

(085500-1)机械—工业工程学科 2021 级非全日制工程博士研究生培养方案

2021 Part-time Professional Doctoral Program for Industrial Engineering

一、基本信息 Basic Information

| | | | | | |
|-----------------------|---|-----------------------------|----------------------|-------------------|----|
| 院系名称 School | 机械与动力工程学院 School of Mechanical Engineering | 适用年级 Grade | 2021 级 2021 Class | | |
| 适用专业 Major | 工业工程 Industrial Engineering | 标准学制 Duration | 4 年 4 Years | | |
| 学习形式 Study Mode | 非全日制 Part time | | | | |
| 项目类型 Program Type | 专业型 Professional | | | | |
| 培养层次 Program Level | 普博生 Regular Doctoral Students | | | | |
| 最低学分 Min Credit | 16 | 最低 GPA 学分 Min GPA Credit | NA | 最低 GPA Min GPA | NA |

二、学科简介 Introduction

上海交通大学工业工程专业最早可追溯于 20 世纪 20 年代（原工业管理）。1997 年，上海交通大学工业工程与管理系成立，隶属上海交通大学机械与动力工程学院。工业工程是一门在工程学、管理科学等基础上形成和发展起来的交叉学科，旨在培养面向制造业和服务业的管理型人才以及数据分析处理、优化决策等技术类人才。工业工程专业是教育部一类特色专业和综合改革试点专业，工业工程学科隶属于机械与动力工程学院机械工程国家一级重点学科，拥有工业工程二级学科博士和硕士学位授予权。

Industrial Engineering at Shanghai Jiao Tong University was initiated in the 1920s. The Department of Industrial Engineering and Management (IE&M) was established in 1997. Industrial Engineering is an interdisciplinary subject developed on the basis of engineering and management sciences, to educate students with data processing and optimal decision making ability in the field of manufacturing and service. Industrial Engineering is a MOE Tier 1 major. And it is affiliated to mechanical engineering major at the national level key disciplines in the School of Mechanical Engineering.

主要研究方向包括：质量与可靠性工程、生产与服务运作管理、物流与供应链、产品工程等，近年来，大力发展智能制造、健康医疗、大数据分析等研究领域，形成了特色鲜明的学科特色，工业工程建有多层次的研究机构和实验体系。获得过国家科技进步二等奖 1 项，上海市科技进步一等奖 1 项，中国质协质量技术奖一等奖 1 项，以及其他省部级科技奖励共 4 项。拥有一支国际化、高水平师资队伍。现有教授 7 人，副教授 10 人，助理教授 5 人，客座等兼职教授 12 人。工业工程骨干课程实现全英文教学，并入选国家级教学团队，获得多项国家级教学成果及上海市教学成果。

The research areas include quality and reliability engineering, production and service operations management, logistics and supply chain management, industrial big data and intelligent manufacturing,

etc. There are various research centers and labs in the department. The IE&M department has been awarded some national level and Shanghai municipal level technology prizes as well as some national teaching achievements awards. We have an outstanding faculty group with international education background, which includes 7 full professors, 10 associate professors, 5 assistant professors, and 12 visiting professors. All main courses in Industrial Engineering are taught in English. IE&M department has several members in the national level teaching group.

20 年来培养了本科生近千名、以及包括全国优博、上海优博等在内的硕士以及博士优秀毕业生近 400 人。毕业生广泛就业于汽车、航空航天、信息技术等先进制造业和战略新兴产业，以及金融、互联网等服务领域，和政府机构与高等教育机构。工业工程建有多层次的研究机构和实验体系，与美国佐治亚理工大学、普渡大学、意大利米兰理工大学等建立了密切的国际交流合作。专业紧密面向建设创新型国家的战略需求，培养兼顾制造与服务业需求的国际化复合型工业工程人才，努力建设国际知名、国内一流的工业工程学科。

We aim at equipping students with engineering abilities, management skills, and global vision. During the past 20 years, the department has fostered about one thousand undergraduate students, and 400 graduate students. After graduation, our students are mainly engaged in the field of advanced manufacturing and services industries and academic area. The department has established close relationships with international top universities, including Georgia Tech, Purdue University, Politecnico di Milano, etc. The Industrial Engineering major targets on the innovative strategy requirement of nation development. The department tries the best to develop an international well-known and national outstanding discipline in Industrial Engineering.

三、培养目标 Program Objective

围绕学校研究生人才培养的总体目标，培养数理基础坚实、知识结构宽广，专业领域知识精通，创新能力强、具备社会责任感、具有国际视野和国际竞争力的工业工程前沿领域专业人才，能胜任高等教育专业教学、科学研究、工程管理等工作。

The postgraduate education objective is focused on nurturing the talents with solid mathematical foundation, broad knowledge structure, high proficiency in a professional field, strong innovation ability, good sense of social responsibility, and global vision and competitiveness in the frontier of industrial engineering. The postgraduates will be qualified for conducting teaching, scientific research and engineering management in universities, research institutions and industries.

