**【化学工程与工艺专业（卓越工程师班）】**

**2015版本科培养方案**

**Undergraduate Education Plan for Specialty in Chemical Engineering and Technology (Excellent Engineer Class) (2015)**

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|

|  |  |  |  |
| --- | --- | --- | --- |
| 专业名称 | **化学工程与工艺** | 主干学科 | **化学、化学工程与技术** |
| Major | Chemical Engineering and Technology | Major Disciplines | Chemistry, Chemical Engineering and Technology |
| 计划学制 | **四年** | 授予学位 | **工学学士** |
| Duration | 4 Years | Degree Granted | Bachelor of Engineering |

 |  |

**最低毕业学分规定**

**Graduation Credit Criteria**

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| 课程类Course Classification课程性质Course Nature | 通识课程Public Basic Courses | 学科大类课程Basic Disciplinary Courses | 专业课程Specialized Courses | 集中性实践Practice Courses | 课外学分Study Credit after Class | 总学分TotalCredits |
| 必修课Required Courses | 35 | 49 | 37 | 38 | \ | 190 |
| 选修课Elective Courses | 9 | 2 | 10 | \ | 10 |

1. **培养目标与毕业要求**

**Ⅰ Educational Objectives &Requirement**

1. **培养目标**
2. 身心健康，具备良好的化工职业道德和操守，关注社会问题，具有质量意识、环境意识和安全意识。
3. 掌握数学、化学等自然科学知识和一般性工程技术知识；了解现代化工技术发展现状和发展趋势；
4. 掌握解决化学工程实际问题的方法论，并经历实际工业生产的训练。
5. 具有化工技术经济分析、经济效益及社会效益分析能力和一定的经济管理知识。
6. 具有良好的团队协作意识与创新精神，具有跨文化交流沟通能力与终身学习的能力。

**Ⅰ Educational Objectives**

1. Physical and mental health;cultivating good professional dedication and ethics;paying close attention to social issues; establishing quality awareness, environmental awareness and safety awareness.
2. Mastering mathematics, chemistry and other natural sciences and general engineering and technical knowledge;understanding the development status and trends of modern chemical engineering and technology.
3. Mastering the methodology that can solving practical problems of chemical engineering field, and experiencing practical industrial production training.
4. Having the ability of chemical technical and economic analysis, economic and social analysis and the certain knowledge on economic management.
5. Having good teamwork and innovation spirit; mastering cross-cultural communication skills and lifelong learning ability
6. **毕业要求**

1.掌握化学工程和化学工艺学科基本理论、基础技术知识、操作技能和工程方法及相关自然科学知识；

2. 掌握化工装置与设备设计方法，掌握化工过程模拟优化方法；

3. 具有对化工新产品、新工艺、新技术和新设备进行研究、开发和设计的初步能力；

4. 熟悉国家对于化工生产、设计、研究与开发、环境保护等方面的方针、政策和法规；

5. 了解化学工程与技术学科的理论前沿，了解新工艺、新技术和新设备的发展动态；

6. 具有创新意识和独立获取新知识的能力；

7. 具有初步的项目和工程管理能力，能运用经济管理和生产管理知识，进行项目预算、生成成本核算，制定生产计划和资源调度等；

8. 身心健康，具有崇高的职业道德与团队协作精神，参与团队管理、协调团队工作，确保工作进度；

9.掌握文献检索、资料查询及运用现代信息技术获取相关信息的基本方法；

10.较好地掌握一门外国语，具有查阅文献的能力，具备熟悉阅读专业书刊和查阅相关专业文献的能力。

**II Graduation Requirement**

1. Students will master basic technical knowledge, skills and engineering methods of chemical engineering and chemical technology, andmaster related natural sciences knowledge.

2. Students will master design methods of chemical technology and equipment, simulation and optimization of chemical process.

3. Students will possess the capability in research and development of chemical products and process, design and magnification of chemical devices.

4. Students will be familiar with the policy and regulations on chemical production, design, research and development, environmental protection.

5. Students will understand the development of chemical engineering and technology and the trend in new technology and devices.

6. Students will possess the sense of creation and innovation and the ability to acquire new knowledge.

7. Students will possess preliminary abilities of project and engineering management and can employ the knowledge of economic management and production management knowledge in project budget, cost accounting of chemical products, drafting production planning and scheduling of resources.

8. Students will be physical and mental health,possessengineering ethics and teamwork spirit to participate in team management and coordinate team work and ensure the work schedule.

