合肥工业大学 化学工程与工艺 专业指导性教学计划

**一、培养目的与培养目标**

**培养目的：**

培养德才兼备，适应社会、经济、科技发展需要，掌握扎实的基础知识和化学工程与工艺专业知识，具备从事化工生产控制与管理、化工产品和过程研究与开发、化工装置设计与放大等能力，具备较强的工程实践能力，具有创新意识和国际化视野，具有较强的社会责任感、良好的职业道德，能在化学工业及其相关领域从事产品研制、技术开发、工程设计、生产管理、产品营销等工作的工程技术人才。

**培养目标：**

LO1）具有运用数学、自然科学、工程基础和化工专业知识解决复杂的化工领域工程问题的能力。

LO2) 具有应用数学、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复杂的化工领域工程问题，并获得有效结论的能力。

LO3) 能够设计针对复杂化工领域工程问题的解决方案，设计满足特定需求的化工系统、化工单元（部件）或化工工艺流程，并能够在设计环节中体现创新意识，考虑社会、健康、安全、法律、文化以及环境等因素。

LO4) 能够基于科学原理并采用科学方法对复杂化工领域工程问题进行研究，包括设计实验、分析与解释数据、并通过信息综合得到合理有效的结论。

LO5) 能够针对复杂化工领域工程问题，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，包括对复杂工程问题的预测与模拟，并能够理解其局限性。

LO6) 能够基于工程相关背景知识进行合理分析，评价化工专业工程实践和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，并理解应承担的责任。

LO7) 能够理解和评价针对复杂化工领域工程问题的专业工程实践对环境、社会可持续发展的影响。

LO8) 具有人文社会科学素养、社会责任感，能够在化工领域工程实践中理解并遵守工程职业道德和规范，履行责任。

LO9) 能够在多学科背景下的团队中承担个体、团队成员以及负责人的角色。

LO10) 能够就复杂化工领域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、清晰表达或回应指令。并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。

LO11) 理解并掌握化工工程管理原理与经济决策方法，并能在多学科环境中应用。

LO12) 具有自主学习和终身学习的意识，有不断学习和适应发展的能力。

化学工程与工艺专业实践能力标准：

实践教学内容体系应包括培养化学工程与工艺基本操作技能及获取专业基础知识的实验课程（基础化学实验、综合创新实验、专业实验、化工原理实验），培养专业视野和大工程观的校外工厂实习课程（工厂认识实习、工厂生产实习、工厂毕业实习），培养运用专业知识分析问题和解决问题能力的课程（综合创新实验、化工实习实训），培养运用计算机工具结合专业知识进行综合设计能力的课程（化工原理课程设计、专业课程设计），毕业设计（论文）等形式。

毕业生应获得以下几方面关于化学工程与工艺专业工程实践能力：

PA1)掌握实验操作原理、仪器分析方法等基本技能，具备实验设计、实验方案筛选与确定、实验条件优化、实验结果整理与分析等专业研究必备的技能。

PA2)能够基于工程相关背景知识进行合理分析，评价化工专业工程实践和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，并理解应承担的责任。

PA3)具有应用计算机等辅助工具，并结合专业知识设计针对复杂化工领域工程问题的解决方案，设计满足特定需求的化工系统、化工单元（部件）或化工工艺流程，并能够在设计环节中体现创新意识，考虑社会、文化以及环境等因素。

PA4)具备从应用目标出发对化工产品进行新产品研制、开发并对其性能、成本、环境及经济效益进行综合评估的初步能力。

二、培养人才的适应范围与专业特色

培养人才的适应范围：

1、化工、环保、材料、能源、轻工、医药、冶金等工业部门及科研与设计院所，主要从事生产技术管理、科学研究、产品研制与开发、工程设计、品质控制、产品营销等方面的工作；

2、在高等院校从事化学工程与工艺专业及相近专业的教学、科研、管理等工作。

人才培养的专业特色：

秉承合肥工业大学“工程基础厚、工作作风实、创业能力强”的人才培养特色，围绕现代化学工业对化学工程与工艺专业技术人才的要求，按照“厚基础、宽口径、重实践、有特色”的人才培养模式，建立并完善“四年不断线、循序渐进的三层次”实践教学体系，突出工程实践能力培养；开展各类科技创新实践活动，强化创新能力和创业意识培养；服务地方区域经济，产学研紧密结合培养工程技术人才。

三、专业培养标准

本专业标准学制为4年，学生可在3~6年内完成学业，合格毕业生授予工学学士学位，具备以下的知识、能力和素质：

**1、知识结构**

1.1 人文科学和社会科学知识：哲学、思想道德、政治学、法学、文学、历史、社会学、艺术、心理学等方面的基本知识。

1.2 自然科学与工程技术的基础知识和前沿知识：数学、物理学、化学等方面的知识，工程图学、化工设计、电工与电子、化工设备机械基础、化工仪表及自动化、化工安全与环保等方面的知识。

1.3 经济与管理的基础知识：经济学、管理学等方面的知识。

1.4专业知识：化工原理、化工热力学、化学反应工程、化工工艺学、化工传递过程、化工分离工程、化工过程分析与合成、无机化工工艺、精细化工工艺、煤化工工艺学等相关基本理论、基本方法和基本实验技能。

1.5 为专业服务的其它知识：外语、计算机及信息技术应用、文献检索等方面的知识。

**2、能力结构**

2.1 具有运用数学、自然科学、工程基础和化工专业知识解决复杂的化工领域工程问题的能力。

2.2 具有应用数学、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复杂的化工领域工程问题，并获得有效结论的能力。

