**土木工程专业**

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**（2017版，2017级适用）**

土木工程专业培养方案（2017版）

**Civil Engineering**

学科门类：工学土木类专业代码：081001

一、学校定位及专业培养目标

**学校定位：**

立足区域，服务行业，着力培养有社会责任、有创新精神、有专门知识、有实践能力、有健康身心的应用型高级专门人才。

**专业培养目标：**

本专业培养适应社会主义现代化建设需要，具有人文素养、职业道德和社会责任感，德、智、体、美、劳全面发展，受到科学思维训练，具有一定的国际视野、创新思维、创业意识和继续学习能力，能够胜任建筑工程、道路桥梁工程等领域的工程勘察与设计、建造技术、工程检测和施工管理工作的“五有”应用型高级工程技术人才。经过五年左右的实践锻炼，能够成长为土木工程领域的技术或管理骨干，并在组织、管理与协同团队工作中发挥有效作用，解决土木工程领域的复杂工程问题。

以上培养目标可以归纳为：

1.能够熟练运用专业理论知识，在土木工程项目的勘测、规划、设计、施工、管理、招投标等方面解决工程实际中的复杂工程问题。

2.具备扎实的专业知识和独立工作的能力，具备积极有效沟通、与他人合作以及在多学科团队中行使职责的能力，具备团队协作精神及领导力。

3.具有建造工程师、结构工程师、监理工程师等执业资格必需的知识和素质，胜任工程师相关工作，成为技术或管理骨干，具有一定的国际视野、创新能力和终身学习能力。

4.具有良好的道德和职业修养、安全与健康理念、人文社会科学素养及社会责任感，在工作中能够积极服务国家与社会。

二、毕业要求

**1. 工程知识：能够将数学、自然科学、工程基础和专业知识用于解决土木工程专业的复杂工程问题。**

1.1 掌握数学和自然科学知识，在土木工程专业复杂工程问题的建模和计算时具有较强的计算推演能力。

1.2 掌握土木工程专业基础知识，在表述土木工程专业复杂工程问题时具有语言表达能力。

1.3 掌握土木工程专业知识，在解决土木工程专业的复杂工程问题时具有综合分析能力。

**2. 问题分析：能够应用数学、自然科学和工程科学的基本原理，识别、表达、并通过文献研究分析土木工程专业的复杂工程问题，以获得有效结论。**

2.1 能够运用数学、自然科学、力学、结构原理等基本原理分析土木工程专业的复杂工程问题。

2.2 能够对土木工程专业的复杂工程问题进行识别和抽象建模。

2.3 能够运用图纸、图表和文字等对土木工程专业的复杂工程问题进行表达，并能够通过文献研究，获取有效地结论。

**3. 设计（开发）解决方案**：**能够设计（开发）满足土木工程特定需求的体系、结构、构件（节点），并在设计环节中考虑社会、健康、安全、法律、文化以及环境等因素。在提出复杂工程问题的解决方案时具有创新意识。**

3.1 能够考虑社会、健康、安全、法律、文化以及环境等因素，完成满足土木工程特定需求的系统设计（开发）方案。

3.2 针对土木工程复杂工程问题，能够考虑新工艺、新设备、新技术、新材料，设计出具有创新性的工程方案。

3.3 能够综合应用土木工程科学理论和专业知识设计(开发)满足土木工程特定需求的构件、节点等。

3.4 能够运用合理的土木工程设计语言来展示设计成果，并评价其局限性。

**4. 研究**：**能够基于科学原理、采用科学方法对土木工程专业的复杂工程问题进行研究，包括设计实验、收集、处理、分析与解释数据，通过信息综合得到合理有效的结论并应用于工程实践。**

4.1 针对土木工程专业的复杂工程问题，具备科学设计实验能力。

4.2 运用科学方法开展土木工程测试与检测，能够对实验数据进行合理的收集和处理。

4.3 能对土木工程实验结果进行综合分析和解释，得出有效结论并用于指导工程实践。

**5. 使用现代工具**：**能够针对土木工程复杂工程问题，开发、选择与使用恰当的技术、资源、现代工程工具和信息技术工具对复杂工程问题进行预测与模拟,并能够理解其局限性。**

5.1 掌握文献检索的基本方法，具备利用恰当的技术、资源、现代信息技术工具收集、分析、判断和选择土木工程相关技术信息的能力。

5.2 了解与土木工程相关的现代工程工具的使用方法及基本开发原理，能够根据工程实际需要进行数值建模和数值计算，并对预测与模拟结果的有效性和局限性进行分析。

5.3 掌握现代测试工具使用方法，具备使用现代测试工具对土木工程专业复杂工程问题预测与模拟结果进行实验验证的能力。

**6. 工程与社会**：**能够基于土木工程相关的背景知识和标准，评价土木工程项目的设计、施工和运行的方案、复杂工程问题的解决方案，以及对社会、健康、安全、法律、文化的影响，理解土木工程师应承担的责任。**

6.1 基于土木工程相关的背景知识和标准，能够评价土木工程项目的设计、施工和运行方案及复杂工程问题解决方案对社会、健康、安全、法律以及文化的影响；以及这些制约因素对项目实施的影响。