9. Students will possess the capability in document searching，data querying and information acquisition, skills of research and practical working.

10. Students will master a foreign language and possess the ability to employ technical resources and literature in foreign text.

附：培养目标实现矩阵

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
|  | 培养目标1 | 培养目标2 | 培养目标3 | 培养目标4 | 培养目标5 |
| 毕业要求1 | 🗸 |  |  |  |  |
| 毕业要求2 |  |  | 🗸 |  |  |
| 毕业要求3 |  |  | 🗸 |  |  |
| 毕业要求4 | 🗸 |  |  | 🗸 |  |
| 毕业要求5 |  | 🗸 |  |  |  |
| 毕业要求6 |  |  |  |  | 🗸 |
| 毕业要求7 | 🗸 |  |  | 🗸 | 🗸 |
| 毕业要求8 | 🗸 |  |  |  | 🗸 |
| 毕业要求9 |  | 🗸 |  |  | 🗸 |
| 毕业要求10 |  | 🗸 |  |  | 🗸 |

1. **专业核心课程与专业特色课程**

**II Core Courses and Characteristic Courses**

1. **专业核心课程：**

化学工艺学、化工原理、化工热力学、化学反应工程、化工过程分析与综合、化工设计

Core Courses: Chemical Technology,Principle of Chemical Engineering, Thermal Dynamics of Chemical Engineering, Reaction Engineering of Chemistry, Analysis and Synthesis of Chemical Processes, Chemical Process Design

1. **专业特色课程：**

企业自主选修课程、典型化学品生产工艺、企业能源管理、工程项目管理B、化工计算与软件应用

Characteristic Courses:Self-elective Courses in Enterprises,Representative Chemical Production Processes, Plant Energy Management, Engineering Project Management B, Chemical Engineering Calculation and Software Application