学生毕业时应达到：

- 1、具有坚实的数理基础理论知识，宽广的工业工程及相关专业基础知识，深入了解学科的进展、动向和最新发展前沿；
- 2、具有敏锐的洞察力，具备对工程与管理科学问题的深入理解和综合分析能力；
- 3、具备解决复杂工程技术问题、进行工程创新、组织工程技术研究开发工作的能力；
- 4、至少精通一门外国语，能熟练地阅读本专业外文资料，具有较强的写作能力和进行国际学术交流的能力；
- 5、具备优秀的工程素养、职业道德和社会责任感。

We focus on the postgraduate training objective of our university. We will provide you with the solid mathematical foundation, broad knowledge structure, high proficiency in a professional field, strong innovation ability, good sense of social responsibility, and global vision and competitiveness in the frontier of mechanical engineering. You will be given the grounding you need to conduct research,

develop and manage in scientific research institutions and key enterprises.

Upon graduation, you will:

1. Have the solid mathematical foundation and broad knowledge in industrial engineering and related areas with deep understanding of the progress, trends and latest development of the discipline;
2. Have the keen insight, and be equipped with the comprehensive analytical skills for solving engineering and management problems;
3. Capable of solving complex engineering issue, carrying out engineering innovation, and organizing engineering R&D;
4. Show proficiency in at least one foreign language, read foreign language literature of your major fluently, and have good skills in writing and international academic communicating;
5. Have excellent engineering accomplishment, professional ethics and social responsibility.

四、培养方式及学习年限 Training Mode and Study Duration

非日制工程博士生采用非全日制学习、导师负责制培养模式。

学制为四年。未能按时完成学业者，经申请批准后其学习年限可适当延长，最长可以延期至七年。

Part-time Professional Doctoral Program students are tutored full-time by supervisors.

The length of Part-time Professional Doctoral Program is 4 years. Students who fail to complete the program within 4 years could apply for extension, with a maximum length of 7 years upon approval.

五、课程学习要求 Course Requirement

非全日制工程博士生，课程总学分 ≥ 16 学分，总学分上限为 24 学分。

Part-time Professional Doctoral Program. **Minimum credits: 16 credits.**

1、公共基础课程 7 学分

General Courses. 7 credits.

- a) MARX7001 中国马克思主义与当代，2 学分，必修
MARX7001 Marxism in China, 2 credits, compulsory.
- b) GE6001 学术写作、规范与伦理，1 学分，必修，院系开课。
GE6001 Academic Writing, Norms and Ethics, 1 credit, compulsory offered by ME.
- c) MATH6002 工程数学，2 学分，必修
MATH6002 Mathematics in Engineering. 2 credits, compulsory.
- d) GE9002 工程科技前沿专题，1 学分，必修
GE9002 Selected Topics in Engineering Frontiers, 1 credit, compulsory.
- e) FL9001 实用学术英语，1 学分，必修
FL9001 Practical English for Academic Purposes, 1 credit, compulsory.

2、专业前沿课：

- a) GE9001 创新工程实践，2 学分，必修
GE9001 Innovative Engineering Practice, 2 credits, compulsory.

3、专业基础课、专业选修课： ≥ 7 学分

Core Courses and Elective Courses. Minimum credits: 8 credits.

4、统计如下：

Summarized as below.

| 课程类别 | 学分要求 | 门数要求 | GPA 学分要求 | 备注 |
|------|------|------|----------|----|
|------|------|------|----------|----|

| Course Type | Required Credits | Required Courses | Min GPA | Note |
|---|------------------|------------------|---------|--|
| 公共基础课 General Courses | 7 | 5 | NA | |
| 专业基础课 Core Courses、专业选修课 Elective Courses | ≥7 | NA | NA | 跨学科选课不超过 2 门，且仅作为非 GPA 统计源课程。 |
| 专业前沿课 Frontier Courses | 2 | 1 | NA | No more than 2 interdisciplinary courses can be selected, which are counted as non-GPA course. |

六、培养过程要求 Requirements for Training Process:

(一) 培养过程环节要求:

Requirements for Training Process:

1、资格考试: 应在入学后第四学期末之前完成。资格考试由学院组织考查小组 (3-5 人组成) 针对工程类博士专业学位研究生的课程学习、科研项目、论文进展以及工作态度、精力投入等综合素质和能力, 进行全方位的考查。通过者, 方可继续进行科研和论文工作。具体考试要求和形式由所在学科领域作相关规定。

PhD Qualification Examination: The examination will be held before the end of 4th semester. The qualification examination is organized by school's examination committee (composed of 3-5 people) to inspect the comprehensive qualities and abilities, research projects, thesis progress, work attitude and energy input. Only those who pass the examination will be allowed to continue research and thesis work. The specific examination requirements and forms are determined by each discipline.

2、开题报告: 应在入学后第五学期末之前完成。工程博士研究生入学后应在导师指导下, 查阅文献资料, 了解学科现状和动向, 尽早确定课题方向, 制订论文工作计划, 完成论文选题报告 (形式可多样)。

Dissertation proposal: Dissertation proposal should be finished before the end of 5th semester. The professional PhD should read the literatures under the guidance of their tutors, understand the current situation and trend of the subject after admission, determine the direction of the subject as soon as possible, formulate the work plan of the paper, and complete the report on the topic selection of the paper (in various forms).

3、年度考核: 在开题报告完成一年左右完成。博士生需以书面的形式递交年度进展报告给所属学科, 在年度进度报告中须详细阐述论文研究工作的进展情况及所取得的阶段性成果。

Annual progress report: Annual progress report shall be organized within one year after dissertation proposal is finished. The annual report must be submitted to the relevant discipline in written form. In the report, the student should elaborate the progress of the dissertation research and results achieved.