6.2 理解在工程项目全过程中，土木工程师于公众健康、公共安全、社会和文化，以及法律等方面应承担的责任。

**7. 环境和可持续发展**：**能够理解和评价针对土木工程专业的复杂工程问题的工程实践对环境、社会可持续发展的影响。**

7.1 理解土木工程专业及其相关行业的政策法规对环境和可持续发展方面的保障作用。

7.2 能够正确评价土木工程专业的复杂工程问题的工程实践对环保和可持续发展的影响。

7.3 针对土木工程专业的复杂工程问题，具有在工程实践中推广使用节能环保新材料、重视节能节水、进行绿色施工的意识。

**8. 职业规范**：**了解中国国情，具有人文社会科学素养和社会责任感，能够在工程实践中理解并遵守工程职业道德和行为规范，做到责任担当、贡献国家、服务社会。**

8.1 能够理解土木工程职业道德和行为规范对工程师的正确导向作用。

8.2 了解中国国情，具有人文社会科学素养和社会责任感，明确作为土木工程师在贡献国家、服务社会方面的责任担当。

**9. 个人和团队**：**在****解决土木工程专业的复杂工程问题时，能够在多学科组成的团队中承担个体、团队成员或负责人的角色。**

9.1 针对土木工程复杂工程问题，能够在多学科背景下的团队中承担个体和团队成员角色，具备合作意识，能够与团队成员有效沟通。

9.2 针对土木工程复杂工程问题，能够在多学科背景下的团队中承担负责人角色，具有组织、管理和协调能力。

**10. 沟通**：**能够就土木工程专业的复杂工程问题与业界同行及社会公众进行有效沟通和交流，包括撰写报告和设计文稿、陈述发言、表达或回应指令。具备一定的国际视野，能够在跨文化背景下进行沟通和交流。**

10.1 针对土木工程复杂工程问题，能够通过报告、文稿、陈述发言等方式与业界同行及社会公众进行有效沟通和交流。

10.2 了解土木工程相关行业的国际发展趋势，并能掌握和应用一门外语在跨文化背景下有效表达自己的观点。**11. 项目管理**：**在与土木工程专业相关的多学科环境中理解、掌握、应用工程管理原理与经济决策方法，具有组织、管理和领导能力。**

11.1 具备统筹兼顾土木工程专业相关的多学科要求开展工程组织、管理和领导的能力。

11.2 能够在与土木工程专业相关的多学科环境中理解、掌握、应用工程管理原理与经济决策方法做出合理的经济、管理和领导决策。

**12. 终身学习**：**具有自主学习和终身学习的意识，具有提高自主学习和适应土木工程新发展的能力。**

12.1 正确认识终身学习土木工程专业知识的重要性，具有自主学习的能力。

12.2 能跟踪土木工程专业学科前沿，具有适应土木工程新发展的能力。

**三、毕业要求对培养目标的支撑关系矩阵**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| 培养目标  毕业要求 | 培养目标1 | 培养目标2 | 培养目标3 | 培养目标4 |
| 1-应用工程知识 | √ | √ | √ |  |
| 2-问题分析 | √ |  | √ |  |
| 3-设计/开发解决方案 | √ | √ | √ |  |
| 4-研究 | √ | √ | √ |  |
| 5-使用现代工具 | √ | √ |  |  |
| 6-工程与社会 | √ |  | √ |  |
| 7-环境和可持续发展 |  |  | √ | √ |
| 8-职业规范 |  |  | √ | √ |
| 9-个人和团队 | √ | √ |  |  |
| 10-沟通 |  | √ | √ | √ |
| 11-项目管理 |  | √ | √ |  |
| 12-终身学习 |  |  | √ | √ |