2.3 能够设计针对复杂化工领域工程问题的解决方案，设计满足特定需求的化工系统、化工单元（部件）或化工工艺流程，并能够在设计环节中体现创新意识，考虑社会、健康、安全、法律、文化以及环境等因素。

2.4 能够基于科学原理并采用科学方法对复杂化工领域工程问题进行研究，包括设计实验、分析与解释数据、并通过信息综合得到合理有效的结论。

2.5 能够针对复杂化工领域工程问题，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，包括对复杂工程问题的预测与模拟，并能够理解其局限性。

2.6 能够基于工程相关背景知识进行合理分析，评价化工专业工程实践和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，并理解应承担的责任。

2.7 能够理解和评价针对复杂化工领域工程问题的专业工程实践对环境、社会可持续发展的影响。

2.8 具有人文社会科学素养、社会责任感，能够在化工领域工程实践中理解并遵守工程职业道德和规范，履行责任。

2.9 能够在多学科背景下的团队中承担个体、团队成员以及负责人的角色。

2.10 能够就复杂化工领域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、清晰表达或回应指令。并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。

2.11 理解并掌握化工工程管理原理与经济决策方法，并能在多学科环境中应用。

2.12 具有自主学习和终身学习的意识，有不断学习和适应发展的能力。

**3、素质结构**

3.1 身心健康，视野开阔

3.2 热爱祖国，品德高尚

3.3 志存高远，意志坚强

3.4 刻苦务实，精勤进取

3.5 思维敏捷，乐于创新

四、主干学科和相关课程

主干学科：化学工程与工艺、化学

主要课程：无机化学、有机化学、分析化学、物理化学、化工原理、化工热力学、化学反应工程、化学工艺学、化工设计、化工设备机械基础、化工仪表与自动化、化工安全与环保技术、化工过程分析与合成等

特色课程：化工实习实训A、化工原理、化学反应工程

辅修专业课程模块：共32学分

无机化学（64学时4学分）、分析化学（32学时2学分）、有机化学（80学时5学分）、物理化学（80学时5学分）、化工原理（96学时6学分）、化工热力学（56学时3.5学分）、化学反应工程（56学时3.5学分）、化工设备机械基础（48学时3学分）

