# 机械设计制造及其自动化专业 本科人才培养方案

所属学科门类：工学 专业类别：机械类 专业代码：**080202**

机械设计制造及其自动化专业是我校办学历史最长、学科实力最强的重点专业之一。本专业所属机械工程学科目前拥有一级学科博士点、博士后流动站，获批为山东省“一流学科”；拥有2个山东省重点学科、国家级机械工程实验教学示范中心、山东省“精密制造与特种加工”重点实验室、山东省高校精密模具重点实验室、中央与地方共建机械基础实验室。本专业是国家级特色专业（2008年）、山东省品牌专业（2008年）、“教育部卓越工程师教育培养计划”首批试点专业（2010年）、山东省特色名校工程建设专业（2013年）、山东省高水平应用型立项建设核心专业 (2016年）、山东省教育服务新旧动能转换专业对接产业项目立项建设核心专业（2018年）、山东省一流本科专业建设点（2019年）、国家级一流本科专业建设点（2020年），2022 年通过工程教育专业认证，已形成学士、硕士、博士完整的人才培养体系。

**一、专业培养目标**

本专业培养具有？？（须有德智体美劳全面发展的表述）。

学生在毕业后5年左右预期能够实现以下目标：

1．；

2．；

3．；

4．；

5．。

**二、毕业要求**

通过3~6年的系统学习，本专业的学生。具体包括以下方面的能力和素养：

**毕业要求 1：工程知识—能够将数学、自然科学、工程基础和机械设计制造及其自动化专业知识用于解决机械产品研发、设计和制造中的复杂工程问题。**

**内涵观测点 1.1：**。。。。。

**内涵观测点 1.2：**。。。。。

**内涵观测点 1.3：**。。。。。

**毕业要求 2：问题分析—。。。。。**

**内涵观测点2.1：**。。。。。

**内涵观测点2.2：**。。。。

**三、毕业及学位要求**

学制：4年。

修业年限： 3~6年。

毕业学分要求：不少于179学分。

授予学位：符合国家学位规定和山东理工大学学士学位授予条件者，授予工学学士学位。

**四、课程设置**

**(一) 主干学科**

机械工程、力学、控制科学与工程。

**(二) 核心课程及主要实践性教学环节**

**1、核心课程**

理论力学、材料力学、金属工艺学、机械原理、机械设计、液压与气压传动、金属切削原理与刀具、机械结构三维设计、机械制造工艺学、数控技术、特种加工技术、金属切削机床概论与设计等。

**2、主要实践性教学环节**

入学教育及军训、劳动教育与实践、思想政治理论课实践教学、工程训练、电子工艺实训、机械制图测绘、创新素质拓展训练、机械原理课程设计、机械设计课程设计、机械制造生产实习、机械制造工艺学课程设计、机械制造装备课程设计、毕业实践与毕业设计等。

**(三) 课程学分安排**

|  |  |  |
| --- | --- | --- |
| **课程类别** | **应修学分** | **学分占比** |
| 通识教育 | ？ | X1% |
| 学科基础课 | ？ | X2% |
| 专业教育 | ？ | X3% |
| 专业集群 | ？ | X4% |
| 集中实践 | ？ | X5% |
|  |  | Σ(X)=100 |

|  |  |  |
| --- | --- | --- |
| **分项统计** | **学分** | **学分占比** |
| 应修的实践学分 | Y | Y2% |
| 开设的选修课程 | Z | Z2% |

**(四) 第二课堂**

第二课堂活动全方位育人，协同支撑专业毕业要求达成，分模块进行分类记录和管理，不少于8学分。

**(五) 毕业要求对培养目标的支撑矩阵和课程体系对毕业要求的支撑矩阵**

1.毕业要求对培养目标的支撑矩阵

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
|  | 培养目标1 | 培养目标2 | 培养目标3 | 培养目标4 | 培养目标n |
| 毕业要求1 | **√** |  |  | **√** |  |
| 毕业要求2 | **√** |  |  |  |  |
| 毕业要求3 |  |  | **√** |  |  |
| 毕业要求4 |  |  |  |  | **√** |
| 毕业要求n |  |  |  |  | **√** |

