

# 机械工程(智能制造本硕实验班) 2022 版本科培养方案

## Undergraduate Education Plan for Specialty in Mechanical Engineering (2022)

|          |                        |                   |                                 |
|----------|------------------------|-------------------|---------------------------------|
| 专业名称     | 机械工程(智能制造本硕实验班)        | 主干学科              | 机械工程                            |
| Major    | Mechanical Engineering | Major Disciplines | Mechanical Engineering          |
| 计划学制     | 六年                     | 授予学位              | 工学学士/工学硕士                       |
| Duration | 6 Years                | Degree Granted    | Bachelor /Master of Engineering |

### 最低毕业学分规定

#### Graduation Credit Criteria

| 培养阶段 | 课程分类<br>Course Classification<br>课程性质<br>Course Nature | 公共基础课程<br>Public Basic Courses | 通识教育课程<br>Public Courses | 大类课程<br>Basic Courses in General Discipline | 专业教育课程<br>Specialized Courses | 个性课程<br>Personalized Course | 集中性实践教学环节<br>Specialized Practice Schedule | 课外学分<br>Study Credit after Class | 总学分<br>Total Credits |
|------|--------------------------------------------------------|--------------------------------|--------------------------|---------------------------------------------|-------------------------------|-----------------------------|--------------------------------------------|----------------------------------|----------------------|
| 本科   | 必修课<br>Required Courses                                | 24                             | \                        | 47                                          | 19                            | \                           | 37.5                                       | 10                               | 160.5                |
|      | 选修课<br>Elective Courses                                | \                              | 9                        | \                                           | 4                             | \                           | \                                          | 10                               |                      |
| 研究生  | 必修课<br>Required Courses                                | 3                              | \                        | 2.5                                         | 4                             | \                           | 5                                          | \                                | 30.5                 |
|      | 选修课<br>Elective Courses                                | \                              | \                        | \                                           | 16                            | \                           | \                                          | \                                |                      |

### 一、培养目标与毕业要求

#### I Educational Objectives & Requirement

##### (一) 培养目标

培养具有科学、工程 and 人文素养，德、智、体、美、劳全面发展，具有创新精神、能适应现代科学发展和新技术革命要求，能在机械设计、机械制造、机电控制、智能制造技术与装备等领域从事科学研究、设计制造、应用与管理等相关工作、引领行业发展的拔尖创新人才。具体毕业要求如下：（1）具有正确的世界观、人生观、价值观，爱党、爱国、爱社会主义，积极践行“厚德博学，追求卓越”的校训精神。（2）拥有健康的体魄、健全的人格和良好的心理素质。（3）掌握丰富的文学、历史、哲学、艺术等方面的基础知识，具有良好的人文社会科学素养。（4）具有良好的英语水平，能够熟练地阅读

英语文献、撰写英文论文、进行英文演讲。（5）掌握扎实的数学、物理、化学、计算机科学、机械学的基础知识和技能。（6）受到系统的科研训练，全面、熟练地掌握机械工程科学的研究方法和技术。（7）具有批判性思维、创新性思维，遵守学术规范和学术伦理。（8）具有独立开展科学研究的能力，能够提出重要的科学问题、设计和完成实验、撰写科研论文。（9）具有良好的科研水平，能够发表高水平科研论文或者做出其他创新性成果。（10）具有自主学习和探索科学问题的能力，具有终身学习的能力。

本专业期待毕业生五年后能达成下列目标：

- （1）具备继续深造与从事研究的广泛技能；
- （2）具有科学精神与创新意识；
- （3）具有较好的职业素养、团队精神及国际视野；
- （4）具有较强的持续学习与知识更新能力；
- （5）能从事机械工程领域内的科学研究与创新研究工作。

## **I Education Objectives**

This major cultivates top innovative students with scientific, engineering and humanistic literacy, all-round development of moral, intellectual, physical, aesthetic and labor, innovative spirit, can adapt to the requirements of modern scientific development and new technological revolution, and can engage in scientific research, design and manufacturing, application and management in the fields of mechanical design, mechanical manufacturing, electromechanical control, intelligent manufacturing technology and equipment, and lead the development of the industry. The graduation requirements as follow: (1) The graduates should have correct world outlook, outlook on life and values, love the Party, love the country and love socialism, and actively practice the school motto of "being virtuous and knowledgeable, pursuing excellence". (2) The graduates should have a healthy body, a sound personality and good psychological quality. (3) The graduates should master a wealth of basic knowledge in literature, history, philosophy, art and other aspects, and have good literacy in humanities and social sciences. (4) The graduates should have good English skills, able to read English literature, write English papers and make English speeches proficiently.

(5) The graduates should master the basic knowledge and skills of mathematics, physics, chemistry, computer science and mechanics. (6) The graduates should receive systematic scientific research training, and master the research methods and technologies of mechanical engineering science comprehensively and skillfully. (7) The graduates should have critical and innovative thinking, and abide by academic norms and ethics. (8) The graduates should ability to

independently carry out scientific research, propose important scientific questions, design and complete experiments, and write scientific research papers. (9) The graduates should have good scientific research level, and be able to publish high-level scientific research papers or make other innovative achievements (10) The graduates should have the ability to learn independently and explore scientific problems, and have the ability of lifelong learning.

Students of this program are expected to achieve the following objectives 5 years after graduation:

- (1) Students should have skills and abilities of further study and research.
- (2) They should own scientific spirit, innovation consciousness.
- (3) They should have good professional qualities, team spirit and international view.
- (4) They should have high capabilities of continuous learning and knowledge update.
- (5) They would engage in the scientific research and innovation study in mechanical realm.

## (二) 毕业要求

- (1) **工程知识:** 能够将数学和自然科学, 以及机械工程基础理论和专业知识, 用于解决机械工程领域的复杂工程问题。
- (2) **问题分析:** 能够应用数学、自然科学和机械工程科学的基本原理, 识别、表达、并通过文献研究分析机械工程领域的复杂工程问题, 以获得有效结论。
- (3) **解决方案:** 能够设计针对机械工程领域复杂工程问题的解决方案, 设计满足特定需求的机械/控制系统或工艺流程, 并能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。
- (4) **研究:** 能够基于科学原理和机械工程专业知识, 采用科学方法对机械工程领域复杂工程问题中的机械、控制、电气、液压、制造工艺等进行研究, 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。
- (5) **工具使用:** 能够针对机械工程领域的复杂工程问题, 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进行建模、数值模拟和分析, 并能够理解其局限性。
- (6) **工程与社会:** 能够基于工程相关背景知识进行合理分析, 评价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。
- (7) **环境和可持续发展:** 能够理解和评价针对复杂工程问题的工程实践对环境、社会可持续发展的影响。

- (8) **职业规范:** 具有人文社会科学素养、社会责任感,能够在工程实践中理解并遵守工程职业道德和规范,履行责任。
- (9) **个人和团队:** 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。
- (10) **沟通:** 能够就机械工程领域的复杂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。
- (11) **项目管理:** 理解并掌握工程管理原理与经济决策方法,能采取有效的行动,持续改善工程实践,并能在多学科环境中应用。
- (12) **终身学习:** 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。

