | | | | 2 | | | | | | | 40 | | | | | | | | | 40 | | | | | |  | | | | |  | | | | | |  | | | |  | | | | | | |  | | | | | | |  | | | | |  | | | | | | |  | | | | |  | | | | | | | 4 | | | | | | |  | | | | |
| 39 | | | |  | | | | 钢结构构造与识图 | | | | | | | | | | | | | 5 | | | | | | | |  | | | | | | | | | 2 | | | | | | | 40 | | | | | | | | | 26 | | | | | | 14 | | | | |  | | | | | | 10 | | | | 4 | | | | | | |  | | | | | | |  | | | | |  | | | | | | |  | | | | |  | | | | | | | 4 | | | | | | |  | | | | |
| 40 | | | |  | | | | BIM技术 | | | | | | | | | | | | |  | | | | | | | | 5 | | | | | | | | | 3 | | | | | | | 50 | | | | | | | | | 30 | | | | | | 20 | | | | |  | | | | | | 20 | | | |  | | | | | | |  | | | | | | |  | | | | |  | | | | | | |  | | | | |  | | | | | | | 5 | | | | | | |  | | | | |
| 41 | | | |  | | | | 钢结构设计 | | | | | | | | | | | | |  | | | | | | | | 5 | | | | | | | | | 2 | | | | | | | 40 | | | | | | | | | 30 | | | | | | 10 | | | | |  | | | | | | 10 | | | |  | | | | | | |  | | | | | | |  | | | | |  | | | | | | |  | | | | |  | | | | | | | 4 | | | | | | |  | | | | |
| 42 | | | |  | | | | 装配式混凝土工程技术 | | | | | | | | | | | | |  | | | | | | | | 5 | | | | | | | | | 2 | | | | | | | 40 | | | | | | | | | 28 | | | | | | 12 | | | | |  | | | | | |  | | | | 12 | | | | | | |  | | | | | | |  | | | | |  | | | | | | |  | | | | |  | | | | | | | 4 | | | | | | |  | | | | |
| 43 | | | |  | | | | 铁路房屋修缮 | | | | | | | | | | | | |  | | | | | | | | 5 | | | | | | | | | 2 | | | | | | | 20 | | | | | | | | | 12 | | | | | | 8 | | | | |  | | | | | |  | | | | 8 | | | | | | |  | | | | | | |  | | | | |  | | | | | | |  | | | | |  | | | | | | | 2 | | | | | | |  | | | | |
| 44 | | | |  | | | | 专业软件的应用 | | | | | | | | | | | | |  | | | | | | | | 5 | | | | | | | | | 1 | | | | | | | 20 | | | | | | | | | 8 | | | | | | 12 | | | | |  | | | | | | 12 | | | |  | | | | | | |  | | | | | | |  | | | | |  | | | | | | |  | | | | |  | | | | | | | 2 | | | | | | |  | | | | |
| 45 | | | |  | | | | 工程招投标与合同管理 | | | | | | | | | | | | |  | | | | | | | | 5 | | | | | | | | | 1 | | | | | | | 20 | | | | | | | | | 20 | | | | | |  | | | | |  | | | | | |  | | | |  | | | | | | |  | | | | | | |  | | | | |  | | | | | | |  | | | | |  | | | | | | | 2 | | | | | | |  | | | | |
| 46 | | | |  | | | | 工程监理概论 | | | | | | | | | | | | |  | | | | | | | | 5 | | | | | | | | | 1 | | | | | | | 20 | | | | | | | | | 20 | | | | | |  | | | | |  | | | | | |  | | | |  | | | | | | |  | | | | | | |  | | | | |  | | | | | | |  | | | | |  | | | | | | | 2 | | | | | | |  | | | | |
| 小计学分及学时数 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | **38** | | | | | | | **646** | | | | | | | | | **460** | | | | | | **186** | | | | |  | | | | | | **96** | | | | **90** | | | | | | |  | | | | | | |  | | | | |  | | | | | | |  | | | | |  | | | | | | |  | | | | | | |  | | | | |
| **四、素质拓展课** | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 课程类型 | 序  号 | | | | | 课程代码 | | | 课 程 名 称 | | | | | | | | | | | | | 考核学期序 | | | | | | | | | | | | | | | | | 学 分 | | | | | 课  时 | | | | | | 说 明 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 考 试 | | | | | 考 查 | | | | | | | | | | | |
| 必修  课 | 1 | | | | | 01 | | | 军训及军事理论教育 | | | | | | | | | | | | |  | | | | | 1 | | | | | | | | | | | | 4 | | | | | 60 | | | | | | 第1学期开设，含入学教育。 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 2 | | | | | 02 | | | 心理健康教育 | | | | | | | | | | | | |  | | | | | 2.3.4.5 | | | | | | | | | | | | 2 | | | | | 32 | | | | | | 分专业在第2～5学期之一开设。 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 3 | | | | | 03 | | | 大学生安全及健康教育 | | | | | | | | | | | | |  | | | | | 1.2.3.4 | | | | | | | | | | | | 2 | | | | | 32 | | | | | | 在1～4学期实施，以专题讲座的形式和每学期大学生第二课堂教育活动中开设。 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 4 | | | | | 04 | | | 大学生暑期社会实践 | | | | | | | | | | | | |  | | | | | 2.4 | | | | | | | | | | | | 2 | | | | |  | | | | | | 利用暑期，进行社会实践，提交报告。 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 小计学分及学时数 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | **10** | | | | | **124** | | | | | |  | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 选  修  课 | 1 | | | | | 001 | | | 演讲与口才 | | | | | | | | | | | | |  | | | | | 2～5 | | | | | | | | | | | | 2 | | | | | 32 | | | | | |  | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 2 | | | | | 002 | | | 中国小说阅读与鉴赏 | | | | | | | | | | | | |  | | | | | 2～5 | | | | | | | | | | | | 2 | | | | | 32 | | | | | |  | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 3 | | | | | 003 | | | 音乐欣赏 | | | | | | | | | | | | |  | | | | | 2～5 | | | | | | | | | | | | 2 | | | | | 32 | | | | | |  | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 4 | | | | | 004 | | | 影视文学欣赏 | | | | | | | | | | | | |  | | | | | 2～5 | | | | | | | | | | | | 2 | | | | | 32 | | | | | |  | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 5 | | | | | 005 | | | 应用写作 | | | | | | | | | | | | |  | | | | | 2～5 | | | | | | | | | | | | 2 | | | | | 32 | | | | | |  | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 6 | | | | | 006 | | | 现代礼仪 | | | | | | | | | | | | |  | | | | | 2～5 | | | | | | | | | | | | 2 | | | | | 32 | | | | | |  | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 7 | | | | | 007 | | | 中国古典诗词欣赏 | | | | | | | | | | | | |  | | | | | 2～5 | | | | | | | | | | | | 2 | | | | | 32 | | | | | |  | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 8 | | | | | 008 | | | 中国近现代史纲要 | | | | | | | | | | | | |  | | | | | 2～5 | | | | | | | | | | | | 2 | | | | | 32 | | | | | |  | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 9 | | | | | 009 | | | 中国传统文化 | | | | | | | | | | | | |  | | | | | 2～5 | | | | | | | | | | | | 2 | | | | | 32 | | | | | |  | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 10 | | | | | 010 | | | 中国旅游资源概况 | | | | | | | | | | | | |  | | | | | 2～5 | | | | | | | | | | | | 2 | | | | | 32 | | | | | |  | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 11 | | | | | 011 | | | ISO9000质量管理体系 | | | | | | | | | | | | |  | | | | | 2～5 | | | | | | | | | | | | 2 | | | | | 32 | | | | | |  | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 12 | | | | | 012 | | | 高级文字排版 | | | | | | | | | | | | |  | | | | | 2～5 | | | | | | | | | | | | 2 | | | | | 32 | | | | | |  | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 13 | | | | | 013 | | | 电子表格处理 | | | | | | | | | | | | |  | | | | | 2～5 | | | | | | | | | | | | 2 | | | | | 32 | | | | | |  | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 14 | | | | | 014 | | | PS图像处理 | | | | | | | | | | | | |  | | | | | 2～5 | | | | | | | | | | | | 2 | | | | | 32 | | | | | |  | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 15 | | | | | 015 | | | 高级PPT制作 | | | | | | | | | | | | |  | | | | | 2～5 | | | | | | | | | | | | 2 | | | | | 32 | | | | | |  | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 16 | | | | | 016 | | | 计算机组装维修及网络操作 | | | | | | | | | | | | |  | | | | | 2～5 | | | | | | | | | | | | 2 | | | | | 32 | | | | | |  | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 17 | | | | | 017 | | | 生活中的经济学 | | | | | | | | | | | | |  | | | | | 2～5 | | | | | | | | | | | | 2 | | | | | 32 | | | | | |  | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 18 | | | | | 018 | | | 技术史漫谈 | | | | | | | | | | | | |  | | | | | 2～5 | | | | | | | | | | | | 2 | | | | | 32 | | | | | |  | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 19 | | | | | 019 | | | 电影赏析 | | | | | | | | | | | | |  | | | | | 2～5 | | | | | | | | | | | | 2 | | | | | 32 | | | | | |  | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 20 | | | | | 020 | | | 职业素质 | | | | | | | | | | | | |  | | | | | 2～5 | | | | | | | | | | | | 2 | | | | | 32 | | | | | |  | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 21 | | | | | 021 | | | 创造性思维与创新方法 | | | | | | | | | | | | |  | | | | | 2～5 | | | | | | | | | | | | 2 | | | | | 32 | | | | | |  | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 22 | | | | | 022 | | | 大学生创业基础 | | | | | | | | | | | | |  | | | | | 2～5 | | | | | | | | | | | | 2 | | | | | 32 | | | | | |  | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 23 | | | | | 023 | | | 创新创业实践 | | | | | | | | | | | | |  | | | | | 1～6 | | | | | | | | | | | | 10 | | | | |  | | | | | | 用于学生参加课题研究、项目实验、技能竞赛、职业资格证书获取等创新创业成果的学分折算 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 小计学分及学时数 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | **44** | | | | | **704** | | | | | |  | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 合计学分及学时数 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 总学分152,必修课学分133,选修课学分19，其中专业选修课学分17，素质选修课学分2；总学时2804，理论学时1076，实践学时1728 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

**建筑装饰工程技术专业**

**教学标准**

**专业名称** 建筑装饰工程技术专业

**专业代码** 540102

**入学要求** 高中阶段教育毕业生或具有同等学力者

**修业年限** 三年

**职业面向**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| 所属专业大类（代码） | 所属专业类（代码） | 对应行业（代码） | 主要职业类别（代码） | 主要岗位类别（或技术领域） | 职业资格证书或技能等级证书举例 |
| 土木建筑（54） | 建筑设计（5401） | 建筑装饰和装修业 | 室内设计师（4-08-08-07)  建筑装饰人员  (6-29-04) | 建筑装饰工程项目管理  建筑装饰设计 | 施工员证书、资料员证书、  质量员证书、预算员证书、 |

**培养目标与培养规格**

一、培养目标

本专业培养理想信念坚定，德、智、体、美、劳全面发展，具有一定的科学文化水平，良好的人文素养、职业道德和创新意识，精益求精的工匠精神，较强的就业能力和可持续发展的能力；掌握建筑装饰工程技术专业的基本知识和专业技能，面向建筑装饰和装修业的室内装饰设计师、建筑装饰人员等职业群，能够从事建筑装饰工程施工组织与管理、建筑装饰施工图绘制、建筑装饰设计、建筑装饰工程造价、建筑装饰工程信息管理等工作的高素质技术技能人才。

二、培养规格

本专业毕业生应在素质、知识和能力等方面达到以下要求。

（一）素质

1.坚定拥护中国共产党领导和我国社会主义制度，在习近平新时代中国特色社会主义思想指引下，践行社会主义核心价值观，具有深厚的爱国情感和中华民族自豪感；

2.崇尚宪法、遵法守纪、崇德向善、诚实守信、尊重生命、热爱劳动，履行道德准则和行为规范，具有社会责任感和社会参与意识；

3.具有质量意识、环保意识、安全意识、信息素养、工匠精神和创新思维；

4.勇于奋斗、乐观向上，具有自我管理能力、职业生涯规划的意识，有较强的集体意识和团队合作精神；

5.具有健康的体魄、心理和健全的人格，掌握基本运动知识和一两项运动技能，养成良好的健身与卫生习惯，良好的行为习惯；

6.具有一定的审美和人文素养，能够形成一两项艺术特长或爱好。

（二）知识

1.掌握必备的思想政治理论、科学文化基础知识和中华优秀传统文化知识；

2.熟悉与本专业相关的法律法规以及环境保护、安全消防等相关知识；

3.了解英语（外语）和信息技术基础知识；

4.熟悉本专业所需的艺术造型、房屋建筑构造等知识和方法；

5.掌握建筑装饰设计基本理论和建筑装饰工程制图识图、方案设计与方案表现等知识和方法；

6.熟悉建筑装饰材料选择、管理与运用的知识和方法；

7.熟悉水电暖设备知识和安装方法；

8.掌握建筑装饰工程计量与计价的知识和方法；

9.掌握建筑装饰构造与工程施工技术的知识和方法；

（三）能力

1.具有探究学习、终身学习、分析问题和解决问题的能力；

2.具有良好的语言、文字表达能力和沟通能力，能够进行口语和书面的表达与交流；具有一定的审美和艺术造型能力；

3.能够进行建筑装饰方案设计；

4.能够用计算机绘制施工图；

5.能够较好地选择、管理和应用建筑装饰材料；

6.能够人工和用造价软件编制建筑装饰工程造价；

7.具有一定的建筑装饰工程施工技术动手操作能力，能够对常见的施工工艺进行一般性指导；

8.能够编制建筑装饰施工组织方案；

9.能够较好地收集、整理和应用工程技术资料；

10.具个人职业生涯规划能力和自我管理能力；

11.具有与团队合作的能力。

**课程设置**

一、必修课程

1.公共必修课程

|  |  |  |
| --- | --- | --- |
| 序号 | 课程名称 | 课时数 |
|  | 思想道德修养与法律基础及形势政策 | 62 |
|  | 毛泽东思想和中国特色社会主义理论体系概论及形势政策 | 64 |
|  | 高等数学 | 60 |
|  | 大学语文 | 60 |
|  | 公共英语 | 60 |
|  | 信息技术 | 60 |
|  | 体育 | 126 |
|  | 中华优秀传统文化 | 30 |
|  | 民族理论和政策 | 34 |
|  | 大学生职业发展与就业指导 | 32 |