选修专业课程模块：共15.5学分。

化工原理（96学时6学分）、化工热力学（56学时3.5学分）、化学反应工程（56学时3.5学分）、化学工艺学（40学时2.5学分）

**五、课程地图**

|  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **培养目标**  **课程** | LO1 | LO2 | LO3 | LO4 | LO5 | LO6 | LO7 | LO8 | LO9 | LO10 | LO11 | LO12 |
| 形势与政策 |  |  |  |  |  |  |  | √ |  |  |  | √ |
| 英语 |  |  |  |  |  |  |  |  |  | √ |  | √ |
| 大学体育 |  |  |  |  |  |  |  |  | √ |  |  | √ |
| 毛泽东思想与中国特色社会主义理论体系概论 |  |  |  |  |  |  |  | √ |  |  |  | √ |
| 马克思主义基本原理概论 |  |  |  |  |  |  |  | √ |  |  |  | √ |
| 中国近现代史纲要 |  |  |  |  |  |  |  | √ |  |  |  | √ |
| 思想道德修养与法律基础 |  |  |  |  |  | √ |  | √ |  |  |  | √ |
| 军事理论 |  |  |  |  |  |  |  | √ | √ |  |  |  |
| 大学生心理健康 |  |  |  |  |  |  |  | √ |  |  |  | √ |
| 高等数学A | √ | √ |  |  |  |  |  |  |  |  |  | √ |
| 线性代数 | √ | √ |  |  |  |  |  |  |  |  |  |  |
| 大学物理C | √ | √ |  |  |  |  |  |  |  |  |  | √ |
| MATLAB程序设计 | √ |  |  |  | √ |  |  |  |  |  |  | √ |
| 工程图学C | √ |  | √ |  |  |  |  |  |  |  |  |  |
| 电工与电子技术B | √ |  | √ |  |  |  |  |  |  |  |  |  |
| 化学工程与工艺专业导论 |  |  |  |  |  |  | √ | √ |  | √ |  |  |
| 概率论与数理统计 | √ | √ |  |  |  |  |  |  |  |  |  |  |
| 无机化学B | √ | √ |  | √ |  |  |  |  |  |  |  | √ |
| 分析化学 | √ | √ |  | √ |  |  |  |  |  |  |  | √ |
| 有机化学 | √ | √ |  | √ |  |  |  |  |  |  |  | √ |
| 物理化学A | √ | √ |  | √ |  |  |  |  |  |  |  | √ |
| 化工原理A | √ | √ | √ |  |  |  |  |  |  |  |  | √ |
| 化工热力学 | √ | √ |  | √ |  |  |  |  |  |  |  | √ |
| 化工安全环保技术 |  |  | √ |  |  | √ | √ | √ |  |  |  |  |
| 化工设备机械基础 | √ | √ | √ |  |  |  |  |  |  |  |  |  |
| 化工设计 |  |  | √ |  | √ | √ |  |  |  |  | √ | √ |
| 化学反应工程 | √ | √ | √ |  |  |  |  |  |  |  |  | √ |
| 化工仪表及自动化 | √ |  | √ |  |  |  |  |  |  |  |  |  |
| 化学工艺学 | √ | √ |  |  |  |  |  |  |  |  | √ | √ |
| 化工传递过程 | √ | √ |  |  |  |  |  |  |  |  |  |  |
| 化工分离工程 | √ | √ |  |  |  |  |  |  |  |  |  |  |
| 化工过程分析与合成 | √ |  | √ |  |  |  |  |  |  |  | √ |  |
| 煤化工工艺学 | √ |  | √ |  |  |  |  |  |  |  |  |  |
| 无机化工工艺学 | √ | √ |  |  |  |  |  |  |  |  |  |  |
| 精细化工工艺学 | √ |  |  |  |  |  |  |  |  |  | √ |  |
| 煤化学 | √ | √ |  |  |  |  |  |  |  |  |  |  |
| 无机合成与制备技术 | √ | √ |  |  |  |  |  |  |  |  |  |  |
| 精细有机合成 | √ | √ |  |  |  |  |  |  |  |  |  |  |
| 有机合成（双语） | √ | √ |  |  |  |  |  |  |  |  |  |  |
| 化工生产与经营管理 |  |  |  |  |  | √ | √ |  |  |  | √ |  |
| 过程工程导论（双语） | √ | √ |  |  |  |  |  |  |  |  |  |  |
| 现代仪器分析 |  |  |  | √ | √ |  |  |  |  |  |  | √ |
| 科技文献检索与利用 |  | √ |  | √ | √ |  |  |  |  | √ |  | √ |
| 专业英语 |  |  |  |  | √ |  |  |  |  | √ |  | √ |
| 新能源材料 | √ |  |  | √ |  |  |  |  |  |  |  |  |
| 绿色化学与化工 | √ |  |  | √ |  |  |  |  |  |  |  |  |
| 化工技术经济 |  |  | √ |  |  |  |  |  |  |  | √ |  |
| 化工前沿技术与发展 |  |  |  | √ |  | √ |  |  |  | √ |  | √ |
| 新型功能肥料 |  | √ |  | √ |  |  | √ |  |  |  |  |  |
| 入学教育 |  |  |  |  |  |  | √ | √ | √ |  |  | √ |
| 军事训练 |  |  |  |  |  |  |  | √ | √ |  |  | √ |
| 公益活动 |  |  |  |  |  |  |  |  | √ |  |  | √ |
| 就业指导 |  |  |  |  |  |  |  |  |  |  |  | √ |
| 创新创业教育 |  | √ |  | √ | √ |  |  |  |  | √ |  |  |
| 工程训练C |  |  |  |  |  |  |  |  | √ |  |  | √ |
| 基础化学实验 | √ |  |  | √ |  |  |  |  |  |  |  |  |
| 大学物理实验 | √ |  |  |  |  |  |  |  | √ |  |  |  |
| 分析化学综合实验 |  | √ |  | √ |  |  |  |  |  |  |  |  |
| 有机化学综合实验 |  | √ |  | √ |  |  |  |  |  |  |  |  |
| 化工原理实验 |  | √ |  | √ |  |  |  |  | √ |  |  |  |
| 认识实习 |  |  |  |  |  | √ | √ | √ | √ | √ |  |  |
| 生产实习 |  |  |  |  |  | √ | √ | √ | √ | √ |  |  |
| 化工实习实训A |  | √ |  | √ |  |  |  |  | √ | √ |  |  |
| 化工原理课程设计A |  | √ | √ |  | √ |  |  |  |  | √ | √ |  |
| 化工综合创新实验 |  | √ |  | √ | √ |  |  |  | √ | √ |  | √ |
| 化学工程与工艺专业实验 |  | √ |  | √ | √ |  |  |  | √ |  |  |  |
| 毕业实习 |  |  |  |  |  | √ | √ | √ | √ | √ |  |  |
| 化工过程模拟 |  |  | √ |  | √ |  |  |  |  |  |  |  |
| 化工工艺专业课程设计 |  | √ | √ |  | √ | √ | √ |  |  | √ | √ |  |
| 毕业设计 |  | √ | √ |  | √ | √ | √ |  |  | √ | √ |  |
| 毕业论文 |  | √ |  | √ | √ | √ | √ |  |  | √ | √ |  |

**实践教学课程地图**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **实践能力标准**  **课程** | **PA1** | **PA2** | **PA3** | **PA4** |
| 创新创业教育 | √ | √ |  | √ |
| 工程训练C | √ |  |  |  |
| 基础化学实验 | √ |  |  | √ |
| 大学物理实验 | √ |  |  |  |
| 分析化学综合实验 | √ | √ |  | √ |
| 有机化学综合实验 | √ | √ |  | √ |
| 化工原理实验 | √ |  |  | √ |
| 认识实习 | √ |  | √ |  |
| 生产实习 |  | √ | √ |  |
| 化工实习实训A |  | √ | √ | √ |
| 化工原理课程设计A |  | √ | √ |  |
| 化工综合创新实验 |  | √ |  | √ |
| 化学工程与工艺专业实验 | √ | √ |  | √ |
| 毕业实习 |  | √ | √ |  |
| 化工过程模拟 |  | √ | √ |  |
| 化工工艺专业课程设计 |  | √ | √ |  |
| 毕业设计 |  | √ | √ |  |
| 毕业论文 |  | √ |  | √ |

**六、课程关系图**





**七、毕业合格标准**

1. 符合德育培养要求。

2. 最低毕业学分190。其中理论课程139.5学分，实践教学环节50.5学分。其中创新创业教育不得低于4学分，通识教育选修课程不得低于9学分，辅修课程不得低于6学分。