## II Graduation Requirement

- (1) **Engineering knowledge:** The graduates should apply the mathematical and physical sciences, natural science and basic theory and professional knowledge of mechanical engineering, to solve the problem of complicated mechanical engineering.
- (2) **Problem analysis:** The graduates should analyze and establish the mathematical physics model which can be applied to the problem of complicated mechanical engineering.
- (3) **Design/development solution:** The graduates should analyze and establish the mathematical physics model which can be applied to the problem of complicated mechanical engineering.
- (4) **Research:** The graduates should apply the basic theories and methods of mechanical engineering to complicated engineering problems, design mechanical systems and manufacturing processes to meet specific needs, develop solutions, and reflect the sense of innovation in the design process, taking into account social, health, safety, legal, cultural and environmental factors.
- (5) **Usage of modern tools:** The graduates should have the ability to use modern tools, to obtain, understand and identify all kinds of information, and to solve the problem of complex mechanical engineering.
- (6) **Engineering and society:** The graduates should have the ability to access and use the related policy, policies, laws and regulations ability of mechanical engineering, with considering the society, health, safety, law and culture influence under complex mechanical engineering problem analysis ability.
- (7) **Environment and sustainable development:** The graduates should understand and aware the relationship between mechanical engineering professional and social development, environment

protection and social sustainable development, and have the ability to analyze the impact between environmental and social of the complex mechanical engineering solutions.

(8) **Professional standards:** The graduates should have good quality of humanities and social sciences, strong sense of responsibility for society and proper engineering profession ethics.

(9) **Individual and team:** The graduates should be able to do their own role in the team, to communicate effectively with other members of the team, to listen to opinions or suggestions and to make a reasonable response.

(10) **Communication:** The graduates should have the ability to describe complex engineering problems in the field of mechanical engineering, with the ability to communicate effectively with the community and the public, and to cross cultural communication and exchange.

(11) **Project management:** The graduates should have the basic project management skills, and be able to take effective project action, continuous improvement of engineering practice.

(12) **Life-long learning:** The graduates should be able to adapt to social development and can study in a lifelong term.

表 1 培养目标的矩阵关系毕业要求支撑

| 毕业要求    | 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 |        |        | √      |        | √      |
| 毕业要求 11 | √      |        | √      | √      |        |
| 毕业要求 12 |        |        | √      |        | √      |

毕业要求的达成需以课程（教学环节）的教学活动为支撑。本专业为合理设置课程体系、落实对毕业要求的支撑课程，对各项毕业要求进行了解。每项毕业要求（一级指标）

被分解为若干层层递进的指标点（二级指标），前一指标点的达成是下一指标点达成的基础，而下一指标点的达成是前一指标点的升华，所有指标点一起，支撑了该毕业要求的达成。根据上述分解方法，本专业各项毕业要求的指标点分解如下表所示。

表 2 毕业要求指标点的分解

| 毕业要求                                                                         | 指标点                                                  |
|------------------------------------------------------------------------------|------------------------------------------------------|
| 毕业要求 1.工程知识:能够将数学和自然科学，以及机械工程基础理论和专业知识，用于解决机械工程领域的复杂工程问题。                    | 1.1 能将数学、自然科学、工程基础和机械工程专业的基本理论应用到机械工程领域复杂工程问题的适当表述中。 |
|                                                                              | 1.2 能将机械制图、机械原理、机械设计等工程专业知识，用于解读复杂工程问题中的机械结构。        |
|                                                                              | 1.3 能将电子电工、力学、热工学等基础知识，用于复杂工程问题中的机械与控制系统设计、开发与实验。    |
|                                                                              | 1.4 能将工程材料性能、机械加工技术及加工工艺基本知识，运用于复杂工程问题的工艺过程设计与规划。    |
| 毕业要求 2.问题分析:能够应用数学、自然科学和机械工程科学的基本原理，识别、表达、并通过文献研究分析机械工程领域的复杂工程问题，以获得有效结论。    | 2.1 能够应用数学、自然科学和机械工程科学的基本原理，识别机械工程领域复杂工程问题的类别与层次。    |
|                                                                              | 2.2 能够针对机械工程领域的复杂工程问题，提出合理假设并用合适的模型表达问题。             |
|                                                                              | 2.3 能够对机械工程领域的复杂工程问题，通过文献研究，综合分析各种影响因素，以获得有效结论。      |
| 毕业要求 3.解决方案:能够设计针对机械工程领域复杂工程问题的解决方案，设计满足特定需求的机械/控制系统或工艺流程，并能在设计环节中体现创新意识，考虑社 | 3.1 能够明确机械工程领域复杂工程问题的设计需求，确定设计目标。                    |
|                                                                              | 3.2 能针对机械工程领域复杂工程问题设计或开发机械/控制系统或工艺流程，给出其             |

|                                                                                                         |                                                                               |
|---------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------|
| 会、健康、安全、法律、文化以及环境等因素。                                                                                   | 机械、液压、控制或工艺等解决方案，并能够用书面设计报告、图纸等呈现设计成果。                                        |
|                                                                                                         | 3.3 在考虑社会、健康、安全、法律、文化以及环境等制约因素的情况下，分析其可行性，并能够在设计中体现创新意识。                      |
| 毕业要求 4.研究:能够基于科学原理和机械工程专业知识，采用科学方法对机械工程领域复杂工程问题中的机械、控制、电气、液压、制造工艺等方案进行研究，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。 | 4.1 基于科学原理和专业知 识，采用科学方法对机械工程领域复杂工程问题中的机械、控制、电气、液压、制造工艺等方案进行研究。                |
|                                                                                                         | 4.2 能针对复杂工程问题，设计实验并具备借助专业工具获取实验数据的能力。                                         |
|                                                                                                         | 4.3 具备实验数据的分析、解读与处理能力，并通过信息综合得到合理有效的结论。                                       |
| 毕业要求 5.工具使用:能够针对机械工程领域的复杂工程问题，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进行建模、数值模拟和分析，并能够理解其局限性。           | 5.1 能够应用计算机和网络搜索工具获取本专业技术文献资料，并能理解与甄别各类信息。                                    |
|                                                                                                         | 5.2 能够选择本专业常用的仪器仪表、实验测试装备等现代工程工具，或对其进行必要的开发使其能应用于复杂工程问题的解决。                   |
|                                                                                                         | 5.3 能够选择本专业常用的工程计算、设计、仿真分析等工程软件，或对其进行必要的开发，使其具备对复杂工程问题的建模、数值模拟与分析的能力，并理解其局限性。 |
| 毕业要求 6.工程与社会:能够基于工程相关背景知识进行合理分析，评价专业工程实                                                                 | 6.1 能够基于工程相关背景知识进行合理分析，评价机械工程领域复杂工程问题解决                                       |

