**2019级工程造价专业本科培养方案**

**一、专业基本信息**

|  |  |  |  |
| --- | --- | --- | --- |
| 英文名称 | Cost Engineering | | |
| 专业代码 | 120105 | 学科门类 | 管理学 |
| 学 制 | 四年 | 授予学位 | 管理学学士 |

**二、培养目标及特色**

本专业培养德、智、体、美全面发展，具备数理基础和人文社科知识，掌握土木工程与工程造价相关基本理论和基础知识，获得造价工程师技能训练，具备较高的专业综合素质和较强的工程造价管理能力、经济分析能力以及合同管理能力，能够在国内外工程建设领域从事工程决策分析与经济评价、工程建设全过程造价管理与咨询、工程合同管理、工程造价鉴定、工程审计等方面工作的复合创新型专门人才。

本专业依托学校工程技术优势，以“技术、管理、经济、法律法规、信息化”五大平台课为核心课程体系，适应国内外造价工程师等相关职业的要求，注重实践、强调创新，培养学生全面造价管理能力，满足建筑业和首都经济建设发展的高级人才需求。

**三、主干学科**

管理科学与工程、土木工程

**四、主干课程**

1．主干基础课程

大学英语、高等数学、工程制图、概率论与数理统计、管理学原理、经济学原理、管理运筹学、建设法规、工程管理信息系统、工程财务管理

2．主干专业课程

工程力学、工程结构、工程施工 、工程材料 、工程经济学 、建筑与装饰工程估价、安装工程估价 、工程项目管理、工程招投标与合同管理 、工程造价管理、BIM技术与应用

**五、主要实践教学环节**

专业认识实习、工程制图与识图课程设计、房屋建筑学课程设计、工程结构课程设计、工程经济学课程设计、工程项目管理课程设计、建筑与装饰工程估价课程设计、安装工程估价课程设计、基于BIM的工程造价软件实训、工程招投标模拟、造价工程师工程实践、毕业实习、毕业设计

**六、毕业学分要求**

参照北京建筑大学本科学生学业修读管理规定及学士学位授予细则，修满本专业最低计划学分应达到165学分，其中理论课程129学分，实践教学环节36学分。

**七、各类课程结构比例**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **课程类别** | **课程属性** | **学分** | **学时** | **学分比例** |
| 通识教育课 | 必修 | 32.5 | 640 | 20.97% |
| 核心 | 8 | 128 | 4.19% |
| 选修 | 3 | 48 | 1.57% |
| 大类基础课 | 必修 | 59 | 1000 | 32.77% |
| 选修 | 3 | 48 | 1.57% |
| 专业核心课 | 必修 | 15 | 240 | 7.86% |
| 专业方向课 | 必修 | 7 | 112 | 3.67% |
| 选修 | 4.5 | 72 | 2.36% |
| 独立实践环节 | 必修 | 37 | 764 | 25.03% |
| 总计 | | 169 | 3052 |  |

**八、教学进程表**

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| 学期 | 教学周 | 考试 | 实践 | 学期 | 教学周 | 考试 | 实践 |
| 1 | 4-19周 | 20周 | 1-3周 | 2 | 1-16周 | 17-18周 | 19-20周 |
| 3 | 1-16周 | 17-18周 | 19-20周 | 4 | 1-16周 | 17-18周 | 19-20周 |
| 5 | 1-16周 | 17周 | 18-20周 | 6 | 5-16周 | 17周 | 1-4，18-20周 |
| 7 | 9-18周 | - | 1-8，19-20周 | 8 | 1-4毕业实习，5-16周毕业设计，17周答辩 | | |