**四、本专业课程体系与毕业要求的关联度矩阵**

| 课程名称 | 要求1 | | | 要求2 | | | 要求3 | | | | 要求4 | | | 要求5 | | | 要求6 | | 要求7 | | | 要求8 | | 要求9 | | 要求10 | | 要求11 | | 要求12 | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 工程知识 | | | 分析工程问题 | | | 设计/开发解决方案 | | | | 研究 | | | 使用现代工具 | | | 工程与社会 | | 环境和可持续发展 | | | 职业规范 | | 个人和团队 | | 沟通 | | 项目管理 | | 终身学习 | |
| 1.1 | 1.2 | 1.3 | 2.1 | 2.2 | 2.3 | 3.1 | 3.2 | 3.3 | 3.4 | 4.1 | 4.2 | 4.3 | 5.1 | 5.2 | 5.3 | 6.1 | 6.2 | 7.1 | 7.2 | 7.3 | 8.1 | 8.2 | 9.1 | 9.2 | 10.1 | 10.2 | 11.1 | 11.2 | 12.1 | 12.2 |
| 马克思主义基本原理 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | H |  |  |  |  |  |  |  |  |  | H |  |
| 毛泽东思想和中国特色  社会主义理论体系概论 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | H |  |  |  |  |  |  | H |  |
| 思想道德修养与法律基础 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | H |  |  |  | H |  |  |  |  |  |  |  |  |  |
| 中国近现代史纲要 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | H |  |  |  |  |  |  | L |  |
| 形势与政策Ⅰ |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | H |  |  | M |  |  |  |  |  |  |  |  |  |
| 大学英语听说Ⅰ |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | M | H |  |  |  |  |
| 形势与政策Ⅱ |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | H |  |  | M |  |  |  |  |  |  |  |  |  |
| 大学英语听说Ⅱ |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | M | H |  |  |  |  |
| 大学英语读写Ⅰ |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | M | H |  |  |  |  |
| 大学英语读写Ⅱ |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | M | H |  |  |  |  |
| 大学英语读写Ⅲ |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | M | H |  |  |  |  |
| 学科英语 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | H |  |  | H |  |  |  | L |
| 计算机应用基础 |  |  |  |  |  | H |  |  |  |  |  |  |  | H | M |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 体育Ⅰ |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | H |  | M |  |  |  |  |  |
| 体育Ⅱ |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | H |  | M |  |  |  |  |  |
| 体育Ⅲ |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | H |  | M |  |  |  |  |  |
| 体育Ⅳ |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | H |  | M |  |  |  |  |  |
| 军事理论 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | H |  | M |  |  |  |  |  |
| 文献检索 |  |  |  |  |  |  |  |  |  |  |  |  |  | H |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | H |
| 土木工程概论 |  | H |  |  |  |  |  |  |  |  |  |  |  | M |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | H |
| 大学生职业生涯规划 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | H | M |  |  |  |  |  |  |  | H |
| 大学生就业指导 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | H |  |  |  |  | M |
| 大学生创业基础 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | H |  |  |  | M |  |
| 建设行业创新创业课程 |  |  |  |  |  |  |  |  |  |  |  |  |  |  | H |  |  |  |  |  |  |  |  |  | H |  |  |  |  | H |  |
| 学生大赛、论文、发明等学分认定 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | H |  |  |  |  | M |  |
| 中国传统文化 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | H |  |  |  |  | M |  |  |  |
| 大学生心理健康教育 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | M | H |  |  |  |  |  |
| 高等数学Ⅰ | H |  |  |  | H |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 高等数学Ⅱ | H |  |  |  | H |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 线性代数 | H |  |  | H |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 概率论与数理统计 |  |  |  | H |  |  |  |  |  |  |  |  | H |  | M |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 大学物理(A)Ⅰ | H |  |  |  |  |  |  |  |  |  |  | H |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 大学物理(A)Ⅱ | H |  |  |  |  |  |  |  |  |  |  | H |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 大学物理实验(I) | M |  |  |  |  |  |  |  |  |  |  | H |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 大学物理实验(II) | M |  |  |  |  |  |  |  |  |  |  | H |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 工程化学 |  |  |  | M |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | H |  |  |  |  |  |  |  |  |  |  |
| C语言 |  |  |  |  |  |  |  |  |  | M |  |  |  |  | H |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 土木工程CAD |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | H |  |  |  |  |  |  |  |  |  |  |  |  |  | M |  |
| 土木工程制图 |  |  |  |  |  | H |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | M |  |  |  |  |  |
| 理论力学 |  |  | M | H |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 材料力学 |  |  | M |  |  |  |  |  |  |  | H |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 荷载与结构设计方法  （双语） |  |  | H |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | H |  |  |  |  |
| 环境保护概论 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | H |  |  |  |  |  | M |  |  |  |  |  |