|                                                                                    |                                                                         |
|------------------------------------------------------------------------------------|-------------------------------------------------------------------------|
| <p>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。</p>                                  | <p>方案的背景及其对社会、健康、安全、法律以及文化等各方面的影响。</p>                                  |
|                                                                                    | <p>6.2 在解决复杂工程问题时，能自觉遵守与具体工程实践相关的方针、政策与法律法规以及文化的影响，并理解应承担的责任。</p>       |
| <p>毕业要求 7.环境和可持续发展:能够理解和评价针对复杂工程问题的工程实践对环境、社会可持续发展的影响。</p>                         | <p>7.1 理解和认识机械工程专业与环境保护和社会可持续发展的关系。</p>                                 |
|                                                                                    | <p>7.2 能够分析并评价所设计的针对具体工程应用的机械/控制系统方案对环境和社会可持续发展影响的合理性。</p>              |
| <p>毕业要求 8.职业规范:具有人文社会科学素养、社会责任感，能够在工程实践中理解并遵守工程职业道德和规范，履行责任。</p>                   | <p>8.1 保持身心健康，有正确价值观，理解世界观、人生观的基本意义及其影响。掌握常用的人文社会科学知识和法律条款，具有社会责任感。</p> |
|                                                                                    | <p>8.2 理解中国可持续发展的科学发展道路以及个人的责任。</p>                                     |
|                                                                                    | <p>8.3 在工程实践中理解并遵守工程职业道德和职业规范。</p>                                      |
| <p>毕业要求 9.个人和团队: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。</p>                                | <p>9.1 能够根据复杂工程问题的解决，组织/参与多学科背景团队，主动与团队成员合作，胜任团队成员的角色，并完成相应任务。</p>      |
|                                                                                    | <p>9.2 能够与团队其他成员有效沟通，承担好负责人角色，并能听取意见或建议并作出合理反应。</p>                     |
| <p>毕业要求 10.沟通:能够就机械工程领域的复杂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</p> | <p>10.1 能够就机械工程领域的复杂工程问题以撰写报告、设计文稿和口头发言等形式分别与业界同行和社会公众进行有效沟通、交流和讨论。</p> |

|                                                                  |                                                              |
|------------------------------------------------------------------|--------------------------------------------------------------|
| 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。                                      | 10.2 具备阅读机械工程领域国内外文献的能力，具备一定的国际视野，能够进行跨文化沟通与交流。              |
| 毕业要求 11.项目管理:理解并掌握工程管理原理与经济决策方法，能采取有效的项目行动，持续改善工程实践，并能在多学科环境中应用。 | 11.1 理解并掌握机械工程领域复杂工程问题中涉及的工程管理原理与经济决策方法，能采取有效的项目行动，持续改善工程实践。 |
|                                                                  | 11.2 能说明机械工程领域复杂工程问题中的管理与经济决策的合理性，并能在多学科环境中应用。               |
| 毕业要求 12.终身学习: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。                       | 12.1 具有自主学习和终身学习的意愿，并能够采用合适的方法通过自主学习发展自身的能力。                 |
|                                                                  | 12.2 能将不断学习的成果用于具体的工程实践。                                     |

## 二、专业核心课程与专业特色课程

### II Core Course and Characteristic Courses

#### (一) 专业核心课程

机械设计基础、现代控制工程、测试技术、智能传感与控制、微机原理及应用设计、智能制造装备与工艺、数控技术与机器人。

Core Courses: Fundamentals of Mechanical Design, Modern Control Engineering, Measuring & Testing Technology, Microcomputer principle and application design, Intelligent manufacturing equipment and technology, Numerical Control Technology and Robot.

#### (二) 专业特色课程

专业英语与科技论文写作、计算机能力拓展训练、机械制图与设计能力训练 I II、智能制造工程综合能力训练、本硕学术初级训练 I II III、本硕学术专项训练、本硕学术综合训练

Professional English and academic paper writing, Computer ability extension training, Mechanical drawing and design ability training I II, Intelligent Manufacturing engineering comprehensive ability training, Undergraduate and master academic primary training I II III,

Undergraduate and master academic special training, Undergraduate and master academic comprehensive training

附：毕业要求实现矩阵

| 专业<br>核心<br>课程 | 专<br>业<br>特<br>色<br>课<br>程 | 课程<br>名称             | 机械工程(智能制造本硕实验班)专业毕业要求 |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |    |   |    |   |    |   |
|----------------|----------------------------|----------------------|-----------------------|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|----|---|----|---|----|---|
|                |                            |                      | 1                     |   |   |   | 2 |   |   | 3 |   |   | 4 |   |   | 5 |   |   | 6 |   | 7 |   | 8 |   |   | 9 |   | 10 |   | 11 |   | 12 |   |
|                |                            |                      | 1                     | 2 | 3 | 4 | 1 | 2 | 3 | 1 | 2 | 3 | 1 | 2 | 3 | 1 | 2 | 3 | 1 | 2 | 1 | 2 | 1 | 2 | 3 | 1 | 2 | 1  | 2 | 1  | 2 | 1  | 2 |
|                |                            | 思想道德与法治              |                       |   |   |   |   | √ | √ |   |   |   |   |   |   |   |   |   | √ |   |   |   |   | √ |   |   |   |    |   |    |   |    | √ |
|                |                            | 中国近现代史纲要             |                       |   |   |   |   | √ |   |   |   |   | √ | √ |   |   |   |   | √ |   |   | √ | √ |   |   |   |   |    |   |    | √ |    |   |
|                |                            | 马克思主义基本原理            |                       |   |   |   |   | √ |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |    |   | √  |   |    | √ |
|                |                            | 毛泽东思想和中国特色社会主义理论体系概论 |                       |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   | √ | √ |   |   |   |    |   |    | √ | √  | √ |
|                |                            | 军事理论                 |                       |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   | √ | √ |    |   |    |   |    |   |
|                |                            | 军事技能训练               |                       |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   | √ | √ |    |   |    |   |    |   |
|                |                            | 体育 1                 |                       |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   | √ | √ | √  | √ |    |   | √  | √ |
|                |                            | 体育 2                 |                       |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   | √ | √ | √  | √ |    |   | √  | √ |
|                |                            | 大学英语 1               |                       |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   | √ |   |   |   |   |   |   | √ | √ |    | √ |    |   |    |   |
|                |                            | 大学英语 2               |                       |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   | √ |   |   |   |   |   |   | √ | √ |    | √ |    |   |    |   |
|                |                            | 高等数学 A 上             | √                     |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |    |   |    |   |    |   |
|                |                            | 高等数学 A 下             | √                     |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |    |   |    |   |    |   |
|                |                            | 线性代数                 | √                     |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |    |   |    |   |    |   |
|                |                            | 概率论与数理统计 B           | √                     |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |    |   |    |   |    |   |
|                |                            | 数值分析 B               |                       | √ |   |   |   | √ |   |   |   |   |   | √ |   |   | √ |   |   |   |   |   |   |   |   |   |   |    |   |    |   |    |   |
|                |                            | 大学物理 B               | √                     | √ |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |    |   |    |   |    | √ |