**九、毕业生应具备的知识能力及实现矩阵**

|  |  |  |
| --- | --- | --- |
| **毕业生应具备的知识能力** | **相关知识领域** | **实现途径（课程支撑）** |
| 掌握自然科学和社会科学的基本知识 | 自然科学的相关知识领域 | 大学物理概论、高等数学、线性代数、概率论与数理统计 |
| 人文社科、文学艺术的相关领域 | 毛泽东思想和中国特色社会主义理论体系、马克思主义基本原理、中国近代史纲要、思想道德修养与法律基础、文学艺术欣赏、大学英语、专业英语 |
| 工程技术基础知识 | 制图与识图的相关知识领域 | 画法几何、工程制图与识图、计算机辅助设计基础、毕业设计 |
| 工程施工相关知识领域 | 工程测量、工程材料、工程结构、土木工程概论、工程力学、结构力学、工程施工、专业认识实习、毕业设计 |
| 全过程工程造价管理能力 | 工程计量与计价的知识领域 | 工程造价专业概论、建筑与装饰工程估价、安装工程估价、市政工程与园林工程估价、仿古建筑估价、算量大赛、基于BIM的工程造价软件实训、造价工程师工程实践、工程招投标模拟、毕业设计 |
| 全过程工程项目管理知识领域 | 物业管理、工程项目管理、、毕业设计、工程造价管理、房地产估价、工程招投标模拟、算量大赛、BIM设计大赛、毕业设计 |
| 工程信息化管理知识领域 | 计算思维导论、数据库技术与应用、BIM技术与应用、工程管理信息系统、基于BIM的工程造价软件实训、BIM设计大赛、算量大赛、毕业设计 |
| 工程经济分析与管理 | 经济与管理知识领域 | 管理学原理、经济学原理、管理运筹学、会计学原理、应用统计学、房地产经济学、工程经济学、造价工程师工程实践、算量大赛、BIM设计大赛、毕业设计 |
| 合同管理能力 | 相关法律法规知识 | 经济法、建设法规、工程招投标与合同管理，国际工程合同管理、毕业设计 |
| 工程项目成本管理能力 | 投融资及工程财务相关知识 | 项目投资与融资、工程财务管理、工程造价管理、工程审计、房地产估价、挑战杯、房地产策划大赛、毕业设计 |

**十、指导性教学计划**（见附表）

**十一、主要课程逻辑关系结构图**



2019 Undergraduate Program for Specialty in Cost Engineering

**I. Specialty Name and Code**

|  |  |  |  |
| --- | --- | --- | --- |
| English Name | Cost Engineering | | |
| Code | 120105 | Disciplines | Management |
| Length of Schooling | Four years | Degree | Bachelor of Management |

**II. Educational Objectives and Features**

**Objectives:** This specialty aims to cultivate all-around developing, wide-visioned, application-oriented and innovative talents who acquire the knowledge of engineering technology, economics, legal knowledge, as well as theories and methods about cost engineering, so as to meet the needs of socialist modernization. The graduates will work on overall management of cost engineering in construction field both domestically and internationally.

**Features:** Relying on the university’s strength of "engineering technology", and combined with the discipline foundation of economy and management, the core curriculum system of this specialty is intersectional and comprehensive, composed of five platform courses of "technology-management-economics-law-information". In addition, this program, under the tendency of informationization and internationalization, put the emphasis on the cultivation of practical ability with reference to relevant professional qualification systems and on the cultivating of innovative and sustainable development capacity by deepening the professional core ability. .

**III. Major Disciplines**

Management science and Engineering, Civil Engineering

IV. **Major Courses**

(1) Basic Courses

College English, Advanced Mathematics, Engineering Drawing, Theory of Probability and Statistics, Principle of Management, Principle of Economics, Managerial Operations Research, Construction Laws and Regulations, Management Information System, Engineering Finances

**(2)** **Specialty Courses**

Engineering Mechanics, Engineering structures, Engineering construction, Engineering Materials, Engineering Economics, Construction and Decoration Project Appraisal, Installation Project Appraisal, Engineering Project Management, Project Bidding and Contract Management, Project Cost Management, BIM Technology and Application

**V．Major Practical Training**

Acquaintance Practice, Design of Engineering Drawing, Design of Housing Structure, Design of Engineering Structures, Design of Engineering Economics**.** Design of Engineering Project Management, Design of Construction & Decoration Cost Appraisal, Design of Cost Appraisal in Installation Project, Software Training of Construction Estimating on BIM, Project bidding Simulation Training, Comprehensive Practice of Engineering Appraisal, Comprehensive Practice of Cost Engineer, Graduation Practice, Graduation Project

**VI. Graduation Requirements**

In accordance with "Management Regulations for the Undergraduate Students of Beijing University of Civil Engineering and Architecture" and "Bachelor's Degree Awarding Regulations", the minimum credits required by specialty for graduate is 165, including 129credits of theoretical courses and 36 credits of practice teaching.