附：毕业要求实现矩阵：

| **专业核心课程** | **专业特色课程** | **课程名称** | **化学工程与工艺专业（卓越工程师班）毕业要求** |
| --- | --- | --- | --- |
| （1） | （2） | （3） | （4） | （5） | （6） | （7） | （8） | （9） | （10） |
|  |  | 思想道德修养与法律基础 |  |  |  |  |  |  |  | √ |  |  |
|  |  | 中国近现代史纲要 |  |  |  |  |  |  |  | √ |  |  |
|  |  | 毛泽东思想和中国特色社会主义理论体系概论 |  |  |  |  |  |  |  | √ |  |  |
|  |  | 马克思主义基本原理 |  |  |  |  |  |  |  | √ |  |  |
|  |  | 军事理论 |  |  |  |  |  |  |  | √ |  |  |
|  |  | 体育 |  |  |  |  |  |  |  | √ |  |  |
|  |  | 大学英语 |  |  |  |  |  |  |  |  |  | √ |
|  |  | 大学计算机基础 |  | √ |  |  |  |  |  |  | √ |  |
|  |  | 计算机程序设计基础(C语言) |  | √ |  |  |  |  |  |  | √ |  |
|  |  | 心理健康教育 |  |  |  |  |  |  |  | √ |  |  |
|  |  | 专业导论 |  |  |  | √ | √ |  |  |  |  |  |
|  |  | 高等数学A | √ |  |  |  |  |  |  |  |  |  |
|  |  | 线性代数 | √ |  |  |  |  |  |  |  |  |  |
|  |  | 概率论与数理统计B | √ |  |  |  |  |  |  |  |  |  |
|  |  | 工程图学B | √ |  |  |  |  |  |  |  |  |  |
|  |  | 大学物理B | √ |  |  |  |  |  |  |  |  |  |
|  |  | 物理实验B | √ |  |  |  |  |  |  |  |  |  |
|  |  | 电工与电子技术基础C | √ |  |  |  |  |  |  |  |  |  |
|  |  | 无机化学C | √ |  |  |  |  |  |  |  |  |  |
|  |  | 无机化学C实验 | √ |  |  |  |  |  |  |  |  |  |
|  |  | 分析化学C | √ |  |  |  |  |  |  |  |  |  |
|  |  | 分析化学C实验 | √ |  |  |  |  |  |  |  |  |  |
|  |  | 有机化学B | √ |  |  |  |  |  |  |  |  |  |
|  |  | 有机化学B实验 | √ |  |  |  |  |  |  |  |  |  |
| √ |  | 物理化学B  | √ |  |  |  |  |  |  |  |  |  |
|  |  | 物理化学B实验 | √ |  |  |  |  |  |  |  |  |  |
|  |  | 化工制图 | √ | √ |  |  |  |  |  |  |  |  |
| √ | √ | 化工原理 | √ | √ | √ |  |  |  |  |  |  |  |
|  |  | 化工原理实验 | √ | √ | √ |  |  |  |  |  |  |  |
| √ |  | 化工热力学 | √ | √ | √ |  |  |  |  |  |  |  |
| √ | √ | 化学反应工程A | √ | √ | √ |  |  |  |  |  |  |  |
|  |  | 化工设备机械基础 | √ | √ | √ |  |  |  |  |  |  |  |
|  |  | 化工分离工程 | √ | √ | √ |  |  |  |  |  |  |  |
| √ | √ | 化工过程分析与综合A | √ | √ | √ |  |  |  |  |  |  |  |
|  | √ | 化学工艺学 | √ | √ | √ |  | √ |  |  |  |  |  |
| √ | √ | 化工设计A | √ | √ | √ | √ |  |  |  |  |  |  |
|  |  | 化工仪表及自动化 |  | √ |  |  |  |  |  |  |  |  |
|  |  | 化工专业英语 |  |  |  |  |  |  |  |  |  | √ |
|  |  | 专业综合实验 | √ |  | √ |  |  |  |  |  |  |  |
|  |  | 高分子化学与物理 |  |  | √ |  |  |  |  |  |  |  |
|  |  | 化工计算与软件应用 |  | √ | √ |  |  |  |  |  |  |  |
|  |  | 工业催化原理及应用 | √ |  | √ |  |  |  |  |  |  |  |
|  |  | 助剂化学及应用 | √ |  | √ |  |  |  |  |  |  |  |
|  |  | 生物工程概论 |  |  |  |  | √ |  | √ |  |  |  |
|  |  | 现代仪器分析 | √ |  | √ |  |  |  |  |  |  |  |
|  |  | 化工安全工程 |  |  |  | √ | √ |  |  |  |  |  |
|  |  | 化工科技文献检索 |  |  |  |  | √ |  |  |  | √ | √ |
|  |  | 军事训练 |  |  |  |  |  |  |  | √ |  |  |
|  |  | 机械制造工程实训C |  | √ | √ |  |  |  |  |  |  |  |
|  |  | 电工电子实习B |  | √ | √ |  |  |  |  |  |  |  |
|  |  | 化工原理课程设计 |  | √ | √ | √ |  |  |  |  |  |  |
|  |  | 专业实习 |  |  |  | √ | √ |  |  | √ |  |  |
|  |  | 工程设计训练 |  |  | √ | √ |  |  | √ |  |  |  |
|  |  | 化工设备机械设计 |  | √ | √ |  |  |  |  |  |  |  |
|  |  | 岗位实习 |  |  |  | √ | √ |  |  | √ |  |  |
|  |  | 典型化学品生产工艺 |  |  |  |  | √ |  |  |  |  |  |
|  |  | 企业自主选修课程 |  |  | √ |  | √ |  |  |  |  |  |
|  |  | 反应器设计原理B |  |  |  | √ |  | √ |  |  |  |  |
|  |  | 化工传递过程原理B | √ |  | √ |  |  |  |  |  |  |  |
|  |  | 企业能源管理 |  |  |  | √ |  |  | √ |  |  |  |
|  |  | 工程项目管理B |  |  |  |  |  |  | √ |  |  |  |
|  |  | 工艺流程仿真训练 |  | √ | √ |  |  |  |  |  |  |  |
|  |  | 毕业实习与毕业设计 |  |  | √ | √ | √ | √ | √ |  | √ | √ |