| 结构力学 | M |  | M | H |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 流体力学 |  |  | H |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | M |  |  |  |  |  |  |  |  |  |  |
| 工程地质 |  |  | H | M |  |  |  |  |  |  |  |  |  |  |  |  |  |  | H |  |  |  |  |  |  |  |  |  |  |  |  |
| 测量学 |  |  |  |  |  |  |  |  |  |  |  | H |  |  |  | H |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 钢结构设计原理 |  |  |  | H |  |  |  |  | M |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 土力学 |  |  | H |  | H |  |  |  |  |  |  |  | H |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 基础工程 |  |  |  |  |  |  | H |  |  |  |  | M |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 混凝土结构设计原理 |  |  |  | H |  |  |  |  | H |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 土木工程施工 |  |  |  | M |  |  |  |  |  |  |  |  |  |  |  |  | M |  |  |  |  |  |  |  |  |  |  | H |  |  |  |
| 工程结构试验 |  |  |  |  |  |  |  |  |  |  | H | H | H |  |  | M |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 项目管理与法规 |  | H |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | H |  |  |  | H |  |  |  |  |  |  | H |  |  |
| 工程经济 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | H |  |  |  |  |  |  |  |  |  | H |  |  |
| 房屋建筑学 |  | H |  |  |  |  | M |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 建筑钢结构设计 |  |  |  |  | M |  |  |  | H |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 高层建筑结构设计 |  |  |  |  |  |  |  | H |  |  |  |  |  |  |  |  |  |  |  | H |  |  |  |  |  |  |  |  |  |  |  |
| 混凝土与砌体结构设计 |  |  |  | M |  |  |  |  | H |  |  |  |  |  |  |  | H |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 工程概预算 |  |  |  |  |  | H |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | M |  |  |  |  |  |  | H |  |  |
| 土木工程材料 |  | M |  |  |  |  |  | H |  |  | H |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 胶凝材料物理化学 |  |  | M |  |  |  |  | M |  |  | M |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 建筑抗震设计 |  |  |  |  |  |  | H |  |  |  |  |  |  |  |  |  |  | M |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 道路勘测设计 |  |  |  |  |  |  | H |  |  |  |  |  |  |  |  |  |  |  |  | H |  |  |  |  |  |  |  |  |  |  |  |
| 路基路面工程 |  | H |  |  | M |  |  | H |  |  |  |  |  |  |  | M |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 桥梁工程 |  |  |  | M |  |  | M |  | H |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 道路桥梁工程概预算 |  |  |  |  |  | H |  |  |  |  |  |  |  |  |  |  | M |  |  |  |  | M |  |  |  |  |  |  | H |  |  |
| 桥涵水文 |  |  | H |  |  |  |  |  |  |  |  |  |  |  |  |  | M |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 桥梁检测与加固 |  |  |  | M |  |  |  |  |  |  |  |  |  |  |  |  | M |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 入学教育与军训 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | H |  | M |  |  |  |  |  |
| 思想政治理论课实践教学 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | H |  |  |  |  |  |  | M |  |
| 工程地质实习 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | H |  |  |  |  |  | H |  |  |  |  |  |  |
| 测量学实习 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | H |  |  |  |  |  |  |  |  | H |  |  |  |  |  |  |
| 土木工程认识实习 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | H |  |  | H |  |  | M |  | H |  |  |  | H |  |
| 土木工程生产实习 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | H |  |  | H |  | M |  |  | H | H |  |  |  |  |  |
| 基础工程课程设计 |  |  |  |  |  |  | H |  |  |  |  |  |  | M |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 土木工程施工课程设计 |  |  |  |  |  | M |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | H |  |  |  |
| 创新创业实践 |  |  |  |  |  |  |  |  |  |  |  |  |  | H |  |  |  |  |  |  |  |  |  |  | H |  |  |  |  | M |  |
| 土木工程毕业实习与设计 |  |  |  |  |  | H | H |  |  | H |  |  |  | H | H | H |  |  |  |  |  |  |  |  |  | H |  | H |  |  |  |
| 钢筋混凝土肋梁楼盖设计 |  |  |  |  |  | M |  |  | H |  |  |  |  |  |  |  | M |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 单层工业厂房设计 |  |  |  |  |  | M |  |  | H |  |  |  |  |  |  |  | M |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 建筑钢结构课程设计 |  |  |  |  |  |  |  | H |  | H |  |  |  |  |  |  |  |  |  |  |  | M |  |  |  |  |  |  |  |  |  |
| 工程概预算课程设计 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | M |  |  |  |  |  |  | H |  |  |
| 房屋建筑学课程设计 |  |  |  |  |  |  | H |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | M |  |  |  |  |  | M |
| 桥梁工程课程设计 |  |  |  |  |  | M |  |  | H |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 道路勘测设计课程设计 |  |  |  |  |  |  | H |  |  | H |  |  |  |  |  |  |  |  |  |  |  | M |  |  |  |  |  |  |  |  |  |
| 路基路面课程设计 |  |  |  |  |  |  |  | H |  |  |  |  |  |  |  |  | H |  |  |  |  |  |  |  |  |  |  |  |  |  | M |
| 道路桥梁工程概预算课程设计 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | H |  |  |  |  | M |  |  |  |  |  |  | H |  |  |