2.课程与毕业要求的对应关系矩阵

| **类别** | | **课程名称** | **学分** | **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** | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **1.1** | **1.2** | **2.1** | **2.2** | **2.3** | **3.1** | **3.2** | **3.3** | **3.4** | **4.1** | **4.2** | **4.3** | **5.1** | **5.2** | **5.3** | **6.1** | **6.2** | **6.3** | **7.1** | **7.2** | **7.3** | **8.1** | **8.2** |
| 通识教育课程 | 通识必修 | 思想道德与法治 | 2.5 |  | H |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 中国近现代史纲要 | 2.5 |  |  |  | M |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 通识选修 | 大学生心理健康教育 | 1.0 |  |  |  |  |  |  |  | L |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 大学生国家安全教育 | 1.0 |  |  | H |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 专业课程 | 专业基础 |  | 0.5 |  |  |  |  |  |  |  | M |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|  | 3.0 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | M |  |  |  |  |  |  |  |
| 专业必修 |  | 3.0 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|  | 2.5 |  |  |  |  |  |  |  |  |  | H |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 专业选修 |  | 2.0 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | M |  |  |  |
|  | 0.5 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|  | 2 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 集中实践 | |  | 0.5 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | M |  |  |  |  |  |  |
|  | 9 |  |  |  |  | H |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |

**五、专业课程设置一览表（中英文对照）**

| **课程**  **类别** | | | **课程**  **代码** | **课程名称** | | | | | | | | | **学分** | **总**  **学时** | **理论学时** | **实验实践学时** | **开课**  **学期** | **备注** |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **通**  **识**  **教**  **育**  **课**  **程** | **思**  **想**  **政**  **治**  **课**  **程** | | 231811001 | 思想道德与法治  Ideological Morality & Rule of Law | | | | | | | | | 2.5 | 40 | 40 | --- | 1 |  |
| 211811004 | 中国近现代史纲要  Outline of Modern Chinese History | | | | | | | | | 2.5 | 40 | 40 | --- | 2 |  |
| 231811002 | 马克思主义基本原理  Basic Principles of Marxism | | | | | | | | | 3.0 | 48 | 48 | --- | 3 |  |
| 211811009 | 毛泽东思想和中国特色社会主义理论体系概论 Mao Zedong Thought & Outline of Theory of Socialism with Chinese Characteristics | | | | | | | | | 2.0 | 32 | 32 | --- | 4 |  |
| 211811008 | 习近平新时代中国特色社会主义思想概论  Xi Jinping Thought on Socialism with Chinese Characteristics for a New Era | | | | | | | | | 2.5 | 40 | 40 | --- | 5 |  |
| 231811003 | 形势与政策 Ⅰ  Situation & Policies Ⅰ | | | | | | | | | 0.5 | 8 | 8 | --- | 1 |  |
| 231811004 | 形势与政策Ⅱ  Situation & Policies Ⅱ | | | | | | | | | 0.5 | 8 | 8 | --- | 4 |  |
| 231811005 | 形势与政策Ⅲ  Situation & Policies Ⅲ | | | | | | | | | 0.5 | 8 | 8 | --- | 6 |  |
| 231811006 | 形势与政策Ⅳ  Situation & Policies Ⅳ | | | | | | | | | 0.5 | 8 | 8 | --- | 7 |  |
| 211812001 | 中国共产党史  History of the Communist Party of China | | | | | | | | | 1.0 | 16 | 16 | --- | 2 | 五选一 |
| 211812002 | 中华人民共和国史  History of PRC | | | | | | | | | 1.0 | 16 | 16 | --- | 2 |
| 211812003 | 改革开放史  History of Reform and Opening Up | | | | | | | | | 1.0 | 16 | 16 | --- | 2 |
| 211812004 | 社会主义发展史  History of Socialist Development | | | | | | | | | 1.0 | 16 | 16 | --- | 2 |
| 241812005 | 中华民族共同体概论  An Introduction to the Chinese National Community | | | | | | | | | 1.0 | 16 | 16 | --- | 3 |
| **军**  **体**  **课**  **程** | | 213111001 | 军事理论  Military Theory | | | | | | | | | 1.0 | 36 | 36 | --- | 1 |  |
| 232111001 | 体育Ⅰ  Physical Education Ⅰ | | | | | | | | | 1.0 | 32 | --- | 32 | 1 |  |
| 232111002 | 体育Ⅱ  Physical Education Ⅱ | | | | | | | | | 1.0 | 32 | --- | 32 | 2 |  |
| 232111003 | 体育Ⅲ  Physical Education Ⅲ | | | | | | | | | 1.0 | 32 | --- | 32 | 3 | 选修运动  项目2学分 |
| 232111004 | 体育Ⅳ  Physical Education Ⅳ | | | | | | | | | 1.0 | 32 | --- | 32 | 4 |
| 232111005 | 体育Ⅴ  Physical Education Ⅴ | | | | | | | | | 0.25 | 8 | --- | 8 | 5/6 |  |
| 232111006 | 体育Ⅵ  Physical Education Ⅵ | | | | | | | | | 0.25 | 8 | --- | 8 | 7 |  |
| **外**  **语**  **课**  **程** | | 251611001 | 大学英语读写I  College English Reading and Writing I | | | | | | | | | 2.0 | 32 | 32 | --- | 1 |  |
| 211611005 | 大学英语听说Ⅰ  College English Listening and Speaking Ⅰ | | | | | | | | | 1.0 | 16 | 16 | --- | 1 |  |
| 251611002 | 大学英语读写Ⅱ  College English Reading and Writing II | | | | | | | | | 2.0 | 32 | 32 | --- | 2 |  |
| 211611006 | 大学英语听说Ⅱ  College English Listening and Speaking Ⅱ | | | | | | | | | 1.0 | 16 | 16 | --- | 2 |  |
| 251611003 | 新工科大学英语I  College English for New Engineering I | | | | | | | | | 2.0 | 32 | 32 | --- | 3 |  |
| 231611003 | 跨文化沟通与交流  Intercultural Communication | | | | | | | | | 2.0 | 32 | 32 | --- | 4 | 三选一 |
| 213691008 | 科技英语翻译  Translation of Science and Technology English | | | | | | | | | 2.0 | 32 | 32 | --- | 4 |
| 251611005 | 新工科大学英语Ⅱ  College English for New Engineering Ⅱ | | | | | | | | | 2.0 | 32 | 32 | --- | 4 |
| **信**  **息**  **课**  **程** | | 230518002 | 信息检索与学术素养  Information Retrieval and Academic Literacy | | | | | | | | | 1.0 | 16 | 16 | --- | 4 |  |
| 230518004 | 计算思维与人工智能导论(B)  Computational Thinking  and Introduction to Artificial Intelligence (B) | | | | | | | | | 2.0 | 40 | 24 | 16 | 1 |
| 230518007 | Python程序设计(A)  Python Programming (A) | | | | | | | | | 3.0 | 64 | 32 | 32 | 2 |
| **通**  **识**  **教**  **育**  **选**  **修**  **课**  **程** | | 238112001 | 大学生心理健康教育\*  Psychologically Healthy Education for College Students | | | | | | | | | 1.0 | 32 | 32 | --- | 1 | 选修至少  10 学分，  带\*必选 |
