

机械卓越计划实验班本科培养计划

Undergraduate Experimental Program in Mechanical Engineering For Exemplary Engineer Education

一、培养目标

I . Program Objective

培养具备机械设计制造基础知识及工程应用能力，能在工业生产第一线从事机械制造领域内的设计制造、科技开发、应用研究、运行管理等方面工作的高级工程技术人才。

This program is aimed at establishing the fundamental knowledge and application skills of mechanical design and manufacturing, and nurturing talents in production engineering who will be engaged in design and manufacturing, research and development, application study, production management in the field of mechanical manufacturing.

二、基本规格要求

II . Learning Outcomes

毕业生应获得以下几方面的知识和能力：

1. 具有数学、自然科学和机械工程科学知识的应用能力；
2. 具有制订实验方案、进行实验、分析和解释数据的能力；
3. 具有设计机械系统、部件和过程的能力；
4. 具有对于机械工程问题进行系统表达、建立模型、分析求解和论证的能力；
5. 具有在机械工程实践中初步掌握并使用各种技术、技能和现代化工程工具的能力；
6. 具有社会责任和对职业道德的认识；
7. 具有在多学科团队中发挥作用的能力和较强的人际交流能力；
8. 知识面宽广，并具有对现代社会问题的知识，进而足以认识机械工程对于世界和社会影响的能力；
9. 具有终生教育的意识和继续学习的能力。

Students of this degree will acquire：

1. application of knowledge in mathematics, natural science and mechanical engineering；
2. experimental scheme drafting, operating and data analysis；
3. design of mechanical parts, systems and processes；
4. systematic presentation, modeling, analyzing and demonstration of mechanical engineering problems；
5. preliminary understanding and using of technology, ability and modern tools in mechanical engineering practices；
6. understanding of social obligation and professional ethics；
7. advanced communication and team work；
8. understanding the influence of mechanical engineering on the world and society based on broad knowledge and understanding of modern society issues；
9. continuous studying and lifelong education.

三、培养特色

III. Program Highlights

将信息、计算机科学与技术的知识与机械学科知识相结合；拓宽专业方向，使培养的毕业生更加适应社会。

This program integrates the knowledge of information as well as computer science and technology with that of mechanical engineering. It also broadens the disciplinary span in order to produce visible graduates who are more adaptable to the society needs.

四、主干学科

IV. Main Disciplines

力学、机械工程

Mechanics, Mechanical Engineering

五、学制与学位

V. Program Length and Degree

修业年限：四年

Duration: 4 years

授予学位：工学学士

Degrees Conferred: Bachelor of Engineering

六、学时与学分

VI. Credits Hours and Units

完成学业最低课内学分（含课程体系与集中性实践教学环节）要求：181.9 学分

Minimum Credits of Curricula (Comprising course system and intensive practical training) : 181.9 credits

其中，专业基础课程、专业核心课程学分不允许用其他课程学分进行学分冲抵和替代。

Major-related basic courses and core courses cannot be covered using credits from other courses in the program.

完成学业最低课外学分要求：5 学分。

Extracurricular Credits : 5 credits.

1. 课程体系学时与学分

Course Credits Hours and Units

| 课程类别 | | 课程性质 | 学时/学分 | 占课程体系学分比例 (%) |
|----------|----------|------|------------|---------------|
| 通识教育基础课程 | | 必修 | 1136/65.3 | 42.01 |
| | | 选修 | 160/10 | 5.92 |
| 学科基础课程 | 学科大类基础课程 | 必修 | 688/41.6 | 25.44 |
| | 学科专业基础课程 | 必修 | 264/16.5 | 9.76 |
| 专业课程 | 专业核心课程 | 选修 | 176/11 | 6.52 |
| | 专业方向课程 | 选修 | 168/10.5 | 6.21 |
| 跨专业选修课程 | | 选修 | 112/7 | 4.14 |
| 合计 | | | 2704/161.9 | 100 |