学科组织由导师或指导小组负责人参加的至少 3 人的年度报告考核小组, 对本学科的博士生年度进展报告进行评估, 其形式可结合研究生的学术讨论或专题研究报告会进行。导师应对年度进展报告做出综合评估, 督促研究生顺利开展课题研究和学位论文撰写。经年度报告考核小组评估, 如认为该生不符合博士生培养条件, 将停止作为博士生继续培养。

An annual report assessment committee of at least three members, including supervisor or chair of dissertation committee, should be organized to evaluate the annual reports. This can be done in the form of academic discussion or symposium on selected topics. Supervisors should evaluate the annual report comprehensively, guiding the doctoral students to carry out the dissertation work as scheduled. Anyone who fails the annual report assessment should quit doctoral degree program.

4、论文预答辩：在第六学期以后、正式答辩前三个月进行。预答辩由学科组织，同时必须由二名学位委员会成员参加。

Dissertation pre-defense: After the 6th semester of doctoral level and three months before dissertation defense. The pre-defense is organized by discipline and at least 2 members should be from the Degree Evaluation Committee of ME School.

5、论文答辩：在进第八学期前完成，未完成者最多可延至进入博士阶段的十四学期。答辩由学科组织，答辩前将由学院督导进行形式审查，对未满足科研成果要求、盲审成绩过低等情况将不予审核通过。

Dissertation Defense: Students are required to pass the dissertation defense before the end of the 8th semester. Students could apply for extension and should complete the dissertation defense before the end of the 14th semester. The dissertation defense is organized by discipline. Before the defense, a routine review will be conducted by the school. Anyone who does not meet the graduation requirements or fails the blind review shall not be approved for dissertation defense.

(二) 工程实践环节要求：

Requirements for engineering practice process:

1、通过在岗参与重大项目，完成工程实践要求。

2、结合重大项目中关键或难点技术环节，了解其发展历史、国内外现状，参加本领域前沿的业务研讨及交流活动，并在活动中做专门报告。

1. Complete the engineering practice requirements by participating in major projects.

2. Participate in cutting-edge business seminars and exchange activities in this field, and make professional keynote speech.

(三) 学术写作与交流要求：

Requirements for Academic Writing and Communication

1、至少精通一门外国语，能熟练地阅读本专业外文资料，具有较强的写作能力，须有以排序第一作者在国际重要学术期刊或高水平国内期刊上发表与博士学位论文研究工作密切相关的研究性学术论文的经历。国际重要学术期刊和高水平国内期刊的具体认定办法详见七“学术成果要求”。

Students should be proficient in at least one foreign language and be able to read foreign language materials in their major fluently. With strong writing ability, the student should have the experience of publishing research academic papers that are closely related to the research work of their doctoral dissertation in important international academic journals or high-level domestic journals as the first author. For specific identification methods of important international academic journals and high-level domestic journals, please refer to seventh "Requirements for Academic Achievements".

2、应具备国内外学术交流的能力，在读期间必须在高水平国内外学术会议上以口头报告形式开展学术交流至少1次。学术交流的内容须与博士学位论文研究工作密切相关。交流内容等具体要求详见《上海交通大学关于博士研究生参加学术交流的规定》。高水平国内外学术会议的具体认定办法详见七“学术成果要求”。

Students should have the ability of domestic and foreign academic communication. During the study period, students must have at least one academic communication in the form of oral presentation in high-level domestic and foreign academic conferences, and the content of academic communication must be closely related to the research work of doctoral dissertation. Please refer to the *Regulations of Shanghai Jiao Tong University on the Participation of Ph.D Students in Academic Exchange* for the detailed requirements on the form of exchange. The specific identification methods of high-level domestic and foreign academic conferences are detailed in the seventh "Requirements for Academic Achievements".

七、学术成果要求 Requirements for Academic Achievements

博士学位论文的创新成果是评价学位论文水平的重要参考，必须是以学位申请人为主在攻读博士学位期间取得，且与学位论文内容密切相关。

The innovative achievements of the doctoral dissertation are an important reference to evaluate the level of the

dissertation, which must be obtained by the degree applicants during their doctoral study and closely related to the content of the dissertation.

用于申请博士学位的学位论文中必须包含不少于三项以申请人为主要完成人的创新性成果。创新性成果的主要完成人一般应为成果第一完成人。如果第一完成人是申请人的博士生导师且申请人排序第二,则申请人也认定为主要完成人。创新性成果原则上应以上海交通大学为第一完成单位。非全日制博士学位申请人如有上海交通大学作为参加单位的重大创新性成果,可以由导师提出申请并认定。

The dissertation used for the doctoral degree application must include at least three innovative works with the applicant as the principal composer. The principal composer of the innovative achievement shall generally be the first author of the achievement. If the first composer is the doctoral supervisor of the applicant and the applicant ranks second, the applicant shall also be identified as the principal composer. Shanghai Jiao Tong University should be the first institution to complete the innovative achievements in principle. Applicants for part-time doctoral degrees who have major innovative achievements of Shanghai Jiao Tong University as the participating institution can be submitted by their supervisors for application and recognition.