| 232612002 | 大学生劳动教育\*  Labor Education for College Students | | | | | | | | | 0.5 | 22 | 22 | --- | 2 |
| 211811011 | 大学生国家安全教育\*  National Security Education for College Students | | | | | | | | | 1.0 | 32 | 32 | --- | 2 |
| 232612001 | 中国传统文化\*  Chinese Traditional Culture | | | | | | | | | 1.0 | 16 | 16 | --- | 2 |
| 238322001 | 大学生职业生涯规划与就业指导I \* Career Planning and Employment Guidance for College Students I | | | | | | | | | 0.25 | 10 | 8 | 2 | 2 |
| 238322002 | 大学生职业生涯规划与就业指导II \* Career Planning and Employment Guidance for College Students II | | | | | | | | | 0.25 | 10 | 8 | 2 | 3 |
| 238322003 | 大学生职业生涯规划与就业指导Ⅲ \* Career Planning and Employment Guidance for College Students Ⅲ | | | | | | | | | 0.25 | 10 | 8 | 2 | 5 |
| 238322004 | 大学生职业生涯规划与就业指导IV\* Career Planning and Employment Guidance for College Students IV | | | | | | | | | 0.25 | 8 | 8 | --- | 7 |
|  |  | | | | | | | | |  |  |  |  |  |
| X1 | 美育限选课(学生自选)\* | | | | | | | | | 2.0 | 32 | 32 | --- | 不定 |
| X3 | 人文社科类(学生自选) | | | | | | | | | 2.0 | 32 | 32 | --- | 不定 |
| **应修学分** | **47** | | | | **必修学分** | | | | **29** | | | **选修学分** | | **18** | |
| **学**  **科**  **基**  **础**  **课**  **程** | | | 211118901 | 高等数学(A) I  Advanced Mathematics (A) I | | | | | | | | | 5.0 | 80 | 80 | --- | 1 |  |
| 211118902 | 高等数学(A) II  Advanced Mathematics(A) II | | | | | | | | | 5.0 | 80 | 80 | --- | 2 |  |
| 211118910 | 线性代数(B)  Linear Algebra(B) | | | | | | | | | 2.5 | 40 | 40 | --- | 2 |  |
| 211118913 | 概率论与数理统计(D)  Probability Theory and Mathematical Statistics | | | | | | | | | 3.0 | 48 | 48 | --- | 4 |  |
| 211218901 | 大学物理(A) I  College Physics(A )I | | | | | | | | | 3.0 | 48 | 48 | --- | 2 |  |
| 211218902 | 大学物理(A) II  College Physics (A) II | | | | | | | | | 3.0 | 48 | 48 | --- | 3 |  |
| 211215901 | 大学物理实验 (A) Ⅰ  College Physics Experiment (A) Ⅰ | | | | | | | | | 0.75 | 24 | --- | 24 | 2 |  |
| 211215902 | 大学物理实验 (A) Ⅱ  College Physics Experiment (A) Ⅱ | | | | | | | | | 0.75 | 24 | --- | 24 | 3 |  |
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| **应修学分** | **?** | | | **必修学分** | | | | **?** | | | | **选修学分** | | **?** | |
| **专**  **业**  **课**  **教**  **育**  **程** | | **专**  **业**  **必**  **修**  **课**  **程** | 237412001 | 创新方法基础  Fundamentals of Innovative Methods | | | | | | | | | 0.5 | 16 | 16 | --- | 1 |  |
| 237412002 | 大学生创业基础  Fundamentals of Entrepreneurship for College Students | | | | | | | | | 0.5 | 16 | 16 | --- | 3 |  |
|  |  | | | | | | | | |  |  |  |  |  | 专业+双创 |
|  |  | | | | | | | | |  |  |  |  |  | 专业+双创 |
|  |  | | | | | | | | |  |  |  |  |  | 专业+美育 |
|  |  | | | | | | | | |  |  |  |  |  | 专业+劳育 |
|  |  | | | | | | | | |  |  |  |  |  | 全英文授课 |
|  |  | | | | | | | | |  |  |  |  |  | 专业+科产教融合 |
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| **必修学分** | **？** | | | | | | | | | | | | | | |
| **专业选修课程** |  |  | | | | | | | | |  |  |  |  |  |  |
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| **选修学分** |  | | | | | | | | | | | | | | |
| **专业集群课程** |  |  | | | | | | | | |  |  |  |  |  |  |
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| **应修学分** | **？** | | | | | | | | | | | | | | |
| **应修学分** | | **？** | | **必修学分** | | | | **？** | | | | | **选修学分** | | **？** | |
| **集**  **中**  **实**  **践**  **环**  **节** | | | 213124001 | 入学教育及军训  Military Training | | | | | | | | | 1.5 | 3周 | --- | 3周 | 1 |  |
| 233114001 | 劳动教育实践  Labor Education Practice | | | | | | | | | 0.5 | 1周 | --- | 1周 | 2 |  |
| 211814010 | 思想政治理论课实践教学  The Practice of Ideological and Political Theory | | | | | | | | | 2.5 | 2.5周 | --- | 2.5周 | 4 |  |
| 212814001 | 工程训练(A)  Engineering Training (A) | | | | | | | | | 4.0 | 4周 | --- | 4周 | 4 |  |
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|  | | | **应修学分** | **?** | | | | | | | | | | | | | | |
| **应修学分总计** | | | | **?** | | | **必修学分** | | | | **?** | | | | **选修学分** | | **?** | |
| **制定** | | |  | | **审核** | | | |  | | | | **院长** | | |  | | |