五、课程设置

（一）主干学科。

主干学科：力学，土木工程。

（二）核心课程及主要实践性教学环节。

核心课程：理论力学、流体力学、材料力学，结构力学、土力学、土木工程材料、混凝土结构设计原理、钢结构设计原理、工程地质、土木工程制图、测量学、基础工程、土木工程施工、房屋建筑学、道路勘测设计、路基路面工程、桥梁工程等。

主要实践性教学环节：实验，实习，设计和社会实践以及科研训练等形式。实验包括基础实验和专业基础实验和专业级研究性实验3个环节，实习包括认识实习、课程实习、生产实习、综合实习、毕业实习等5个环节；设计包括课程设计和毕业设计2个环节。

（三）各环节学时学分比例。

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| 课程类别 | | 应修学分 | 学分比例（%） | 认证要求 | 自评 |
| 数学与自然科学类课程 | | 27 | 15.43 | ≥15% | 满足标准 |
| 工程及专业类课程 | 工程基础 | 35.5 | 39.71 | ≥30% | 满足标准 |
| 专业基础 | 18 |
| 专业课 | 16 |
| 工程实践与毕业设计 | | 38 | 21.71 | ≥20% | 满足标准 |
| 人文社科通识教育课程 | 通识教育必修 | 30 | 23.14 | ≥15% | 满足标准 |
| 通识教育选修 | 5.5 |
| 创新创业课程 | 5 |