博士学位论文的创新性成果应该具有重要的理论或工程应用价值,具体展现形式包括:

The innovative achievements of the doctoral dissertation should have important theoretical or engineering application value, and the specific manifestation forms include:

(1) 发表在国际重要学术期刊或高水平国内学术期刊上的研究性学术论文。其中,国际重要学术期刊指 SCI 刊源期刊,但不包含按《机械与动力工程学院不推荐 SCI 期刊认定办法》认定的不推荐期刊;高水平国内期刊是指《高质量科技期刊分级目录》相关领域 T1/T2 档核心期刊。国际重要学术期刊与高水平国内期刊均以论文发表或录用当年为准认定。

Research academic papers published in important international academic journals or high-level domestic academic journals. The important international academic journals refer to the SCI Journals, but do not include the non-recommended journals identified according to the *Measures for the Recognition of Non-recommended SCI Journals by the School of Mechanical Engineering*. High-level domestic academic journals refer to the related fields of T1/T2 core periodicals in the *Classification Catalogue of High-quality Sci-Tech Journals*. The accreditation of important international academic journals and high-level domestic journals shall be subject to the year when the paper was published or accepted.

(2) 发表在高水平国内外学术会议的会议论文或者口头报告且能提供相应证明材料。高水平国内外学术会议包括本学科公认的国内外学术组织主办的系列专业性学术会议或《上海交通大学资助研究生参加国际会议项目重要国际会议目录》中的会议。口头报告需提供会议录用摘要证明。如果学术会议论文或口头报告学术贡献与发表期刊论文相同,则认定为一项成果。

Conference papers or oral presentations presented at high-level domestic and foreign academic conferences with supporting materials. High-level domestic and foreign academic conferences include a series of professional academic conferences hosted by recognized domestic and foreign academic organizations within the discipline or conferences listed in the *International Conference Program Sponsored by Shanghai Jiao Tong University - List of Important International Conferences*. Oral presentation should provide proof of acceptance summary. If the academic conference paper or oral presentation has the same academic contribution as the published journal paper, they will be considered as the same achievement.

(3) 获得授权的重要发明专利且能提供相关实施应用证明材料。

The important invention patent that has been authorized and can provide relevant application proof materials.

(4) 由中国国家标准管理委员会正式发布国家标准,或由 ISO、IEEE、ASME 等国际组织发布的国际标准,及相关行业归口部门统一管理发布的行业标准。

National standards officially issued by the Standardization Administration Committee of China, or international standards issued by ISO, IEEE, ASME and other international organizations, as well as industrial standards uniformly managed and issued by relevant industry departments.

(5) 由学院学位评定委员会委员和同行专家组成的专家组,或有关权威组织机构认定的其他重大成果。

Other major achievements recognized by the expert group composed of members of the Academic Degree Assessment Committee and peer experts or by relevant authoritative organizations.

具体详见《上海交大机械与动力工程学院博士专业学位授予标准》，对达不到创新性成果要求的博士生，将无法进入正式答辩。

See details in *Paper Publication Requirement of ME School, SJTU(Awarding Criteria for Professional Doctor Degree from School of Mechanical Engineering, Shanghai Jiao Tong University?)*. Anyone who cannot meet the innovative requirements is not allowed to apply for the dissertation defense.

八、学位论文 Dissertation work

学位论文是进行学位评定的主要依据，应能反映出作者在本学科上已掌握坚实宽广的基础理论、系统深入的专门知识和规范科学的研究方法。

Dissertation is the main basis for degree evaluation, which should reflect the author's grasp of solid and broad basic theory, systematic and in-depth expertise and standardized scientific research methods in the subject.

1、选题与综述

Topic Selection and Review

博士学位论文的选题应围绕行业重大、重点工程项目或科技攻关项目开展，选题应具有重要的创新性、先进性、可行性和应用性。

The topic selection of the doctoral dissertation should focus on the major and key engineering projects of the industry or the key projects of science and technology. The topic should be innovative, advanced, feasible and applicable.

文献综述应在全面搜集、阅读大量有关研究文献的基础上，经过归纳整理、分析鉴别，对所研究的问题在一定时期内已经取得的研究成果、存在问题以及新的发展趋势等进行系统、全面、客观的叙述和评论，为论文课题的确立提供支持和论证。

Literature review is based on the comprehensive collection and reading of a large number of relevant research literature. After summarizing, analyzing and discriminating, the literature review systematically, comprehensively and objectively narrates and comments the research achievements, existing problems and new development trends of the issues studied in a certain period of time, providing support and demonstration for the establishment of the topic of the dissertation.

2、规范性要求

Normative requirements

博士学位论文必须是一篇系统、完整的学术论文，是学位申请者在攻读博士学位期间在导师指导下独立完成的研究成果，应严格遵守《上海交通大学研究生学术规范》和《机械与动力工程学院研究生学术道德规范》进行学位论文工作。

Ph.D dissertation must be a systematic and complete academic paper. Dissertation is the achievement of research completed independently by the applicant under the supervision of supervisor during doctoral study. Students should strictly abide by the *Academic Code for Graduate Students of Shanghai Jiao Tong University* and the *Academic Code of Ethics for Graduate Students of School of Mechanical Engineering* in their dissertation work.

博士学位论文的学术观点必须明确，立论正确，推理严谨，数据真实，图表规范，层次分明，语言准确，文字通畅。

The academic point of view of a Ph.D dissertation must be clear, correct in argument, rigorous in reasoning, true in data, standardized in chart, clear in hierarchy, accurate in language and smooth in text.

学位论文撰写必须遵循和符合《机械与动力工程学院学位论文撰写指南》的具体要求。

Dissertation writing must follow and conform to the specific requirements of *Dissertation Writing Guide of School of Mechanical Engineering*.