2.专业必修课程

|  |  |  |
| --- | --- | --- |
| 序号 | 课程名称 | 课时数 |
|  | 艺术造型训练 | 92 |
|  | 构成 | 96 |
|  | 建筑装饰识图与构造 | 96 |
|  | 建筑装饰材料的识别与选购 | 68 |
|  | 建筑装饰施工图绘制 | 68 |
|  | 居住空间设计 | 68 |
|  | 办公空间设计 | 60 |
|  | 建筑装饰工程施工技术 | 90 |
|  | 建筑装饰效果图绘制 | 60 |
|  | Photoshop与版面设计 | 68 |
|  | 建筑装饰工程预算 | 68 |
|  | 建筑环境与设备 | 68 |
|  | 建筑装饰工程施工组织 | 68 |
|  | 写生实习XS | 60 |
|  | 材料认知实习C | 30 |
|  | 工种实习G | 84 |
|  | 顶岗实习D | 540 |

3.素质拓展必修课程

|  |  |  |
| --- | --- | --- |
| 序号 | 课程名称 | 课时数 |
|  | 军训及军事理论教育 | 60 |
|  | 心理健康教育 | 32 |
|  | 大学生安全及健康教育 | 32 |
|  | 大学生暑期社会实践 |  |

二、选修课程

1. 专业选修课程

|  |  |  |
| --- | --- | --- |
| 序号 | 课程名称 | 课时数 |
|  | 建筑装饰表现技法 | 64 |
|  | 中国建筑史 | 68 |
|  | 家具设计与制作 | 68 |
|  | 外国建筑史 | 30 |
|  | 中外美术鉴赏 | 30 |
|  | 环境艺术设计 | 34 |
|  | VR技术应用 | 68 |
|  | 铁道概论 | 30 |
|  | 建筑装饰工程测量 | 30 |
|  | 建筑工程法规 | 32 |
|  | 工程监理概论 | 34 |
|  | 内业综合技术 | 34 |
|  | 装饰施工与设计配合 | 30 |
|  | 室内空气质量检测与治理 | 34 |

2. 素质拓展选修课程

|  |  |  |
| --- | --- | --- |
| 序号 | 课程名称 | 课时数 |
| 1 | 演讲与口才 | 32 |
| 2 | 中国小说阅读与鉴赏 | 32 |
| 3 | 音乐欣赏 | 32 |
| 4 | 影视文学欣赏 | 32 |
| 5 | 应用写作 | 32 |
| 6 | 现代礼仪 | 32 |
| 7 | 中国古典诗词欣赏 | 32 |
| 8 | 中国近现代史纲要 | 32 |
| 9 | 中国传统文化 | 32 |
| 10 | 中国旅游资源概况 | 32 |
| 11 | ISO9000质量管理体系 | 32 |
| 12 | 高级文字排版 | 32 |
| 13 | 电子表格处理 | 32 |
| 14 | PS图像处理 | 32 |
| 15 | 高级PPT制作 | 32 |
| 16 | 计算机组装维修及网络操作 | 32 |
| 17 | 生活中的经济学 | 32 |
| 18 | 技术史漫谈 | 32 |
| 19 | 电影赏析 | 32 |
| 20 | 职业素质 | 32 |
| 21 | 创造性思维与创新方法 | 32 |
| 22 | 大学生创业基础 | 32 |
| 23 | 创新创业实践 |  |

三、专业核心课程主要教学内容与要求

|  |  |  |
| --- | --- | --- |
| 序号 | 专业核心课程 | 主要教学内容与要求 |
| 1 | 建筑装饰识图与构造 | 1.建筑装饰构造设计原则；  2.建筑装饰防火设计技术规范，建筑装饰施工特点与技术发展；  3.常用施工机具，常见装饰界面（楼地面、墙柱面、天棚、幕墙和采光顶、隔墙和隔断门窗等）和构件的材料与构造；  4.构件图纸的识读与设计实训 |
| 2 | 建筑装饰材料的识别与选购 | 1.常用、绿色建筑装饰材料特性及适用范围；  2.建筑装饰防火设计技术规范，新材料、新构造  3.材料认知与识别实训，常见装饰界面 |
| 3 | 建筑装饰施工图绘制 | 1.建筑装饰施工图绘制规范；  2.成套建筑装饰施工图的识读与解读，成套施工图绘制要求；  3.施工图的计算机绘图实训（含楼地面、天棚、墙柱面、轻质隔墙、门窗、固定家具建筑设备等，施工图设计说明等）；  4.设计方案的成套施工图绘制与输出实训 |
| 4 | 居住空间设计 | 1.居住空间设计的概念、目的和任务，设计原则和设计要素；  2.节能绿色设计、智能家居、全装修设计趋势；  3.人体工程学和环境心理学基础知识，设计思维与设计方法；  4.室内空间设计、界面设计原理与应用， 色彩、照明、家具和陈设等设计原理与应用；  5.中小型室内装饰空间建筑装饰设计实训 |
| 5 | 办公空间设计 | 1.办公空间设计的概念、目的和任务，设计原则和设计要素；  2.节能绿色设计、全装修设计趋势；  3.人体工程学和环境心理学基础知识，设计思维与设计方法；  4.办公空间设计、界面设计原理与应用， 色彩、照明、家具和陈设等设计原理与应用；  5.中小型办公空间建筑装饰设计实训 |
| 6 | 建筑装饰工程施工技术 | 1.常见的分部分项工程的施工方案设计、节能绿色施工技术、质量检查与验收、施工缺陷识别与防治、成品保护、施工机械和机具的选择与使用、一体化装修施工基础；  2.常见的水电暖成品安装、吊顶装饰施工楼地面装饰施工、隔墙隔断与门窗套制作及门窗安装施工、楼梯及扶栏装饰施工、室内陈设制作与安装等实训 |
| 7 | 建筑装饰工程预算 | 1.建筑装饰工程计量与计价的理论知识；  2.本地建筑装饰工程计价定额与应用；  3.建筑装饰工程清单与组价的编制实训， 造价软件应用实训 |
| 8 | 建筑装饰工程施工组织 | 1.施工组织设计的内容，项目的进度控制  2.质量管理、成本管理、安全与环境管理等后期管理的内容和方法，项目技术档案管理的内容和方法；  3.施工组织设计实训 |

**学时安排**

每学年教学时间为40周，总学时数为2758，实习校外按每周30学时计算，校内按每周28学时计算。每学时为45分钟。18学时计为1个学分，总学分为144学分。军训、入学教育、社会实践、毕业设计（或毕业论文、毕业教育）等，以1周为1学分。公共基础课程学时占总学时的21.3%。选修课教学时数占总学时的比例均为20%。学生顶岗实习为6个月，可根据实际情况，采取工学交替、多学期、分段式等多种形式组织实施。

**教学进程总体安排**

见附件（教学进程表）

**实施保障**

一、师资队伍

1.专业带头人

专业带头人1～2名，应具有中级职称，并具备较高的教学水平和实践能力，具有行业企业技术服务或技术研发经历，在本行业及专业领域具有较大的影响力。能够主持专业建设规划、教学方案设计、专业建设工作，能够为企业提供技术服务，主持市地级及以上教学或应用技术科研项目或担任院级及以上精品课程负责人。专业带头人必须是“双师型”教师。

2.师资数量

专业生师比不大于18:1，主要专任专业教师不少于5人。

3.师资水平及结构

基础课专任教师任职应具有硕士及以上学位，专业课专任教师应具有本专业本科以上学历，且具有两年以上企业工作经历。兼职教师应是来自行业企业一线的高水平专业技术人员或能工巧匠，具有高级职称。

专任教师团队中具有硕士学位的教师占专任教师的比例应达到35%及以上，高级职称不少于30%，专任教师中具备“双师”素质不低于60%，每学期企业兼职教师任课比例不少于35%

二、教学设施

1.校内基础课教学实验室和教学设备的基本要求

功能：适用于建筑装饰专业的装饰基础课程的教学。

说明：按全班40人配备计算，安排40个工位/课桌。

基本设施:

（1）照明：宜北向采光，或设屋顶天光（非直射光）采光。每位学生的书写照度不低于200lx，演示台面及书写板上方设置局部照明，其垂直照度不低于200lx。

（2） 遮光：安装遮光窗帘。

（3） 通风：通风良好，干燥清洁，安装排风设备。

（4） 温度：宜安装空调。

（5） 电源：配置220V电源，接地可靠，有控制基础实训室的总开关、漏电保护器等。

（6） 网络通讯：设闭路电视接口和网络接口。

（7）墙面：四周贴瓷砖或用油漆漆墙面至1.2m高处。上部宜安装软木板，整体墙面以及橱柜用具的颜色宜用浅灰色。

2.校内专业实训基地的基本要求

设备基本要求如下。

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| 序号 | 实训室名称 | 设备名称 | 基本配置数量 | 实训项目 |
| 1 | 美术实训室 | 投影屏幕 | 1幅 | 1. 素描   （静物素描，石膏人物五官头像写生，素描风景写生）   1. 色彩   (水粉静物写生，水粉风景写生，建筑室内局部写生) |
| 投影机 | 1台 |
| 计算机 | 1台 |
| 石膏几何形体 | 适量 |
| 石膏头像与几何面 | 适量 |
| 写生静物 | 适量 |
| 打印机 | 1台 |
| 升降式静物台 | 4台 |
| 写生灯 | 4盏 |
| 画架画板 | 40套 |
| 2 | 设计实训室  X2 | 投影屏幕 | 1幅 | CAD、3DMax、Photoshop、Lightscape等软件 |
| 投影机 | 1台 |
| 学生计算机 | 40台 |
| 学生桌、椅 | 40套 |
| 教师椅 | 1把 |
| 音像资料橱 | 4组 |
| 组合音响 | 1套 |
| 3 | 装饰工艺展示实训室 | 激光教鞭笔 | 1套 | 建筑装饰构造、建筑装饰材料、建筑装饰识图、建筑装饰施工工艺、建筑装饰施工 |
| 教师主控桌 | 1张 |
| 计算机 | 1台 |
| 顶棚（分直接式、悬吊式） | 适量 |
| 墙面构造 | 适量 |
| 隔断构造 | 适量 |
| 地面构造 | 适量 |
| 卫生设备 | 适量 |
| 厨房设备 | 1套 |
| 五金配件 | 1组 |
| 操作台 | 适量 |
| 展示柜 | 适量 |
| 4 | 装饰材料展示及检测实训室 | 无线话筒 | 适量 | 学生认识各种装饰材料，了解材料性能 |
| 计算机 | 1台 |
| 书写白板 | 1块 |
| 激光教鞭笔 | 1套 |
| 教师主控桌 | 1张 |
| 计算机辅助教学软件 | 适量 |
| 木材 | 适量 |
| 饰面石材 | 适量 |
| 建筑陶瓷 | 适量 |
| 建筑玻璃 | 适量 |
| 建筑工程塑料 | 适量 |
| 金属门窗 | 适量 |
| 建筑涂料 | 适量 |
| 电线 | 适量 |
| 装饰五金件 | 适量 |
| 复合材料 | 适量 |
| 环保节能材料 | 适量 |
| 5 | 装饰施工质量检测实训室 | 靠尺、卡尺等 | 5套 | 室内装饰基础知识；室内装饰材料；工程设备；质量验收；施工现场的质量检测；施工技术规程；水、电、暖、通等基本知识 |
| 激光测距仪 | 5台 |
| 全站仪 | 1+（4）套 |
| 激光水平仪 | 5套 |
| 数显水平仪 | 5套 |
| 电子水平尺 | 5套 |
| 楼板测厚仪 | 1套 |
| 建筑渗漏/湿度检测仪 | 1套 |
| 涂镀层测厚仪 | 1套 |
| 钢筋位置测定仪 | 1套 |
| 墻体探测仪 | 1套 |

三、教学资源

学院建有内蒙古诚达建筑装饰工程有限公司实训基地，包头海天装饰工程有限公司实习基地，包头九创装饰工程有限公司实习基地,北京居泰隆装饰工程有限公司包头分公司实习基地，山西碛口古镇写生基地。

校外实训基地的基本要求

校外实习、实训教学基地必须具备的条件:

（1）是正式的法人单位或职能齐全的二级单位；

（2）组织机构健全，领导和工作人员素质高，管理规范，发展前景好；

（3）所经营的业务和承担的职能与相应专业对口；

（4）在本地区的本行业有一定知名度，社会形象较好；

（5）能够为学生提供实习、实训条件和相应的业务指导。

四、教学方法

1.体现能力本位的职业教育理念，应立足于加强学生实际管理能力的培养，采用项目教学，由教师设计项目，让学生主动寻找问题并寻求解决问题的方法和措施，从而诱发学生的学习兴趣，通过不断的实践让学生具备本课程相关业务的基本职业能力。