1. **课程教学进程图**

**ⅢTeaching Process Map**



**四、理论教学建议进程表**

**Ⅳ Theory Course Schedule**

| 课程类别Course Classifi-cation | 课程性质Course Nature | 课程编号Course Number | 课程名称Course Title | 学分Crs | 学时分配 Including | 建议修读学期Suggested Term | 先修课程Prerequisite Course | 第二专业Second Major |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 总学时Tot hrs. | 实验Exp. | 上机Ope-ration | 实践Prac-tice | 课外Extra-cur |
| 通 识 课 程 Public Basic CoursesGeneral Education Elective Coures | 必 修 课 Required Courses | 4220001110 | 思想道德修养与法律基础Morals, Ethics and Fundamentals of Law | 3 | 48 |  |  | 8 |  |  1-6 |  |  |
| 4220002110 | 中国近现代史纲要Outline of Contemporary and Modern Chinese History | 2 | 32 |  |  |  |  | 1-6 |  |  |
| 4220003110 | 毛泽东思想和中国特色社会主义理论体系概论Introduction to Mao Zedong Thought and Socialism with Chinese Characteristics | 4 | 96 |  |  | 32 |  | 1-6 |  |  |
| 4220005110 | 马克思主义基本原理Marxism Philosophy | 3 | 48 |  |  | 8 |  | 1-6 |  |  |
| 1060003130 | 军事理论Military Theory | 1 | 32 |  |  | 16 |  | 1-4 |  |  |
| 1050001130 | 心理健康教育Mental Health Education | 1 | 16 |  |  |  |  | 1-2 |  |  |
| 4210001110 | 体育1Physical EducationⅠ | 1 | 32 |  |  |  |  | 1 |  |  |
| 4210002110 | 体育2Physical Education Ⅱ | 1 | 32 |  |  |  |  | 2 | 体育1 |  |
| 4210003110 | 体育3Physical Education Ⅲ | 1 | 32 |  |  |  |  | 3 | 体育2 |  |
| 4210004110 | 体育4Physical Education Ⅳ | 1 | 32 |  |  |  |  | 4 | 体育3 |  |
| 4030002110 | 大学英语A1College English A Ⅰ | 3 | 64 |  |  |  | 16 | 1 |  |  |
| 4030003110 | 大学英语A2College English A Ⅱ | 3 | 64 |  |  |  | 16 | 2 | 大学英语A1 |  |
| 4030004110 | 大学英语A3College English A Ⅲ | 3 | 64 |  |  |  | 16 | 3 | 大学英语A2 |  |
| 4030005110 | 大学英语A4College English A Ⅳ | 3 | 64 |  |  |  | 16 | 4 | 大学英语A3 |  |
| 4120017110 | 大学计算机基础Foundation of Computer | 2 | 32 |  | 12 |  |  | 1 |  |  |
| 程序设计语言课程组(二选一，3学分)Courses of Computer Program Design (select one out of two, Credits: 3) |
| 4120023110 | 计算机程序设计基础(C语言)Fundamentals of Computer Program Design(C) | 3 | 48 |  | 12 |  |  | 2 |  |  |
| 4120025110 | 计算机程序设计基础(VB语言)Fundamentals of Computer Program Design(VB language)  | 3 | 48 |  | 12 |  |  | 2 |  |  |
| 小计 Subtotal | 35 | 736 |  | 24 | 64 | 64 |  |  |  |
| 选修课Elective Courses | 创新创业类Innovation and Entrepreneurship Courses | 全校学生要求至少取得9个学分，且必须选修艺术体育类课程中的艺术类相关课程，取得至少2个学分。理工科专业学生至少选修一门人文社科类或经济管理类课程，其他专业学生至少选修一门科学技术类课程。All students are required to obtain at least 9 credits, and must select art courses from *Art and Physical Education Courses* toobtain at least 2 credits*.* Science and engineering students should select at least one course from *Arts and Social Science Courses* or *Economy and Management Courses*, and other students should select at least one course from *Science and Technology Courses*. |
| 人文社科类Arts and Social Science Courses |
| 经济管理类Economy and Management Courses |
| 科学技术类Science and Technology Courses |
| 艺术体育类Art and Physical Education Courses |
| 学 科 大 类 课 程 Basic Disciplinary Courses | 必 修 课 Required Courses | 4200067110 | 专业导论Introduction to Materials Physics | 1 | 16 |  |  |  |  | 1 |  |  |
| 4050063110 | 高等数学A上Advanced Mathematics AⅠ | 5 | 80 |  |  |  |  | 1 |  |  |
| 4050064110 | 高等数学A下Advanced Mathematics AⅡ | 5 | 80 |  |  |  |  | 2 | 高等数学A上 |  |
| 4050229110 | 线性代数Linear Algebra | 2.5 | 40 |  |  |  |  | 2 |  |  |
| 4050058110 | 概率论与数理统计BProbability and Mathematical Statistics B | 3 | 48 |  |  |  |  | 4 | 高等数学A线性代数 |  |
| 4080042110 | 工程图学BEngineering Cartography B | 4 | 64 | 　 | 4 | 　 | 　 | 2 |  |  |
| 4050463130 | 大学物理BPhysics B | 5 | 80 | 　 | 　 | 　 | 　 | 3 |  |  |
| 4050224110 | 物理实验BPhysics Lab. B | 1 | 32 | 32 | 　 | 　 | 　 | 4 | 大学物理B |  |
| 4100012110 | 电工与电子技术基础CFundamentals of Electrical Engineering & Electric TechnologyC | 4 | 64 |  |  |  |  | 4 |  |  |
| 4200325140 | 无机化学CInorganic Chemistry C | 3.5 | 56 |  | 　 | 　 | 　 | 1 |  |  |
| 4200326140 | 无机化学C实验Experiment in Inorganic Chemistry C | 0.5 | 16 | 16 | 　 | 　 | 　 | 1 | 无机化学C |  |