|   |  |             |   |   |   |   |   |   |   |  |   |   |   |   |   |   |   |  |   |  |  |  |  |  |  |   |   |   |   |  |
|---|--|-------------|---|---|---|---|---|---|---|--|---|---|---|---|---|---|---|--|---|--|--|--|--|--|--|---|---|---|---|--|
|   |  | 物理实验 B      |   |   |   |   |   | √ |   |  |   |   |   |   |   |   |   |  |   |  |  |  |  |  |  |   | √ |   |   |  |
|   |  | 普通化学 C      | √ |   |   | √ | √ | √ | √ |  |   |   |   |   |   |   |   |  |   |  |  |  |  |  |  |   |   |   |   |  |
|   |  | 普通化学实验 C    |   |   |   |   |   |   |   |  |   |   |   |   |   |   |   |  |   |  |  |  |  |  |  |   |   |   | √ |  |
|   |  | 现代机械工程图学    |   | √ |   |   |   | √ |   |  |   |   |   | √ |   |   |   |  |   |  |  |  |  |  |  |   |   |   |   |  |
|   |  | 材料成形技术基础    |   |   |   | √ |   |   |   |  |   |   | √ |   |   |   |   |  |   |  |  |  |  |  |  |   |   | √ |   |  |
|   |  | 电工与电子技术基础 B |   |   |   |   |   |   |   |  |   |   |   |   | √ | √ |   |  |   |  |  |  |  |  |  |   |   |   |   |  |
|   |  | 理论力学 A      |   |   | √ |   |   | √ |   |  |   |   |   |   |   |   |   |  | √ |  |  |  |  |  |  |   |   | √ |   |  |
|   |  | 材料力学 C      |   |   | √ |   |   | √ |   |  |   |   |   |   |   |   |   |  | √ |  |  |  |  |  |  |   |   | √ |   |  |
| √ |  | 机械设计基础 A    |   |   |   |   |   | √ |   |  | √ |   |   |   |   | √ |   |  |   |  |  |  |  |  |  |   |   |   |   |  |
|   |  | 机械工工程学科前沿   |   |   |   |   |   |   |   |  |   |   |   |   |   | √ | √ |  |   |  |  |  |  |  |  | √ |   | √ | √ |  |
| √ |  | 现代控制工程      |   |   |   |   |   |   |   |  | √ | √ | √ |   |   |   |   |  |   |  |  |  |  |  |  |   |   |   |   |  |
|   |  | 工程热力学与传热学   | √ |   | √ |   | √ |   |   |  |   |   |   |   |   |   |   |  |   |  |  |  |  |  |  |   |   |   |   |  |
|   |  | 互换性与测量技术 B  | √ |   |   |   |   | √ |   |  |   |   | √ |   |   |   |   |  |   |  |  |  |  |  |  |   |   |   |   |  |
| √ |  | 测试技术 C      |   |   |   |   |   |   |   |  | √ | √ |   | √ |   |   |   |  |   |  |  |  |  |  |  |   |   |   |   |  |
| √ |  | 智能传感与控制     |   |   |   |   |   |   |   |  |   | √ |   |   |   |   | √ |  |   |  |  |  |  |  |  | √ |   |   |   |  |
| √ |  | 微机原理及其应用    |   |   |   |   |   |   |   |  | √ |   |   | √ |   |   |   |  |   |  |  |  |  |  |  |   |   | √ |   |  |
| √ |  | 智能制造装备与工艺   |   |   |   | √ |   | √ |   |  | √ |   |   | √ |   |   |   |  |   |  |  |  |  |  |  |   |   |   |   |  |
| √ |  | 数控技术与机器人    |   |   |   |   |   |   |   |  | √ |   |   | √ |   |   |   |  |   |  |  |  |  |  |  |   |   | √ |   |  |

[illegible]

[illegible]



|                                      |                                                                                                                                                                                                                                                                        |                                                                                 |      |     |     |                                                                                                                                                                                                 |   |     |    |   |       |
|--------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------|------|-----|-----|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---|-----|----|---|-------|
| 马克思主义学院                              | 4220005180                                                                                                                                                                                                                                                             | 马克思主义基本原理                                                                       | 2.5  | 42  | 42  | 0                                                                                                                                                                                               | 0 | 0   | 0  | 4 |       |
|                                      |                                                                                                                                                                                                                                                                        | Marxism Philosophy                                                              |      |     |     |                                                                                                                                                                                                 |   |     |    |   |       |
| 马克思主义学院                              | 4220003180                                                                                                                                                                                                                                                             | 毛泽东思想和中国特色社会主义理论体系概论                                                            | 4.5  | 66  | 66  | 0                                                                                                                                                                                               | 0 | 0   | 0  | 3 |       |
|                                      |                                                                                                                                                                                                                                                                        | Introduction to Mao Zedong Thought and Socialism with Chinese Characteristics   |      |     |     |                                                                                                                                                                                                 |   |     |    |   |       |
| 马克思主义学院                              |                                                                                                                                                                                                                                                                        | 自然辩证法概论                                                                         | 1    | 16  | 16  |                                                                                                                                                                                                 |   |     |    | 5 | 研究生课程 |
|                                      |                                                                                                                                                                                                                                                                        | An Introduction to Dialectics                                                   |      |     |     |                                                                                                                                                                                                 |   |     |    |   |       |
| 马克思主义学院                              |                                                                                                                                                                                                                                                                        | 新时代中国特色社会主义思想理论与实践                                                              | 2    | 32  | 32  |                                                                                                                                                                                                 |   |     |    | 6 | 研究生课程 |
|                                      |                                                                                                                                                                                                                                                                        | The Theory and Practice of Socialism with Chinese Characteristics for a New Era |      |     |     |                                                                                                                                                                                                 |   |     |    |   |       |
| 学工部                                  | 1050002210                                                                                                                                                                                                                                                             | 军事理论                                                                            | 2    | 32  | 32  | 0                                                                                                                                                                                               | 0 | 0   | 0  | 1 |       |
|                                      |                                                                                                                                                                                                                                                                        | Military Theory                                                                 |      |     |     |                                                                                                                                                                                                 |   |     |    |   |       |
| 学工部                                  | 1050001210                                                                                                                                                                                                                                                             | 军事技能训练                                                                          | 2    | 136 | 0   | 0                                                                                                                                                                                               | 0 | 136 | 0  | 1 |       |
|                                      |                                                                                                                                                                                                                                                                        | Military Skills Training                                                        |      |     |     |                                                                                                                                                                                                 |   |     |    |   |       |
| 体育学院                                 | 4210001170                                                                                                                                                                                                                                                             | 体育 1                                                                            | 1    | 32  | 32  | 0                                                                                                                                                                                               | 0 | 0   | 0  | 1 |       |
|                                      |                                                                                                                                                                                                                                                                        | Physical Education I                                                            |      |     |     |                                                                                                                                                                                                 |   |     |    |   |       |
| 体育学院                                 | 4210002170                                                                                                                                                                                                                                                             | 体育 2                                                                            | 1    | 32  | 32  | 0                                                                                                                                                                                               | 0 | 0   | 0  | 2 |       |
|                                      |                                                                                                                                                                                                                                                                        | Physical Education II                                                           |      |     |     |                                                                                                                                                                                                 |   |     |    |   |       |
| 体育学院                                 | 4210001170                                                                                                                                                                                                                                                             | 体育 3                                                                            | 1    | 32  | 32  | 0                                                                                                                                                                                               | 0 | 0   | 0  | 3 |       |
|                                      |                                                                                                                                                                                                                                                                        | Physical Education III                                                          |      |     |     |                                                                                                                                                                                                 |   |     |    |   |       |
| 体育学院                                 | 4210002170                                                                                                                                                                                                                                                             | 体育 4                                                                            | 1    | 32  | 32  | 0                                                                                                                                                                                               | 0 | 0   | 0  | 4 |       |
|                                      |                                                                                                                                                                                                                                                                        | Physical Education IV                                                           |      |     |     |                                                                                                                                                                                                 |   |     |    |   |       |
| 外语学院                                 | 4030001210                                                                                                                                                                                                                                                             | 大学英语 1                                                                          | 2    | 48  | 32  | 0                                                                                                                                                                                               | 0 | 0   | 16 | 1 |       |
|                                      |                                                                                                                                                                                                                                                                        | College English I                                                               |      |     |     |                                                                                                                                                                                                 |   |     |    |   |       |
| 外语学院                                 | 4030002210                                                                                                                                                                                                                                                             | 大学英语 2                                                                          | 2    | 48  | 32  | 0                                                                                                                                                                                               | 0 | 0   | 16 | 2 |       |
|                                      |                                                                                                                                                                                                                                                                        | College English II                                                              |      |     |     |                                                                                                                                                                                                 |   |     |    |   |       |
| 小 计 Subtotal                         |                                                                                                                                                                                                                                                                        |                                                                                 | 27.0 | 632 | 464 | 0                                                                                                                                                                                               | 0 | 136 | 32 |   |       |
| (二)通识教育选修课程                          |                                                                                                                                                                                                                                                                        |                                                                                 |      |     |     |                                                                                                                                                                                                 |   |     |    |   |       |
| 2 General Education Elective Courses |                                                                                                                                                                                                                                                                        |                                                                                 |      |     |     |                                                                                                                                                                                                 |   |     |    |   |       |
| 核心选修<br>Core elective<br>courses     | 文明与传统 Civilization and Tradition Courses                                                                                                                                                                                                                               |                                                                                 |      |     |     | 通识课程应修满至少 9 学分。自主选修课程中，至少在艺术与审美、创新与创业两个领域各选修 1 门课程。 Minimum subtotal credits: 9.Self-selected courses, at least 1 course in art and aesthetics and 1 course in innovation and entrepreneurship. |   |     |    |   |       |
|                                      | 社会与发展类 Society and Development Courses                                                                                                                                                                                                                                 |                                                                                 |      |     |     |                                                                                                                                                                                                 |   |     |    |   |       |
|                                      | 艺术与人文类 Art and Humanities Courses                                                                                                                                                                                                                                      |                                                                                 |      |     |     |                                                                                                                                                                                                 |   |     |    |   |       |
|                                      | 自然与方法类 Nature and methods Courses                                                                                                                                                                                                                                      |                                                                                 |      |     |     |                                                                                                                                                                                                 |   |     |    |   |       |
| 自主选修选修<br>Core elective<br>courses   | 数学与自然科学,哲学与心理学,法学与社会科学,经济与管理,历史与文化,语言与文学,艺术与审美,创新与创业<br>Mathematics and Natural Sciences,Philosophy and Psychology,Science and Social Sciences,Economics and Management,History and Culture,Language and Literature,Art and Aesthetics,Innovation and Entrepreneurship |                                                                                 |      |     |     |                                                                                                                                                                                                 |   |     |    |   |       |
| (三)大类必修课程                            |                                                                                                                                                                                                                                                                        |                                                                                 |      |     |     |                                                                                                                                                                                                 |   |     |    |   |       |
| 3 Basic Discipline Required Courses  |                                                                                                                                                                                                                                                                        |                                                                                 |      |     |     |                                                                                                                                                                                                 |   |     |    |   |       |