2.应以学生为本，注重 “教”与“学”的互动。通过选用具体活动项目，由教师提出要求或示范，组织学生进行活动，让学生在不断的自主练习中逐步达到目标，在活动中树立好问、求真、创新的意识，掌握本课程的职业能力。

3.应注重职业情景的创设，以个体练习、小组对抗练习、游戏练习等不同形式，让学生在愉快学习中提高本课程的职业能力。

4.教师必须重视实践，更新观念，走产学研相结合的道路，探索中国特色职业教育的新模式，为学生提供自主发展的时间和空间，积极引导学生提升职业素养，努力提高学生的创新能力。

五、教学评价

1.突出过程与阶段评价，结合课堂训练、技能竞赛、实训成果评比、阶段测试等手段，加强实践性教学环节的考核。

2.采用过程评价和目标评价相结合的综合评价方式，充分发挥学生的主动性和创造力。

3.注重理论与实践一体化评价，引导学生改变学习方式，提高学生的职业素质与职业能力。

六、质量管理

1.注重开发的多媒体课件，创设生动形象的职业情景，激发学生学习兴趣。

2.注重仿真案例教学资源收集与开发利用，让学生分角色置身于实际工程案例中，积极自主地完成该课程的学习，为学生提高掌握法律规范提供有效途径。

3.搭建产学合作平台，充分利用本行业的企业资源，满足学生参观、实习的需要，并在合作中关注学生职业能力的发展和教学内容的调整。

**毕业要求**

学生德、智、体、美、劳合格，在允许的修业年限内学完培养计划规定的全部课程，通过顶岗实践或毕业论文答辩，取得相应的职业资格证书，达到毕业最低学分（144分）要求，即获得毕业资格，准予毕业并颁发毕业证书。