**八、授予学位**

本专业授予工学学士学位。

**九、课程配置流程图**

见附件

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **合肥工业大学化学工程与工艺专业指导性教学计划** | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |  | | |  | |
| **通 识 教 育 必 修 课** | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |  | | |  | | |
| 课程编号 | | 课程名称 | | | 考试方式 | 总学时 | 学 时 分 配 | | | | | | | | | | | | 课内学分 | | | 课外学分 | | | 各学期学分分配 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 建议起止周次 | | | 是否集中周考试 | | |
| 课内 | | | 实验 | | | 上机 | | | 课外 | | | 1 | | | | 2 | | | | 小 | | | 3 | | | 4 | | | 小 | | | 5 | | | 6 | | | 小 | | | 7 | | | 8 | | | 小 | | | 9 | | | 10 | | |
| 1201111B 1201121B 1201131B 1201141B 1201151B 1201161B 1201171B 1201181B | | 形势与政策 | | | O | (128) | (64) | | |  | | |  | | | (64) | | | 2 | | |  | | | 0.25 | | | | 0.25 | | | |  | | | 0.25 | | | 0.25 | | |  | | | 0.25 | | | 0.25 | | |  | | | 0.25 | | | 0.25 | | |  | | |  | | |  | | | 1-4 | | | 是 | | |
| 1500011B 1500021B 1500031B 1500041B | | 英语 | | | √ | 176 | 160 | | |  | | |  | | | 16 | | | 10 | | | 1 | | | 2.5 | | | | 2.5 | | | |  | | | 2.5 | | | 2.5 | | |  | | |  | | |  | | |  | | |  | | |  | | |  | | |  | | |  | | | 6-16 1-10 1-10 1-10 | | | 是 | | |
| 5100041B 5100051B 5100061B 5100071B | | 大学体育 | | | √ | 144 | 144 | | |  | | |  | | | 256 | | | 2 | | | 1 | | | 0.5 | | | | 0.5 | | | |  | | | 0.5 | | | 0.5 | | |  | | |  | | |  | | |  | | |  | | |  | | |  | | |  | | |  | | | 1-8 | | | 是 | | |
| (不计入总学时) | | | 是 | | |
| 1200141B 1200151B | | 毛泽东思想与中国特色社会主义理论体系概论 | | | √ | 88 | 56 | | |  | | |  | | | 32 | | | 3.5 | | | 2 | | |  | | | |  | | | |  | | | 2 | | | 1.5 | | |  | | |  | | |  | | |  | | |  | | |  | | |  | | |  | | |  | | | 1-8 1-12 | | | 是 | | |
| 1200021B | | 马克思主义基本原理概论 | | | √ | 48 | 32 | | |  | | |  | | | 16 | | | 2 | | | 1 | | |  | | | | 2 | | | |  | | |  | | |  | | |  | | |  | | |  | | |  | | |  | | |  | | |  | | |  | | |  | | | 1-8 | | | 是 | | |
| 1200081B | | 中国近现代史纲要 | | | √ | 40 | 32 | | |  | | |  | | | 8 | | | 2 | | | 0.5 | | |  | | | |  | | | |  | | | 2 | | |  | | |  | | |  | | |  | | |  | | |  | | |  | | |  | | |  | | |  | | | 1-8 | | | 是 | | |
| 1200051B | | 思想道德修养与法律基础 | | | √ | 48 | 32 | | |  | | |  | | | 16 | | | 2 | | | 1 | | | 2 | | | |  | | | |  | | |  | | |  | | |  | | |  | | |  | | |  | | |  | | |  | | |  | | |  | | |  | | | 1-8 | | | 是 | | |
| 5200011B | | 军事理论 | | | O | 32 | 24 | | |  | | |  | | | 8 | | | 1.5 | | |  | | | 1.5 | | | |  | | | |  | | |  | | |  | | |  | | |  | | |  | | |  | | |  | | |  | | |  | | |  | | |  | | | 1-6 | | | 是 | | |
| 5200021B | | 大学生心理健康 | | | O | 32 | 24 | | |  | | |  | | | 8 | | | 1.5 | | |  | | | 1.5 | | | |  | | | |  | | |  | | |  | | |  | | |  | | |  | | |  | | |  | | |  | | |  | | |  | | |  | | | 1-6 | | | 是 | | |
| 0200051B | | 工程图学C | | | √ | 48 | 48 | | |  | | |  | | |  | | | 3 | | |  | | | 3 | | | |  | | | |  | | |  | | |  | | |  | | |  | | |  | | |  | | |  | | |  | | |  | | |  | | |  | | | 1-12 | | | 是 | | |
| 0621171B | | 化学工程与工艺专业导论 | | | √ | 16 | 16 | | |  | | |  | | |  | | | 1 | | |  | | |  | | | | 1 | | | |  | | |  | | |  | | |  | | |  | | |  | | |  | | |  | | |  | | |  | | |  | | |  | | | 1-8 | | | 是 | | |
| 1400211B 1400221B | | 高等数学A | | | √ | 192 | 192 | | |  | | |  | | |  | | | 12 | | |  | | | 6 | | | | 6 | | | |  | | |  | | |  | | |  | | |  | | |  | | |  | | |  | | |  | | |  | | |  | | |  | | | 1-19 | | | 是 | | |
| 1000251B | | 大学物理C | | | √ | 84 | 80 | | | 4 | | |  | | |  | | | 5 | | |  | | |  | | | | 5 | | | |  | | |  | | |  | | |  | | |  | | |  | | |  | | |  | | |  | | |  | | |  | | |  | | | 1-19 | | | 是 | | |
| 0213052B | | MATLAB程序设计 | | | √ | 32 | 16 | | |  | | | 16 | | |  | | | 2 | | |  | | |  | | | | 2 | | | |  | | |  | | |  | | |  | | |  | | |  | | |  | | |  | | |  | | |  | | |  | | |  | | | 1-4 | | | 是 | | |
| 1400071B | | 线性代数 | | | √ | 40 | 40 | | |  | | |  | | |  | | | 2.5 | | |  | | |  | | | |  | | | |  | | | 2.5 | | |  | | |  | | |  | | |  | | |  | | |  | | |  | | |  | | |  | | |  | | | 1.-10 | | | 是 | | |
| 0400062B | | 电工与电子技术B | | | √ | 48 | 32 | | | 16 | | |  | | |  | | | 3 | | |  | | |  | | | |  | | | |  | | | 3 | | |  | | |  | | |  | | |  | | |  | | |  | | |  | | |  | | |  | | |  | | | 1-8 | | | 是 | | |
| 1400091B | | 概率论与数理统计 | | | √ | 48 | 48 | | |  | | |  | | |  | | | 3 | | |  | | |  | | | |  | | | |  | | | 3 | | |  | | |  | | |  | | |  | | |  | | |  | | |  | | |  | | |  | | |  | | | 1-19 | | | 是 | | |
|  | |  | | |  | 0 |  | | |  | | |  | | |  | | | 0 | | |  | | |  | | | |  | | | |  | | |  | | |  | | |  | | |  | | |  | | |  | | |  | | |  | | |  | | |  | | |  | | |  | | |  | | |