|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |            |                                                        |      |     |     |    |   |   |    |   |       |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------|--------------------------------------------------------|------|-----|-----|----|---|---|----|---|-------|
| 理学院                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | 4050001210 | 高等数学 A 上                                               | 4.5  | 72  | 72  | 0  | 0 | 0 | 0  | 1 |       |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |            | Advanced Mathematics A I                               |      |     |     |    |   |   |    |   |       |
| 理学院                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | 4050002210 | 高等数学 A 下                                               | 5.5  | 88  | 88  | 0  | 0 | 0 | 0  | 2 |       |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |            | Advanced Mathematics A II                              |      |     |     |    |   |   |    |   |       |
| 理学院                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | 4050229110 | 线性代数                                                   | 2.5  | 40  | 40  | 0  | 0 | 0 | 0  | 2 |       |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |            | Linear Algebra                                         |      |     |     |    |   |   |    |   |       |
| 理学院                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | 4050058110 | 概率论与数理统计 B                                             | 3    | 48  | 48  | 0  | 0 | 0 | 0  | 3 |       |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |            | Probability and Mathematical Statistics                |      |     |     |    |   |   |    |   |       |
| 理学院                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | 4050185110 | 数值分析 B                                                 | 2.5  | 40  | 32  | 0  | 8 | 0 | 0  | 3 | 研究生课程 |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |            | Numerical Analysis                                     |      |     |     |    |   |   |    |   |       |
| 理学院                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | 4050463130 | 大学物理 B                                                 | 5    | 80  | 80  | 0  | 0 | 0 | 0  | 2 |       |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |            | College Physics                                        |      |     |     |    |   |   |    |   |       |
| 理学院                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | 4050224110 | 物理实验 B                                                 | 1    | 32  | 0   | 32 | 0 | 0 | 0  | 3 |       |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |            | Physics Experiment                                     |      |     |     |    |   |   |    |   |       |
| 化生学院                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | 4200371170 | 普通化学 C                                                 | 2    | 32  | 32  | 0  | 0 | 0 | 0  | 3 |       |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |            | General Chemistry                                      |      |     |     |    |   |   |    |   |       |
| 化生学院                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | 4200372170 | 普通化学实验 C                                               | 0.5  | 16  | 0   | 16 | 0 | 0 | 0  | 3 |       |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |            | General Chemistry Experiment                           |      |     |     |    |   |   |    |   |       |
| 机电学院                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | 4080007220 | 现代机械工程图学                                               | 3.5  | 84  | 56  | 0  | 0 | 0 | 28 | 1 |       |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |            | Modern mechanical engineering graphics                 |      |     |     |    |   |   |    |   |       |
| 机电学院                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | 4080072220 | 材料成形技术基础                                               | 3.5  | 56  | 50  | 6  | 0 | 0 | 0  | 2 |       |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |            | Fundamentals of Material Forming Technology            |      |     |     |    |   |   |    |   |       |
| 自动化学院                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | 4100004210 | 电工与电子技术基础 B                                            | 4    | 64  | 54  | 10 | 0 | 0 | 0  | 4 |       |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |            | Fundamentals of electrical and electronic technology B |      |     |     |    |   |   |    |   |       |
| 理学院                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | 4050129110 | 理论力学 A                                                 | 4.5  | 72  | 72  | 0  | 0 | 0 | 0  | 3 |       |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |            | Theoretical Mechanics                                  |      |     |     |    |   |   |    |   |       |
| 理学院                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | 4050018110 | 材料力学 C                                                 | 4    | 64  | 60  | 4  | 0 | 0 | 0  | 4 |       |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |            | Mechanics of Materials                                 |      |     |     |    |   |   |    |   |       |
| 机电学院                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | 4080001210 | 机械设计基础 A                                               | 3.5  | 56  | 50  | 6  | 0 | 0 | 0  | 4 |       |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |            | Fundamentals of Mechanical design A                    |      |     |     |    |   |   |    |   |       |
| 小计 Subtotal                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |            |                                                        | 49.5 | 844 | 734 | 74 | 8 | 0 | 28 |   |       |
| (1)计算机能力: 在 1-6 学期内获得国家计算机等级考试证书、或通过全国计算机技术与软件专业技术资格(水平)考试——“中级资格”考试, 即可完成计算机能力要求的考核, 通过本科生院所规定的学分认定流程, 获得“计算机能力拓展训练”课程相应学分。                                                                                                                                                                                                                                                                                                                                                       |            |                                                        |      |     |     |    |   |   |    |   |       |
| (1)computer ability: 1-6 semester in access to the national computer rank examination certificate, or through the national computer technology and software professional and technical qualifications (level) examination-"intermediate qualification", can complete the examination of the computer capacity requirements, through the undergraduate institutions stipulated by the credit authentication process, get the "computer skill training" course corresponding points. |            |                                                        |      |     |     |    |   |   |    |   |       |
| (2)英语能力: 在 1-6 学期内通过 CET6 (500 分)、雅思 6.0 (单项>5.0)、托福 100 分以上的成绩, 通过本科生院所规定的学分认定流程, 获得“大学英语”课程相应学分。                                                                                                                                                                                                                                                                                                                                                                                 |            |                                                        |      |     |     |    |   |   |    |   |       |
| (2) English ability: Pass CET6 (500), IELTS 6.0 (individual >5.0), TOEFL 100 points or more in semester 1-6, and obtain the corresponding credits of "College English" courses through the credit recognition process stipulated by the undergraduate school.                                                                                                                                                                                                                      |            |                                                        |      |     |     |    |   |   |    |   |       |
| (四)专业必修课程                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |            |                                                        |      |     |     |    |   |   |    |   |       |
| 4 Specialized Required Courses                                                                                                                                                                                                                                                                                                                                                                                                                                                     |            |                                                        |      |     |     |    |   |   |    |   |       |