**教 学 进 程 表**

**2018 级 建筑装饰工程技术 专 业**

毕业最低学分：144分

专业代码： 560102

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **一、教学进程表** | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | **二、周数分配表** | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 学  年 | 教 学 周 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 理论  及  分散  实践 | | | 集  中  实  践 | | | | 考  试 | | | | 劳  动 | | | | 军  训 | | | 机  动 | | | | 毕  业  教  育 | | 假  期 | | | 合  计 | | |
| 九月 | | | | | | | | 十月 | | | | | | | 十一月 | | | | | | | 十二月 | | | | | | | 一月 | | | | | | | | | 二月 | | | | | | | | | 三月 | | | | | | | | 四月 | | | | | | 五月 | | | | | | | | 六月 | | | | | | | | | 七月 | | | | | | | | | | 八月 | | | | | | |
|  | | | 1 | 2 | | | 3 | 4 | | | 5 | 6 | 7 | 8 | 9 | | 10 | 11 | 12 | 13 | | 14 | | 15 | 16 | | 17 | | 18 | | | 19 | | 20 | | 21 | 22 | | | 23 | 24 | | 25 | | 26 | | 27 | | | | 28 | 29 | 30 | | 31 | | 32 | 33 | 34 | | 35 | | 36 | 37 | | 38 | 39 | | 40 | | 41 | 42 | | | 43 | | | 44 | | | | 45 | | | 46 | | 47 | 48 | | | 49 | 50 | 51 | 52 | | | | K | | | S | | | ∷ | | | | × | | | | ★ | | J | | | T | | | | = | | |  | |
| 一 | | | ★2 | | | | K15 | | | | | | | | | | | | | | | | | | | | | | J2 | | | | | ∷ | | ==== 6 | | | | | | | | | | | K16 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | XS2 | | | | J | | | | | ∷ | | ==== 6 | | | | | | | | | | | 33 | | | 2 | | | 2 | | | |  | | | | 2 | | 3 | | | 0 | | | | 12 | | | 54 | |
| 二 | | K17 | | | | | | | | | | | | | | | | | | | | | | | | | | C | | | J | | ∷ | | ==== 6 | | | | | | | | | | | K15 | | | | | | | | | | | | | | | | | | | | | | | | | | | G 3 | | | | | | | | J | | | ∷ | | ====6 | | | | | | | | | | | 30 | | | 4 | | | 2 | | |  | | | | 0 | | | 2 | | | 0 | | | 12 | | | 50 | | | |
| 三 | | K17 | | | | | | | | | | | | | | | | | | | | | | | | | | X | | | J | | ∷ | | ==== 6 | | | | | | | | | | | D18 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | J | | | T | |  | | | | | | | | | | | 17 | | | 18 | | | 1 | | | 1 | | | | 0 | | | 2 | | | 1 | | | 6 | | | 46 | | | |
| **三、教学进度表** | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 合计 | | | | | | | | | | | | | | | | | | | | 80 | | | 24 | | | 5 | | | 1 | | | | 2 | | | 7 | | | 1 | | | 30 | | | 150 | | | |
| 课程类型 | | 序  号 | | | 课程  代码 | | | | | 课 程 名 称 | | | | | | | | | | | 考核学期序 | | | | | | | | | | | | | | | | | 学 分 | | | | | | 学 时 数 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 理论教学（含分散性实践教学）周学时 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 考 试 | | | | | | | 考 查 | | | | | | | | | | 总 计 | | | | | | | | | | 理 论 | | | | | | 实 践 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 一 年 级 | | | | | | | | | | | | 二 年 级 | | | | | | | | | | | | | 三 年 级 | | | | | | | | | | |
| 合 计 | | | | | 习 题 课 | | | 实 训 | | | | | | 现场教学 | | | | | | | | | 创新创业训练 | | | | | | | 1学期  15周 | | | | | 2学期  18周 | | | | | | | 3学期  周 | | | | | | | 4学期  周 | | | | | | 5学期  周 | | | | 6学期  18周 | | | | | | |
| 公共必修课 | | 1 | | | 0001 | | | | | 思想道德修养与法律基础及形势政策 | | | | | | | | | | | 1 | | | | | | | 2 | | | | | | | | | | 3 | | | | | | 62 | | | | | | | | | | 50 | | | | | | 12 | | | | | 12 | | |  | | | | | |  | | | | | | | | |  | | | | | | | 2 | | | | | 2 | | | | | | |  | | | | | | |  | | | | | |  | | | |  | | | | | | |
| 2 | | | 0002 | | | | | 毛泽东思想和中国特色社会主义理论体系概论及形势政策 | | | | | | | | | | | 3 | | | | | | | 4 | | | | | | | | | | 4 | | | | | | 64 | | | | | | | | | | 52 | | | | | | 12 | | | | | 12 | | |  | | | | | |  | | | | | | | | |  | | | | | | |  | | | | |  | | | | | | | 2 | | | | | | | 2 | | | | | |  | | | |  | | | | | | |
| 3 | | | 0005 | | | | | 高等数学 | | | | | | | | | | | 1 | | | | | | |  | | | | | | | | | | 3 | | | | | | 60 | | | | | | | | | | 54 | | | | | | 6 | | | | | 6 | | |  | | | | | |  | | | | | | | | |  | | | | | | | 4 | | | | |  | | | | | | |  | | | | | | |  | | | | | |  | | | |  | | | | | | |
| 4 | | | 0006 | | | | | 大学语文 | | | | | | | | | | |  | | | | | | | 1 | | | | | | | | | | 3 | | | | | | 60 | | | | | | | | | | 52 | | | | | | 8 | | | | | 8 | | |  | | | | | |  | | | | | | | | |  | | | | | | | 4 | | | | |  | | | | | | |  | | | | | | |  | | | | | |  | | | |  | | | | | | |
| 5 | | | 0007 | | | | | 公共英语 | | | | | | | | | | | 1 | | | | | | |  | | | | | | | | | | 3 | | | | | | 60 | | | | | | | | | | 18 | | | | | | 42 | | | | | 42 | | |  | | | | | |  | | | | | | | | |  | | | | | | | 4 | | | | |  | | | | | | |  | | | | | | |  | | | | | |  | | | |  | | | | | | |
| 6 | | | 0008 | | | | | 信息技术 | | | | | | | | | | |  | | | | | | | 1 | | | | | | | | | | 3 | | | | | | 60 | | | | | | | | | | 30 | | | | | | 30 | | | | | 30 | | |  | | | | | |  | | | | | | | | |  | | | | | | | 4 | | | | |  | | | | | | |  | | | | | | |  | | | | | |  | | | |  | | | | | | |
| 7 | | | 0009 | | | | | 体育 | | | | | | | | | | | 3 | | | | | | | 1.2.4 | | | | | | | | | | 7 | | | | | | 126 | | | | | | | | | | 8 | | | | | | 118 | | | | |  | | |  | | | | | | 118 | | | | | | | | |  | | | | | | | 2 | | | | | 2 | | | | | | | 2 | | | | | | | 2 | | | | | |  | | | |  | | | | | | |
| 8 | | | 0004 | | | | | 中华优秀传统文化 | | | | | | | | | | |  | | | | | | | 1 | | | | | | | | | | 2 | | | | | | 30 | | | | | | | | | | 30 | | | | | |  | | | | |  | | |  | | | | | |  | | | | | | | | |  | | | | | | | 2 | | | | |  | | | | | | |  | | | | | | |  | | | | | |  | | | |  | | | | | | |
| 9 | | | 0011 | | | | | 民族理论和政策 | | | | | | | | | | |  | | | | | | | 5 | | | | | | | | | | 2 | | | | | | 34 | | | | | | | | | | 34 | | | | | |  | | | | |  | | |  | | | | | |  | | | | | | | | |  | | | | | | |  | | | | |  | | | | | | |  | | | | | | |  | | | | | | 2 | | | |  | | | | | | |
| 10 | | | 0010 | | | | | 大学生职业发展与就业指导 | | | | | | | | | | |  | | | | | | | 2 | | | | | | | | | | 2 | | | | | | 32 | | | | | | | | | | 32 | | | | | |  | | | | |  | | |  | | | | | |  | | | | | | | | |  | | | | | | |  | | | | | 2 | | | | | | |  | | | | | | |  | | | | | |  | | | |  | | | | | | |
| 小计学分及学时数 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 32 | | | | | | 588 | | | | | | | | | | 360 | | | | | | 228 | | | | | 110 | | | 0 | | | | | | 118 | | | | | | | | | 0 | | | | | | | 22 | | | | | 6 | | | | | | | 4 | | | | | | | 4 | | | | | | 2 | | | | 0 | | | | | | |
| 专业必修课 | | 11 | | | 07001 | | | | | 艺术造型训练 | | | | | | | | | | | 1 | | | | | | | 2 | | | | | | | | | | 5 | | | | | | 92 | | | | | | | | | | 32 | | | | | | 60 | | | | |  | | | 60 | | | | | |  | | | | | | | | |  | | | | | | | 4 | | | | | 2 | | | | | | |  | | | | | | |  | | | | | |  | | | |  | | | | | | |
| 12 | | | 07002 | | | | | 构成 | | | | | | | | | | | 2 | | | | | | |  | | | | | | | | | | 5 | | | | | | 96 | | | | | | | | | | 44 | | | | | | 52 | | | | |  | | | 46 | | | | | |  | | | | | | | | | 6 | | | | | | |  | | | | | 6 | | | | | | |  | | | | | | |  | | | | | |  | | | |  | | | | | | |
| 13 | | | 07003 | | | | | 建筑装饰识图与构造 | | | | | | | | | | | 2 | | | | | | |  | | | | | | | | | | 5 | | | | | | 96 | | | | | | | | | | 46 | | | | | | 50 | | | | |  | | | 26 | | | | | | 24 | | | | | | | | |  | | | | | | |  | | | | | 6 | | | | | | |  | | | | | | |  | | | | | |  | | | |  | | | | | | |
| 14 | | | 07004 | | | | | 建筑装饰材料的识别与选购 | | | | | | | | | | | 3 | | | | | | | 2 | | | | | | | | | | 4 | | | | | | 68 | | | | | | | | | | 58 | | | | | | 10 | | | | | 4 | | |  | | | | | | 6 | | | | | | | | |  | | | | | | |  | | | | |  | | | | | | | 4 | | | | | | |  | | | | | |  | | | |  | | | | | | |
| 15 | | | 07005 | | | | | 建筑装饰施工图绘制 | | | | | | | | | | |  | | | | | | | 3 | | | | | | | | | | 4 | | | | | | 68 | | | | | | | | | | 30 | | | | | | 38 | | | | | 6 | | | 24 | | | | | | 8 | | | | | | | | |  | | | | | | |  | | | | |  | | | | | | | 4 | | | | | | |  | | | | | |  | | | |  | | | | | | |
| 16 | | | 07006 | | | | | 居室空间设计 | | | | | | | | | | | 3 | | | | | | |  | | | | | | | | | | 4 | | | | | | 68 | | | | | | | | | | 38 | | | | | | 30 | | | | |  | | | 18 | | | | | | 8 | | | | | | | | | 4 | | | | | | |  | | | | |  | | | | | | | 4 | | | | | | |  | | | | | |  | | | |  | | | | | | |
| 17 | | | 07007 | | | | | 办公空间设计 | | | | | | | | | | | 4 | | | | | | |  | | | | | | | | | | 3 | | | | | | 60 | | | | | | | | | | 30 | | | | | | 30 | | | | |  | | | 18 | | | | | | 8 | | | | | | | | | 4 | | | | | | |  | | | | |  | | | | | | |  | | | | | | | 4 | | | | | |  | | | |  | | | | | | |
| 18 | | | 07008 | | | | | 建筑装饰工程施工技术 | | | | | | | | | | | 4 | | | | | | |  | | | | | | | | | | 5 | | | | | | 90 | | | | | | | | | | 40 | | | | | | 50 | | | | |  | | | 38 | | | | | | 12 | | | | | | | | |  | | | | | | |  | | | | |  | | | | | | |  | | | | | | | 6 | | | | | |  | | | |  | | | | | | |
| 19 | | | 07009 | | | | | 建筑装饰效果图绘制 | | | | | | | | | | | 4 | | | | | | |  | | | | | | | | | | 3 | | | | | | 60 | | | | | | | | | | 28 | | | | | | 32 | | | | |  | | | 32 | | | | | |  | | | | | | | | |  | | | | | | |  | | | | |  | | | | | | |  | | | | | | | 4 | | | | | |  | | | |  | | | | | | |
| 20 | | | 07010 | | | | | Photoshop与版面设计 | | | | | | | | | | |  | | | | | | | 5 | | | | | | | | | | 4 | | | | | | 68 | | | | | | | | | | 40 | | | | | | 28 | | | | |  | | | 28 | | | | | |  | | | | | | | | |  | | | | | | |  | | | | |  | | | | | | |  | | | | | | |  | | | | | | 4 | | | |  | | | | | | |
| 21 | | | 07011 | | | | | 建筑装饰工程预算 | | | | | | | | | | | 5 | | | | | | |  | | | | | | | | | | 4 | | | | | | 68 | | | | | | | | | | 30 | | | | | | 38 | | | | | 6 | | | 32 | | | | | |  | | | | | | | | |  | | | | | | |  | | | | |  | | | | | | |  | | | | | | |  | | | | | | 4 | | | |  | | | | | | |
| 22 | | | 07012 | | | | | 建筑环境与设备 | | | | | | | | | | | 5 | | | | | | |  | | | | | | | | | | 4 | | | | | | 68 | | | | | | | | | | 42 | | | | | | 26 | | | | | 4 | | | 22 | | | | | |  | | | | | | | | |  | | | | | | |  | | | | |  | | | | | | |  | | | | | | |  | | | | | | 4 | | | |  | | | | | | |
| 23 | | | 07013 | | | | | 建筑装饰工程施工组织 | | | | | | | | | | | 5 | | | | | | |  | | | | | | | | | | 4 | | | | | | 68 | | | | | | | | | | 32 | | | | | | 36 | | | | | 10 | | | 26 | | | | | |  | | | | | | | | |  | | | | | | |  | | | | |  | | | | | | |  | | | | | | |  | | | | | | 4 | | | |  | | | | | | |
| 24 | | | 07014 | | | | | 写生实习XS | | | | | | | | | | |  | | | | | | | 2 | | | | | | | | | | 2 | | | | | | 60 | | | | | | | | | |  | | | | | | 60 | | | | |  | | | 60 | | | | | |  | | | | | | | | |  | | | | | | |  | | | | | 2周 | | | | | | |  | | |  | | | |  | | | | | |  | | | |  | | | | | | |
| 25 | | | 07015 | | | | | 材料认知实习C | | | | | | | | | | |  | | | | | | | 3 | | | | | | | | | | 1 | | | | | | 30 | | | | | | | | | |  | | | | | | 30 | | | | |  | | | 30 | | | | | |  | | | | | | | | |  | | | | | | |  | | | | |  | | | | | | | 1周 | | | | | | |  | | | | | |  | | | |  | | | | | | |
| 26 | | | 07016 | | | | | 工种实习G | | | | | | | | | | |  | | | | | | | 4 | | | | | | | | | | 3 | | | | | | 84 | | | | | | | | | |  | | | | | | 84 | | | | |  | | | 84 | | | | | |  | | | | | | | | |  | | | | | | |  | | | | |  | | | | | | |  | | | | | | | 3周 | | | | | |  | | | |  | | | | | | |
| 27 | | | 07017 | | | | | 顶岗实习D | | | | | | | | | | |  | | | | | | | 6 | | | | | | | | | | 18 | | | | | | 540 | | | | | | | | | |  | | | | | | 540 | | | | |  | | | 540 | | | | | |  | | | | | | | | |  | | | | | | |  | | | | |  | | | | | | |  | | | | | | |  | | | | | |  | | | | 18周 | | | | | | |
| 小计学分及学时数 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 78 | | | | | | 1684 | | | | | | | | | | 490 | | | | | | 1194 | | | | | 30 | | | 1084 | | | | | | 66 | | | | | | | | | 14 | | | | | | | 4 | | | | | 14 | | | | | | | 12 | | | | | | | 14 | | | | | | 16 | | | | 0 | | | | | | |
| 专业选修课 | | 28 | | | 07018 | | | | | 建筑装饰表现技法 | | | | | | | | | | | 2 | | | | | | |  | | | | | | | | | | 4 | | | | | | 64 | | | | | | | | | | 26 | | | | | | 38 | | | | |  | | | 38 | | | | | |  | | | | | | | | |  | | | | | | |  | | | | | 4 | | | | | | |  | | | | | | |  | | | | | |  | | | |  | | | | | | |
| 29 | | | 07019 | | | | | 中国建筑史 | | | | | | | | | | |  | | | | | | | 3 | | | | | | | | | | 4 | | | | | | 68 | | | | | | | | | | 40 | | | | | | 28 | | | | | 4 | | | 24 | | | | | |  | | | | | | | | |  | | | | | | |  | | | | |  | | | | | | | 4 | | | | | | |  | | | | | |  | | | |  | | | | | | |
| 30 | | | 07020 | | | | | 家具设计与制作 | | | | | | | | | | |  | | | | | | | 3 | | | | | | | | | | 4 | | | | | | 68 | | | | | | | | | | 24 | | | | | | 44 | | | | |  | | | 44 | | | | | |  | | | | | | | | |  | | | | | | |  | | | | |  | | | | | | | 4 | | | | | | |  | | | | | |  | | | |  | | | | | | |
| 31 | | | 07021 | | | | | 外国建筑史 | | | | | | | | | | |  | | | | | | | 4 | | | | | | | | | | 2 | | | | | | 30 | | | | | | | | | | 24 | | | | | | 24 | | | | |  | | |  | | | | | |  | | | | | | | | |  | | | | | | |  | | | | |  | | | | | | |  | | | | | | | 2 | | | | | |  | | | |  | | | | | | |
| 32 | | | 07022 | | | | | 中外美术鉴赏 | | | | | | | | | | |  | | | | | | | 4 | | | | | | | | | | 2 | | | | | | 30 | | | | | | | | | | 24 | | | | | | 6 | | | | |  | | |  | | | | | | 6 | | | | | | | | |  | | | | | | |  | | | | |  | | | | | | |  | | | | | | | 2 | | | | | |  | | | |  | | | | | | |
| 33 | | | 07023 | | | | | 环境艺术设计 | | | | | | | | | | |  | | | | | | | 5 | | | | | | | | | | 2 | | | | | | 34 | | | | | | | | | | 20 | | | | | | 14 | | | | |  | | | 14 | | | | | |  | | | | | | | | |  | | | | | | |  | | | | |  | | | | | | |  | | | | | | |  | | | | | | 2 | | | |  | | | | | | |
| 34 | | | 07024 | | | | | VR技术应用 | | | | | | | | | | |  | | | | | | | 5 | | | | | | | | | | 2 | | | | | | 68 | | | | | | | | | | 28 | | | | | | 40 | | | | |  | | | 40 | | | | | |  | | | | | | | | |  | | | | | | |  | | | | |  | | | | | | |  | | | | | | |  | | | | | | 4 | | | |  | | | | | | |
| 35 | | | 07025 | | | | | 铁道概论 | | | | | | | | | | |  | | | | | | | 1 | | | | | | | | | | 2 | | | | | | 30 | | | | | | | | | | 30 | | | | | |  | | | | |  | | |  | | | | | |  | | | | | | | | |  | | | | | | | 2 | | | | |  | | | | | | |  | | | | | | |  | | | | | |  | | | |  | | | | | | |
| 36 | | | 07026 | | | | | 建筑装饰工程测量 | | | | | | | | | | |  | | | | | | | 1 | | | | | | | | | | 3 | | | | | | 30 | | | | | | | | | | 20 | | | | | | 10 | | | | |  | | | 10 | | | | | |  | | | | | | | | |  | | | | | | | 2 | | | | |  | | | | | | |  | | | | | | |  | | | | | |  | | | |  | | | | | | |
| 37 | | | 07027 | | | | | 建筑工程法规 | | | | | | | | | | |  | | | | | | |  | | | | | | | | | | 3 | | | | | | 32 | | | | | | | | | | 22 | | | | | | 10 | | | | |  | | | 10 | | | | | |  | | | | | | | | |  | | | | | | |  | | | | | 2 | | | | | | |  | | | | | | |  | | | | | |  | | | |  | | | | | | |
| 38 | | | 07028 | | | | | 工程监理概论 | | | | | | | | | | |  | | | | | | |  | | | | | | | | | | 2 | | | | | | 34 | | | | | | | | | | 22 | | | | | | 12 | | | | |  | | | 12 | | | | | |  | | | | | | | | |  | | | | | | |  | | | | |  | | | | | | | 2 | | | | | | |  | | | | | |  | | | |  | | | | | | |
| 39 | | | 07029 | | | | | 内业综合技术 | | | | | | | | | | |  | | | | | | |  | | | | | | | | | | 2 | | | | | | 34 | | | | | | | | | | 22 | | | | | | 12 | | | | |  | | | 12 | | | | | |  | | | | | | | | |  | | | | | | |  | | | | |  | | | | | | | 2 | | | | | | |  | | | | | |  | | | |  | | | | | | |
|  | | 40 | | | 07030 | | | | | 装饰施工与设计配合 | | | | | | | | | | |  | | | | | | |  | | | | | | | | | | 2 | | | | | | 30 | | | | | | | | | | 14 | | | | | | 16 | | | | |  | | | 16 | | | | | |  | | | | | | | | |  | | | | | | |  | | | | |  | | | | | | |  | | | | | | | 2 | | | | | |  | | | |  | | | | | | |
| 41 | | | 07031 | | | | | 室内空气质量检测与治理 | | | | | | | | | | |  | | | | | | |  | | | | | | | | | | 2 | | | | | | 34 | | | | | | | | | | 20 | | | | | | 14 | | | | |  | | | 14 | | | | | |  | | | | | | | | |  | | | | | | |  | | | | |  | | | | | | |  | | | | | | |  | | | | | | 2 | | | |  | | | | | | |
| 小计学分及学时数 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 20 | | | | | | 362 | | | | | | | | | | 186 | | | | | | 194 | | | | | 4 | | | 160 | | | | | | 6 | | | | | | | | |  | | | | | | |  | | | | | 4 | | | | | | | 8 | | | | | | | 4 | | | | | | 6 | | | |  | | | | | | |
| **四、素质拓展课** | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 课程类型 | | 序  号 | | | | 课程代码 | | | | 课 程 名 称 | | | | | | | | | | | 考核学期序 | | | | | | | | | | | | | | | | | 学 分 | | | | 课  时 | | | | | | | 说 明 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 考 试 | | | | | 考 查 | | | | | | | | | | | |
| 必修  课 | | 1 | | | | 01 | | | | 军训及军事理论教育 | | | | | | | | | | |  | | | | | 1 | | | | | | | | | | | | 4 | | | | 60 | | | | | | | | 第1学期开设，含入学教育。 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 2 | | | | 02 | | | | 心理健康教育 | | | | | | | | | | |  | | | | | 2.3.4.5 | | | | | | | | | | | | 2 | | | | 32 | | | | | | | | 分专业在第2～5学期之一开设。 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 3 | | | | 03 | | | | 大学生安全及健康教育 | | | | | | | | | | |  | | | | | 1.2.3.4 | | | | | | | | | | | | 2 | | | | 32 | | | | | | | | 在1～4学期实施，以专题讲座的形式和每学期大学生第二课堂教育活动中开设。 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 4 | | | | 04 | | | | 大学生暑期社会实践 | | | | | | | | | | |  | | | | | 2.4 | | | | | | | | | | | | 2 | | | |  | | | | | | | | 利用暑期，进行社会实践，提交报告。 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 小计学分及学时数 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 10 | | | | 124 | | | | | | | |  | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 选  修  课 | | 1 | | | | 001 | | | | 演讲与口才 | | | | | | | | | | |  | | | | | 2～5 | | | | | | | | | | | | 2 | | | | 32 | | | | | | | |  | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 2 | | | | 002 | | | | 中国小说阅读与鉴赏 | | | | | | | | | | |  | | | | | 2～5 | | | | | | | | | | | | 2 | | | | 32 | | | | | | | |  | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 3 | | | | 003 | | | | 音乐欣赏 | | | | | | | | | | |  | | | | | 2～5 | | | | | | | | | | | | 2 | | | | 32 | | | | | | | |  | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 4 | | | | 004 | | | | 影视文学欣赏 | | | | | | | | | | |  | | | | | 2～5 | | | | | | | | | | | | 2 | | | | 32 | | | | | | | |  | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 5 | | | | 005 | | | | 应用写作 | | | | | | | | | | |  | | | | | 2～5 | | | | | | | | | | | | 2 | | | | 32 | | | | | | | |  | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 6 | | | | 006 | | | | 现代礼仪 | | | | | | | | | | |  | | | | | 2～5 | | | | | | | | | | | | 2 | | | | 32 | | | | | | | |  | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 7 | | | | 007 | | | | 中国古典诗词欣赏 | | | | | | | | | | |  | | | | | 2～5 | | | | | | | | | | | | 2 | | | | 32 | | | | | | | |  | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 8 | | | | 008 | | | | 中国近现代史纲要 | | | | | | | | | | |  | | | | | 2～5 | | | | | | | | | | | | 2 | | | | 32 | | | | | | | |  | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 9 | | | | 009 | | | | 中国传统文化 | | | | | | | | | | |  | | | | | 2～5 | | | | | | | | | | | | 2 | | | | 32 | | | | | | | |  | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 10 | | | | 010 | | | | 中国旅游资源概况 | | | | | | | | | | |  | | | | | 2～5 | | | | | | | | | | | | 2 | | | | 32 | | | | | | | |  | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 11 | | | | 011 | | | | ISO9000质量管理体系 | | | | | | | | | | |  | | | | | 2～5 | | | | | | | | | | | | 2 | | | | 32 | | | | | | | |  | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 12 | | | | 012 | | | | 高级文字排版 | | | | | | | | | | |  | | | | | 2～5 | | | | | | | | | | | | 2 | | | | 32 | | | | | | | |  | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 13 | | | | 013 | | | | 电子表格处理 | | | | | | | | | | |  | | | | | 2～5 | | | | | | | | | | | | 2 | | | | 32 | | | | | | | |  | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 14 | | | | 014 | | | | PS图像处理 | | | | | | | | | | |  | | | | | 2～5 | | | | | | | | | | | | 2 | | | | 32 | | | | | | | |  | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 15 | | | | 015 | | | | 高级PPT制作 | | | | | | | | | | |  | | | | | 2～5 | | | | | | | | | | | | 2 | | | | 32 | | | | | | | |  | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 16 | | | | 016 | | | | 计算机组装维修及网络操作 | | | | | | | | | | |  | | | | | 2～5 | | | | | | | | | | | | 2 | | | | 32 | | | | | | | |  | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 17 | | | | 017 | | | | 生活中的经济学 | | | | | | | | | | |  | | | | | 2～5 | | | | | | | | | | | | 2 | | | | 32 | | | | | | | |  | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 18 | | | | 018 | | | | 技术史漫谈 | | | | | | | | | | |  | | | | | 2～5 | | | | | | | | | | | | 2 | | | | 32 | | | | | | | |  | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 19 | | | | 019 | | | | 电影赏析 | | | | | | | | | | |  | | | | | 2～5 | | | | | | | | | | | | 2 | | | | 32 | | | | | | | |  | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 20 | | | | 020 | | | | 职业素质 | | | | | | | | | | |  | | | | | 2～5 | | | | | | | | | | | | 2 | | | | 32 | | | | | | | |  | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 21 | | | | 021 | | | | 创造性思维与创新方法 | | | | | | | | | | |  | | | | | 2～5 | | | | | | | | | | | | 2 | | | | 32 | | | | | | | |  | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 22 | | | | 022 | | | | 大学生创业基础 | | | | | | | | | | |  | | | | | 2～5 | | | | | | | | | | | | 2 | | | | 32 | | | | | | | |  | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 23 | | | | 023 | | | | 创新创业实践 | | | | | | | | | | |  | | | | | 1～6 | | | | | | | | | | | | 10 | | | |  | | | | | | | | 用于学生参加课题研究、项目实验、竞赛活动、发表论文等创新创业成果的学分折算 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 小计学分及学时数 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 44 | | | | 704 | | | | | | | |  | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| **合计学分及学时数** | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | **总学分144,必修课学分120,选修课学分24，其中专业选修课学分20，素质选修课学分4.总学时2758，理论学时1080，实践学时1696** | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