| 4200303120 | 分析化学CAnalysis Chemistry C | 1.5 | 24 |  | 　 | 　 | 　 | 2 |  |  |
| 4200304120 | 分析化学C实验Experiment of Analysis Chemistry C | 1 | 32 | 32 | 　 | 　 | 　 | 2 | 分析化学C |  |
| 4200312120 | 有机化学BOrganic Chemistry B | 4.5 | 72 | 　 | 　 | 　 | 　 | 3 |  |  |
| 4200313120 | 有机化学B实验Experiment in Organic Chemistry B | 1.5 | 48 | 48 | 　 | 　 | 　 | 3 | 有机化学B |  |
| 4200181130 | 物理化学B上Physical Chemistry BⅠ | 2.5 | 40 | 　 | 　 | 　 | 　 | 3 |  |  |
| 4200183130 | 物理化学B下Physical Chemistry BⅡ | 2.5 | 40 | 　 | 　 | 　 | 　 | 4 | 物理化学B上 |  |
| 4050219110 | 物理化学B实验Experiment of Physical Chemistry B | 1 | 32 | 32 | 　 | 　 | 　 | 4 | 物理化学B |  |
| 小计 Subtotal | 49 | 864 | 170 | 4 |  |  |  |  |  |
| 选 修 课Elective Courses | 4200034110  | 生物工程概论Basic Bioengineering | 2 | 32 |  |  |  |  | 5 |  |  |
| 4200043110 | 现代仪器分析Modern Instrumental Analysis | 2 | 32 | 　 | 　 | 　 | 　 | 6 |  |  |
| 小计 Subtotal | 6 | 96 |  |  |  |  |  |  |  |
| 修读说明：要求至少选修2学分。NOTE: Minimum subtotal credits:2 |
| 专 业 课 程 Specialized Courses | 必 修 课 Required Courses | 4200023110 | 化工制图Chemical Cartography | 2 | 32 |  |  |  |  | 3 | 工程图学B |  |
| 4200021110 | 化工原理1Principles of Chemical Engineering Ⅰ | 3 | 48 |  |  |  |  | 4 |  |  |
| 4200022110 | 化工原理2Principles of Chemical Engineering Ⅱ | 3 | 48 |  |  |  |  | 5 | 化工原理1 |  |
| 4200120120 | 化工原理实验1Experiments of Chemical Engineering PrincipleⅠ | 1 | 32 | 32 |  |  |  | 4 | 化工原理1 |  |
| 4200121120 | 化工原理实验2Experiments of Chemical Engineering Principle Ⅱ | 1 | 32 | 32 |  |  |  | 5 | 化工原理2 |  |
| 4200016110 | 化工热力学Chemical Engineering Thermodynamics | 2.5 | 40 |  |  |  |  | 5 |  |  |
| 4200025110 | 化学反应工程AChemical Reaction Engineering A | 3 | 48 |  |  |  |  | 5 |  |  |
| 4200115120 | 化工设备机械基础Mechanical Base For Chemical Equipment | 3 | 48 |  | 　 | 　 | 　 | 5 |  |  |
| 4200009110 | 化工安全工程Safety Engineering in Chemical Engineering | 2 | 32 |  |  |  |  | 5 |  |  |
| 4200024110 | 化工专业英语Specialized English of Chemical Engineering and Technology | 2 | 32 |  |  |  |  | 6 |  |  |
| 4200088110 | 化工分离工程Chemical Separation Engineering | 2.5 | 40 |  | 　 | 　 | 　 | 6 |  |  |
| 4200122120 | 化学工艺学Chemical Technology | 3 | 48 |  |  |  |  | 6 |  |  |
| 4200116110 | 化工过程分析与综合AAnalysis and Synthesis for Process Engineering A | 2.5 | 40 |  |  |  |  | 6 |  |  |
| 4200138120 | 专业综合实验Comprehensive Experiments | 2 | 64 | 64 |  |  |  | 7 |  |  |
| 4200291130 | 化工设计AChemical Process Design A | 2.5 | 40 |  |  |  |  | 7 |  |  |
| 4200020110 | 化工仪表及自动化Chemical Instruments and Automation | 2 | 32 |  |  |  |  | 7 |  |  |
| 小计 Subtotal | 37 | 592 | 64 |  |  |  |  |  |  |
| 选 修 课 Elective Courses | 4200319140 | 高分子化学与物理Polymer Chemistry & Physics | 2.5 | 40 |  |  |  |  | 5 | 有机化学B |  |
| 4200093110  | 企业自主选修课程Self-elective Courses in Enterprises | 2 | 32 |  |  |  |  | 6(企业) |  |  |
| 4200004110  | 反应器设计原理BPrinciple of the Reactor Design B | 2 | 32 |  |  |  |  | 6 |  |  |
| 4200320140 | 化工计算与软件应用Chemical Engineering Calculation and Software Application | 2.5 | 40 |  |  |  |  | 6 |  |  |
| 4200322140 | 工业催化原理及应用Catalysis in Industrial Processes and [Application of Catalyst](http://d.wanfangdata.com.cn/Periodical_ynhg201202014.aspx) | 2.5 | 40 |  |  |  |  | 6 |  |  |
| 4200011110 | 化工传递过程原理BTheory of Transport Process in Chemical Engineering | 2 | 32 |  |  |  |  | 6 |  |  |
| 4200066110 | 助剂化学及应用Additive Chemistry and Application | 2 | 32 |  |  |  |  | 6 |  |  |
| 4200043110 | 现代仪器分析Modern Instrumental Analysis | 2 | 32 | 　 | 　 | 　 | 　 | 6 | 分析化学C |  |
| 4200091110  | 典型化学品生产工艺Representative Chemical Production Processes | 2 | 32 |  |  |  |  | 7(企业) |  |  |
| 4200032110 | 企业能源管理Plant Energy Management | 2 | 32 |  |  |  |  | 7(企业) |  |  |
| 4200090110  | 工程项目管理BEngineering Project Management B | 2 | 32 |  |  |  |  | 7(企业) |  |  |
| 4200015110 | 化工科技文献检索Literature Searching for Chemical Engineering | 1 | 16 |  |  |  |  | 7 |  |  |
| 小计 Subtotal | 24.5 | 392 |  |  |  |  |  |  |  |
| 修读说明：要求至少选修10学分。Note: Minimum subtotal credits: 10. |