|                                                                                                                                                                                                                                                                                         |            |                                                                      |      |     |     |    |   |   |   |   |       |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------|----------------------------------------------------------------------|------|-----|-----|----|---|---|---|---|-------|
| 机电学院                                                                                                                                                                                                                                                                                    | 4080008220 | 机械工程学科前沿                                                             | 1    | 16  | 6   | 10 | 0 | 0 | 0 | 1 |       |
|                                                                                                                                                                                                                                                                                         |            | Frontiers of Mechanical Engineering                                  |      |     |     |    |   |   |   |   |       |
| 机电学院                                                                                                                                                                                                                                                                                    | 4080015220 | 现代控制工程                                                               | 2    | 32  | 28  | 4  | 0 | 0 | 0 | 4 |       |
|                                                                                                                                                                                                                                                                                         |            | Model Control Engineering                                            |      |     |     |    |   |   |   |   |       |
| 机电学院                                                                                                                                                                                                                                                                                    | 4080017220 | 工程热力学与传热学                                                            | 2    | 32  | 28  | 4  | 0 | 0 | 0 | 4 |       |
|                                                                                                                                                                                                                                                                                         |            | Engineering Thermodynamics and Heat Transfer                         |      |     |     |    |   |   |   |   |       |
| 机电学院                                                                                                                                                                                                                                                                                    | 4080054110 | 互换性与测量技术 B                                                           | 2    | 32  | 28  | 4  | 0 | 0 | 0 | 4 |       |
|                                                                                                                                                                                                                                                                                         |            | Interchangeability and Measurement                                   |      |     |     |    |   |   |   |   |       |
| 机电学院                                                                                                                                                                                                                                                                                    | 4080428170 | 测试技术 C                                                               | 2    | 32  | 28  | 4  | 0 | 0 | 0 | 5 |       |
|                                                                                                                                                                                                                                                                                         |            | Measuring & Testing Technology                                       |      |     |     |    |   |   |   |   |       |
| 机电学院                                                                                                                                                                                                                                                                                    | 4080020220 | 智能传感与控制                                                              | 2    | 32  | 28  | 4  | 0 | 0 | 0 | 5 |       |
|                                                                                                                                                                                                                                                                                         |            | Intelligent sensing and control                                      |      |     |     |    |   |   |   |   |       |
| 机电学院                                                                                                                                                                                                                                                                                    | 4080021220 | 微机原理及其应用                                                             | 3    | 48  | 42  | 6  | 0 | 0 | 0 | 5 |       |
|                                                                                                                                                                                                                                                                                         |            | Microcomputer principle and application                              |      |     |     |    |   |   |   |   |       |
| 机电学院                                                                                                                                                                                                                                                                                    | 4080022220 | 智能制造装备与工艺                                                            | 4    | 64  | 58  | 6  | 0 | 0 | 0 | 5 | 研究生课程 |
|                                                                                                                                                                                                                                                                                         |            | Intelligent Manufacturing Equipment and Technology                   |      |     |     |    |   |   |   |   |       |
| 机电学院                                                                                                                                                                                                                                                                                    | 4080023220 | 数控技术与机器人                                                             | 2    | 32  | 30  | 2  | 0 | 0 | 0 | 6 |       |
|                                                                                                                                                                                                                                                                                         |            | Numerical Control Technology and Robotics                            |      |     |     |    |   |   |   |   |       |
| 机电学院                                                                                                                                                                                                                                                                                    | 4080024220 | 科技文献检索与学术规范                                                          | 1    | 16  | 10  | 6  | 0 | 0 | 0 | 6 |       |
|                                                                                                                                                                                                                                                                                         |            | Scientific and Technological Literature Retrieval and Academic Norms |      |     |     |    |   |   |   |   |       |
| 机电学院                                                                                                                                                                                                                                                                                    | 4080025220 | 专业英语与科技论文写作                                                          | 2    | 32  | 16  | 16 | 0 | 0 | 0 | 8 |       |
|                                                                                                                                                                                                                                                                                         |            | Professional English and Scientific Paper Writing                    |      |     |     |    |   |   |   |   |       |
| 小计 Subtotal                                                                                                                                                                                                                                                                             |            |                                                                      | 23.0 | 368 | 302 | 66 | 0 | 0 | 0 |   |       |
| (3)体育能力：身体形态、机能、素质分别用维尔维克指数、肺活量指数和《国家体育锻炼标准》达标成绩评定,并熟练掌握 1-2 门运动项目。<br>(3)Physical ability: the body shape, function and quality are evaluated by the Viervik index, vital capacity index and the achievement of the National Physical Exercise Standard, and master 1-2 sports events. |            |                                                                      |      |     |     |    |   |   |   |   |       |
| (五)专业选修课程<br>5 Specialized Elective Courses                                                                                                                                                                                                                                             |            |                                                                      |      |     |     |    |   |   |   |   |       |
| 专业基础数学类                                                                                                                                                                                                                                                                                 |            |                                                                      |      |     |     |    |   |   |   |   |       |
| 机电学院                                                                                                                                                                                                                                                                                    | 4080026220 | 矩阵论                                                                  | 2    | 32  | 32  | 0  | 0 | 0 | 0 | 3 | 研究生课程 |
|                                                                                                                                                                                                                                                                                         |            | Theory of Matrices                                                   |      |     |     |    |   |   |   |   |       |
| 理学院                                                                                                                                                                                                                                                                                     | 4050408120 | 数学物理方程                                                               | 2.5  | 40  | 40  | 0  | 0 | 0 | 0 | 3 | 研究生课程 |