九、课程设置 Courses

详见下页 Please refer to the next page.

撰稿人签字:

日期:

校稿人签字:

日期:

审核人签字:

日期:

主管院长签字:

院系公章

日期:

说明:

1. 培养方案制定完成并经院系学位委员会审核通过后,全日制请将本表格电子版(word)发送至 SherryLi327@sjtu.edu.cn,非全日制请将本表格电子版(word)发送至 jshen@sjtu.edu.cn;
2. 请在新研究生教育管理信息系统完成新培养方案的申请,并在审核通过后将本表格的纸质版(签字盖章)送交研究生院存档。

| 课程类别 Category | 课程代码 Course Code | 课程名称 Course Name | | 学分 Credit | 授课语言 Language* | 开课学期 Semester | 可以计算 GPA | 必须计算 GPA | 备注 Note |
|-------------------------------|---------------------|------------------|--|--------------|-------------------|------------------|-------------|-------------|---------------|
| | | 中文 Chinese | English 英文 | | | | | | |
| 公共基础课 General Courses | MARX7001 | 中国马克思主义与当代 | Marxism in China | 2 | 中文 in Chinese | 秋季 Fall | 否 No | 否 No | 必修 Compulsory |
| | GE6001 | 学术写作、规范与伦理 | Scientific Writing, Integrity and Ethics | 1 | 中文 in Chinese | 春秋季 Spring/Fall | 否 No | 否 No | 必修 Compulsory |
| | MATH6002 | 工程数学 | Mathematics in Engineering | 2 | 中文 in Chinese | 秋季 Fall | 否 No | 否 No | 必修 Compulsory |
| | GE9002 | 工程科技前沿专题 | Selected Topics in Engineering Frontiers | 1 | 中文 in Chinese | 秋季 Fall | 否 No | 否 No | 必修 Compulsory |
| | FL9001 | 实用学术英语 | Practical English for Academic Purposes | 1 | 英文 in English | 秋季 Fall | 否 No | 否 No | 必修 Compulsory |
| 专业基础课 Program Core Courses | IE6101 | 高等运筹学 | Advanced Operations Research | 3 | 英文 in English | 春季 Spring | 是 Yes | 否 No | |
| | IE6102 | 高等统计学 | Advanced Statistics | 3 | 中文 in Chinese | 秋季 Fall | 是 Yes | 否 No | |
| | IE6105 | 生产与运作分析 | Production and Operation Analysis | 3 | 英文 in English | 秋季 Fall | 是 Yes | 否 No | |
| | IE6107 | 数据挖掘 | Data Mining | 3 | 英文 in English | 春季 Spring | 是 Yes | 否 No | |
| | IE6108 | 工业信息工程 | Industrial Information Engineering | 3 | 中文 in Chinese | 秋季 Fall | 是 Yes | 否 No | |
| | IE6112 | 质量及可靠性工程 | Quality and Reliability Engineering | 3 | 中文 in Chinese | 春季 Spring | 否 No | 否 No | |
| | ME6100H | 高等机构学 | Advanced Mechanism and Machine Science | 3 | 中文 in Chinese | 秋季 Fall | 是 Yes | 否 No | |
| | ME6120 | 高等机械动力学 | Mechanical System Dynamics | 3 | 中文 in Chinese | 春秋季 Spring/Fall | 是 Yes | 否 No | 二选一 |
| | ME6120H | 高等机械动力学 | Mechanical System Dynamics | 3 | 中文 in Chinese | 春季 Spring | 是 Yes | 否 No | |
| | ME6520 | 数字信号处理 | Digital Signal Processing | 3 | 中文 in Chinese | 秋季 Fall | 是 Yes | 否 No | 二选一 |

| | | | | | | | | |
|---------|-----------|---|---|---------------|-----------------|-------|------|-----|
| ME6521H | 数字信号处理与应用 | Digital Signal Processing and Application | 3 | 英文 in English | 秋季 Fall | 是 Yes | 否 No | |
| ME6540 | 现代控制理论 | Modern Control Theory | 3 | 中文 in Chinese | 春秋季 Spring/Fall | 是 Yes | 否 No | 二选一 |
| ME6540H | 现代控制理论 | Modern Control Theory | 3 | 中文 in Chinese | 秋季 Fall | 是 Yes | 否 No | |
| PE6100 | 高等燃烧学 | Advanced Combustion Theory | 3 | 中文 in Chinese | 秋季 Fall | 是 Yes | 否 No | 二选一 |
| PE6101H | 高等燃烧理论 | Advanced Combustion Theory | 3 | 英文 in English | 春季 Spring | 是 Yes | 否 No | |
| PE6200 | 高等传热传质学 | Advanced Heat and Mass Transfer | 3 | 中文 in Chinese | 春季 Spring | 是 Yes | 否 No | 三选一 |
| PE6201 | 高等传热学 | Advanced Heat Transfer | 3 | 英文 in English | 秋季 Fall | 是 Yes | 否 No | |
| PE6201H | 高等传热学 | Advanced Heat Transfer | 3 | 英文 in English | 秋季 Fall | 是 Yes | 否 No | |
| PE6220 | 高等工程热力学 | Advance Engineering Thermodynamics | 3 | 中文 in Chinese | 春秋季 Spring/Fall | 是 Yes | 否 No | 三选一 |
| PE6221 | 高等热力学 | Advanced Thermodynamics | 3 | 英文 in English | 秋季 Fall | 是 Yes | 否 No | |
| PE6221H | 高等热力学 | Advanced Thermodynamics | 3 | 英文 in English | 春季 Spring | 是 Yes | 否 No | |
| ME6104 | 摩擦学与润滑理论 | Tribology & Lubrication Theory | 3 | 中文 in Chinese | 春季 Spring | 是 Yes | 否 No | 二选一 |
| ME6105 | 工程摩擦学导论 | Introduction to Engineering Tribology | 3 | 英文 in English | 春季 Spring | 是 Yes | 否 No | |
| ME6122 | 应用固体力学 | Applied Mechanics of Solids | 3 | 中文 in Chinese | 秋季 Fall | 是 Yes | 否 No | 二选一 |
| ME6123 | 固体力学 | Mechanics of Solids | 3 | 英文 in English | 春季 Spring | 是 Yes | 否 No | |
| ME6124 | 弹塑性力学 | Elastic & Plastic Mechanics | 3 | 中文 in Chinese | 春秋季 Spring/Fall | 是 Yes | 否 No | 二选一 |
| ME6125 | 金属塑性加工力学 | Plastic Mechanics in Metal Processing | 3 | 英文 in English | 秋季 Fall | 是 Yes | 否 No | |