**VII．Proportion of Course**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Course** [**Category**](http://www.baidu.com/link?url=T-sTAae63xKETLJd_N7nNsFUo4ds7VX1E0PW1OwBIazAjp1vVAUKLUIUFYxDzfyxsSDXgWReQf8aH7q_CabOr9251wtvAH6OwY8dszrOr2u) | **Course Type** | **Credits** | **Class Hour** | **Proportion** |
| General Education | Compulsory | 32.5 | 640 | 20.97% |
| Core | 8 | 128 | 4.19% |
| Optional | 3 | 48 | 1.57% |
| Big Academic Subjects | Compulsory | 59 | 1000 | 32.77% |
| Optional | 3 | 48 | 1.57% |
| Professional Core | Compulsory | 15 | 240 | 7.86% |
| Professional Direction | Compulsory | 7 | 112 | 3.67% |
| Optional | 4.5 | 72 | 2.36% |
| Practice | Compulsory | 37 | 764 | 25.03% |
| Total | | 169 | 3052 |  |

**VIII．Table of Teaching Program**

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| Semester | Teaching | Exam | Practice | Semester | Teaching | Exam | Practice |
| 1 | 4-19 | 20 | 1-3 | 2 | 1-16 | 17-18 | 19-20 |
| 3 | 1-16 | 17-18 | 19-20 | 4 | 1-16 | 17-18 | 19-20 |
| 5 | 1-16 | 17 | 18-20 | 6 | 5-16 | - | 1-4，17-20 |
| 7 | ,9-18 | - | 1-8，19-20 | 8 | 1-4 weeks Graduation Practice，5-16 weeks Graduation Project，17 week Thesis Defense | | |

**IX．Table of Teaching Arrangement**

X**、Graduate Abilities and Matrices**

|  |  |  |
| --- | --- | --- |
| **Graduate Abilities** | **Related Knowledge** | **Course Supports** |
| Master the basic knowledge of natural science and social science. | Related knowledge of natural science | Introduction to College physics, Advanced Mathematics, Linear Algebra, Theory of Probability and Statistics |
| Related knowledge of such fields as humanities and social science, literature and art | Introduction to Mao Zedong Thoughts and Theoretical System of the Chinese Characteristic Socialism, The Generality of Basic Principle of Marxism, The Outline of the Modern Chinese History, Thought Morals Accomplishment and Basic Law, Literature and Art Appreciation, College English, Professional English |
| Master the basic knowledge of engineering technology. | Related knowledge fields of graphics and image recognition | Descriptive Geometry, Engineering Drawing and Image Recognition, Fundamental of Computer Aided Design, Quantity Calculation Competition, BIM Competition, Graduation Project |
| Related knowledge fields of engineering construction | Engineering Surveying, Engineering Materials, Building and Civil Engineering Structures, Introduction of Civil Engineering, Engineering Mechanics, Structural Mechanics, Engineering Construction, Acquaintance Practice, Quantity Calculation Competition, BIM Competition, Graduation Project |
| Be able to manage the whole process of engineering cost. | Knowledge fields of measurement and valuation | Introduction of Construction Estimating, Estimating of Construction and Decoration Project, Estimating of Installation Project, Estimating of Municipal Engineering and Landscape Engineering, Estimating of Antique Buildings, Quantity Calculation Competition, Software Training of Construction Estimating Based on BIM, Comprehensive Practice of Cost Engineer, Simulation of Project Tendering and Bidding,, Graduation Project |
| Knowledge fields of engineering project management | Property Management, Project Management, Graduation Project, Project Cost Management, Real Estate Appraisal, Simulation of Project Tendering and Bidding, Quantity Calculation Competition, BIM Competition, Graduation Project |
| Knowledge fields of engineering information management | Introduction to Computational Thinking, VB+ACCESS, Application of BIM Technology, Engineering Cost Information Management, Software Training of Construction Estimating Based on BIM, BIM Competition, Quantity Calculation Competition, Graduation Project |
| Be able to perform the analysis and management of engineering economic. | Knowledge fields of economic and management | Principle of Management, Principle of Economics, Managerial Operations Research, Principle of Accounting, Applied Statistics, Real Estate Economics, Engineering Economics, Comprehensive Practice of Cost Engineer, Quantity Calculation Competition, BIM Competition, Graduation Project |
| Be capable of contract management. | Relevant knowledge of laws and regulations | Economic Law, Construction Law, Project Tendering and Bidding and Contract Management, International Project Contract Management, Graduation Project |
| Be able to manage the project cost. | Relevant knowledge of investment and financing | Project investment and Financing, Financial Management in Construction Engineering, Engineering Cost Management, Engineering Audit, Appraisal of Real Estate, Challenge Cup, Real Estate Planning Competition, Graduation Project |