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| Course Type | | Required /Elective | Hrs/Crs | Percentage (%) |
|-------------------------------------|------------------------------------|--------------------|------------|----------------|
| General Education Core Curriculum | | Required | 1137/65.3 | 42.01 |
| | | Elective | 160/10 | 5.92 |
| Discipline-related courses | Discipline-related General Courses | Required | 688/41.6 | 25.44 |
| | Basic Sub-disciplinary Courses | Required | 264/16.5 | 9.76 |
| Major-specific courses | Major-specific Core Courses | Elective | 176/11 | 6.52 |
| | Major-specific Electives | Elective | 168/10.5 | 6.21 |
| Elective Courses in Cross-specialty | | Elective | 112/7 | 4.14 |
| Total | | | 2704/161.9 | 100 |

2. 集中性实践教学环节周数与学分

Practicum Credits

| 实践教学环节名称 | 课程性质 | 周数/学分 | 占实践教学环节学分比例 (%) |
|--------------------------------|------|-------|-----------------|
| 军事训练 | 必修 | 2/1 | 5 |
| 公益劳动 | 必修 | 1/0.5 | 2.5 |
| 大型集中 Project I—形体与机构设计训练 | 必修 | 2/1 | 5 |
| 大型集中 Project II—机械设计 with 制作训练 | 必修 | 4/2 | 10 |
| 金工实习 | 必修 | 4/2 | 10 |
| 电工实习 | 必修 | 2/1 | 5 |
| 认识实习 | 必修 | 1/0.5 | 2.5 |
| 学科交叉综合训练 | 必修 | 2/1 | 5 |
| 科技创新训练 | 必修 | 4/2 | 10 |
| 生产实习 | 必修 | 3/1.5 | 7.5 |
| 大型集中 Project III—机电测控综合训练 | 必修 | 3/1.5 | 7.5 |
| 毕业设计 | 必修 | 12/6 | 30 |
| 合计 | | 40/20 | 100 |

| Course Title | Required /Elective | Weeks/Credits | Percentage (%) |
|---|--------------------|---------------|----------------|
| Military Training | Required | 2/1 | 5 |
| Laboring for Public Benefit | Required | 1/0.5 | 2.5 |
| Condensed Large Scale Project I-Training on Shape and Mechanism Design | Required | 2/1 | 5 |
| Condensed Large Scale Project II-Training on Machine Design and Manufacturing | Required | 4/2 | 10 |
| Metal Working Practice | Required | 4/2 | 10 |
| Electrical Engineering Practice | Required | 2/1 | 5 |
| Acquaintanceship Practice | Required | 1/0.5 | 2.5 |
| Comprehensive Training for Interdiscipline | Required | 2/1 | 5 |
| Practice for Innovation in Science and Technology | Required | 4/2 | 10 |
| Engineering Internship | Required | 3/1.5 | 7.5 |
| Condensed Large Scale Project III-Comprehensive Training on Measurement and Control of Mechanotronics | Required | 3/1.5 | 7.5 |
| Undergraduate Thesis | Required | 12/6 | 30 |
| Total | | 40/20 | 100 |

3. 课外学分

Extracurricular Credits

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| 序号 | 课外活动名称 | 课外活动和社会实践的要求 | | 课外学分 |
|-----------|----------|--|-------------|------|
| 1 | 社会实践活动 | 提交社会调查报告，通过答辩者 | | 1 |
| | | 个人被校团委或团省委评为社会实践活动积极分子者，集体被校团委或团省委评为优秀社会实践队者 | | 2 |
| 2 | 英语及计算机考试 | 全国大学英语六级考试 | 获六级证书者 | 2 |
| | | 托福考试 | 达 90 分以上者 | 3 |
| | | 雅思考试 | 达 6.5 分以上者 | 3 |
| | | GRE 考试 | 达 1350 分以上者 | 3 |
| | | 全国计算机等级考试 | 获二级以上证书者 | 2 |
| | | 全国计算机软件资格、水平考试 | 获程序员证书者 | 2 |
| | | | 获高级程序员证书者 | 3 |
| 获系统分析员证书者 | 4 | | | |
| 3 | 竞赛 | 校级 | 获一等奖者 | 3 |
| | | | 获二等奖者 | 2 |
| | | | 获三等奖者 | 1 |
| | | 省级 | 获一等奖者 | 4 |
| | | | 获二等奖者 | 3 |
| | | | 获三等奖者 | 2 |
| | | 全国 | 获一等奖者 | 6 |
| | | | 获二等奖者 | 4 |
| | | | 获三等奖者 | 3 |
| 4 | 论文 | 在全国性刊物发表论文 | 每篇论文 | 2~3 |
| 5 | 科研 | 视参与科研项目时间与科研能力 | 每项 | 1~3 |
| 6 | 实验 | 视创新情况 | 每项 | 1~3 |