**工程测量技术专业**

**教学标准**

**专业名称** 工程测量技术

**专业代码** 520301

**入学要求** 普通高级中学毕业、中等职业学校毕业或具备同等学力。

**修业年限** 三年

**职业面向**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| 所属专业大类（代码） | 所属专业类（代码） | 对应行业（代码） | 主要职业类别（代码） | 主要岗位类别（或技术领域） | 职业资格证书或技能等级证书举例 |
| 资源环境与安全大类（52） | 测绘地理信息（5203） | 工程技术与设计服务（748） | 工程测量  工程技术人员  （2-02-02-02） | 控制测量  工程测量  线路与桥隧测量  地下管线测量  矿山测量  地籍测量 | 工程测量员 |

**培养目标与培养规格**

一、培养目标

本专业培养理想信念坚定，德、智、体、美、劳全面发展，具有一定的科学文化水平，良好的人文素养、职业道德和创新意识，精益求精的工匠精神，较强的就业能力和可持续发展的能力；掌握本专业知识和技术技能，面向工程技术与设计服务行业的工程测量工程技术人员职业群，能够从事控制测量、工程测量、线路与桥隧测量、矿山测量、地籍测量等工作的高素质技术技能人才。

二、培养规格

本专业毕业生应在素质、知识和能力等方面达到以下要求。

1.素质

（1）坚定拥护中国共产党领导和我国社会主义制度，在习近平新时代中国特色社会主义思想指引下，践行社会主义核心价值观，具有深厚的爱国情感和中华民族自豪感；

（2）崇尚宪法、遵法守纪、崇德向善、诚实守信、尊重生命、热爱劳动、履行道德准则和行为规范，具有社会责任感和社会参与意识；

（3）具有质量意识、环保意识、安全意识、信息素养、工匠、创新思维；

（4）勇于奋斗、乐观向上，具有自我管理能力、职业生涯规划意识，有较强的集体意识和团队合作精神；

（5）具有健康的体魄、心理和健全的人格，掌握基本运动知识和一两项运动技能，养成良好的健身与卫生习惯，良好的行为习惯；

（6）具有一定的审美和人文素养，能够形成一两项艺术特长或爱好。

2.知识

（1）掌握必备的思想政治理论、科学文化基础知识和中华优秀传统文化知识；

（2）熟悉与本专业相关的法律法规以及环境保护、安全消防、文明生产、创新创业等相关知识；

（3）掌握常用工程测量仪器设备操作与维护保养的知识；

（4）熟悉工程施工的组织与管理、控制的模式、方法和手段，掌握工程施工技术与方法；

（5）掌握地形测量、地籍测量、工程控制、工程施工、变形监测等控制网布设、施测、数据处理的技术要求和方法；

（6）熟悉地形图图式，掌握工程地形图数据采集、编辑处理与制图的知识；

（7）掌握 GNSS 静态、GNSS-RTK 动态数据采集、编辑处理和成果输出的知识；

（8）掌握工程建设施工测量、变形监测施测及数据处理的相关知识；

（9）掌握地下工程测量、地下管线探测的基础知识。

3.能力

（1）具有探究学习、终身学习、分析问题和解决问题的能力；

（2）具有良好的语言、文字表达能力和沟通能力，能够进行口语和书面的表达与交流；

（3）具有文字、表格、图像的计算机处理能力；

（4）能够正确使用和维护水准仪、全站仪和 GNSS 接收机等常规测绘仪器；

（5）能够识读工程设计图、施工图以及使用常规测绘仪器进行工程放样，并具备地面点定位、平面测量、高程测量的基本能力；

（6）能够布设工程建设控制网以及变形监测、地籍测量等专项工程控制网，进行外业观测、内业数据处理的能力；

（7）具备工程建设规划及勘察设计、工程施工、运营管理等阶段的工程测量能力；

（8）能够使用全站仪和 GNSS 接收机采集地物地貌数据，利用数字测图软件进行工程地形图的绘制和编辑；

（9）能够发现并有效处理工程施工中的一般性技术问题，具备工程施工、组织与管理的初步能力；

（10）能够初步编写工程测量技术设计书和技术总结报告，具备工程测量成果质量检查与验收的初步能力。

**课程设置**

一、必修课程

1. 公共必修课程

|  |  |  |
| --- | --- | --- |
| 序号 | 课程名称 | 课时数 |
| 1 | 思想道德修养与法律基础及形势政策 | 66 |
| 2 | 毛泽东思想和中国特色社会主义理论体系概论及形势政策 | 50 |
| 3 | 高等数学 | 60 |
| 4 | 大学语文 | 60 |
| 5 | 公共英语 | 60 |
| 6 | 信息技术 | 72 |
| 7 | 体育 | 116 |
| 8 | 中华优秀传统文化 | 30 |
| 9 | 民族理论和政策 | 36 |
| 10 | 大学生职业发展与就业指导 | 36 |

2.专业必修课程

|  |  |  |
| --- | --- | --- |
| 序号 | 课程名称 | 课时数 |
| 1 | 工程制图 | 30 |
| 2 | 地形测量 | 90 |
| 3 | 测绘CAD | 72 |
| 4 | 数字测图 | 108 |
| 5 | 测量平差基础 | 108 |
| 6 | 控制测量 | 78 |
| 7 | GPS定位测量 | 78 |
| 8 | 工程概论 | 48 |
| 9 | 地籍测量 | 72 |
| 10 | 工程测量 | 196 |
| 11 | 全站仪数字测图实习① | 84 |
| 12 | 控制测量综合实习② | 28 |
| 13 | GPS技术应用实习③ | 28 |
| 14 | 测量中级工训练④ | 56 |
| 15 | 工程测量综合实习⑤ | 196 |
| 16 | 地籍与房产测绘实习⑥ | 56 |
| 17 | 毕业实习和毕业设计⑦ | 540 |

3.素质拓展必修课程

|  |  |  |
| --- | --- | --- |
| 序号 | 课程名称 | 课时数 |
| 1 | 军训及军事理论教育 | 60 |
| 2 | 心理健康教育 | 32 |
| 3 | 大学生安全及健康教育 | 32 |
| 4 | 大学生暑期社会实践 |  |

1. 选修课程

1. 专业选修课程

|  |  |  |
| --- | --- | --- |
| 序号 | 课程名称 | 课时数 |
| 1 | 地图制图 | 52 |
| 2 | 测绘管理与法律法规 | 48 |
| 3 | 地理信息系统 | 72 |
| 4 | 摄影测量与遥感 | 72 |
| 5 | 测绘专业软件应用 | 48 |
| 6 | 铁道概论 | 52 |
| 7 | 既有铁路测量 | 48 |
| 8 | 新建铁路线路测量 | 72 |
| 9 | 铁路线桥知识 | 72 |
| 10 | 编程计算器使用 | 48 |

2. 素质拓展选修课程

|  |  |  |
| --- | --- | --- |
| 序号 | 课程名称 | 课时数 |
| 1 | 演讲与口才 | 32 |
| 2 | 中国小说阅读与鉴赏 | 32 |
| 3 | 音乐欣赏 | 32 |
| 4 | 影视文学欣赏 | 32 |
| 5 | 应用写作 | 32 |
| 6 | 现代礼仪 | 32 |
| 7 | 中国古典诗词欣赏 | 32 |
| 8 | 中国近现代史纲要 | 32 |
| 9 | 中国传统文化 | 32 |
| 10 | 中国旅游资源概况 | 32 |
| 11 | ISO9000质量管理体系 | 32 |
| 12 | 高级文字排版 | 32 |
| 13 | 电子表格处理 | 32 |
| 14 | PS图像处理 | 32 |
| 15 | 高级PPT制作 | 32 |
| 16 | 计算机组装维修及网络操作 | 32 |
| 17 | 生活中的经济学 | 32 |
| 18 | 技术史漫谈 | 32 |
| 19 | 电影赏析 | 32 |
| 20 | 职业素质 | 32 |
| 21 | 创造性思维与创新方法 | 32 |
| 22 | 大学生创业基础 | 32 |
| 23 | 创新创业实践 |  |

三、专业核心课程主要教学内容与要求

|  |  |  |
| --- | --- | --- |
| 序号 | 专业核心课程 | 主要教学内容与要求 |
| 1 | 控制测量 | 国家控制网布设的原则、方案与技术要求；工程控制网建立的理论和方法；三、四等工程平面控制网的布网、观测方法；高程控制网的布网、观测方法；利用精密水准仪、全站仪、GNSS 接收机进行控制测量；利用测绘软件完成控制网的概算、平差和坐标系的换算。 |
| 2 | 工程测量 | 建筑工程、线路与桥隧工程、地下工程、水利工程、市政工程和特种工程的测量技术与方法；工程测量技术方案的编制；竣工图测绘的基本知识和方法；工程建设的安全生产知识；工程建设的常规方法与技术。 |
| 3 | 数字测图 | 数字测图的基本概念、原理和作业方法；大比例尺地形图图式，地物地貌的制图表达；图根控制测量、野外数据采集、内业计算机成图、地图数字化的技能与方法；大比例尺数字地形图测绘；数字测图技术设计与检查验收、数字地形图应用的基本知识和技能。 |
| 4 | 测量误差与数  据处理 | 测量误差理论的基本知识与基本原理；条件平差、间接平差数学模型的建立与解算方法；测量成果的精度评定方法；误差椭圆的原理和工程应用；常用测量平差软件的使用。 |
| 5 | GNSS 定位测量 | GNSS 定位测量的基本原理；GNSS静态测量的原理、技术与方  法；GNSS-RTK 测量的原理、技术和方法；常见 GNSS 接收机静态和动态模式设置与操作的知识与方法；GNSS 控制网布设、施测、数据处理的原理、方法与技术要求； GNSS 接收机采集空间数据的方法与技术要求；常见 GNSS 数据处理软件的使用。 |
| 6 | 地籍测量 | 权属地籍调查、地籍控制测量、地籍细部测量、土地利用现状调查、土地等级调查、房产调查和面积量算等；具有应用南方CASS软件进行各种地形图、地籍图的编辑、成果整理输出能力。 |