表1 工程造价专业指导性教学计划

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **课**  **程**  **类**  **别** | **课**  **程**  **属**  **性** | **课程名称** | | **学**  **分** | **总**  **学**  **时** | | **讲**  **课**  **学**  **时** | **实**  **验**  **学**  **时** | **上**  **机**  **学**  **时** | **课**  **外**  **学**  **时** | **延**  **续**  **教**  **学** | **开课**  **学期** | **教学单位** | |
| 通  识  教  育  课 | 必  修 | 思想道德修养与法律基础  Thought Morals Accomplishment and Basic Law | | 3 | 48 | | 32 |  |  | 16 |  | 1 | 马克思主义学院 | |
| 中国近现代史纲要  The Outline of the Modern Chinese History | | 3 | 48 | | 32 |  |  | 16 |  | 2 | 马克思主义学院 | |
| 马克思主义基本原理概论★  The Generality of Basic Principle of Marxism | | 3 | 48 | | 32 |  |  | 16 |  | 3 | 马克思主义学院 | |
| 毛泽东思想和中国特色社会主义体系理论概论★  Introduction to Mao Zedong Thoughts and Theoretical System of the Chinese characteristic socialism | | 5 | 80 | | 48 |  |  | 32 |  | 4 | 马克思主义学院 | |
| 形势与政策（1-4）  Situation and Policy(1-2) | | 2 | 32 | | 16 |  |  | 16 |  | 1-4 | 马克思主义学院 | |
| 大学生职业生涯与发展规划  College Student Occupation Career and Development Planning | | 1 | 16 | | 16 |  |  |  |  | 1 | 学工部 | |
| 大学英语(1-2) ★  College English(1-2) | | 6 | 128 | | 96 |  |  |  | 32 | 1-2 | 文法学院 | |
| 大学英语拓展系列课程（1-4） | | 2 | 32 | | 32 |  |  |  |  | 3 | 文法学院 | |
| 大学英语拓展系列课程（5-8） | | 2 | 32 | | 32 |  |  |  |  | 4 | 文法学院 | |
| 体育(1-4)  Physical Education(1-4) | | 4 | 120 | | 120 |  |  |  |  | 1-4 | 体育部 | |
| 计算思维导论  Introduction to Computational Thinking | | 1.5 | 56 | | 24 |  |  | 32 |  | 1 | 电信学院 | |
| 小 计 | | 32.5 | 640 | | 480 |  |  | 128 | 32 |  |  | |
| 核  心 | 经典赏析与文化传承 | | 2 | 32 | |  |  |  |  |  | 1-8 | 各院部 | |
| 哲学视野与文明对话 | | 2 | 32 | |  |  |  |  |  | 1-8 | 各院部 | |
| 科技革命与社会发展 | | 2 | 32 | |  |  |  |  |  | 1-8 | 各院部 | |
| 建筑艺术与审美教育 | | 2 | 32 | |  |  |  |  |  | 1-8 | 各院部 | |
| 生态文明与未来城市 | | 2 | 32 | |  |  |  |  |  | 1-8 | 各院部 | |
| 至少选修4类，每类至少选修2学分，共计8学分 | | | | | | | | | | | | |
| 选修 | 创新创业类 | | 1-8学期任选 | | | | | | | | | 各院部 | |
| 工程实践类 | | 1-8学期任选 | | | | | | | | | 各院部 | |
| 复合培养类 | | 1-8学期任选 | | | | | | | | | 各院部 | |
| 跨类任选至少3学分 | | | | | | | | | | | | | |
| 通识教育课合计至少修读43.5学分 ，其中通识教育必修32.5学分，通识教育核心8学分，通识教育任选3学分 | | | | | | | | | | | | | |
| **课**  **程**  **类**  **别** | **课**  **程**  **属**  **性** | | **课程名称** | **学**  **分** | **总**  **学**  **时** | | **讲**  **课**  **学**  **时** | **实**  **验**  **学**  **时** | **上**  **机**  **学**  **时** | **课**  **外**  **学**  **时** | **延**  **续**  **教**  **学** | **开课**  **学期** | **教学单位** |