六、毕业及学位要求

学制：4年

毕业学分要求：修满175学分

授予学位：工学学士学位。

七、专业课程设置一览表（中英文对照）

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 课程类别 | | | 课程  代码 | | 课程名称 | 学分 | | 总学时 | 讲课学时 | | 实验实践学时 | | 开课  学期 | 备注 |
| 通识教育课程  通识教育课程 | 通识教育平台 | | P12001 | | 马克思主义基本原理  Basic Principles of Marxism | 3 | | 48 | 48 | | 0 | | 3 |  |
| P12502 | | 毛泽东思想和中国特色社会主义理论体系概论  Mao Zedong Thought & Outline of Theory of Socialism With Chinese Characteristics | 4 | | 64 | 64 | | 0 | | 4 |
| P12229 | | 思想道德修养与法律基础  Moral Cultivation & Law Basics | 2.5 | | 40 | 40 | | 0 | | 1 |
| P12503 | | 中国近现代史纲要  Outline of Chinese Modern | 2.5 | | 40 | 40 | | 0 | | 2 |
| P12226 | | 形势与政策Ⅰ  Situation & Policies Ⅰ | 1 | | 16 | 16 | | 0 | | 3 |
| P12227 | | 形势与政策Ⅱ  Situation & Policies Ⅱ | 1 | | 16 | 16 | | 0 | | 5 |
| N12171 | | 大学英语听说Ⅰ  College English Listening and SpeakingⅠ | 1 | | 16 | 16 | | 0 | | 1 |
| N12172 | | 大学英语听说Ⅱ  College English Listening and SpeakingII | 1 | | 16 | 16 | | 0 | | 2 |
| N12246 | | 大学英语读写Ⅰ  College English Reading and Writing I | 2 | | 32 | 32 | | 0 | | 1 |
| N12247 | | 大学英语读写Ⅱ  College English Reading and Writing II | 2 | | 32 | 32 | | 0 | | 2 |
| N12248 | | 大学英语读写Ⅲ  College English Reading and Writing III | 3 | | 48 | 48 | | 0 | | 3 |
| N12249 | | 学科英语  Subject English | 3 | | 48 | 48 | | 0 | | 6 |
| E12271 | | 计算机应用基础  Foundation of Computer Application | 2.25 | | 48 | 24 | | 24 | | 1 |
| U12401 | | 体育Ⅰ  Physical Education Ⅰ | 0.5 | | 36 | 24 | | 12 | | 1 |
| U12402 | | 体育Ⅱ  Physical Education Ⅱ | 0.5 | | 36 | 24 | | 12 | | 2 |
| U12403 | | 体育Ⅲ  Physical Education Ⅲ | 0.5 | | 36 | 24 | | 12 | | 3 |
| U12404 | | 体育Ⅳ  Physical Education Ⅳ | 0.5 | | 36 | 24 | | 12 | | 4 |
| X12008 | | 军事理论  Military Theory | 1 | | 36 | 36 | | 0 | | 1 |
| X12006 | | 文献检索  Document Indexing | 1 | | 24 | 16 | | 8 | | 2 |
| G12307 | | 土木工程概论  Introduction to Civil Engineering | 1 | | 16 | 16 | | 0 | | 1 |
| 应修学分小计 | | | 33.25 | |  |  | | | | | |
| 创新创业模块 | | 400E14 | | 大学生职业生涯规划  Career Planning for College Students | 0.5 | | 16 | 8 | | 8 | | 2 |  |
| 400E02 | | 大学生就业指导  Vocational Counsel for College Students | 0.5 | | 8 | 8 | | 0 | | 6 |
| 400E15 | | 大学生创业基础  College students' entrepreneurial base | 1 | | 24 | 16 | | 8 | | 3 |
| G12321 | | 建设行业创新创业课程  Innovative Entrepreneurship Courses of Construction industry | 2 | | 32 | 32 | | 0 | | 7 |
| 400E00 | | 学生大赛、论文、发明等学分认定  Student Competition, Thesis, Invention and Other Certification Credits | 1 | | 16 |  | | 16 | | 7 |
| 应修学分小计 | | | | | 5 | |  |  | | | | | |
| 通识教育选修模块 | | 400B01 | | 中国传统文化  Chinese traditional culture | 1.5 | | 24 | 24 | | 0 | | 2 |  |
| 400E13 | | 大学生心理健康教育  Psychologically Healthy Education for College Students | 1 | | 32 | 16 | | 16 | | 1 |
| G12430 | | 胶凝材料物理化学 | 2.5 | | 40 | 0 | | 0 | | 7 |
|  | | 通识教育选修课程 | 3 | |  |  | |  | |  |
| 应修学分小计 | | | | | 8 | |  |  | | | | | |
| 学科基础课程 | 学科基础平台 | | L12001 | | 高等数学Ⅰ  Higher Mathematics | 5 | | 80 | 80 | | | 0 | 1 |  |
| L12002 | | 高等数学Ⅱ  Higher Mathematics | 5 | | 80 | 80 | | | 0 | 2 |
| L22005 | | 线性代数  Linear Algebra | 2 | | 32 | 32 | | | 0 | 3 |
| L12051 | | 概率论与数理统计  Probability Theory and Mathematical | 2 | | 32 | 32 | | | 0 | 4 |
| L12017 | | 大学物理(A)Ⅰ  College Physics | 3 | | 48 | 48 | | | 0 | 2 |
| L12013 | | 大学物理(A)Ⅱ  College Physics | 3 | | 48 | 48 | | | 0 | 3 |
| L13019 | | 大学物理实验Ⅰ  College Physics Experiment | 0.75 | | 24 | 0 | | | 24 | 2 |
| L13002 | | 大学物理实验Ⅱ  College Physics Experiment | 0.75 | | 24 | 0 | | | 24 | 3 |
| F12085 | | 工程化学  Engineering chemistry | 2 | | 32 | 28 | | | 4 | 1 |
| E12272 | | C语言  Language C | 3.25 | | 64 | 40 | | | 24 | 2 |
| G12322 | | 土木工程CAD  Civil Engineering CAD | 1 | | 16 | 8 | | | 8 | 2 |
| G12323 | | 土木工程制图  Drafting for Civil Engineering | 3.5 | | 56 | 56 | | | 0 | 1 |
| B12247 | | 理论力学  Theoretical Mechanics | 3.5 | | 56 | 56 | | | 0 | 2 |
| B12003 | | 材料力学  Material Mechanics | 4 | | 64 | 56 | | | 8 | 3 |
| G12166 | | 荷载与结构设计方法（双语）  Loads and structural design methods | 1 | | 16 | 16 | | | 0 | 4 |
| G12174 | | 结构力学  Structural Mechanics | 5 | | 80 | 80 | | | 0 | 4 |
| G12327 | | 流体力学  Fluid Dynamics | 2 | | 32 | 28 | | | 4 | 4 |
| 应修学分小计 | | | | | 46.75 | |  |  | | | | | |
| 学科基础选修模块 | | G12328 | | 建设法规  Building Law | 1 | | 16 | 16 | | | 0 | 4 | 学生至少选修2学分 |
| G12329 | | 环境保护概论\*  Environmental Protection | 1 | | 16 | 16 | | | 0 | 5 |
| D12332 | | 电工学基础  Electrical Engineering & Electronics | 2 | | 32 | 32 | | | 0 | 4 |
| G12330 | | 工程水文学  Engineering hydrology | 1 | | 16 | 16 | | | 0 | 5 |
| 应修学分小计 | | | | | 2 | |  |  | | | | | |
| 专业  课程  专业  课程 | 专业教育平台 | | G12031 | | 工程地质  Engineering Geology | 2 | | 32 | 32 | | | 0 | 3 |  |
| G12364 | | 测量学  Surveying | 2.5 | | 40 | 32 | | | 8 | 3 |
| G12332 | | 钢结构设计原理  Steel Structure Design Principles | 3 | | 48 | 48 | | | 0 | 5 |
| G12192 | | 土力学  Soil Mechanics | 2.5 | | 40 | 32 | | | 8 | 5 |
| G12034 | | 基础工程  Foundation Engineering | 2 | | 32 | 32 | | | 0 | 5 |
| G12334 | | 混凝土结构设计原理  Concrete Structure Design Principles | 4 | | 64 | 64 | | | 0 | 5 |
| G12195 | | 土木工程施工  Civil Engineering Construction | 3.5 | | 56 | 56 | | | 0 | 6 |
| G12335 | | 工程结构试验  Engineering Structural Testing | 1.5 | | 24 | 8 | | | 16 | 6 |
| G12365 | | 项目管理与法规  Project management and regulatory | 1 | | 16 | 16 | | | 0 | 7 |
| G12366 | | 工程经济  Engineering Economics | 1 | | 16 | 16 | | | 0 | 5 |
| 应修学分小计 | | | 23 | |  |  | | | | | |
| 专业方向选修模块  专业方向选修模块 | | G12336 | | 房屋建筑学\*  Building Architecture | 2.5 | | 40 | 40 | | | 0 | 4 | 模块一选修19  学分 |
| G12337 | | 建筑钢结构设计\*  Building Steel Structure Design | 2 | | 32 | 32 | | | 0 | 5 |
| G12159 | | 高层建筑结构设计\*  HighriseBuilding Structure Design | 2 | | 32 | 32 | | | 0 | 6 |
| G12168 | | 混凝土与砌体结构设计\*  Design of Concrete and Masonry tructures | 3.5 | | 56 | 56 | | | 0 | 6 |
| G12338 | | 工程概预算\*  Engineering Budgeting | 2 | | 32 | 32 | | | 0 | 6 |
| G12345 | | 土木工程材料\*  Civil Engineering Materials | 3 | | 48 | 32 | | | 16 | 4 |
| G12046 | | 建筑抗震设计\*  Design of Antiseismic Structure | 2 | | 32 | 32 | | | 0 | 6 |
| G12098 | | 建筑设备  Building Equipment | 2 | | 32 | 32 | | | 0 | 7 |
| G12339 | | 建筑结构计算机辅助设计  Building Structure PKPM | 1 | | 16 | 8 | | | 8 | 7 |
| G12150 | | 弹性力学与有限元基础  Mechanics Elasticity & Finite Element | 2 | | 32 | 32 | | | 0 | 7 |
| G12200 | | 新型建筑材料  New Building MaterialsEngineering | 1 | | 16 | 16 | | | 0 | 7 |
| G12340 | | 地基处理  Ground Treatment | 1 | | 16 | 16 | | | 0 | 7 |
| G12341 | | BIM技术  BIM Technology | 1 | | 16 | 16 | | | 0 | 7 |
| G12342 | | 装配式混凝土结构工程  Prefabricated Concrete StructureEngineering | 1 | | 16 | 16 | | | 0 | 7 |