| | | | | | | | | |
|--------|--------------|---|---|---------------|-----------------|-------|------|-----|
| ME6180 | 计算机图形学 | Computer Graphics | 3 | 中文 in Chinese | 秋季 Fall | 是 Yes | 否 No | |
| ME6320 | 机器视觉与应用 | Machine Vision and Its Applications | 3 | 中文 in Chinese | 春季 Spring | 否 No | 否 No | 二选一 |
| ME6321 | 计算视觉及其智能化应用 | Computational Imaging and Intelligent Application | 3 | 英文 in English | 春季 Spring | 否 No | 否 No | |
| ME6522 | 测试原理、传感器与系统 | Basic Principle of Sensors and Systems for Mechanical Measurement | 3 | 中文 in Chinese | 春秋季 Spring/Fall | 是 Yes | 否 No | 二选一 |
| ME6523 | 先进测试技术与仪器 | Advanced Measurement and Instrumentation | 3 | 英文 in English | 春季 Spring | 是 Yes | 否 No | |
| PE6120 | 高等工程流体力学 | Advanced Fluid Dynamics in Engineering | 3 | 中文 in Chinese | 秋季 Fall | 是 Yes | 否 No | 二选一 |
| PE6121 | 高等流体力学 | Advanced Fluid Mechanics | 3 | 英文 in English | 秋季 Fall | 是 Yes | 否 No | |
| PE6122 | 计算流体力学 | Computational Fluid Dynamics | 3 | 中文 in Chinese | 春季 Spring | 是 Yes | 否 No | 二选一 |
| PE6123 | 计算流体力学与应用 | Computational Fluid Dynamics & Applications | 3 | 英文 in English | 秋季 Fall | 是 Yes | 否 No | |
| ME6102 | 机械设计可靠性分析 | Reliability Analysis of Mechanical Design | 3 | 中文 in Chinese | 春季 Spring | 是 Yes | 否 No | |
| ME6140 | 高等振动理论 | Theory of Advanced Vibrations | 3 | 中文 in Chinese | 春季 Spring | 是 Yes | 否 No | |
| ME6142 | 声学原理及计算方法 | Theories and Computation of Acoustics | 3 | 中文 in Chinese | 秋季 Fall | 是 Yes | 否 No | |
| ME6145 | 结构声学 | Structural Acoustics | 3 | 英文 in English | 春季 Spring | 否 No | 否 No | |
| ME6146 | 转子动力学 | Rotor Dynamics | 3 | 中文 in Chinese | 春季 Spring | 否 No | 否 No | |
| ME6160 | 机器人性能仿真与控制原理 | Performance Simulation and Control of Robot | 3 | 中文 in Chinese | 春季 Spring | 否 No | 否 No | |
| ME6182 | 现代机械设计学 | Modern Mechanical Design | 3 | 中文 in Chinese | 春季 Spring | 否 No | 否 No | |
| ME6220 | 软件工程 II | Software Engineering II for Manufacturing | 3 | 中文 in Chinese | 春季 Spring | 是 Yes | 否 No | |