| 大  类  基  础  课 | 必  修 | | 高等数学A(1）★  Advanced Mathematics A(1) | 5 | 96 | | 80 |  |  |  | 16 | 1 | 理学院 |
| 工程管理类专业导论  Introduction of Engineering Management | 0.5 | 8 | | 8 |  |  |  |  | 1 | 工程管理系 |
| 管理学原理★  Principle of Management | 2 | 32 | | 32 |  |  |  |  | 1 | 工商管理系 |
| 画法几何B  Descriptive Geometry B | 2 | 36 | | 32 |  |  |  | 4 | 1 | 理学院 |
| 高等数学A（2）★  Advanced Mathematics A(2) | 5 | 80 | | 80 |  |  |  |  | 2 | 理学院 |
| 线性代数★  Linear Algebra | 2 | 40 | | 32 |  |  |  | 8 | 2 | 理学院 |
| 工程力学B★  Engineering Mechanics(B) | 3 | 48 | | 48 |  |  |  |  | 2 | 理学院 |
| 土木工程制图B  Engineering Drawing B | 2 | 36 | | 32 |  |  |  | 4 | 2 | 理学院 |
| 会计学原理  Principle of Accounting | 2 | 32 | | 32 |  |  |  |  | 2 | 公共管理系 |
| 大学物理概论  Introduction to College physics | 3 | 64 | | 48 | 16 |  |  |  | 2 | 理学院 |
| 概率与数理统计A ★  Theory of Probability and Statistics (A) | 4 | 64 | | 64 |  |  |  |  | 3 | 理学院 |
| 经济学原理★  Principle of Economics | 2 | 32 | | 32 |  |  |  |  | 3 | 工商管理系 |
| 结构力学★  Structural Mechanics | 2 | 32 | | 32 |  |  |  |  | 3 | 土木学院 |
| 工程材料  Engineering Materials | 2 | 32 | | 32 |  |  |  |  | 3 | 土木学院 |
| 房屋建筑学★  Building Architecture | 2 | 32 | | 32 |  |  |  |  | 3 | 建筑学院 |
| 数据库技术与应用  VB+ACCESS | 3 | 48 | | 32 |  | 16 |  |  | 3 | 电信学院 |
| 工程测量  Engineering Surveying | 2 | 32 | | 32 |  |  |  |  | 3 | 测绘学院 |
| 建设法规  Construction Law and Regulations | 1.5 | 24 | | 24 |  |  |  |  | 3 | 公共管理系 |
| 工程财务管理★  Financial Management in Construction Engineering | 2 | 32 | | 32 |  |  |  |  | 4 | 工商管理系 |
| 工程结构★  Engineering Structures | 3 | 48 | | 48 |  |  |  |  | 4 | 土木学院 |
| 管理运筹学★  Managerial Operations Research | 2 | 32 | | 32 |  |  |  |  | 4 | 公共管理系 |
| 土力学与地基基础  Soil Mechanics and Geotechnical Engineering | 2 | 40 | | 24 | 8 |  |  | 8 | 4 | 土木学院 |
| 建筑设备（水暖）  Building Equipment（plumbing） | 1 | 16 | | 16 |  |  |  |  | 4 | 环能学院 |
| 建筑设备（电气）  Building Equipment（electrics） | 1 | 16 | | 16 |  |  |  |  | 4 | 电信学院 |
| 工程施工★  Engineering Construction | 3 | 48 | | 48 |  |  |  |  | 4 | 土木学院 |
| 小 计 | 59 | 1000 | | 920 | 24 | 16 | 0 | 40 |  |  |
| 选  修 | | 经济法  Economic Law | 1.5 | 24 | | 24 |  |  |  |  | 1 | 经管学院 |
| 计算机辅助设计基础  Fundamental of Computer Aided Design | 3 | 48 | | 24 |  | 24 |  |  | 3 | 电信学院 |
| 应用统计学  Applied Statistics | 2 | 32 | | 24 |  | 8 |  |  | 4 | 工商管理系 |