**学时安排**

每学年教学时间为40周，总学时数为2746。顶岗实习按每周30学时计算；校内集中教学实习按每周28学时计算，每学时为45分钟。18学时计为1个学分，总学分为147学分。军训、入学教育、社会实践、毕业设计（或毕业论文、毕业教育）等，以1周为1学分。公共基础课程学时占总学时的28.6%。选修课教学时数占总学时的10.6%。实践课教学时数占总学时的63.4%。学生顶岗实习为6个月，可根据实际情况，采取工学交替、多学期、分段式等多种形式组织实施。

**教学进程总体安排**

见附件（教学进程表）

**实施保障**

1. 师资队伍

1. 队伍结构

学生数与本专业专任教师数比例不高于 18:1，双师素质教师占专业教师比不低于 60%，专任教师队伍要考虑职称、年龄，形成合理的梯队结构。

2. 专任教师

具有高校教师资格和本专业领域有关证书；有理想信念、有道德情操、有扎实学识、有仁爱之心；具有测绘科学与技术相关专业本科及以上学历；具有扎实的本专业相关理论功底和实践能力；具有较强的信息化教学能力，能够开展课程教学改革和科学研究；每5年累计不少于6个月的企业实践经历。

3. 专业带头人

原则上应具有副高及以上职称，能够较好地把握国内外行业、专业发展，能广泛联系行业企业，了解行业企业对本专业人才的实际需求，教学设计、专业研究能力强，组织开展教科研工作能力强，在本区域或本专业领域有一定的影响力。

4. 兼职教师

主要从测绘地理信息企业、工程施工企业聘任，具备良好的思想政治素质、职业道德和工匠精神，具有扎实的专业知识和丰富的实际工作经验，具有中级及以上相关专业职称 ，能承担专业课程教学、实习实训指导和学生职业发展规划指导等教学任务。

二、教学设施

主要包括能够满足正常的课程教学、实习实训所必需的专业教室、实训室和实训基地。

1.专业教室基本条件

一般配备黑（白）板、多媒体计算机、投影设备、音响设备，互联网接入或 WiFi 环境，并具有网络安全防护措施。安装应急照明装置并保持良好状态，符合紧急疏散要求、标志明显、保持逃生通道畅通无阻。

2.校内实训室基本要求

（1）数字制图实训室

配置计算机，网络接入或 WiFi 环境，安装 CAD 制图软件、数字测图软件、GNSS 数据处理软件、测量平差软件等。支持测绘 CAD、数字测图、GNSS 定位测量、测量误差与数据处理、工程实践等课程的教学与实训。

（2）测绘技能实训室

配置 S3 水准仪 10 台（套）、2″级全站仪 10 台（套）、GNSS-RTK 接收机10 台（套）。支持测绘基础、数字测图、GNSS 定位测量、工程实践等课程的教学与实训。

（3）工程测量实训室

配置 0.7mm 数字水准仪 10 台（套）、2″级全站仪 10 台（套）、激光扫平仪 10 台（套）、激光准直仪 10 台（套）、手持测距仪 10 台、管线探测仪 5 台（套）。有条件的院校可配置测量机器人、三维激光扫描仪、无人机航测系统等设备。支持控制测量、工程测量、变形监测、矿山测量、不动产测绘、地下管线探测、工程实践等课程的教学与实训。

3.校外实训基地基本要求

具有稳定的校外实训基地。能够开展工程测量、工程施工等实训活动，实训设施齐备，实训岗位、实训指导教师确定，实训管理及实施规章制度齐全。

4.学生实习基地基本要求

具有稳定的校外实习基地。能提供工程测量、控制测量、地下管线测量等相关实习岗位，涵盖当前产业发展的主流技术，可接纳一定规模的学生实习；能够配备相应数量的指导教师对学生实习进行指导和管理；有保证实习生日常工作、学习、生活的规章制度，有安全、保险保障。

5.支持信息化教学方面的基本要求

具有利用数字化教学资源库、文献资料、常见问题解答等的信息化条件。引导鼓励教师开发并利用信息化教学资源、教学平台，创新教学方法，提升教学效果。

三、教学资源

主要包括能够满足学生专业学习、教师专业教学研究和教学实施需要的教材、图书及数字化教学资源等。

1.教材选用基本要求

按照国家规定选用优质教材，禁止不合格的教材进入课堂。学校应建立由专业教师、行业专家和教研人员等参与的教材选用机构，完善教材选用制度，经过规范程序择优选用教材。

2.图书文献配备基本要求

图书文献配备能满足人才培养、专业建设、教科研等工作的需要，方便师生查询、借阅。专业类图书文献主要包括：行业政策法规资料、有关工程测量和工程施工的技术、标准、方法、操作规范以及实务案例类图书等。

3.数字教学资源配置基本要求

建设、配备与本专业有关的音视频素材、教学课件、数字化教学案例库、虚拟仿真软件、数字教材等专业教学资源库，种类丰富、形式多样、使用便捷、动态更新、满足教学。

四、教学方法

1.教学方法、手段建议

（1）教学方法建议：突出“教学做”一体化的教学模式。

①兴趣教学法

“兴趣是最好的老师”。从实际职业岗位入手，在课程开课之前，组织学生参观测绘建设项目、图片资料等，使学生对国家的测绘工程、铁道工程建设产生自豪感，引导学生积极投身国家建设，激发他们的学习热情，调动其学习工程测量专业的积极性和主动性。

②任务驱动法

教师给出具体的一项任务，学生收集资料，学生设计方案，学生实施，教师引导、评价，帮助学生总结、提高。

③案例教学法

通过具体的工程案例分析进行教学，使学生从工程案例各个流程微观到宏观、全过程全方位准确把握项目的脉络，提高分析、解决问题的能力。

④启发式、交互式教学法

教学方法是实现培养目标的途径，先进的教学方法是提高教学质量的重要手段。在教学过程中，老师要善于启发学生的思维，同时，也要鼓励同学勤学好问，多多向老师发问，通过老师解答，师生互动，强化学生对问题的认识和理解，实现教学相长。

⑤分组讨论法

将一个班的学生分为若干作业小组，老师加入到学生中间，组织指导学生就某一问题或任务展开分组讨论，各自独立完成测量任务，活跃课堂气氛、提高教学效率。分组讨论法取决于老师的组织指导，取决于老师提出问题或任务的深度和技巧，典型的问题或任务、合理恰当的深度是分组讨论法成败的关键。

⑥现场教学法

随着课程的深入学习，需要学生到真实的工作情境中去体验作业过程。在具体生产项目中，老师针对具体测量工作展开教学，甚至是边讲边练，能极大提高学生的学习热情，体现“在做中教，在做中学”，实现“教学做”合一的目标。

（2） 教学手段建议：提倡板书和PPT讲授相结合的教学手段。

①多媒体教学

传统的教学手段在教学过程中存在很大缺陷，集中表现在讲解的内容不直观，纯粹用语言来描述抽象内容，学生普遍反映难以理解等。而利用多媒体教学手段， 通过教学录象和利用动画制作的CAI课件，则有助于学生对问题的理解，从而提高教学效果。提倡板书和PPT讲授相结合的教学手段，取长补短，实现教学效果最优化。

②网络教学

良好的网络教学条件为学生和教师之间的沟通搭建了桥梁。教师可以利用多媒体教室和校园网进行网络教学，学生可在教师的指导下进行资料查询。图书馆的数据库资源，可以为课程教学和学生的学习提供了丰富的参考文献。

通过网络，可以引导学生利用好网上资源，学会网络查询，培养自学能力。同时学生能够通过电子邮件向老师询问各种问题，教师则以邮件的形式或在课堂教学中给予解答。

2.教学组织形式建议

教学组织应“以学生为中心”，根据学生特点，激发学生学习兴趣。

公共课程，建议采用有效课堂标准的教学形式组织教学；专业主干课程，建议采用“教、学、做”一体化的形式组织教学；实践教学，建议采用“任务驱动、项目导向、教师示范、工作过程”等形式组织教学。

五、教学评价

1.教学评价建议

专业公共课程、专业主干课程和拓展课程建议采用校内评价、考核与认证；顶岗实习由学校和企业共同考核，以企业为主；校企合作生产实习应由学校和企业共同考核与认证，以学校为主。

2.教学考核建议

（1）课程考核

课程考核从知识、技能、态度三个方面进行考核。

知识考核：依据教学进程，以课程的学习项目为单位进行考核。考核方式采用笔试或机试。知识考核的要点重在知识的应用。

技能考核：以小组为单位，按照课程的技能训练项目逐一进行考核。主要从学生的组织管理能力、岗位职业能力、成果质量等几个方面考核学生的技能水平。

态度考核：主要从工作态度（吃苦精神、认真程度、工作完成情况），职业道德（爱护仪器、观测数据的真实程度），团队精神，出勤、安全等方面考核。

（2）顶岗实习或生产实习考核

顶岗实习或生产实习是让学生以“职业人”的身份参与工程单位和测绘企业的生产项目，从中学习和提高专业技能和职业能力的一种教学手段和教学过程。在顶岗实习的过程中，企业必须指定专业技术人员或一线技术能手对学生进行指导和培训，学校应选派专业骨干教师经常与企业指导老师和学生保持联系与沟通。

考核与评价采用企业指导教师考核与学校专业教师考核相结合的方式。在考核过程中，以企业指导教师考核为主。企业指导教师考核的内容为：学生顶岗实习期间的日常表现、知识与技能的掌握程度、产品质量的高低。对顶岗实习成绩优秀者由专业教师进行复检审核，以校内审核确定的成绩为准。

六、质量管理

1.学校和二级院系应建立专业建设和教学质量诊断与改进机制，健全专业教学质量监控管理制度，完善课堂教学、教学评价、实习实训、毕业设计以及专业调研、人才培养方案更新、资源建设等方面质量标准建设，通过教学实施、过程监控、质量评价和持续改进，达成人才培养规格。

2.学校、二级院系应完善教学管理机制，加强日常教学组织运行与管理，定期开展课程建设水平和教学质量诊断与改进，建立健全巡课、听课、评教、评学等制度，建立与企业联动的实践教学环节督导制度，严明教学纪律，强化教学组织功能，定期开展公开课、示范课等教研活动。

3.学校应建立毕业生跟踪反馈机制及社会评价机制，并对生源情况、在校生学业水平、毕业生就业情况等进行分析，定期评价人才培养质量和培养目标达成情况。

4.专业教研组织应充分利用评价分析结果有效改进专业教学，持续提高人才培养质量。

**毕业要求**

学生德、智、体、美、劳合格，在允许的修业年限内学完培养计划规定的全部课程，通过顶岗实践或毕业论文答辩，取得相应的职业资格证书，达到毕业最低学分（147分）要求，即获得毕业资格，准予毕业并颁发毕业证书。