注：参加校体育运动会获第一名、第二名者与校级一等奖等同，获第三名至第五名者与校级二等奖等同，获第六至第八名者与校级三等奖等同。

| No. | Extracurricular Activities and Social Practice | Requirements | | Extracurricular Credits |
|-----------------------------------|--|---|--|-------------------------|
| 1 | Activities of Social Practice | Submit report and pass oral defense | | 1 |
| | | Entitled as Activist by the Communist Youth League of HUST or Hubei Province; Membership of the group which is entitled as Excellent Social Practice Group by the Communist Youth League of HUST or Hubei Province | | 2 |
| 2 | Examinations in English and Computer | CET-6 | Win certificate of Band-6 or higher | 2 |
| | | TOEFL | 90 Points or Higher | 3 |
| | | IELTS | 6.5 Points or Higher | 3 |
| | | GRE | 1350 Points or Higher | 3 |
| | | National Computer Rank Examination | Win certificate of Band-3 or higher | 2 |
| | | National Computer Software Qualification | Win certificate of programmer | 2 |
| | | | Win certificate of Advanced Programmer | 3 |
| Win certificate of System Analyst | 4 | | | |
| 3 | Competitions | University Level | Win first prize | 3 |
| | | | Win second prize | 2 |
| | | | Win third prize | 1 |

continue

| No. | Extracurricular Activities and Social Practice | Requirements | | Extracurricular Credits |
|-----|--|---|------------------|-------------------------|
| 3 | Competitions | Provincial Level | Win first prize | 4 |
| | | | Win second prize | 3 |
| | | | Win third prize | 2 |
| | | National Level | Win first prize | 6 |
| | | | Win second prize | 4 |
| | | | Win third prize | 3 |
| 4 | Papers | Those whose thesis appears in national publications | Per piece | 2~3 |
| 5 | Scientific Research | Depending on both the time spent in and ability demonstrated in scientific research project | Each item | 1~3 |
| 6 | Experiments | Depending on innovative extent | Each item | 1~3 |

Note: In HUST Sports Meeting, the first and the second prize, the third to the fifth prize, and the sixth prize to the eighth prize are deemed respectively the first prize, the second prize and the third prize of university level.

七、主要课程

VII. Main Courses

工程制图 Engineering Graphics、材料力学 Material Mechanics、理论力学 Theoretical Mechanics、机械原理 Theory of Machines and Mechanisms、机械设计 Machine Design、电路理论 Electrical and Magnetic Circuits、模拟电子技术 Analogue Electronics、微机原理与数字电路 Principle of Microcomputer and Digital Circuits、机电传动控制 Mechanical & Electrical Transmission Control、工程材料学 Engineering Materials、机械制造技术基础 Fundamentals of Mechanical Manufacturing Technology

八、主要实践教学环节

VIII. Practicum Module (Experiments Included)

军事训练 Military Training、公益劳动 Laboring for Public Benefit、大型集中 Project I—形体与机构设计训练 Condensed Large Scale Project I-Training on Shape and Mechanism Design、大型集中 Project II—机械设计与制作训练 Condensed Large Scale Project II-Training on Machine Design and Manufacturing、金工实习 Metal Working Practice、电工实习 Electrical Engineering Practice、生产实习 Engineering Internship、认识实习 Acquaintanceship Practice、学科交叉综合训练 Comprehensive Training for Interdiscipline、科技创新训练 Practice for Innovation in Science and Technology、大型集中 Project III—机电测控综合训练 Condensed Large Scale Project III—Comprehensive Training on Measurement and Control of Mechanotronics、毕业设计 Undergraduate Thesis