| 房地产经济学  Real Estate Economics | 2 | 32 | | 32 |  |  |  |  | 5 | 工程管理系 |
| 专业外语  Professional English | 2 | 32 | | 32 |  |  |  |  | 5 | 工程管理系 |
| 科技文献检索  Science and Technology Information Retrieval | 1 | 16 | | 16 |  |  |  |  | 5 | 图书馆 |
| 房地产开发与经营 | 1.5 | 24 | | 24 |  |  |  |  | 5 | 工程管理系 |
| 经济应用文写作 | 1 | 16 | | 16 |  |  |  |  | 5 | 工程管理系 |
| 小 计 | 14 | 224 | | 192 | 0 | 32 |  |  |  |  |
| 大类学科基础课合计62学分。其中必修59学分，任选3学分 | | | | | | | | | | | | |
| 专  业  核  心  课 | 必  修 | | 工程经济学★  Engineering Economics | 3 | 48 | | 48 |  |  |  |  | 5 | 工程管理系 |
| 工程项目管理★  Engineering Project Management | 3 | 48 | | 48 |  |  |  |  | 5 | 工程管理系 |
| 建筑与装饰工程估价★  Cost Estimating of Construction and Decoration project | 3 | 48 | | 48 |  |  |  |  | 5 | 工程管理系 |
| 工程造价管理★  Project Cost Management | 2 | 32 | | 32 |  |  |  |  | 6 | 工程管理系 |
| 工程招投标与合同管理★  Project Bidding and Contract Management | 2 | 32 | | 32 |  |  |  |  | 6 | 工程管理系 |
| BIM技术与应用  BIM Technology and Application | 2 | 32 | | 32 |  |  |  |  | 6 | 工程管理系 |
| 小计 | 15 | 240 | | 240 |  |  |  |  |  |  |
| 专业核心课合计必修15学分 | | | | | | | | | | | | |
| 专  业  方  向  课 | 必  修 | | 工程管理信息系统  Engineering Cost Information Management | 3 | | 48 | 24 |  | 24 |  |  | 5 | 工程管理系 | |
| 安装工程估价  Cost Estimating in Installation Project | 2 | | 32 | 16 |  | 16 |  |  | 7 | 工程管理系 | |
| 项目投资与融资  Project Investment and Financing | 2 | | 32 | 32 |  |  |  |  | 6 | 工程管理系 | |
| 小 计 | 7 | | 112 | 72 |  | 40 |  |  |  |  | |
|  | | 物业管理  Property Management | 2 | | 32 | 32 |  |  |  |  | 6 | 工商管理系 | |
| 房地产估价  Real Estate Appraisal | 2 | | 32 | 32 |  |  |  |  | 6 | 工程管理系 | |
| 仿古建筑工程估价  Cost Estimating of Pseudo-classic Architecture | 1.5 | | 24 | 24 |  |  |  |  | 6 | 工程管理系 | |
| 国际工程估价（双语）  Cost Estimating of International Project Appraisal | 1.5 | | 24 | 24 |  |  |  |  | 6 | 工程管理系 | |
| 工程造价案例分析  Construction Cost Case Analysis | 1.5 | | 24 | 24 |  |  |  |  | 7 | 工程管理系 | |
| 市政与园林工程估价  Cost Estimating of Municipal and Garden Project | 1.5 | | 24 | 24 |  |  |  |  | 7 | 工程管理系 | |
| 国际工程合同管理（双语）  International Project Contracting (Bilingual Course) | 2 | | 32 | 32 |  |  |  |  | 7 | 工程管理系 | |
| 工程审计  Engineering Audit | 1.5 | | 24 | 24 |  |  |  |  | 7 | 工程管理系 | |
| 小 计 | 13.5 | | 216 | 216 |  |  |  |  |  |  | |
| 专业方向课合计11.5学分，必修7学分，任选4.5学分（可提出允许跨院系选修的学分要求或其他修读要求） | | | | | | | | | | | | | |