**教 学 进 程 表**

**2018 级 工程测量技术 专 业**

毕业最低学分：147分

专业代码：520301

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
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| **一、教学进程表** | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | **二、周数分配表** | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 学  年 | 教 学 周 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 理论  及  分散  实践 | | | | 集  中  实  践 | | | | 考  试 | | | 劳  动 | | | | 军  训 | | | 机  动 | | | | 毕  业  教  育 | | 假  期 | | | 合  计 | | |
| 九月 | | | | | | | 十月 | | | | | | | 十一月 | | | | | | | | 十二月 | | | | | | | | | | 一月 | | | | | | | | | 二月 | | | | | | | | | 三月 | | | | | | | | 四月 | | | | | | 五月 | | | | | | | | | 六月 | | | | | | | 七月 | | | | | | | | | 八月 | | | | | | |
|  | 1 | 2 | | | 3 | | 4 | | 5 | 6 | 7 | | 8 | 9 | | 10 | 11 | 12 | 13 | | | 14 | | | 15 | 16 | | | 17 | 18 | | | | | 19 | 20 | | 21 | | | 22 | | 23 | 24 | | 25 | 26 | | 27 | | | | | 28 | 29 | 30 | | 31 | | 32 | 33 | 34 | | 35 | | 36 | 37 | | 38 | | 39 | 40 | | | 41 | 42 | | 43 | | 44 | | | | 45 | | 46 | | 47 | 48 | | | 49 | 50 | 51 | 52 | | | | K | | | S | | | | ∷ | | | × | | | | ★ | | J | | | T | | | | = | | |  | |
| 一 | ★2 | | | | K15 | | | | | | | | | | | | | | | | | | | | | | | | | J2 | | | | | | ∷ | | ==== 6 | | | | | | | | | | | K18 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | J | | | | ∷ | | ==== 6 | | | | | | | | | | | 33 | | | 0 | | | | 2 | | | 0 | | | | 2 | | 3 | | | 0 | | | | 12 | | | 52 | |
| 二 | K13 | | | | | | | | | | | | | | | | | | | | S③ | | | s② | | | S① | | | | | | | | J | | ∷ | | ==== 6 | | | | | | | | | | | K12 | | | | | | | | | | | | | | | | | | | | S⑤ | | | | | | | S⑥ | | | | | | J | | | ∷ | ====6 | | | | | | | | | | |  | | 25 | | | 11 | | | | 2 | | | 0 | | | | 0 | | 2 | | | | 0 | | | 12 | | | 52 | | |
| 三 | K12 | | | | | | | | | | | | | | | | | | | S⑤ | | | | | | | S④ | | | | | × | | | J | | ∷ | | ==== 6 | | | | | | | | | | | S⑦ | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | J | | | T |  | | | | | | | | | | |  | | 12 | | | 23 | | | | 1 | | | 1 | | | | 0 | | 2 | | | | 1 | | | 6 | | | 46 | | |
| **三、教学进度表** | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 合计 | | | | | | | | | | | | | | | | | | |  | | 70 | | | 34 | | | | 5 | | | 1 | | | | 2 | | 7 | | | | 1 | | | 30 | | | 150 | | |
| 课程类型 | 序  号 | | 课程  代码 | | | | | | 课 程 名 称 | | | | | | | | | | | | 考核学期序 | | | | | | | | | | | | | | | | | | | 学 分 | | | | | | | | 学 时 数 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 理论教学（含分散性实践教学）周学时 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 考 试 | | | | | | | | | | | 考 查 | | | | | | | | 总 计 | | | | | | | | | 理 论 | | | | | | 实 践 | | | | | | | | | | | | | | | | | | | | | | | | | | | | 一 年 级 | | | | | | | | | | | | | 二 年 级 | | | | | | | | | | | | | 三 年 级 | | | | | | | | | | | |
| 合 计 | | | | | 习 题 课 | | | | | 实 训 | | | | 现场教学 | | | | | | | | 创新创业训练 | | | | | | 1学期  15周 | | | | | 2学期  18周 | | | | | | | | 3学期  13周 | | | | | | | 4学期  12周 | | | | | | 5学期  12周 | | | | | | 6学期  18周 | | | | | |
| 公共必修课 | 1 | | 0001 | | | | | | 思想道德修养与法律基础及形势政策 | | | | | | | | | | | | 1 | | | | | | | | | | | 2 | | | | | | | | 4 | | | | | | | | 66 | | | | | | | | | 52 | | | | | | 14 | | | | | 14 | | | | |  | | | |  | | | | | | | |  | | | | | | 2 | | | | | 2 | | | | | | | |  | | | | | | |  | | | | | |  | | | | | |  | | | | | |
| 2 | | 0002 | | | | | | 毛泽东思想和中国特色社会主义理论体系概论及形势政策 | | | | | | | | | | | | 3 | | | | | | | | | | | 4 | | | | | | | | 3 | | | | | | | | 50 | | | | | | | | | 38 | | | | | | 12 | | | | | 12 | | | | |  | | | |  | | | | | | | |  | | | | | |  | | | | |  | | | | | | | | 2 | | | | | | | 2 | | | | | |  | | | | | |  | | | | | |
| 3 | | 0005 | | | | | | 高等数学 | | | | | | | | | | | | 1 | | | | | | | | | | |  | | | | | | | | 3 | | | | | | | | 60 | | | | | | | | | 54 | | | | | | 6 | | | | | 6 | | | | |  | | | |  | | | | | | | |  | | | | | | 4 | | | | |  | | | | | | | |  | | | | | | |  | | | | | |  | | | | | |  | | | | | |
| 4 | | 0006 | | | | | | 大学语文 | | | | | | | | | | | |  | | | | | | | | | | | 1 | | | | | | | | 3 | | | | | | | | 60 | | | | | | | | | 52 | | | | | | 8 | | | | | 8 | | | | |  | | | |  | | | | | | | |  | | | | | | 4 | | | | |  | | | | | | | |  | | | | | | |  | | | | | |  | | | | | |  | | | | | |
| 5 | | 0007 | | | | | | 公共英语 | | | | | | | | | | | | 1 | | | | | | | | | | |  | | | | | | | | 3 | | | | | | | | 60 | | | | | | | | | 18 | | | | | | 42 | | | | | 42 | | | | |  | | | |  | | | | | | | |  | | | | | | 4 | | | | |  | | | | | | | |  | | | | | | |  | | | | | |  | | | | | |  | | | | | |
| 6 | | 0008 | | | | | | 信息技术 | | | | | | | | | | | |  | | | | | | | | | | | 2 | | | | | | | | 4 | | | | | | | | 72 | | | | | | | | | 36 | | | | | | 36 | | | | | 36 | | | | |  | | | |  | | | | | | | |  | | | | | |  | | | | | 4 | | | | | | | |  | | | | | | |  | | | | | |  | | | | | |  | | | | | |
| 7 | | 0009 | | | | | | 体育 | | | | | | | | | | | | 3 | | | | | | | | | | | 1.2.4 | | | | | | | | 7 | | | | | | | | 116 | | | | | | | | | 4 | | | | | | 112 | | | | |  | | | | |  | | | | 112 | | | | | | | |  | | | | | | 2 | | | | | 2 | | | | | | | | 2 | | | | | | | 2 | | | | | |  | | | | | |  | | | | | |
| 8 | | 0004 | | | | | | 中华优秀传统文化 | | | | | | | | | | | |  | | | | | | | | | | | 1 | | | | | | | | 2 | | | | | | | | 30 | | | | | | | | | 30 | | | | | |  | | | | |  | | | | |  | | | |  | | | | | | | |  | | | | | | 2 | | | | |  | | | | | | | |  | | | | | | |  | | | | | |  | | | | | |  | | | | | |
| 9 | | 0011 | | | | | | 民族理论和政策 | | | | | | | | | | | |  | | | | | | | | | | | 5 | | | | | | | | 2 | | | | | | | | 36 | | | | | | | | | 36 | | | | | |  | | | | |  | | | | |  | | | |  | | | | | | | |  | | | | | |  | | | | |  | | | | | | | |  | | | | | | |  | | | | | | 3 | | | | | |  | | | | | |
| 10 | | 0010 | | | | | | 大学生职业发展与就业指导 | | | | | | | | | | | |  | | | | | | | | | | | 2 | | | | | | | | 2 | | | | | | | | 36 | | | | | | | | | 36 | | | | | |  | | | | |  | | | | |  | | | |  | | | | | | | |  | | | | | |  | | | | | 2 | | | | | | | |  | | | | | | |  | | | | | |  | | | | | |  | | | | | |
| 小计学分及学时数 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 33 | | | | | | | | 586 | | | | | | | | | 356 | | | | | | 230 | | | | | 118 | | | | |  | | | | 112 | | | | | | | |  | | | | | | 18 | | | | | 10 | | | | | | | | 4 | | | | | | | 4 | | | | | | 3 | | | | | | **0** | | | | | |
| 专业必修课 | 11 | | 13001 | | | | | | 工程制图 | | | | | | | | | | | |  | | | | | | | | | | | 1 | | | | | | | | 2 | | | | | | | | 30 | | | | | | | | | 16 | | | | | | 14 | | | | | 14 | | | | |  | | | |  | | | | | | | |  | | | | | | 2 | | | | |  | | | | | | | |  | | | | | | |  | | | | | |  | | | | | |  | | | | | |
| 12 | | 13002 | | | | | | 地形测量 | | | | | | | | | | | | 1 | | | | | | | | | | |  | | | | | | | | 5 | | | | | | | | 90 | | | | | | | | | 48 | | | | | | 42 | | | | | 4 | | | | | 38 | | | |  | | | | | | | |  | | | | | | 6 | | | | |  | | | | | | | |  | | | | | | |  | | | | | |  | | | | | |  | | | | | |
| 13 | | 13003 | | | | | | 测绘CAD | | | | | | | | | | | | 2 | | | | | | | | | | |  | | | | | | | | 4 | | | | | | | | 72 | | | | | | | | | 36 | | | | | | 36 | | | | | 36 | | | | |  | | | |  | | | | | | | |  | | | | | |  | | | | | 4 | | | | | | | |  | | | | | | |  | | | | | |  | | | | | |  | | | | | |
| 14 | | 13004 | | | | | | 数字测图 | | | | | | | | | | | | 2 | | | | | | | | | | |  | | | | | | | | 6 | | | | | | | | 108 | | | | | | | | | 54 | | | | | | 54 | | | | |  | | | | | 54 | | | |  | | | | | | | |  | | | | | |  | | | | | 6 | | | | | | | |  | | | | | | |  | | | | | |  | | | | | |  | | | | | |
| 15 | | 13005 | | | | | | 测量平差基础 | | | | | | | | | | | | 2 | | | | | | | | | | |  | | | | | | | | 6 | | | | | | | | 108 | | | | | | | | | 64 | | | | | | 44 | | | | | 12 | | | | | 14 | | | |  | | | | | | | | 18 | | | | | |  | | | | | 6 | | | | | | | |  | | | | | | |  | | | | | |  | | | | | |  | | | | | |
| 16 | | 13006 | | | | | | 控制测量 | | | | | | | | | | | | 3 | | | | | | | | | | |  | | | | | | | | 4 | | | | | | | | 78 | | | | | | | | | 40 | | | | | | 38 | | | | |  | | | | | 38 | | | |  | | | | | | | |  | | | | | |  | | | | |  | | | | | | | | 6 | | | | | | |  | | | | | |  | | | | | |  | | | | | |
| 17 | | 13007 | | | | | | GPS定位测量 | | | | | | | | | | | | 3 | | | | | | | | | | |  | | | | | | | | 4 | | | | | | | | 78 | | | | | | | | | 38 | | | | | | 40 | | | | |  | | | | | 40 | | | |  | | | | | | | |  | | | | | |  | | | | |  | | | | | | | | 6 | | | | | | |  | | | | | |  | | | | | |  | | | | | |
| 18 | | 13008 | | | | | | 工程概论 | | | | | | | | | | | |  | | | | | | | | | | | 4 | | | | | | | | 3 | | | | | | | | 48 | | | | | | | | | 48 | | | | | | 0 | | | | |  | | | | |  | | | |  | | | | | | | |  | | | | | |  | | | | |  | | | | | | | |  | | | | | | | 4 | | | | | |  | | | | | |  | | | | | |
| 19 | | 13009 | | | | | | 地籍测量 | | | | | | | | | | | | 4 | | | | | | | | | | |  | | | | | | | | 4 | | | | | | | | 72 | | | | | | | | | 36 | | | | | | 36 | | | | |  | | | | | 36 | | | |  | | | | | | | |  | | | | | |  | | | | |  | | | | | | | |  | | | | | | | 6 | | | | | |  | | | | | |  | | | | | |
| 20 | | 13010 | | | | | | 工程测量 | | | | | | | | | | | | 4、5 | | | | | | | | | | | 3 | | | | | | | | 11 | | | | | | | | 196 | | | | | | | | | 98 | | | | | | 98 | | | | |  | | | | | 98 | | | |  | | | | | | | |  | | | | | |  | | | | |  | | | | | | | | 4 | | | | | | | 6 | | | | | | 6 | | | | | |  | | | | | |
| 小计学分及学时数 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 49 | | | | | | | | 880 | | | | | | | | | 478 | | | | | | 402 | | | | | 66 | | | | | 318 | | | |  | | | | | | | | 18 | | | | | | 8 | | | | | 16 | | | | | | | | 16 | | | | | | | 16 | | | | | | 6 | | | | | |  | | | | | |
| 21 | | 13011 | | | | | | 全站仪数字测图实习① | | | | | | | | | | | | | | | | | |  | | | | | 3 | | | | | | | | 3 | | | | | | | | 84 | | | | | | | | |  | | | | | | 84 | | | | |  | | | | | 72 | | | |  | | | | | | | | 12 | | | | | |  | | | | |  | | | | | | | | 3周 | | | | | | |  | | | | | |  | | | | | |  | | | | | |
| 22 | | 13012 | | | | | | 控制测量综合实习② | | | | | | | | | | | | | | | | | |  | | | | | 3 | | | | | | | | 1 | | | | | | | | 28 | | | | | | | | |  | | | | | | 28 | | | | |  | | | | | 14 | | | |  | | | | | | | | 14 | | | | | |  | | | | |  | | | | | | | | 1周 | | | | | | |  | | | | | |  | | | | | |  | | | | | |
| 23 | | 13013 | | | | | | GPS技术应用实习③ | | | | | | | | | | | | | | | | | |  | | | | | 3 | | | | | | | | 1 | | | | | | | | 28 | | | | | | | | |  | | | | | | 28 | | | | |  | | | | | 14 | | | |  | | | | | | | | 14 | | | | | |  | | | | |  | | | | | | | | 1周 | | | | | | |  | | | | | |  | | | | | |  | | | | | |
| 24 | | 13014 | | | | | | 测量中级工训练④ | | | | | | | | | | | | | | | | | |  | | | | | 5 | | | | | | | | 2 | | | | | | | | 56 | | | | | | | | |  | | | | | | 56 | | | | |  | | | | | 60 | | | |  | | | | | | | |  | | | | | |  | | | | |  | | | | | | | |  | | | | | | |  | | | | | | 2周 | | | | | |  | | | | | |
| 25 | | 13015 | | | | | | 工程测量综合实习⑤ | | | | | | | | | | | | | | | | | |  | | | | | 4.5 | | | | | | | | 7 | | | | | | | | 196 | | | | | | | | |  | | | | | | 196 | | | | |  | | | | | 180 | | | |  | | | | | | | | 16 | | | | | |  | | | | |  | | | | | | | |  | | | | | | | 4周 | | | | | | 3周 | | | | | |  | | | | | |
| 26 | | 13016 | | | | | | 地籍与房产测绘实习⑥ | | | | | | | | | | | | | | | | | |  | | | | | 4 | | | | | | | | 2 | | | | | | | | 56 | | | | | | | | |  | | | | | | 56 | | | | |  | | | | | 44 | | | |  | | | | | | | | 12 | | | | | |  | | | | |  | | | | | | | |  | | | | | | | 2周 | | | | | |  | | | | | |  | | | | | |