| G12161 | | 工程检测与加固  Engineering Inspection and inforcement | 1 | | 16 | 16 | | | 0 | 7 |
| 应修学分小计 | | | 19 | |  |  | | | | | |
| G12051 | | 道路勘测设计\*  Road Survey & Design | 3 | | 48 | 48 | | | 0 | 4 | 模块二选修19学分 |
| G12343 | | 路基路面工程\*  Subgrade & Pavement Engineering | 3 | | 48 | 42 | | | 6 | 5 |
| G12181 | | 桥涵水文\*  Hydrology of Bridge & Culvert | 1.5 | | 24 | 24 | | | 0 | 5 |
| G12054 | | 桥梁工程\*  Bridge Engineering | 4 | | 64 | 60 | | | 4 | 6 |
| G12344 | | 道路桥梁工程概预算\*  Road and Bridge Engineering Budgeting | 1.5 | | 24 | 24 | | | 0 | 6 |
| G12345 | | 土木工程材料\*  Civil Engineering Materials | 3 | | 48 | 32 | | | 16 | 4 |
| G12346 | | 桥梁检测与加固  Bridge Inspection and Reinforcement | 2 | | 32 | 32 | | | 0 | 7 |
| G12347 | | 道路桥梁计算机辅助设计  Road and Bridge Computer -Aided Design | 1 | | 16 | 8 | | | 8 | 7 |
| G12348 | | 道路检测技术  Road Detection Technology | 1 | | 16 | 16 | | | 0 | 7 |
| G12349 | | 隧道工程  Tunnel Engineering | 1 | | 16 | 16 | | | 0 | 7 |
| G12350 | | 桥梁抗震与抗风  Anti-Quake and Anti-Wind of Bridge | 1 | | 16 | 16 | | | 0 | 7 |
| G12183 | | 桥梁预应力结构  Bridge Prestressed structure | 1 | | 16 | 16 | | | 0 | 6 |
| G12150 | | 弹性力学与有限元基础  Mechanics Elasticity & Finite Element | 2 | | 32 | 32 | | | 0 | 7 |
| 应修学分小计 | | | 19 | |  |  | | | | | |
| 实  践  环  节  实  践  环  节 | | X11001 | | 入学教育及军训  Entrance Education and Military Training | | 0 | | +3 |  | |  | | 1 |  |
| P11034 | | 思想政治理论课实践教学  Practical Teaching of Ideological and Political Theory | | 2 | | +2 |  | |  | | 4 |
| G11013 | | 工程地质实习  Engineering Geology Practice | | 1 | | +1 |  | |  | | 3 |
| G11002 | | 测量学实习  Surveying Practice | | 2 | | +2 |  | |  | | 3 |
| G11070 | | 土木工程认识实习  Civil Cognition Practice | | 1 | | +1 |  | |  | | 4 |
| G11120 | | 土木工程生产实习  Production Practice of Civil Engineering | | 8 | | +8 |  | |  | | 7 |
| G11014 | | 基础工程课程设计  Course Exercise in Foundation engineering | | 1 | | +1 |  | |  | | 5 |
| G11068 | | 土木工程施工课程设计  Course Exercise in Civil Engineering Construction | | 1 | | +1 |  | |  | | 6 |
| G11121 | | 创新创业实践  Practice of Innovation and Entrepreneurship | | 1 | | +1 |  | |  | |  |
| G11122 | | 土木工程毕业实习与设计  Graduation Project for Civil Engineering | | 15 | | +15 |  | |  | | 8 |
| G11095 | | 钢筋混凝土肋梁楼盖设计  Design of Reinforced Concrete ribbed Floor | | 1 | | +1 |  | |  | | 6 | 模块一 |
| G11123 | | 单层工业厂房设计  Single Industrial Plant Design | | 2 | | +2 |  | |  | | 7 |
| G11097 | | 建筑钢结构课程设计  Course Exercise in Building Steel Structure Design | | 1 | | +1 |  | |  | | 7 |
| G11124 | | 工程概预算课程设计  Course Exercise in Building Engineering Cost | | 1 | | +1 |  | |  | | 6 |
| G11080 | | 房屋建筑学课程设计  Course Exercise in Building Architecture | | 1 | | +1 |  | |  | | 4 |
| G11125 | | 桥梁工程课程设计  Course Exercise in Bridge Engineering | | 2 | | +2 |  | |  | | 7 | 模块二 |
| G11133 | | 道路勘测设计课程设计  Course Exercise in Road Survey & Design | | 2 | | +2 |  | |  | | 4 |
| G11028 | | 路基路面课程设计  Course Exercise in Subgrade & Pavement Engineering | | 1 | | +1 |  | |  | | 6 |
| G11127 | | 道路桥梁工程概预算课程设计  Course Exercise in Road and Bridge Engineering Budgeting | | 1 | | +1 |  | |  | | 7 |
| 应修学分小计 | | | | 38 | |  |  | | | | | |
| 总计 | | | | | | 175 | |  |
| 专业方向选修模块，学生任选一个模块，其中带\*课程为必选课程 | | | | | | | | | | | | | | |
| **制定** | | | | IMG_256 | | | **审核** | | | IMG_256 | | | | |
| **院长** | | | |  | | | | | | | | | | |