| 合 计 | | | | |  | 1116 | 976 | | | 20 | | | 16 | | | 104 | | | 58 | | | 6.5 | | | 17.25 | | | | 19.25 | | | | 0 | | | 15.75 | | | 4.75 | | | 0 | | | 0.25 | | | 0.25 | | | 0 | | | 0.25 | | | 0.25 | | | 0 | | | 0 | | | 0 | | |  | | |  | | |
| 备注： | 总学时合计中不包括形式与政策的总学时，课外学时合计中不包括形式与政策、大学体育的课外学时。 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| **通 识 教 育 选 修 课** | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|
| 我校通识教育选修课共分九类：哲学、历史与心理学类；文化、语言与文学类；经济、管理与法律类；自然、环境与科学类；信息、技术与工程类；艺术、体育与健康类；就业、创新与创业类；社会、交往与礼仪类；人生规划、品德与修养类。学生毕业时其通识教育选修课学分分布应不少于上述类别中的六类，且不低于9学分。 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| **合肥工业大学化学工程与工艺专业指导性教学计划** | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| **学科基础课程和专业必修课** | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| **课程编号** | | | | **课 程 名 称** | | | | | **是否专业主干课程** | | | **考试方式** | | | **总 学 时** | | | **学时分配** | | | | | | | | | | | | **课 内 学 分** | | **课 外 学 分** | | | **各学期学分分配** | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | **建议起止周次** | | **是否集中周考试** | | | |
| **课内** | | | **实 验** | | | **上 机** | | | **课外** | | | **1** | | | **2** | | | **小** | | | **3** | | | **4** | | | **小** | | | **5** | | | **6** | | | **小** | | | **7** | | | **8** | | | **小** | | |
| 0600012B | | | | 无机化学 | | | | | 是 | | | √ | | | 64 | | | 64 | | |  | | |  | | |  | | | 4 | |  | | | 4 | | |  | | |  | | |  | | |  | | |  | | |  | | |  | | |  | | |  | | |  | | |  | | | 1-19 | | 是 | | | |
| 0600172B | | | | 分析化学B | | | | | 是 | | | √ | | | 32 | | | 32 | | |  | | |  | | |  | | | 2 | |  | | |  | | | 2 | | |  | | |  | | |  | | |  | | |  | | |  | | |  | | |  | | |  | | |  | | | 1-10 | | 是 | | | |
| 0600602B | | | | 有机化学 | | | | | 是 | | | √ | | | 80 | | | 80 | | |  | | |  | | |  | | | 5 | |  | | |  | | |  | | |  | | | 5 | | |  | | |  | | |  | | |  | | |  | | |  | | |  | | |  | | | 1-19 | | 是 | | | |
| 0600182B | | | | 物理化学 | | | | | 是 | | | √ | | | 80 | | | 80 | | |  | | |  | | |  | | | 5 | |  | | |  | | |  | | |  | | |  | | | 5 | | |  | | |  | | |  | | |  | | |  | | |  | | |  | | | 1-19 | | 是 | | | |
| 0601052B 0601062B | | | | 化工原理A | | | | | 是 | | | √ | | | 96 | | | 96 | | |  | | |  | | |  | | | 6 | |  | | |  | | |  | | |  | | |  | | | 3 | | |  | | | 3 | | |  | | |  | | |  | | |  | | |  | | | 5-19 1-12 | | 是 | | | |
| 0620662B | | | | 化工热力学 | | | | | 是 | | | √ | | | 56 | | | 56 | | |  | | |  | | |  | | | 3.5 | |  | | |  | | |  | | |  | | |  | | |  | | |  | | | 3.5 | | |  | | |  | | |  | | |  | | |  | | | 1-10 | | 是 | | | |
| 0621082B | | | | 化工设备机械基础 | | | | | 是 | | | √ | | | 48 | | | 48 | | |  | | |  | | |  | | | 3 | |  | | |  | | |  | | |  | | |  | | |  | | |  | | | 3 | | |  | | |  | | |  | | |  | | |  | | | 4-19 | | 是 | | | |
| 0621162B | | | | 化工过程分析与合成 | | | | | 是 | | | √ | | | 32 | | | 32 | | |  | | |  | | |  | | | 2 | |  | | |  | | |  | | |  | | |  | | |  | | |  | | | 2 | | |  | | |  | | |  | | |  | | |  | | | 9-19 | | 是 | | | |
| 0620672B | | | | 化工安全与环保技术 | | | | | 是 | | | √ | | | 32 | | | 32 | | |  | | |  | | |  | | | 2 | |  | | |  | | |  | | |  | | |  | | |  | | |  | | |  | | | 2 | | |  | | |  | | |  | | |  | | | 11-19 | | 是 | | | |
| 0620702B | | | | 化工设计★ | | | | | 是 | | | √ | | | 52 | | | 40 | | |  | | | 12 | | |  | | | 3 | |  | | |  | | |  | | |  | | |  | | |  | | |  | | |  | | | 3 | | |  | | |  | | |  | | |  | | | 5-10 | | 是 | | | |
| 0620712B | | | | 化学反应工程 | | | | | 是 | | | √ | | | 56 | | | 56 | | |  | | |  | | |  | | | 3.5 | |  | | |  | | |  | | |  | | |  | | |  | | |  | | |  | | | 3.5 | | |  | | |  | | |  | | |  | | | 5-19 | | 是 | | | |
| 0600722B | | | | 化工仪表及自动化 | | | | | 是 | | | √ | | | 44 | | | 32 | | | 12 | | |  | | |  | | | 2.5 | |  | | |  | | |  | | |  | | |  | | |  | | |  | | |  | | | 2.5 | | |  | | |  | | |  | | |  | | | 5-10 | | 是 | | | |
| 0621092B | | | | 化学工艺学 | | | | | 是 | | | √ | | | 40 | | | 40 | | |  | | |  | | |  | | | 2.5 | |  | | |  | | |  | | |  | | |  | | |  | | |  | | |  | | |  | | |  | | | 2.5 | | |  | | |  | | | 4-13 | | 是 | | | |
| 0621262B | | | | 化工分离工程 | | | | | 是 | | | √ | | | 32 | | | 32 | | |  | | |  | | |  | | | 2 | |  | | |  | | |  | | |  | | |  | | |  | | |  | | |  | | |  | | |  | | | 2 | | |  | | |  | | | 4-13 | | 是 | | | |
| 合 计 | | | | | | | | | | | | | | | 744 | | | 720 | | | 12 | | | 12 | | | 0 | | | 46 | | 0 | | | 4 | | | 2 | | | 0 | | | 5 | | | 8 | | | 0 | | | 11.5 | | | 11 | | | 0 | | | 4.5 | | | 0 | | | 0 | | |  | |  | | | |
| **合肥工业大学化学工程与工艺专业指导性教学计划** | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| **专业选修课** | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| **课程编号** | | | **课 程 名 称** | | | | | **是否专业主干课程** | | | **考试方式** | | | **总 学 时** | | | **学时分配** | | | | | | | | | | | **课 内 学 分** | | | **课 外 学 分** | | | **各学期学分分配** | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | **建议起止周次** | | | **是否集中周考试** | | | |