| 27 | | 13020 | | | | | | 毕业实习和毕业设计⑦ | | | | | | | | | | | | | | | | | |  | | | | | 6 | | | | | | | | 18 | | | | | | | | 540 | | | | | | | | |  | | | | | | 540 | | | | |  | | | | | 480 | | | |  | | | | | | | | 60 | | | | | |  | | | | |  | | | | | | | |  | | | | | | |  | | | | | |  | | | | | | 18 | | | | | |
| 小计学分及学时数 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 34 | | | | | | | | 988 | | | | | | | | |  | | | | | | 988 | | | | |  | | | | | 860 | | | |  | | | | | | | | 128 | | | | | |  | | | | |  | | | | | | | | 5周 | | | | | | | 6周 | | | | | | 5周 | | | | | | 18周 | | | | | |
| 专业选修课  一 | 30 | | 13021 | | | | | | 地图制图 | | | | | | | | | | | | | | | | | |  | | | | 3 | | | | | | | | | 3 | | | | | | | | 52 | | | | | | | | | 26 | | | | | | 26 | | | | | 26 | | | | |  | | | |  | | | | | | | |  | | | | | |  | | | | |  | | | | | | | | 4 | | | | | | |  | | | | | |  | | | | | |  | | | | | |
| 31 | | 13022 | | | | | | 测绘管理与法律法规 | | | | | | | | | | | | | | | | | |  | | | | 4 | | | | | | | | | 3 | | | | | | | | 48 | | | | | | | | | 48 | | | | | |  | | | | |  | | | | |  | | | |  | | | | | | | |  | | | | | |  | | | | |  | | | | | | | |  | | | | | | | 4 | | | | | |  | | | | | |  | | | | | |
| 32 | | 13023 | | | | | | 地理信息系统 | | | | | | | | | | | | | | | | | | 5 | | | |  | | | | | | | | | 4 | | | | | | | | 72 | | | | | | | | | 36 | | | | | | 36 | | | | | 36 | | | | |  | | | |  | | | | | | | |  | | | | | |  | | | | |  | | | | | | | |  | | | | | | |  | | | | | | 6 | | | | | |  | | | | | |
| 33 | | 13024 | | | | | | 摄影测量与遥感 | | | | | | | | | | | | | | | | | | 5 | | | |  | | | | | | | | | 4 | | | | | | | | 72 | | | | | | | | | 36 | | | | | | 36 | | | | | 36 | | | | |  | | | |  | | | | | | | |  | | | | | |  | | | | |  | | | | | | | |  | | | | | | |  | | | | | | 6 | | | | | |  | | | | | |
| 34 | | 13025 | | | | | | 测绘专业软件应用 | | | | | | | | | | | | | | | | | |  | | | | 5 | | | | | | | | | 3 | | | | | | | | 48 | | | | | | | | | 24 | | | | | | 24 | | | | | 24 | | | | |  | | | |  | | | | | | | |  | | | | | |  | | | | |  | | | | | | | |  | | | | | | |  | | | | | | 4 | | | | | |  | | | | | |
| 小计学分及学时数 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 17 | | | | | | | | 292 | | | | | | | | | 170 | | | | | | 122 | | | | | 122 | | | | |  | | | |  | | | | | | | |  | | | | | |  | | | | |  | | | | | | | | 4 | | | | | | | 4 | | | | | | 16 | | | | | |  | | | | | |
| 专业选修课  二 | 35 | | | | | 13031 | | | | | | 铁道概论 | | | | | | | | | | | | | | | |  | | | | | | 3 | | | | | | 3 | | | | | | | | 52 | | | | | | | | | 52 | | | | | | 0 | | | | |  | | | | |  | | | |  | | | | | | | |  | | | | | |  | | | | |  | | | | | | | | 4 | | | | | | |  | | | | | |  | | | | | |  | | | | | |
| 36 | | | | | 13032 | | | | | | 既有铁路测量 | | | | | | | | | | | | | | | |  | | | | | | 4 | | | | | | 3 | | | | | | | | 48 | | | | | | | | | 24 | | | | | | 24 | | | | |  | | | | | 24 | | | |  | | | | | | | |  | | | | | |  | | | | |  | | | | | | | |  | | | | | | | 4 | | | | | |  | | | | | |  | | | | | |
| 37 | | | | | 13033 | | | | | | 新建铁路线路测量 | | | | | | | | | | | | | | | | 5 | | | | | |  | | | | | | 4 | | | | | | | | 72 | | | | | | | | | 36 | | | | | | 36 | | | | |  | | | | | 36 | | | |  | | | | | | | |  | | | | | |  | | | | |  | | | | | | | |  | | | | | | |  | | | | | | 6 | | | | | |  | | | | | |
| 38 | | | | | 13034 | | | | | | 铁路线桥知识 | | | | | | | | | | | | | | | | 5 | | | | | |  | | | | | | 4 | | | | | | | | 72 | | | | | | | | | 36 | | | | | | 36 | | | | | 36 | | | | |  | | | |  | | | | | | | |  | | | | | |  | | | | |  | | | | | | | |  | | | | | | |  | | | | | | 6 | | | | | |  | | | | | |
| 39 | | | | | 13035 | | | | | | 编程计算器使用 | | | | | | | | | | | | | | | |  | | | | | | 5 | | | | | | 3 | | | | | | | | 48 | | | | | | | | | 24 | | | | | | 24 | | | | | 24 | | | | |  | | | |  | | | | | | | |  | | | | | |  | | | | |  | | | | | | | |  | | | | | | |  | | | | | | 4 | | | | | |  | | | | | |
| 小计学分及学时数 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 17 | | | | | | | | 292 | | | | | | | | | 172 | | | | | | 120 | | | | | 60 | | | | | 60 | | | |  | | | | | | | |  | | | | | |  | | | | |  | | | | | | | | 4 | | | | | | | 4 | | | | | | 16 | | | | | |  | | | | | |
| 合计学分及学时数 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 133 | | | | | | | | 2746 | | | | | | | | | 1004 | | | | | | 1742 | | | | | 306 | | | | | 1178 | | | | 112 | | | | | | | | 146 | | | | | | 26 | | | | | 26 | | | | | | | | 24 | | | | | | | 24 | | | | | | 25 | | | | | |  | | | | | |
| 每 学 期 理 论 课 程 门 数 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 8 | | | | | 7 | | | | | | | | 6 | | | | | | | 6 | | | | | | 5 | | | | | |  | | | | | |
| 每 学 期 理 论 课 程 考 试 门 数 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 4 | | | | | 3 | | | | | | | | 4 | | | | | | | 2 | | | | | | 3 | | | | | |  | | | | | |
| 每 学 期 理 论 课 程 考 查 门 数 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 4 | | | | | 4 | | | | | | | | 2 | | | | | | | 4 | | | | | | 2 | | | | | |  | | | | | |
| 每 学 期 实 践 课 程 门 数 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 0 | | | | | 0 | | | | | | | | 3 | | | | | | | 2 | | | | | | 2 | | | | | | 1 | | | | | |
| **四、素质拓展课** | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 课程类型 | 序  号 | | | 课程代码 | | | | | 课 程 名 称 | | | | | | | | | | | | 考核学期序 | | | | | | | | | | | | | | | | | | | 学 分 | | | | | 课  时 | | | | | | | 说 明 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 考 试 | | | | | | 考 查 | | | | | | | | | | | | |  | | | | |  | | | | | | |  | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 必修  课 | 1 | | | 01 | | | | | 军训及军事理论教育 | | | | | | | | | | | |  | | | | | | 1 | | | | | | | | | | | | | 4 | | | | | 60 | | | | | | | | 第1学期开设，含入学教育。 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 2 | | | 02 | | | | | 心理健康教育 | | | | | | | | | | | |  | | | | | | 2.3.4.5 | | | | | | | | | | | | | 2 | | | | | 32 | | | | | | | | 分专业在第2～5学期之一开设。 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 3 | | | 03 | | | | | 大学生安全及健康教育 | | | | | | | | | | | |  | | | | | | 1.2.3.4 | | | | | | | | | | | | | 2 | | | | | 32 | | | | | | | | 在1～4学期实施，以专题讲座的形式和每学期大学生第二课堂教育活动中开设。 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 4 | | | 04 | | | | | 大学生暑期社会实践 | | | | | | | | | | | |  | | | | | | 2.4 | | | | | | | | | | | | | 2 | | | | |  | | | | | | | | 利用暑期，进行社会实践，提交报告。 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 小计学分及学时数 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 10 | | | | | 124 | | | | | | | |  | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 选  修  课 | 1 | | | 001 | | | | | 演讲与口才 | | | | | | | | | | | |  | | | | | | 2～5 | | | | | | | | | | | | | 2 | | | | | 32 | | | | | | | |  | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 2 | | | 002 | | | | | 中国小说阅读与鉴赏 | | | | | | | | | | | |  | | | | | | 2～5 | | | | | | | | | | | | | 2 | | | | | 32 | | | | | | | |  | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 3 | | | 003 | | | | | 音乐欣赏 | | | | | | | | | | | |  | | | | | | 2～5 | | | | | | | | | | | | | 2 | | | | | 32 | | | | | | | |  | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 4 | | | 004 | | | | | 影视文学欣赏 | | | | | | | | | | | |  | | | | | | 2～5 | | | | | | | | | | | | | 2 | | | | | 32 | | | | | | | |  | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 5 | | | 005 | | | | | 应用写作 | | | | | | | | | | | |  | | | | | | 2～5 | | | | | | | | | | | | | 2 | | | | | 32 | | | | | | | |  | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 6 | | | 006 | | | | | 现代礼仪 | | | | | | | | | | | |  | | | | | | 2～5 | | | | | | | | | | | | | 2 | | | | | 32 | | | | | | | |  | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 7 | | | 007 | | | | | 中国古典诗词欣赏 | | | | | | | | | | | |  | | | | | | 2～5 | | | | | | | | | | | | | 2 | | | | | 32 | | | | | | | |  | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 8 | | | 008 | | | | | 中国近现代史纲要 | | | | | | | | | | | |  | | | | | | 2～5 | | | | | | | | | | | | | 2 | | | | | 32 | | | | | | | |  | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 9 | | | 009 | | | | | 中国传统文化 | | | | | | | | | | | |  | | | | | | 2～5 | | | | | | | | | | | | | 2 | | | | | 32 | | | | | | | |  | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 10 | | | 010 | | | | | 中国旅游资源概况 | | | | | | | | | | | |  | | | | | | 2～5 | | | | | | | | | | | | | 2 | | | | | 32 | | | | | | | |  | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 11 | | | 011 | | | | | ISO9000质量管理体系 | | | | | | | | | | | |  | | | | | | 2～5 | | | | | | | | | | | | | 2 | | | | | 32 | | | | | | | |  | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 12 | | | 012 | | | | | 高级文字排版 | | | | | | | | | | | |  | | | | | | 2～5 | | | | | | | | | | | | | 2 | | | | | 32 | | | | | | | |  | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 13 | | | 013 | | | | | 电子表格处理 | | | | | | | | | | | |  | | | | | | 2～5 | | | | | | | | | | | | | 2 | | | | | 32 | | | | | | | |  | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 14 | | | 014 | | | | | PS图像处理 | | | | | | | | | | | |  | | | | | | 2～5 | | | | | | | | | | | | | 2 | | | | | 32 | | | | | | | |  | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 15 | | | 015 | | | | | 高级PPT制作 | | | | | | | | | | | |  | | | | | | 2～5 | | | | | | | | | | | | | 2 | | | | | 32 | | | | | | | |  | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 16 | | | 016 | | | | | 计算机组装维修及网络操作 | | | | | | | | | | | |  | | | | | | 2～5 | | | | | | | | | | | | | 2 | | | | | 32 | | | | | | | |  | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 17 | | | 017 | | | | | 生活中的经济学 | | | | | | | | | | | |  | | | | | | 2～5 | | | | | | | | | | | | | 2 | | | | | 32 | | | | | | | |  | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 18 | | | 018 | | | | | 技术史漫谈 | | | | | | | | | | | |  | | | | | | 2～5 | | | | | | | | | | | | | 2 | | | | | 32 | | | | | | | |  | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 19 | | | 019 | | | | | 电影赏析 | | | | | | | | | | | |  | | | | | | 2～5 | | | | | | | | | | | | | 2 | | | | | 32 | | | | | | | |  | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 20 | | | 020 | | | | | 职业素质 | | | | | | | | | | | |  | | | | | | 2～5 | | | | | | | | | | | | | 2 | | | | | 32 | | | | | | | |  | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 21 | | | 021 | | | | | 创造性思维与创新方法 | | | | | | | | | | | |  | | | | | | 2～5 | | | | | | | | | | | | | 2 | | | | | 32 | | | | | | | |  | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 22 | | | 022 | | | | | 大学生创业基础 | | | | | | | | | | | |  | | | | | | 2～5 | | | | | | | | | | | | | 2 | | | | | 32 | | | | | | | |  | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 23 | | | 023 | | | | | 创新创业实践 | | | | | | | | | | | |  | | | | | | 1～6 | | | | | | | | | | | | | 10 | | | | |  | | | | | | | | 用于学生参加课题研究、项目实验、竞赛活动、发表论文等创新创业成果的学分折算 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 小计学分及学时数 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 4 | | | | |  | | | | | | | |  | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| **合计学分及学时数** | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 147 | | | | |  | | | | | | | | **总学分147,必修课学分126,选修课学分21,其中专业选修课学分17，素质选修课学分4.总学时2746，理论学时1004，实践学时1742.** | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |