**Mechanical Engineering (Fluid Machinery and Engineering)**

**Course Outline**

**Key Subjects and Core Courses**

This program consists of two key subjects, including mechanical engineering and mechanics. The core courses for this program are listed in the following Table.

|  |  |
| --- | --- |
| Mechanics | Engineering Graphics |
| Theory and Design of Machines and Mechanisms | Electrotechnics & Electronics |
| Engineering Materials and Their Processing Fundamentals | Basics of Mechanical Manufacturing Techniques |
| Numerical Control Principles & Programming Techniques | Fluid Machinery Theory |
| Fundamentals of Control Engineering | Fundamentals and Applications of Single-Chip Microcomputers |
| Electromechanical Transmission Control | Fluid Machinery Design |
| Detection Techniques for Mechanical Engineering |  |

**Type A Courses（Public basic courses,公共基础;此类课程总学分54/要求修满最低学分50）**

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| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **No.** | **School** | **Name of Course** | **Term** | **Credit** | **Total****Hours** | **Class****Hours** | **Practice/****Lab****Hours** | **Required/****Elective** |
| A1 | LC | Chinese-Ⅰ（统一）汉语-Ⅰ | 1 | 6 | 90 | 75 | 15 | Required |
| A2 | LC | Chinese-Ⅱ（统一）汉语-Ⅱ | 2 | 6 | 90 | 75 | 15 | Required |
|  A3 | LC | Chinese-Ⅲ（统一）汉语-Ⅲ | 3 | 6 | 90 | 75 | 15 | Required |
| A4 | LC | Chinese-Ⅳ（统一）汉语-Ⅳ | 4 | 6 | 90 | 75 | 15 | Required |
| A5 | OEC | EQ Self-development（统一）情商自我成长 | 1 | 1 | 15 | 15 | 0 | Required |
| A6 | OEC | Overview of China（统一）中国概论 | 1 | 4 | 60 | 60 | 0 | Required |
| A7 | FS | Higher Mathematics A高等数学A | 2-3 | 8 | 120 | 120 | 0 | Required |
| A8 | FS | Linear Algebra线性代数 | 4 | 2 | 30 | 30 | 0 | Required |
| A9 | FS | Statistics and Probability Theory概率统计 | 4 | 2 | 30 | 30 | 0 | Required |
| A10 | FS | College Physics A大学物理A | 2-3 | **4** | 60 | 60 | 0 | Required |
| A11 | FS | College PhysicsExperiment A大学物理实验A | 2-3 | 2 | 30 | 0 | 30 | Required |
| A13 | SCSCE | PC Program Design (C Language)程序设计(C语言) | 3 | 2 | 30 | 24 | 6 | Required |
| A14 | SCCE | Engineering Chemistry工程化学 | 2 | 2 | 30 | 24 | 6 | Required |
| A15 | Library | Literature Retrieval文献检索 | 5 | 1 | 15 | 11 | 4 | Required |
| A16 | SA | Chinese Fine Arts中国美术 | 5 | 2 | 30 | 30 | 0 | Elective |
| A17 | SA | Chinese Music中国音乐 | 5 | 2 | 30 | 30 | 0 | Elective |
| A18 | PED | College Physical Education 大学体育 I | 1 | 2 | 30 | 30 | 0 | Elective |
| A19 | PED | College Physical Education大学体育 II | 2 | 2 | 30 | 30 | 0 | Elective |
| A20 | PED | College Physical Education大学体育 III | 3 | 2 | 30 | 30 | 0 | Elective |
| A21 | PED | College Physical Education大学体育 IV | 4 | 2 | 30 | 30 | 0 | Elective |
|  |  | **Total A** |  | **54** | **810** | **704** | **106** |  |

备注：开课学院为学院英文名称首字母简写，例如OEC (Overseas Education College，海外教育学院), SME (School of Mechanical Engineering，机械工程学院)，FCEM（ Faculty of Civil Engineering & Mechanics,土力学院）, SEPE (School of Energy & Power Engineering，能源动力工程学院)，SCSCE（School of Computer Science & communications Engineering，计算机科学与通信工程学院），SCCE(School of Chemistry & Chemical Engineering,化学化工学院)，FMM(Fluid Machinery Manufacture,流体机械制造企业)，IC(Industrial Center, 工业中心)

SOE(school-owned enterprise，机电总厂),PED(Physical education department，体育部)，SA(Schoo of Art,艺术学院)

课程编号：课程类别（ABCDE）+专业编号（2位）+序列号（3位）

**Type B Courses（Fundamental Theory,基础理论;此类课程总学分36/要求修满最低学分32）**

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| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **No.** | **School** | **Name of Course** | **Term** | **Credit** | **Total****Hours** | **Class****Hours** | **Practice/****Lab****Hours** | **Required/****Elective** |
| B1 | FCEM | Engineering Mechanics A工程力学A | 3-4 | 5 | 75 | 75 | 0 | Required |
| B2 | FCEM  | Engineering Mechanics Experiment工程力学实验 | 4 | 1 | 15 | 0 | 15 | Required |
| B3 | SEPE | Fluid Dynamics流体力学 | 4 | 2 | 30 | 26 | 4 | Required |
| B4 | SEPE | Fundamentals of Heat Transfer Theory传热学基础 | 5 | 2 | 30 | 26 | 4 | Required |
| B5 | SEIE | Electrotechnics & Electronics A电工电子学A | 4-5 | 4 | 60 | 60 | 0 | Required |
| B6 | SEIE | Experiments for Electrotechnics & Electronics A电工电子学实验A | 4-5 | 1 | 15 | 0 | 15 | Required |
| B7 | SME | Introduction to Mechanical Engineering机械工程导论 | 2 | 2 | 30 | 30 | 0 | Required |
| B8 | SME | Engineering Graphics A工程图学A | 2-3 | 4 | 60 | 44 | 16 | Required |
| B9 | SME | Theory and Design of Machines and Mechanisms机械原理及设计 | 4-5 | 4 | 60 | 50 | 10 | Required |
| B10 | IC | Theory and Design of Machines and Mechanisms机械原理及设计实验 | 4-5 | 1 | 15 | 0 | 15 | Required |
| B11 | SME | Tolerance and Its Test Techniques公差与检测技术 | 5 | 2 | 30 | 24 | 6 | Required |
| B12 | SME | Engineering Materials and Their Processing Fundamentals 工程材料及其成型基础 | 5 | 2 | 30 | 24 | 6 | Required |
| B13 | SME | Basics of Mechanical Manufacturing Techniques A机械制造技术基础A | 6 | 2 | 30 | 24 | 6 | Required |
| B14 | SEPE | Fundamentals of Control Engineering控制工程基础 | 5 | 2 | 30 | 26 | 4 | Required |
| B15 | SEPE | Modern Design Theory and Method现代设计理论与方法 | 6 | 2 | 30 | 26 | 4 | Elective |
| B16 | SEPE | Finite Element Numerical Analysis for Engineering工程有限元分析 | 6 | 2 | 30 | 26 | 4 | Elective |
| B17 | CSCE | Industrial Economics工业经济学 | 6 | 2 | 30 | 30 | 0 | Elective |
|  |  | **Total B** |  | **36** | **705** | **608** | **105** |  |

**Type C Courses（Professional selective,专业选修课，此类课程总学分24/要求修满最低学分22）**

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| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **No.** | **School** | **Name of Course** | **Term** | **Credit** | **Total****Hours** | **Class****Hours** | **Practice/****Lab****Hours** | **Required/****Elective** |
| C1 | SEPE | Fluid Machinery Theory流体机械原理 | 6 | 4 | 60 | 54 | 6 | Required |
| C2 | SEPE | [Thermal Energy and Power Engineering](http://www.baidu.com/link?url=NlJbP2GrEHEUSBa6xsMfVY5EDXvSmhfeAvVW9vMX0xU3jlxui20kcGRMZ-YT-V_7lWZgcl49lVhrA-HADzp5R7RiTTfg4Dft01OXFoTvY3vnb7xrInQvRL538tHhfPxeMKdZc8IIounV5lJe2Np0L0RUZLzJ5kEYG4FgQuZUNHaS48bJ0M09TWdyZ99d3myb" \t "_blank)热能与动力工程基础 | 6 | 2 | 30 | 24 | 6 | Required |
| C3 | SEPE | Test Techniques for  [Thermal Energy and Power Engineering](http://www.baidu.com/link?url=NlJbP2GrEHEUSBa6xsMfVY5EDXvSmhfeAvVW9vMX0xU3jlxui20kcGRMZ-YT-V_7lWZgcl49lVhrA-HADzp5R7RiTTfg4Dft01OXFoTvY3vnb7xrInQvRL538tHhfPxeMKdZc8IIounV5lJe2Np0L0RUZLzJ5kEYG4FgQuZUNHaS48bJ0M09TWdyZ99d3myb" \t "_blank)热能与动力工程测试技术 | 6 | 3 | 45 | 30 | 15 | Required |
| C4 | SEPE | Fluid Machinery and Automatic Control流体机械自动控制 | 6 | 2 | 30 | 28 | 2 | Required |
| C5 | SEPE | Fluid Machinery DesignⅠ流体机械设计Ⅰ | 6 | 2 | 30 | 26 | 4 | Required |
| C6 | SEPE | Fluid Machinery DesignⅡ流体机械设计Ⅱ | 6 | 3 | 45 | 41 | 4 | Required |
| C7 | SEPE | Pump Fluid Mechanics泵流体力学 | 7 | 2 | 30 | 24 | 6 | Required |
| C8 | SEPE | Fluid seal technology流体密封技术 | 7 | 2 | 30 | 24 | 6 | Required |
| C9 | SEPE | [Fluid](file:///C%3A%5C%5CUsers%5C%5Cwilsonxu%5C%5CAppData%5C%5CLocal%5C%5Cyoudao%5C%5Cdict%5C%5CApplication%5C%5C7.0.1.0227%5C%5Cresultui%5C%5Cdict%5C%5C?keyword=fluid) Machinery CAD流体机械CAD | 7 | 2 | 30 | 24 | 6 | Required |
| C10 | SEPE | Fluid Machinery Strength Calculation流体机械强度计算 | 7 | 2 | 30 | 26 | 4 | Elective |
| C11 | SEPE | Modern Industrial Pump Structure and Design现代工业泵结构与设计 | 7 | 2 | 30 | 26 | 4 | Elective |
| C12 | SEPE | Fluid Machinery Optimization Design流体机械优化设计 | 7 | 2 | 30 | 26 | 4 | Elective |
| C13 | SEPE | Numerical Simulation of Inside Flow of Fluid Machinery流体机械内部流动数值模拟 | 7 | 2 | 30 | 26 | 4 | Elective |
|  |  | **Total C** |  | **24** | **360** | **301** | **59** |  |

**Type D Courses:（Practice,实践课； Compulsory, 必修此类课程总学分46/要求修满最低学分46）**

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| --- | --- | --- | --- | --- | --- | --- |
| **No.** | **School** | **Name of Course** | **Term** | **Credit** | **Weeks** | **Remark** |
| D1 | OEC | Freshman Transition入学教育 | 1 | 1 | 1 |  |
| D2 | IC | Basic Engineering Training I基础工程训练Ⅰ | 1 | 1 | 1 |  |
| D3 | SOE | Basic Engineering Training II基础工程训练Ⅱ | 2 | 4 | 4 |  |
| D4 | SOE | Basic Engineering Training III基础工程训练Ⅲ | 3 | 2 | 2 |  |
| D5 | FMM | Fluid MachineryConstruction and principle流体机械产品结构原理 | 4 | 4 | 4 |  |
| D6 | SME | Course Design for Engineering Graphics工程图学实训 | 4 | 1 | 1 |  |
| D7 | FMM |  International Advanced Technology and Products国际先进技术和产品 | 6 | 1 | 1 |  |
| D8 | FMM |  Fluid Machinery Technology and Equipment [Practice](file:///C%3A%5C%5CUsers%5C%5Cwilsonxu%5C%5CAppData%5C%5CLocal%5C%5Cyoudao%5C%5Cdict%5C%5CApplication%5C%5C7.0.1.0227%5C%5Cresultui%5C%5Cdict%5C%5C?keyword=practice)流体机械工艺与设备实习 | 6 | 3 | 3 |  |
| D9 | FMM | Fluid Machinery [Performance](file:///C%3A%5C%5CUsers%5C%5Cwilsonxu%5C%5CAppData%5C%5CLocal%5C%5Cyoudao%5C%5Cdict%5C%5CApplication%5C%5C7.0.1.0227%5C%5Cresultui%5C%5Cdict%5C%5C?keyword=performance) [Test](file:///C%3A%5C%5CUsers%5C%5Cwilsonxu%5C%5CAppData%5C%5CLocal%5C%5Cyoudao%5C%5Cdict%5C%5CApplication%5C%5C7.0.1.0227%5C%5Cresultui%5C%5Cdict%5C%5C?keyword=test)[Practice](file:///C%3A%5C%5CUsers%5C%5Cwilsonxu%5C%5CAppData%5C%5CLocal%5C%5Cyoudao%5C%5Cdict%5C%5CApplication%5C%5C7.0.1.0227%5C%5Cresultui%5C%5Cdict%5C%5C?keyword=practice)流体机械性能测试实习 | 6 | 1 | 1 |  |
| D10 | SOE | Mechanical Design & Manufacturing Experiments机械设计综合课程设计 | 5 | 3 | 3 |  |
| D11 | FMM |  Fluid Machinery Integrated Technical Practice流体机械产品综合设计 | 7 | 4 | 4 |  |
| D12 | FMM | Basic Course Design for Fluid Machinery流体机械课程设计 | 7 | 3 | 3 |  |
| D13 | FMM | Fluid Machinery Product [Advanced](file:///C%3A%5C%5CUsers%5C%5Cwilsonxu%5C%5CAppData%5C%5CLocal%5C%5Cyoudao%5C%5Cdict%5C%5CApplication%5C%5C7.0.1.0227%5C%5Cresultui%5C%5Cdict%5C%5C?keyword=advanced) [Technology](file:///C%3A%5C%5CUsers%5C%5Cwilsonxu%5C%5CAppData%5C%5CLocal%5C%5Cyoudao%5C%5Cdict%5C%5CApplication%5C%5C7.0.1.0227%5C%5Cresultui%5C%5Cdict%5C%5C?keyword=technology)流体机械产品前沿技术 | 7 | 2 | 2 |  |
| D14 | FMM | Graduation Design (Thesis)毕业设计（论文） | 8 | 16 | 16 |  |
|  |  | **Total D** |  | **46** | **46** |  |