| **课内** | | | **实 验** | | | **上 机** | | | **课外** | | **1** | | | **2** | | | **小** | | | **3** | | | **4** | | | **小** | | | **5** | | | **6** | | | **小** | | | **7** | | | **8** | | | **小** | | |
| 0621110X | | | 现代仪器分析 | | | | | 否 | | | √ | | | 44 | | | 32 | | | 12 | | |  | | |  | | 2.5 | | |  | | |  | | |  | | |  | | |  | | | 2.5 | | |  | | |  | | |  | | |  | | |  | | |  | | |  | | | 1-8 | | | 是 | | |
| 0600460X | | | 科技文献检索与利用 | | | | | 否 | | | O | | | 24 | | | 24 | | |  | | |  | | |  | | 1.5 | | |  | | |  | | |  | | |  | | |  | | | 1.5 | | |  | | |  | | |  | | |  | | |  | | |  | | |  | | | 1-6 | | | 否 | | |
| 0620810X | | | 煤化学 | | | | | 否 | | | √ | | | 24 | | | 24 | | |  | | |  | | |  | | 1.5 | | |  | | |  | | |  | | |  | | |  | | |  | | |  | | | 1.5 | | |  | | |  | | |  | | |  | | |  | | | 1-6 | | | 是 | | |
| 0620870X | | | 专业英语 | | | | | 否 | | | √ | | | 24 | | | 24 | | |  | | |  | | |  | | 1.5 | | |  | | |  | | |  | | |  | | |  | | |  | | |  | | | 1.5 | | |  | | |  | | |  | | |  | | |  | | | 1-6 | | | 是 | | |
| 0620880X | | | 新能源材料 | | | | | 否 | | | O | | | 24 | | | 24 | | |  | | |  | | |  | | 1.5 | | |  | | |  | | |  | | |  | | |  | | |  | | |  | | | 1.5 | | |  | | |  | | |  | | |  | | |  | | | 11-19 | | | 否 | | |
| 0600820X | | | 无机合成与制备技术 | | | | | 否 | | | √ | | | 32 | | | 32 | | |  | | |  | | |  | | 2 | | |  | | |  | | |  | | |  | | |  | | |  | | |  | | | 2 | | |  | | |  | | |  | | |  | | |  | | | 9-19 | | | 是 | | |
| 0620900X | | | 化工技术经济 | | | | | 否 | | | √ | | | 24 | | | 24 | | |  | | |  | | |  | | 1.5 | | |  | | |  | | |  | | |  | | |  | | |  | | |  | | | 1.5 | | |  | | |  | | |  | | |  | | |  | | | 1-10 | | | 是 | | |
| 0620830X | | | 精细有机合成 | | | | | 否 | | | √ | | | 32 | | | 32 | | |  | | |  | | |  | | 2 | | |  | | |  | | |  | | |  | | |  | | |  | | |  | | | 2 | | |  | | |  | | |  | | |  | | |  | | | 5-10 | | | 是 | | |
| 0620750X | | | 化工传递过程 | | | | | 是 | | | √ | | | 40 | | | 40 | | |  | | |  | | |  | | 2.5 | | |  | | |  | | |  | | |  | | |  | | |  | | |  | | |  | | | 2.5 | | |  | | |  | | |  | | |  | | | 11-19 | | | 是-化学工程 | | |
| 0621140X | | | 过程工程导论(双语） | | | | | 否 | | | √ | | | 24 | | | 24 | | |  | | |  | | |  | | 1.5 | | |  | | |  | | |  | | |  | | |  | | |  | | |  | | |  | | | 1.5 | | |  | | |  | | |  | | |  | | | 5-10 | | |
| 0621270X | | | 化工过程模拟 | | | | | 是 | | | √ | | | 32 | | | 32 | | |  | | |  | | |  | | 2 | | |  | | |  | | |  | | |  | | |  | | |  | | |  | | |  | | |  | | |  | | | 2 | | |  | | |  | | | 4-12 | | |
| 0620780X | | | 煤化工工艺学 | | | | | 是 | | | √ | | | 40 | | | 40 | | |  | | |  | | |  | | 2.5 | | |  | | |  | | |  | | |  | | |  | | |  | | |  | | |  | | | 2.5 | | |  | | |  | | |  | | |  | | | 11-19 | | | 是-化学工艺 | | |
| 0621420X | | | 精细化工工艺学 | | | | | 是 | | | √ | | | 24 | | | 24 | | |  | | |  | | |  | | 1.5 | | |  | | |  | | |  | | |  | | |  | | |  | | |  | | |  | | | 1.5 | | |  | | |  | | |  | | |  | | | 5-10 | | |
| 0620790X | | | 无机化工工艺学 | | | | | 是 | | | √ | | | 32 | | | 32 | | |  | | |  | | |  | | 2 | | |  | | |  | | |  | | |  | | |  | | |  | | |  | | |  | | |  | | |  | | | 2 | | |  | | |  | | | 4-9 | | |
| 0620890X | | | 绿色化学与化工 | | | | | 否 | | | √ | | | 24 | | | 24 | | |  | | |  | | |  | | 1.5 | | |  | | |  | | |  | | |  | | |  | | |  | | |  | | |  | | | 1.5 | | |  | | |  | | |  | | |  | | | 5-10 | | | 是 | | |
| 0600590X | | | 有机合成（英文） | | | | | 否 | | | √ | | | 32 | | | 32 | | |  | | |  | | |  | | 2 | | |  | | |  | | |  | | |  | | |  | | |  | | |  | | |  | | | 2 | | |  | | |  | | |  | | |  | | | 5-10 | | | 是 | | |
| 0621130X | | | 化工生产与经营管理★ | | | | | 否 | | | O | | | 16 | | | 16 | | |  | | |  | | |  | | 1 | | |  | | |  | | |  | | |  | | |  | | |  | | |  | | |  | | |  | | |  | | | 1 | | |  | | |  | | | 4-9 | | | 否 | | |
| 0620920X | | | 化工前沿技术与发展★ | | | | | 否 | | | O | | | 24 | | | 24 | | |  | | |  | | |  | | 1.5 | | |  | | |  | | |  | | |  | | |  | | |  | | |  | | |  | | |  | | |  | | | 1.5 | | |  | | |  | | | 4-9 | | | 否 | | |
| 0620930X | | | 新型功能肥料 | | | | | 否 | | | O | | | 24 | | | 24 | | |  | | |  | | |  | | 1.5 | | |  | | |  | | |  | | |  | | |  | | |  | | |  | | |  | | |  | | |  | | | 1.5 | | |  | | |  | | | 4-9 | | | 否 | | |
| 合 计 | | | | | | | | | | | | | | 540 | | | 528 | | | 12 | | | 0 | | | 0 | | 30 | | | 0 | | | 0 | | | 0 | | | 0 | | | 0 | | | 4 | | | 0 | | | 6.5 | | | 11.5 | | | 0 | | | 8 | | | 0 | | | 0 | | |  | | |  | | |
| 最低专业选修课程合计 | | | | | | | | | | | | | | 0 | | |  | | |  | | |  | | |  | | 14 | | |  | | |  | | |  | | |  | | |  | | | 3 | | |  | | | 3.5 | | | 4 | | | 0 | | | 3.5 | | |  | | |  | | |  | | |  | | |