九、教学进程计划表

IX. Course Schedule

院(系): 机械科学与工程学院

专业: 机械设计制造及其自动化

School (Department): School of Mechanical Science and Engineering

Division: Mechanical Design, Manufacturing and Automation

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| 课程类别 course type | 课程性质 required/ elective | 课程代码 course code | 课程名称 course name | 学时 hrs | 学分 crs | 其中 Including | | | 设置学期 semester |
|---|-------------------------------|---------------------|--|-----------|-----------|------------------|------------|-----------------|------------------|
| | | | | | | 课外 extra-cur. | 实验 exp. | 上机 operation | |
| 通识教育基础课程 General Education Core Curriculum | 必修 Required | 0301902 | 思想道德修养与法律基础 Morals & Ethics & Fundamentals of Law | 40 | 2.5 | 8 | | | 1 |
| | 必修 Required | 0100721 | 中国近现代史纲要 Survey of Modern Chinese History | 32 | 2 | 8 | | | 2 |
| | 必修 Required | 0100733 | 马克思主义基本原理 Basic Theory of Marxism | 40 | 2.5 | 8 | | | 3 |
| | 必修 Required | 0100932 | 思政课社会实践 Social Practice of Ideological and Political Theories Course | 24 | 1.5 | 20 | | | 2 |
| | 必修 Required | 0100322 | 毛泽东思想和中国特色社会主义理论体系 概论 General Introduction to Mao Zedong Thought and Socialist Theory with Chinese Characteristics | 56 | 3.5 | | | | 4 |
| | 必修 Required | 0100741 | 形势与政策 Situation and Policy | 32 | 2 | 14 | | | 1-6 |
| | 必修 Required | 0510071 | 中国语文 Chinese | 32 | 2 | 10 | | | 1 |
| | 必修 Required | 0700011 | 微积分（一）上 Calculus (I) | 88 | 5.5 | | | | 1 |
| | 必修 Required | 0700012 | 微积分（一）下 Calculus (I) | 88 | 5.5 | | | | 2 |
| | 必修 Required | 0700051 | 线性代数（一） Linear Algebra(I) | 40 | 2.5 | | | | 2 |
| | 必修 Required | 0700071 | 复变函数与积分变换 Complex Function and Integral Transform | 40 | 2.5 | | | | 3 |
| | 必修 Required | 0700063 | 概率论与数理统计（三） Probability and Mathematics Statistics (III) | 40 | 2.5 | | | | 3 |
| | 必修 Required | 0508454 | 综合英语（一） Comprehensive English (I) | 32 | 2 | | | | 1 |
| | 必修 Required | 0508464 | 综合英语（二） Comprehensive English (II) | 32 | 2 | | | | 2 |
| | 必修 Required | 0508472 | 综合英语（三） Comprehensive English (III) | 16 | 1 | | | | 3 |
| | 必修 Required | 0508482 | 综合英语（四） Comprehensive English (IV) | 16 | 1 | | | | 4 |
| | 必修 Required | 0800033 | 软件技术基础 Software Programming Technology | 64 | 4 | | | | 1 |
| | 必修 Required | 0700048 | 大学物理（一） Physics (I) | 64 | 4 | | | | 2 |
| | 必修 Required | 0700049 | 大学物理（二） Physics (II) | 64 | 4 | | | | 3 |
| | 必修 Required | 0706891 | 物理实验（一） Physics Experiments (I) | 32 | 1 | | 32 | | 2 |