|       |            |                                                                 |     |    |    |    |   |   |   |   |       |
|-------|------------|-----------------------------------------------------------------|-----|----|----|----|---|---|---|---|-------|
|       |            | Equations of Mathematical Physics                               |     |    |    |    |   |   |   |   |       |
| 智能装备类 |            |                                                                 |     |    |    |    |   |   |   |   |       |
| 机电学院  | 4080059110 | 机械创新设计                                                          | 2.0 | 32 | 32 | 0  | 0 | 0 | 0 | 5 |       |
|       |            | Mechanical Innovation Design                                    |     |    |    |    |   |   |   |   |       |
| 机电学院  | 4080028220 | 现代设计方法                                                          | 2   | 32 | 32 | 0  | 0 | 0 | 0 | 4 | 研究生课程 |
|       |            | Modern Design Method                                            |     |    |    |    |   |   |   |   |       |
| 机电学院  | 4080029220 | 机械系统动力学                                                         | 2   | 32 | 32 | 0  | 0 | 0 | 0 | 4 | 研究生课程 |
|       |            | Machinery System Dynamics                                       |     |    |    |    |   |   |   |   |       |
| 机电学院  | 4080030220 | 多体动力学与应用                                                        | 2   | 32 | 32 | 0  | 0 | 0 | 0 | 4 | 研究生课程 |
|       |            | Multibody Dynamics and Applications                             |     |    |    |    |   |   |   |   |       |
| 机电学院  | 4080031220 | 现代实验方法与数据处理                                                     | 2   | 32 | 32 | 0  | 0 | 0 | 0 | 4 | 研究生课程 |
|       |            | Modern Experimental Methods and Data Processing                 |     |    |    |    |   |   |   |   |       |
| 机电学院  | 4080032220 | 机械中的有限元方法                                                       | 2   | 32 | 32 | 0  | 0 | 0 | 0 | 6 | 研究生课程 |
|       |            | Finite Element Method in Machinery                              |     |    |    |    |   |   |   |   |       |
| 机电学院  | 4080033220 | 摩擦学理论与设计                                                        | 2   | 32 | 32 | 0  | 0 | 0 | 0 | 6 | 研究生课程 |
|       |            | Tribology Theory and Design                                     |     |    |    |    |   |   |   |   |       |
| 机电学院  | 4080034220 | 复合材料零部件设计制造及应用                                                  | 2   | 32 | 32 | 0  | 0 | 0 | 0 | 6 | 研究生课程 |
|       |            | Composite Material Parts Design and Manufacture and Application |     |    |    |    |   |   |   |   |       |
| 智能控制类 |            |                                                                 |     |    |    |    |   |   |   |   |       |
| 机电学院  | 4080048110 | 工艺过程自动化                                                         | 2.0 | 32 | 32 | 0  | 0 | 0 | 0 | 5 |       |
|       |            | Process Automation                                              |     |    |    |    |   |   |   |   |       |
| 机电学院  | 4080036220 | 机器视觉及应用                                                         | 2   | 32 | 28 | 4  | 0 | 0 | 0 | 5 | 研究生课程 |
|       |            | Machine Vision and Applications                                 |     |    |    |    |   |   |   |   |       |
| 机电学院  | 4080037220 | 机械装备计算机控制技术                                                     | 2   | 32 | 24 | 8  | 0 | 0 | 0 | 5 | 研究生课程 |
|       |            | Computer Control Technology for Mechanical Equipment            |     |    |    |    |   |   |   |   |       |
| 机电学院  | 4080038220 | 振动与噪声控制                                                         | 2   | 32 | 20 | 12 | 0 | 0 | 0 | 6 | 研究生课程 |
|       |            | Vibration and Noise Control                                     |     |    |    |    |   |   |   |   |       |
| 机电学院  | 4080039220 | 磁悬浮技术基础                                                         | 2   | 32 | 28 | 4  | 0 | 0 | 0 | 6 | 研究生课程 |
|       |            | Fundamentals of Magnetic levitation Technology                  |     |    |    |    |   |   |   |   |       |
| 机电学院  | 4080040220 | 机械工况监测与故障诊断                                                     | 2   | 32 | 28 | 4  | 0 | 0 | 0 | 6 | 研究生课程 |
|       |            | Mechanical Condition Monitoring and Fault Diagnosis             |     |    |    |    |   |   |   |   |       |
| 机电学院  | 4080041220 | 先进气动控制技术                                                        | 2   | 32 | 32 | 0  | 0 | 0 | 0 | 6 | 研究生课程 |

|                                 |            |                                                                            |      |     |     |    |   |    |   |   |       |
|---------------------------------|------------|----------------------------------------------------------------------------|------|-----|-----|----|---|----|---|---|-------|
|                                 |            | Advanced Pneumatic Control Technology                                      |      |     |     |    |   |    |   |   |       |
| 机电学院                            | 4080042220 | 嵌入式系统与接口设计                                                                 | 2    | 32  | 32  | 0  | 0 | 0  | 0 | 6 | 研究生课程 |
|                                 |            | Embedded System and Interface Design                                       |      |     |     |    |   |    |   |   |       |
| 智能制造类                           |            |                                                                            |      |     |     |    |   |    |   |   |       |
| 机电学院                            | 4080044220 | 制造系统建模与仿真                                                                  | 2    | 32  | 32  | 0  | 0 | 0  | 0 | 5 | 研究生课程 |
|                                 |            | Manufacturing System Modeling and Simulation                               |      |     |     |    |   |    |   |   |       |
| 机电学院                            | 4080045220 | 人工智能与深度学习                                                                  | 2    | 32  | 32  | 0  | 0 | 0  | 0 | 5 | 研究生课程 |
|                                 |            | Artificial Intelligence and Deep Learning                                  |      |     |     |    |   |    |   |   |       |
| 机电学院                            | 4080046220 | 工业物联网及应用                                                                   | 2    | 32  | 32  | 0  | 0 | 0  | 0 | 6 | 研究生课程 |
|                                 |            | Industrial Internet of Things and its Applications                         |      |     |     |    |   |    |   |   |       |
| 机电学院                            | 4080047220 | 数字孪生技术                                                                     | 2    | 32  | 28  | 4  | 0 | 0  | 0 | 6 | 研究生课程 |
|                                 |            | Digital twinning                                                           |      |     |     |    |   |    |   |   |       |
| 机电学院                            | 4080048220 | 数据结构与数据库系统                                                                 | 2    | 32  | 28  | 4  | 0 | 0  | 0 | 6 | 研究生课程 |
|                                 |            | Data Structures and Database Systems                                       |      |     |     |    |   |    |   |   |       |
| 机电学院                            | 4080049220 | 智能优化算法                                                                     | 2    | 32  | 28  | 4  | 0 | 0  | 0 | 6 | 研究生课程 |
|                                 |            | Intelligent Optimization Algorithm                                         |      |     |     |    |   |    |   |   |       |
| 机电学院                            | 4080050220 | 质量管理与可靠性                                                                   | 2    | 32  | 32  | 0  | 0 | 0  | 0 | 6 | 研究生课程 |
|                                 |            | Quality Management and Reliability                                         |      |     |     |    |   |    |   |   |       |
| 机电学院                            | 4080051220 | 制造企业信息化关键技术与应用                                                             | 2    | 32  | 32  | 0  | 0 | 0  | 0 | 6 | 研究生课程 |
|                                 |            | Key Technology and Application of Manufacturing Enterprise Informatization |      |     |     |    |   |    |   |   |       |
| 小计 Subtotal                     |            |                                                                            | 52.5 | 840 | 796 | 44 | 0 | 0  | 0 |   |       |
| 要求本科阶段至少选修 4 学分，至少选修 16 学分。     |            |                                                                            |      |     |     |    |   |    |   |   |       |
| (六)个性课程                         |            |                                                                            |      |     |     |    |   |    |   |   |       |
| 6 Personalized Elective Courses |            |                                                                            |      |     |     |    |   |    |   |   |       |
| (七)专业教育集中性实践教育环节                |            |                                                                            |      |     |     |    |   |    |   |   |       |
| 7 Specialized Practice Schedule |            |                                                                            |      |     |     |    |   |    |   |   |       |
| 机电学院                            | 4080151110 | 机械制造工程实训 C                                                                 | 2    | 32  | 0   | 0  | 0 | 32 | 0 | 3 |       |
|                                 |            | Training on Mechanical Manufacturing Engineering C                         |      |     |     |    |   |    |   |   |       |
| 机电学院                            | 4080055210 | 生产实习                                                                       | 3    | 48  | 0   | 0  | 0 | 48 | 0 | 6 |       |
|                                 |            | Production Practice                                                        |      |     |     |    |   |    |   |   |       |
| 机电学院                            | 4080012220 | 计算机能力拓展训练                                                                  | 3    | 48  | 0   | 0  | 0 | 48 | 0 | 2 |       |
|                                 |            | Computer Skills Development Training                                       |      |     |     |    |   |    |   |   |       |