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| **合肥工业大学 化学工程与工艺 专业指导性教学计划** | | | | | | | | | | | | | | | | | | | |
| **集中安排的实践环节** | | | | | | | | | | | | | | | | | | | |
| **课程 编号** | **实践环节名称** | **考试方式** | **周 数** | **实 验 时 数** | **上机时数** | **学分** | **各学期学分分配** | | | | | | | | | | | | **建议起止周次** |
| **1** | **2** | **小** | **3** | **4** | **小** | **5** | **6** | **小** | **7** | **8** | **小** |
| 5700013B | 入学教育 | O | 0.5 |  |  | 0 | √ |  |  |  |  |  |  |  |  |  |  |  | 1-1 |
| 5200023B | 军事训练 | O | 2 |  |  | 2 | 2 |  |  |  |  |  |  |  |  |  |  |  | 1-4 |
| 5700023B 5700033B 5700043B 5700053B 5700063B 5700073B 5700083B 5700093B | 公益活动 | O | 1 |  |  | 0 | √ | √ |  | √ | √ |  | √ | √ |  | √ | √ |  | 分散 |
| 5600013B | 就业指导 | O | 8学时 |  |  | 0.5 |  |  |  |  |  |  |  | 0.5 |  |  |  |  | 分散 |
| 0601584B 0601594B 0601604B | 创新创业教育 | O |  |  |  | 4 |  | 1 |  |  | 1 |  |  |  |  |  | 2 |  | 1-19 |
| 5300033B | 工程训练C | O | 2 |  |  | 2 |  | 2 |  |  |  |  |  |  |  |  |  |  | 10-19 |
| 0600192B | 基础化学实验1 | O |  | 24 |  | 1 | 1 |  |  |  |  |  |  |  |  |  |  |  | 穿插 |
| 0600202B | 基础化学实验2 | O |  | 24 |  | 1 |  | 1 |  |  |  |  |  |  |  |  |  |  | 穿插 |
| 0600023B | 分析化学综合实验 | O |  | 24 |  | 1 |  |  |  | 1 |  |  |  |  |  |  |  |  | 1-19 |
| 0600212B | 基础化学实验3 | O |  | 36 |  | 1.5 |  |  |  | 1.5 |  |  |  |  |  |  |  |  | 穿插 |
| 1000013B 1000023B | 大学物理实验 | O |  | 48 |  | 2 |  |  |  | 1 | 1 |  |  |  |  |  |  |  | 穿插 |
| 0600222B | 基础化学实验4 | O |  | 36 |  | 1.5 |  |  |  |  | 1.5 |  |  |  |  |  |  |  | 穿插 |
| 0600013B | 有机化学综合实验 | O |  | 24 |  | 1 |  |  |  |  | 1 |  |  |  |  |  |  |  | 1-19 |
| 0621443B | 认识实习 |  | 1 |  |  | 1 |  |  |  |  | 1 |  |  |  |  |  |  |  | 19-19 |
| 0601073B | 化工原理实验 | O |  | 48 |  | 2 |  |  |  |  |  |  | 2 |  |  |  |  |  | 穿插 |
| 0621003B | 生产实习★ | O | 2 |  |  | 2 |  |  |  |  |  |  |  | 2 |  |  |  |  | 1-2 |
| 0620983B | 化工实习实训A★ | O | 2 | 48 |  | 2 |  |  |  |  |  |  |  | 2 |  |  |  |  | 3-4 |
| 0600993B | 化工原理课程设计A | O | 3 |  |  | 3 |  |  |  |  |  |  |  | 3 |  |  |  |  | 17-19 |
| 0621153B | 化工综合创新实验 | O | 1 | 24 |  | 1 |  |  |  |  |  |  |  |  |  | 1 |  |  | 分散 |
| 0620742B | 化学工程与工艺专业实验 | O |  | 48 |  | 2 |  |  |  |  |  |  |  |  |  | 2 |  |  | 分散 |
| 0621433B | 毕业实习★ | O | 2 |  |  | 2 |  |  |  |  |  |  |  |  |  | 2 |  |  | 1-2 |
| 0621023B | 化工工艺专业课程设计★ | O | 3 |  |  | 3 |  |  |  |  |  |  |  |  |  |  | 3 |  | 1-3 |
| 0621033B | 毕业设计（论文）★ | O | 18 |  |  | 15 |  |  |  |  |  |  |  |  |  |  | 15 |  | 16-18 4-18 |
| 合 计 | | | 37.5周 | 384 | 0 | 50.5 | 3 | 4 | 0 | 3.5 | 5.5 | 0 | 2 | 7.5 | 0 | 5 | 20 | 0 |  |