表2 工程造价专业指导性教学计划（实践环节）

| **课**  **程**  **属**  **性** | **课程名称** | **学**  **分** | **折**  **合**  **学**  **时** | **实**  **验**  **实**  **践** | **上**  **机** | **开课**  **学期** | **开设**  **周次** | **教学单位** |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 课  内 | 军事理论 Military Theory | 1 | 32 |  |  | 1 | 1-3 | 武装部 |
| 军训Military Training | 1 | 32 | 32 |  |
| 专业认识实习Perceptual Knowledge on Major | 1 | 20 |  |  | 2 | 19 | 工程管理系 |
| 土木工程制图课程设计 Design of Engineering Drawing | 1 | 20 |  |  | 2 | 20 | 理学院 |
| 工程测量实习Fieldwork of Surveying in Civil Engineering | 1 | 20 |  |  | 3 | 20 | 测绘学院 |
| 房屋建筑学课程设计Design of Housing Structure | 1 | 20 |  |  | 3 | 19 | 建筑学院 |
| 工程结构课程设计Design Practice in Building and Civil Engineering Structures | 1 | 20 |  |  | 4 | 19 | 土木学院 |
| 工程施工课程设计Design Practice in Engineering Construction | 1 | 20 |  |  | 4 | 20 | 土木学院 |
| 工程项目管理课程设计Design Practice in Project Management | 1 | 20 |  |  | 5 | 18 | 工程管理系 |
| 建筑与装饰工程估价课程设计Design Practice in Estimating of Construction and Decoration Project | 1 | 20 |  |  | 5 | 10 | 工程管理系 |
| 工程经济学课程设计Design Practice in Engineering Economics | 1 | 20 |  |  | 5 | 19 | 工程管理系 |
| 安装工程估价课程设计Design Practice in Estimating of Installation Project | 2 | 40 |  |  | 7 | 19-20 | 工程管理系 |
| 基于BIM的工程造价创新应用  Design Practice in Construction Estimating Software | 4 | 80 |  |  | 6 | 1-4 | 工程管理系 |
| 工程招投标模拟Simulation of Project Tendering and Bidding | 1 | 20 |  |  | 6 | 20 | 工程管理系 |
| BIM技术与应用课程设计Design Practice in of BIM Technology and Application | 2 | 40 |  |  | 6 | 18-19 | 工程管理系 |
| 造价工程师工程实践Comprehensive Practice of Cost Engineer | 4 | 80 |  |  | 7 | 1-8 | 工程管理系 |
| 毕业实习 Graduation Practice | 2 | 40 |  |  | 8 | 1-4 | 工程管理系 |
| 毕业设计Graduation Design | 8 | 160 |  |  | 8 | 5-16 | 工程管理系 |
| 小 计Subtotal | 34 | 704 |  |  |  |  |  |
| 课  外 | 创新创业实践 | 2 | 40 |  |  |  | 1-8 | 工程管理系 |
| BIM技术初步  BIM Preliminary Technology | 1 | 20 |  |  |  | 3-4 | 工程管理系 |
| 小 计Subtotal | 3 | 60 |  |  |  |  |  |
| 实践环节合计37学分，其中课内34学分，课外3学分（创新创业实践学分认定见创新创业实践学分认定见学校、学院相关规定） | | | | | | | | |