|                                                                                                                                                                                                                                                                                                                                                                                 |            |                                                                         |      |      |   |   |   |      |   |    |       |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------|-------------------------------------------------------------------------|------|------|---|---|---|------|---|----|-------|
| 机电学院                                                                                                                                                                                                                                                                                                                                                                            | 4080009220 | 机械制图与设计能力训练 I                                                           | 3    | 96   | 0 | 0 | 0 | 96   | 0 | 1  |       |
|                                                                                                                                                                                                                                                                                                                                                                                 |            | Mechanical drawing and design ability training I                        |      |      |   |   |   |      |   |    |       |
| 机电学院                                                                                                                                                                                                                                                                                                                                                                            | 4080056220 | 机械制图与设计能力训练 II                                                          | 3    | 96   | 0 | 0 | 0 | 96   | 0 | 4  |       |
|                                                                                                                                                                                                                                                                                                                                                                                 |            | Mechanical drawing and design ability training II                       |      |      |   |   |   |      |   |    |       |
| 机电学院                                                                                                                                                                                                                                                                                                                                                                            | 4080057220 | 智能制造工程综合能力训练                                                            | 4    | 64   | 0 | 0 | 0 | 64   | 0 | 5  |       |
|                                                                                                                                                                                                                                                                                                                                                                                 |            | Comprehensive ability training of intelligent manufacturing engineering |      |      |   |   |   |      |   |    |       |
| 机电学院                                                                                                                                                                                                                                                                                                                                                                            | 4080010220 | 本硕学术初级训练 I                                                              | 2    | 64   | 0 | 0 | 0 | 64   | 0 | 1  |       |
|                                                                                                                                                                                                                                                                                                                                                                                 |            | Academic primary Training I                                             |      |      |   |   |   |      |   |    |       |
| 机电学院                                                                                                                                                                                                                                                                                                                                                                            | 4080059220 | 本硕学术初级训练 II                                                             | 2    | 64   | 0 | 0 | 0 | 64   | 0 | 2  |       |
|                                                                                                                                                                                                                                                                                                                                                                                 |            | Academic primary Training II                                            |      |      |   |   |   |      |   |    |       |
| 机电学院                                                                                                                                                                                                                                                                                                                                                                            | 4080060220 | 本硕学术初级训练 III                                                            | 2    | 64   | 0 | 0 | 0 | 64   | 0 | 3  |       |
|                                                                                                                                                                                                                                                                                                                                                                                 |            | Academic Primary Training II                                            |      |      |   |   |   |      |   |    |       |
| 机电学院                                                                                                                                                                                                                                                                                                                                                                            | 4080067220 | 本硕学术专项训练                                                                | 5    | 160  | 0 | 0 | 0 | 160  | 0 | 6  |       |
|                                                                                                                                                                                                                                                                                                                                                                                 |            | academic special training                                               |      |      |   |   |   |      |   |    |       |
| 机电学院                                                                                                                                                                                                                                                                                                                                                                            | 4080062220 | 本硕学术综合训练                                                                | 8.5  | 272  | 0 | 0 | 0 | 272  | 0 | 7  |       |
|                                                                                                                                                                                                                                                                                                                                                                                 |            | academic comprehensive training                                         |      |      |   |   |   |      |   |    |       |
| 机电学院                                                                                                                                                                                                                                                                                                                                                                            | 4080063220 | 学科专业实践环节                                                                | 3    | 48   | 0 | 0 | 0 | 48   | 0 | 8  | 研究生课程 |
|                                                                                                                                                                                                                                                                                                                                                                                 |            | Discipline professional practice link                                   |      |      |   |   |   |      |   |    |       |
| 机电学院                                                                                                                                                                                                                                                                                                                                                                            | 4080064220 | 选题报告及中期考核                                                               | 1    | 16   | 0 | 0 | 0 | 16   | 0 | 10 | 研究生课程 |
|                                                                                                                                                                                                                                                                                                                                                                                 |            | Topic selection report and mid-term assessment                          |      |      |   |   |   |      |   |    |       |
| 机电学院                                                                                                                                                                                                                                                                                                                                                                            | 4080065220 | 学术活动                                                                    | 1    | 16   | 0 | 0 | 0 | 16   | 0 | 9  | 研究生课程 |
|                                                                                                                                                                                                                                                                                                                                                                                 |            | academic activities                                                     |      |      |   |   |   |      |   |    |       |
| 小计 Subtotal                                                                                                                                                                                                                                                                                                                                                                     |            |                                                                         | 42.5 | 1088 | 0 | 0 | 0 | 1088 | 0 |    |       |
| (4)自主学习能力: 在中国大学 MOOC、学堂在线等国家级平台上所获得的课程修读证书, 通过本科生院所规定的学分认定流程, 可获得相应课程的学分。<br>(4)Autonomous learning ability: With the course study certificate obtained on national platforms such as MOOC of Chinese universities and Xuetang Online, students can obtain the credits of corresponding courses through the credit recognition process stipulated by the undergraduate school. |            |                                                                         |      |      |   |   |   |      |   |    |       |

#### 四、修读指导

#### IV Recommendations on Course Studies

课外培养方案详见《武汉理工大学第二课堂课外学分实施办法》。《形势与政策》和《心理健康教育》课程为课外必修课程, 分别计 2 个课外学分。

Please refer to the cultivation plan of the second class-Implementation Measures for Extracurricular Credits of the Second Class of Wuhan University of Technology. Situation & Policy (2 credits) and Mental Health Education (2 credits) are the required extracurricular courses.

学院教学负责人：宋春生

专业培养方案负责人：凌鹤