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| **合肥工业大学化学工程与工艺专业指导性教学计划** | | | | | | | | | | | | | | | | | |
| **各教学环节学时、学分分配表** | | | | | | | | | | | | | | | | | |
| **课程类别** | | **课程 性质** | **学时** | **学分** | **学期学分分配表** | | | | | | | | | | | | **学分比例** |
| **1** | **2** | **小** | **3** | **4** | **小** | **5** | **6** | **小** | **7** | **8** | **小** |
| 理论教学 | 通识教育课程 | 必修 | 1012 | 64.5 | 18.5 | 21 | 0 | 18 | 6 | 0 | 0.25 | 0.25 | 0 | 0.25 | 0.25 | 0 | 34% |
| 选修 | 144 | 9 |  | 1 |  |  | 4 |  | 2 | 2 |  |  |  |  | 5% |
| 学科基础与专业课程 | 必修 | 736 | 46 | 4 | 2 | 0 | 5 | 8 | 0 | 11.5 | 11 | 0 | 4.5 | 0 | 0 | 24% |
| 选修 （最低） | 224 | 14 | 0 | 0 | 0 | 0 | 3 | 0 | 3.5 | 4 | 0 | 3.5 | 0 | 0 | 7% |
| 辅修课程 | 选修 | 96 | 6 |  |  |  |  | 1 |  | 4 | 1 |  |  |  |  | 3% |
| 实践教学 | 集中安排的实践环节 （含创新创业教育 4学分） | 必修 | 38.5周 | 50.5 | 3 | 4 | 0 | 3.5 | 5.5 | 0 | 2 | 7.5 | 0 | 5 | 20 | 0 | 27% |
| 合计 | | | 2212 | 190 | 25.5 | 28 | 0 | 26.5 | 27.5 | 0 | 23.25 | 25.75 | 0 | 13.25 | 20.25 | 0 | 100% |
| 最低毕业学分 | | | 190 | | | | | | | | | | | | | | |