| | | | | | | | | |
|--------|-------------|---|---|---------------|-----------|-------|------|--|
| ME6340 | 机械电子学 | Mechatronics | 3 | 中文 in Chinese | 春季 Spring | 否 No | 否 No | |
| ME6500 | 塑性变形理论与数值模拟 | Plastic Deformation Theory and Numerical Simulation | 3 | 中文 in Chinese | 秋季 Fall | 是 Yes | 否 No | |
| ME6524 | 误差分析与测试数据处理 | Error Analysis and Data Processing in Measurement | 3 | 中文 in Chinese | 秋季 Fall | 是 Yes | 否 No | |
| ME6542 | 智能控制技术 | Intelligent Control Technology | 3 | 中文 in Chinese | 春季 Spring | 是 Yes | 否 No | |
| PE6103 | 燃烧化学动力学 | Combustion Chemical Kinetics | 3 | 英文 in English | 春季 Spring | 是 Yes | 否 No | |
| PE7124 | 多相流理论与计算 | Multiphase Flow Theory and Simulation | 3 | 中文 in Chinese | 春季 Spring | 是 Yes | 否 No | |
| PE7126 | 湍流与传输理论 | Turbulent Flow and Transportation Theory | 3 | 中文 in Chinese | 春季 Spring | 是 Yes | 否 No | |
| PE6202 | 热辐射传热 | Thermal Radiation Heat Transfer | 3 | 中文 in Chinese | 春季 Spring | 是 Yes | 否 No | |
| PE6205 | 微尺度流动与传热 | Microfluidic Flow and Heat Transfer | 3 | 英文 in English | 春季 Spring | 是 Yes | 否 No | |
| ME7184 | 多学科综合设计 | Multidisciplinary Design | 3 | 中文 in Chinese | 春季 Spring | 否 No | 否 No | |
| ME6222 | 软件技术基础 | Foundation of Software Technology | 3 | 中文 in Chinese | 秋季 Fall | 否 No | 否 No | |
| PE6208 | 强化传热理论与技术 | Theory and Technology on Enhanced Heat Transfer | 3 | 中文 in Chinese | 秋季 Fall | 否 No | 否 No | |
| ME6426 | 智能网联汽车技术 | Intelligent and Connected Vehicle Technology | 3 | 中文 in Chinese | 春季 Spring | 否 No | 否 No | |
| PE6400 | 热泵系统及应用 | Heat Pump Systems and Applications | 3 | 中文 in Chinese | 春季 Spring | 否 No | 否 No | |
| PE6502 | 内燃机燃烧与排放控制 | Combustion and Emission Control in Internal Combustion Engine | 3 | 中文 in Chinese | 秋季 Fall | 否 No | 否 No | |
| ME6420 | 汽车多能源管理与优化 | Vehicle Multi-energy Management and Optimization | 3 | 中文 in Chinese | 春季 Spring | 否 No | 否 No | |
| ME6560 | 研究实验技能 | Experimental Skill for Research | 3 | 中文 in Chinese | 秋季 Fall | 否 No | 否 No | |

| | | | | | | | | | |
|--------------------------|--------|---------------|--|---|---------------|-----------------|------|------|---------------|
| | PE7426 | 高等传输理论与化学反应工程 | Advanced Transmission Theory and Chemical Reaction Engineering | 3 | 中文 in Chinese | 春季 Spring | 否 No | 否 No | |
| | | | | | | | | | |
| 专业前沿课 | | | | | | | | 否 No | |
| Program Frontier Courses | GE9001 | 创新工程实践 | Innovative Engineering Practice | 2 | 中文 in Chinese | 春秋季 Spring/Fall | 否 No | 否 No | 必修 Compulsory |
| | | | | | | | | 否 No | |
| | | | | | | | | 否 No | |
| 专业选修课 | IE6116 | 算法设计与分析 | Algorithm Design and Analysis | 3 | 中文 in Chinese | 春季 Spring | 否 No | 否 No | |
| Program Elective Courses | ME6106 | 计算几何学 | Computational Geometry | 3 | 中文 in Chinese | 春季 Spring | 否 No | 否 No | |
| | ME6126 | 高等结构动力学 | Advanced Structural Dynamics | 3 | 中文 in Chinese | 秋季 Fall | 否 No | 否 No | |
| | ME6149 | 气动声学 | Aeroacoustics | 3 | 英文 in English | 秋季 Fall | 否 No | 否 No | |
| | ME6151 | 先进噪声控制技术 | Advanced Noise Control Techniques | 3 | 英文 in English | 秋季 Fall | 否 No | 否 No | |
| | ME7162 | 步行机器人机构学 | Walking Robotic Mechanisms | 3 | 中文 in Chinese | 春季 Spring | 否 No | 否 No | |
| | ME6200 | 弹塑性加工理论 | Solid Mechanics in Machining | 3 | 中文 in Chinese | 春季 Spring | 否 No | 否 No | |
| | ME6202 | 微细制造 | Micro Manufacturing | 3 | 中文 in Chinese | 春季 Spring | 否 No | 否 No | |
| | ME6204 | 薄板成形理论及技术 | Sheet Metal Forming Theory and Technology | 3 | 中文 in Chinese | 春季 Spring | 否 No | 否 No | |
| | ME6207 | 超精密智能制造技术 | Ultra-precision Smart Manufacturing | 3 | 英文 in English | 春季 Spring | 否 No | 否 No | |