1. **集中性实践教学环节**

**Ⅴ Practice Schedule**

| 课程编号Course Number | 实践环节名称Practice Courses Name | 周数Weeks | 学分Crs | 建议修读学期Suggested Term |
| --- | --- | --- | --- | --- |
| 1060002110 | 军事训练Military Training | 3 | 1.5 | 1 |
| 4080151110 | 机械制造工程实训CMachinery Manufacturing Engineering Practice C | 2 | 2 | 4 |
| 4200095110 | 专业实习Profession Practice | 3 | 3 | 4（暑期）（企业） |
| 4200087110 | 化工原理课程设计Course Design of Principles of Chemical Industry | 2 | 2 | 5 |
| 4100069110 | 电工电子实习BPractice in Electrical Engineering & Electronics B | 1 | 1 | 5 |
| 4200166130 | 工艺流程仿真训练Simulated Practice of Technological Process | 2 | 2 | 6（企业） |
| 4200167130 | 化工设备机械设计Mechanical Design of Chemical Equipment | 2.5 | 2.5 | 6（企业） |
| 4200164130 | 工程设计训练1Engineering Design Training Ⅰ | 4 | 4 | 6（企业） |
| 4200165130 | 工程设计训练2Engineering Design Training Ⅱ | 4 | 4 | 7（企业） |
| 4200163130 | 岗位实习Job Training | 5 | 5 | 7（企业） |
| 4200134120 | 毕业实习与毕业设计Practice for Graduation &Graduation Design | 17 | 11 | 8（企业） |
| 小计 Subtotal | 45.5 | 38 |  |

1. **修读指导**

**Ⅵ Recommendations on Course Studies**

《形势与政策》课程，平均每学期16学时，一般按专题进行，在第七学期末考核，计 2个课外学分，具体由学校学生发展指导中心负责组织落实。

Situation & Policy, a 16 hours/term with 2 credits course, is taught according to topics and tested at the end of the 7th term . The course will be arranged by the University Students’ Affairs’ Department in each school.

学院教学责任人：张光旭

专业培养方案责任人：夏 涛