续表

| 课程类别 course type | 课程性质 required/ elective | 课程代码 course code | 课程名称 course name | 学时 hrs | 学分 crs | 其中 Including | | | 设置学期 semester |
|---|-------------------------------|---------------------|---|-----------|-----------|------------------|------------|-----------------|------------------|
| | | | | | | 课外 extra-cur. | 实验 exp. | 上机 operation | |
| 通识教育基础课程 General Education Core Curriculum | 必修 Required | 0706901 | 物理实验（二） Physics Experiments (II) | 24 | 0.8 | | 24 | | 3 |
| | 必修 Required | 0400111 | 大学体育（一） Physical Education (I) | 32 | 1 | | | | 1 |
| | 必修 Required | 0400121 | 大学体育（二） Physical Education (II) | 32 | 1 | | | | 2 |
| | 必修 Required | 0400131 | 大学体育（三） Physical Education (III) | 32 | 1 | | | | 3 |
| | 必修 Required | 0400141 | 大学体育（四） Physical Education (IV) | 32 | 1 | | | | 4 |
| | 必修 Required | 1100011 | 军事理论 Military Theory | 16 | 1 | | | | 1 |
| | 必修 Required | 0701732 | 科学思维与研究方法（新生研讨课） Method of Scientific Thinking and Research | 16 | 1 | | | | 1 |
| | 必修 Required | 0833031 | 工程导论 Introduction of Engineering | 16 | 1 | | | | 2 |
| | | | 人文社科类选修课程 Electives in Humanities and Social Science | 160 | 10 | | | | |
| 学科基础课程·学科大类基础 Discipline-related General Courses | | | 学科大类基础 Basic Courses in General Discipline | 640 | 40 | | | | |
| | 必修 Required | 0826611 | 工程制图（五）上 Engineering Graphics (V), The First Part | 40 | 2.5 | | | | 1 |
| | 必修 Required | 0827421 | 工程制图（五）下 Engineering Graphics (V), The Second Part | 64 | 4 | | | | 2 |
| | 必修 Required | 0800118 | 电路理论 Electrical & Magnetic Circuits | 40 | 2.5 | | 6 | | 3 |
| | 必修 Required | 0800084 | 理论力学（二） Theoretical Mechanics (II) | 56 | 3.5 | | | | 3 |
| | 必修 Required | 0806714 | 工程力学实验 Engineering Mechanics Lab. | 16 | 0.5 | 4 | 12 | | 4 |
| | 必修 Required | 0800073 | 材料力学（二） Material Mechanics (II) | 56 | 3.5 | | | | 4 |
| | 必修 Required | 0800123 | 模拟电子技术（三） Analogue Electronics (III) | 40 | 2.5 | | 8 | | 4 |
| | 必修 Required | 0833521 | 机械原理（三） Theory of Machines and Mechanisms (III) | 56 | 3.5 | | 6 | | 4 |
| | 必修 Required | 0821321 | 机械设计(三) Machine Design (III) | 56 | 3.5 | | 6 | | 5 |
| | 必修 Required | 0820943 | 工程控制基础 Fundamentals of Engineering Control | 32 | 2 | | | | 4 |
| | 必修 Required | 0815672 | 工程控制实验(一) Experiments on Fundamentals of Engineering Control (I) | 8 | 0.3 | | 8 | | 4 |

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续表

| 课程类别 course type | 课程性质 required/ elective | 课程代码 course code | 课程名称 course name | 学时 hrs | 学分 crs | 其中 Including | | | 设置学期 semester |
|--|-------------------------------|---------------------|---|-----------|-----------|------------------|------------|-----------------|------------------|
| | | | | | | 课外 extra-cur. | 实验 exp. | 上机 operation | |
| 学科基础课程· 学科大类基础 Discipline-related General Courses | 必修 Required | 0800363 | 机械制造技术基础 Fundamentals of Mechanical Manufacturing Technology | 40 | 2.5 | | 4 | | 4 |
| | 必修 Required | 0807301 | 工程材料学 Engineering Materials | 32 | 2 | | 4 | | 4 |
| | 必修 Required | 0820962 | 工程测试技术 Engineering Measurement Technology | 32 | 2 | | | | 5 |
| | 必修 Required | 0815662 | 工程测试技术实验(一) Experiments on Engineering Measurement Technology (III) | 8 | 0.3 | | 8 | | 5 |
| | 必修 Required | 0812301 | 工程传热学(一) Heat Transfer (I) | 32 | 2 | | 2 | | 5 |
| | 必修 Required | 0800061 | 流体力学(一) Fluid Mechanics (I) | 32 | 2 | | 4 | | 5 |
| 学科基础课程· 学科专业基础 Basic Sub-disciplinary Courses | | | 学科(专业)基础 Basic Courses in Discipline | 352 | 22 | | | | |
| | 必修 Required | 0800871 | 互换性与测量技术基础 Fundamentals of Interchangeability and Technical Measurement | 40 | 2.5 | | 8 | | 5 |
| | 必修 Required | 0833902 | 计算机图形学与CAD技术 Computer Graphics and CAD | 48 | 3.0 | | | 16 | 5 |
| | 必修 Required | 0400022 | 学科(专业)概论 An Introduction to Discipline (Mechanical Engineering) | 16 | 1 | | | | 4 |
| | 必修 Required | 0802081 | 工程热力学(一) Engineering Thermodynamics (I) | 32 | 2.0 | | 2 | | 5 |
| | 必修 Required | 0828021 | 微机原理与数字电路 Principle of Microcomputer and Digital Circuits | 64 | 4.0 | | 12 | | 5 |
| | 必修 Required | 0833912 | 综合测控实验 Comprehensive Experiments on Measurement and Control of Mechanotronics | 16 | 0.5 | | 16 | | 6 |
| | 必修 Required | 0800332 | 机电传动控制 Mechanical & Electrical Transmission Control | 56 | 3.5 | | 8 | | 6 |
| | 必修 Required | 0800362 | 机械制造技术基础(二) Fundamentals of Mechanical Manufacturing Technology (II) | 40 | 2.5 | | 4 | | 6 |
| 专业课程· 专业核心 Major-specific Core Courses | | | 专业核心课程 Common Core Electives in Specialty | 176 | 11 | | | | |
| | 选修 Elective | 0800392 | 液压与气压传动 Hydraulic and Pneumatic Transmission | 48 | 3 | | 4 | | 6 |
| | 选修 Elective | 0832913 | 机械制造装备技术 Machinery Manufacturing Equipment and Technology | 40 | 2.5 | | 4 | | 6 |

续表

| 课程类别 course type | 课程性质 required/ elective | 课程代码 course code | 课程名称 course name | 学时 hrs | 学分 crs | 其中 Including | | | 设置学期 semester |
|---------------------------------------|-------------------------------|---------------------|--|-----------|-----------|------------------|------------|-----------------|------------------|
| | | | | | | 课外 extra-cur. | 实验 exp. | 上机 operation | |
| | 选修 Elective | 0801041 | 数控技术 Numerical Control | 48 | 3 | | 4 | | 6 |
| | 选修 Elective | 0802331 | 现代设计方法 Advanced Design Methodology | 40 | 2.5 | | | 16 | 6 |
| 专业课程·专业方向 Major-specific Electives | | | 专业方向选修课程(鼓励选择机械大类其他专业课程 2 学分) Specialty-Oriented Electives | 168 | 10.5 | | | | |
| | 选修 Elective | 0800982 | 机械系统创新设计 Creative Design of Mechanical System | 24 | 1.5 | | | | 7 |
| | 选修 Elective | 0833921 | 机械振动学 Mechanical Vibrations | 24 | 1.5 | | | | 7 |
| | 选修 Elective | 0819841 | 汽车构造基础 Structure of Automobile | 24 | 1.5 | | | | 7 |
| | 选修 Elective | 0814912 | 汽车电子技术 Automobile Electronic Technology | 24 | 1.5 | | | | 7 |
| | 选修 Elective | 0814922 | 汽车总体设计 Vehicle Design | 24 | 1.5 | | | | 7 |
| | 选修 Elective | 0814932 | 汽车动力学基础 Fundamentals of Vehicle Dynamics | 24 | 1.5 | | | | 7 |
| | 选修 Elective | 0811341 | 三维逆向工程技术 3D Reverse Engineering Technology | 24 | 1.5 | | | | 7 |
| | 选修 Elective | 0800992 | 有限元分析及应用 Fundamental Finite Element Analysis and Applications | 24 | 1.5 | | | | 7 |
| | 选修 Elective | 0800294 | 计算方法(二) Numerical Methods (II) | 32 | 2 | | | 12 | 3 |
| | 选修 Elective | 0842441 | 机电创新决策与设计方法 Mechantronic Creative Decisions and Design | 32 | 2 | | | | 4 |
| | 选修 Elective | 0801295 | 系统动力学 System Dynamics | 32 | 2 | | | | 4 |
| | 选修 Elective | 0841891 | 工程摩擦学基础 Fundamentals of Engineering Tribology | 24 | 1.5 | | | | 7 |
| | 选修 Elective | 0801072 | 电液控制工程 Electro-hydraulic Control Engineering | 24 | 1.5 | | | | 7 |
| | 选修 Elective | 0801083 | 液压元件与系统 Hydraulic Components and Systems | 24 | 1.5 | | 4 | | 7 |
| | 选修 Elective | 0807122 | 气动控制技术 Pneumatic Control Technology | 24 | 1.5 | | | | 7 |
| | 选修 Elective | 0811391 | 汽车机电液控制技术 Automobile Mechano-electro-hydraulic Control Technology | 24 | 1.5 | | | | 7 |
| | 选修 Elective | 0821251 | 纯水液压传动技术 Water Hydraulic Power Transmission Technology | 24 | 1.5 | | | | 7 |