| | | | | | | | | |
|--------|----------------|--|---|---------------|-----------|------|------|--|
| ME6209 | 先进复合材料及其加工技术 | Advanced Composites and Their Manufacturing Techniques | 3 | 英文 in English | 春季 Spring | 否 No | 否 No | |
| ME6343 | 工业智能维护与预知诊断 | Intelligent Maintenance and Prognostics for Industrial Systems | 3 | 英文 in English | 春季 Spring | 否 No | 否 No | |
| ME6423 | 现代汽车动力总成技术 | Advanced Powertrain Technologies | 3 | 英文 in English | 春季 Spring | 否 No | 否 No | |
| ME6424 | 汽车电子控制软件工程 | Software Engineering for Automotive Electronic Control System | 3 | 中文 in Chinese | 春季 Spring | 否 No | 否 No | |
| ME7429 | 汽车控制工程 | Modern Vehicle Control Engineering | 3 | 英文 in English | 秋季 Fall | 否 No | 否 No | |
| ME6503 | 先进工程应用中的高温材料 | High Temperature Materials for Advanced Engineering Applications | 3 | 英文 in English | 春季 Spring | 否 No | 否 No | |
| ME6527 | 先进激光诊断原理与技术 | Advanced Laser Diagnostic Technology | 3 | 英文 in English | 春季 Spring | 否 No | 否 No | |
| ME7528 | 高等测试技术 | Advanced Techniques in Measurement | 3 | 中文 in Chinese | 春季 Spring | 否 No | 否 No | |
| PE6105 | 先进排放控制技术 | Advanced Emission Control Technologies | 3 | 英文 in English | 春季 Spring | 否 No | 否 No | |
| PE7106 | 计算燃烧学 | Computational Combustion | 3 | 中文 in Chinese | 春季 Spring | 否 No | 否 No | |
| PE6140 | 叶轮机械气动力学 | Turbomachinery Aerodynamics | 3 | 中文 in Chinese | 秋季 Fall | 否 No | 否 No | |
| PE6143 | 叶轮机械试验方法与设计 | Turbomachinery Experimental Design | 3 | 英文 in English | 春季 Spring | 否 No | 否 No | |
| PE6207 | 计算材料热物理 | Computational Materials Thermophysics | 3 | 英文 in English | 秋季 Fall | 否 No | 否 No | |
| PE6300 | 湍流两相流动的模化与数值仿真 | Modeling and Numerical Simulation of Turbulent Two-phase Flow | 3 | 中文 in Chinese | 春季 Spring | 否 No | 否 No | |
| PE6302 | 煤粉燃烧与气化理论 | Theory of Coal Combustion and Gasification | 3 | 中文 in Chinese | 秋季 Fall | 否 No | 否 No | |
| PE6304 | 微细颗粒动力学 | Fine Particle Dynamics | 3 | 中文 in Chinese | 秋季 Fall | 否 No | 否 No | |
| PE6307 | 循环流化床燃烧技术 | Circulating Fluidized Bed Combustion | 3 | 英文 in English | 秋季 Fall | 否 No | 否 No | |

| | | | | | | | | |
|--------|------------------|--|---|---------------|-----------|-------|------|--------------------|
| PE6402 | 现代人工环境技术 | Modern Artificial Environment Technology | 3 | 中文 in Chinese | 秋季 Fall | 否 No | 否 No | |
| PE6404 | 制冷低温系统的设计与实践 | Design and Practice of Refrigeration and Cryogenic Systems | 3 | 中文 in Chinese | 春季 Spring | 否 No | 否 No | |
| PE6406 | 制冷空调系统的仿真优化与控制 | Simulation, Optimization and Control of Refrigeration and HVAC Systems | 3 | 中文 in Chinese | 秋季 Fall | 否 No | 否 No | |
| PE6420 | 能源清洁与梯级利用 | Energy Clean and Cascade Utilization | 3 | 中文 in Chinese | 春季 Spring | 否 No | 否 No | |
| PE6422 | 热力系统建模与仿真 | Analysis of Energy Utilization Systems | 3 | 中文 in Chinese | 春季 Spring | 否 No | 否 No | |
| PE6424 | 先进动力循环分析 | Analysis of Advanced Thermal Power Cycles | 3 | 中文 in Chinese | 春季 Spring | 否 No | 否 No | |
| PE6441 | 新能源系统 | New Energy Systems | 3 | 英文 in English | 秋季 Fall | 是 Yes | 否 No | |
| PE6442 | 建筑节能与太阳能利用 | Building Energy Saving and Solar Energy Utilization | 3 | 中文 in Chinese | 春季 Spring | 否 No | 否 No | |
| PE6500 | 内燃机电控技术 | Electronic Control Technology in Internal Combustion Engine | 3 | 中文 in Chinese | 春季 Spring | 否 No | 否 No | |
| PE6504 | 内燃机性能仿真与优化 | Simulation and Optimization of Internal Combustion Engine Performance | 3 | 中文 in Chinese | 春季 Spring | 否 No | 否 No | |
| PE6523 | 先进空气动力学测量技术基础与实践 | Analysis of Advanced Thermal Power Cycles | 3 | 英文 in English | 秋季 Fall | 否 No | 否 No | |
| PE7540 | 先进能源材料导论 | Introduction on Advanced Energy Materials | 3 | 中文 in Chinese | 春季 Spring | 否 No | 否 No | |
| ME7900 | 新产品开发与技术创新管理 | New Product Development and Technology Innovation Management | 2 | 中文 in Chinese | 春季 Spring | 否 No | 否 No | 周末上课 Weekend class |
| ME7902 | 智能制造技术基础与应用 | Intelligent Manufacturing Technology Basis and Application | 2 | 中文 in Chinese | 春季 Spring | 否 No | 否 No | 周末上课 Weekend class |
| ME7904 | 大数据分析 | Big Data Analytics | 2 | 中文 in Chinese | 春季 Spring | 否 No | 否 No | 周末上课 Weekend class |
| ME7906 | 创新驱动和服务升级概论 | Introduction to Innovation Driven and Service Upgrades | 2 | 中文 in Chinese | 春季 Spring | 否 No | 否 No | 周末上课 Weekend class |
| PE6542 | 能源电化学基础 | Fundamentals of Electrochemistry for Energy Applications | 3 | 中文 in Chinese | 秋季 Fall | 否 No | 否 No | |