续表

| 课程类别 course type | 课程性质 required/ elective | 课程代码 course code | 课程名称 course name | 学时 hrs | 学分 crs | 其中 Including | | | 设置学期 semester |
|---------------------------------------|-------------------------------|---------------------|---|-----------|-----------|------------------|------------|-----------------|------------------|
| | | | | | | 课外 extra-cur. | 实验 exp. | 上机 operation | |
| 专业课程·专业方向 Major-specific Electives | 选修 Elective | 0827751 | 电子气动技术 Electronic Pneumatics | 24 | 1.5 | | | | 7 |
| | 选修 Elective | 0827761 | 现代流体动力控制 Advanced Fluid Power Control | 24 | 1.5 | | | | 7 |
| | 两门课程选一 One out of Two | 0080001 | 机器视觉及应用 Machine Vision and Applications | 24 | 1.5 | | | | 7 |
| | | 0819111 | 机器视觉自动检测技术 Auto Inspection Technologies Based on Machine Vision | 24 | 1.5 | | | | 7 |
| | 选修 Elective | 0811991 | 设备监测与诊断 Machine Condition Monitoring and Diagnosis | 24 | 1.5 | | | | 7 |
| | 选修 Elective | 0814981 | 质量工程 Quality Engineering | 24 | 1.5 | | | | 7 |
| | 选修 Elective | 0827741 | 高速数字图像处理及应用 High-Speed Digital Image Processing and Its Applications | 24 | 1.5 | | | | 7 |
| | 选修 Elective | 0801095 | 误差理论与数据处理 Error Theory and Data Processing | 24 | 1.5 | | | | 7 |
| | 选修 Elective | 0810941 | 仪器智能技术 Intelligent Instrument Technology | 24 | 1.5 | | | | 7 |
| | 选修 Elective | 0841881 | 智能测控系统 Intelligent Measurement and Control System | 24 | 1.5 | | | | 7 |
| | 选修 Elective | 0801052 | 机器人技术基础 Fundamentals of Robotics | 24 | 1.5 | | | | 7 |
| | 选修 Elective | 0841901 | 柔性电子制造技术基础 Fundamentals of Flexible Electronic Manufacturing Technology | 24 | 1.5 | | | | 7 |
| | 选修 Elective | 0833941 | 计算机辅助制造技术 Computer Aided Manufacturing | 24 | 1.5 | | | | 7 |
| | 选修 Elective | 0821221 | Python 程序设计 Python Program Design | 24 | 1.5 | | | | 7 |
| | 选修 Elective | 0801032 | 计算机控制系统 Computer Control System | 24 | 1.5 | | | 4 | 7 |
| | 选修 Elective | 0814061 | 数控加工工艺与编程技术 Numerical Control Machining Procedure and Programming Technology | 24 | 1.5 | | | | 7 |
| | 选修 Elective | 0814091 | 仿生机器人学概论 Introduction to Biomimetic Robotics | 24 | 1.5 | | | | 7 |
| | 选修 Elective | 0811361 | 交流伺服运动控制系统 AC Servo Motion Control System | 24 | 1.5 | | | | 7 |
| | 选修 Elective | 0833951 | 机电系统建模与仿真基础 Introduction to Modeling and Simulation of Mechatronics | 24 | 1.5 | | | | 7 |

续表

| 课程类别 course type | 课程性质 required/ elective | 课程代码 course code | 课程名称 course name | 学时 hrs | 学分 crs | 其中 Including | | | 设置学期 semester | |
|---------------------------------------|-------------------------------|---|--|-----------|-----------|------------------|------------|-----------------|------------------|--|
| | | | | | | 课外 extra-cur. | 实验 exp. | 上机 operation | | |
| 专业课程·专业方向 Major-specific Electives | 选修 Elective | 0814071 | 机电产品数字化设计制造与管理 Design, Manufacturing and Management of Digital Mechatronic Products | 24 | 1.5 | | | | 7 | |
| | 选修 Elective | 0800932 | 柔性制造自动化概论 Conspectus of Flexible Manufacturing Automation | 24 | 1.5 | | | | 7 | |
| | 选修 Elective | 0811411 | 功能材料基础 Fundamentals of Functional Materials | 24 | 1.5 | | | | 7 | |
| | 选修 Elective | 0821231 | 特种加工 Nonconventional Machining | 24 | 1.5 | | | | 7 | |
| | 选修 Elective | 0801572 | 先进制造技术 Advanced Manufacturing Technology | 24 | 1.5 | | 2 | | 7 | |
| | 选修 Elective | 0841982 | 纳米技术导论 Introduction to Nanotechnology | 24 | 1.5 | | | | 7 | |
| | 选修 Elective | 0814111 | 微细加工与纳米技术 Microfabrication and Nanotechnology | 24 | 1.5 | | | | 7 | |
| | 选修 Elective | 0840021 | 微电子制造技术 Technology of Microelectronic Fabrication | 24 | 1.5 | | | | 7 | |
| | 选修 Elective | 0814041 | 微机电系统技术基础及应用 Basis and Application of Microelectro Mechanical Systems | 24 | 1.5 | | | | 7 | |
| | 选修 Elective | 0814051 | 微系统封装技术基础 Fundamentals of Microsystems Packaging Technology | 24 | 1.5 | | | | 7 | |
| | 选修 Elective | 0810031 | 现代工业网络 Modern Industrial Networks | 24 | 1.5 | | | | 7 | |
| | 选修 Elective | 0810961 | 网络信息安全概论 An Introduction to Network Information Security | 24 | 1.5 | | | | 7 | |
| | | | 跨专业选修课程（须选修非本专业3门或3门以上课程且学分不少于7学分）请各专业在以下提供3门课程 Elective courses in Cross-specialty | | | | | | | |
| | 选修 Elective | 0833521 | 机械原理（三） Theory of Machines and Mechanisms (III) | 56 | 3.5 | | 6 | | 4 | |
| | 选修 Elective | 0821321 | 机械设计(三) Machine Design (III) | 56 | 3.5 | | 6 | | 5 | |
| 选修 Elective | 0800363 | 机械制造技术基础 Fundamentals of Mechanical Manufacturing Technology | 40 | 2.5 | | 4 | | 4 | | |
| 必修 Required | 1300013 | 军事训练 Military Training | 2w | 1 | | | | 1 | | |
| 必修 Required | 1300024 | 公益劳动 Laboring for Public Benefit | 1w | 0.5 | | | | 5 | | |

续表

| 课程类别 course type | 课程性质 required/ elective | 课程代码 course code | 课程名称 course name | 学时 hrs | 学分 crs | 其中 Including | | | 设置学期 semester |
|----------------------------------|-------------------------------|---------------------|---|-----------|-----------|------------------|------------|-----------------|------------------|
| | | | | | | 课外 extra-cur. | 实验 exp. | 上机 operation | |
| 实践环节 Practical Training Items | 必修 Required | 1327462 | 大型集中 Project I — 形体与机构设计训练 Condensed Large Scale Project I-Training on Shape and Mechanism Design | 2w | 1 | | | | 5 |
| | 必修 Required | 1327472 | 大型集中 Project II — 机械设计与制作训练 Condensed Large Scale Project II-Training on Machine Design and Manufacturing | 4w | 2 | | | | 6 |
| | 必修 Required | 1302333 | 金工实习 Metal Working Practice | 4w | 2 | | | | 4 |
| | 必修 Required | 1304411 | 电工实习 Electrical Engineering Practice | 2w | 1 | | | | 3 |
| | 必修 Required | 1300536 | 认识实习 Acquaintanceship Practice | 1w | 0.5 | | | | 2 |
| | 必修 Required | 1328221 | 学科交叉综合训练 Comprehensive Training for Interdiscipline | 2w | 1 | | | | 2 |
| | 必修 Required | 1328231 | 科技创新训练 Practice for Innovation in Science and Technology | 4w | 2 | | | | 5 |
| | 必修 Required | 130008a | 生产实习 Engineering Internship | 3w | 1.5 | | | | 6 |
| | 必修 Required | 1327482 | 大型集中 Project III — 机电测控综合训练 Condensed Large Scale Project III -Comprehensive Training on Measurement and Control of Mechanotronics | 3w | 1.5 | | | | 7 |
| | 必修 Required | 130004g | 毕业设计 Undergraduate Thesis | 12w | 6 | | | | 8 |