

南方科技大学  
学术学位普博生培养方案  
SUSTech

Regular Doctoral Program (Academic Degree) Requirements

一级学科名称	力学
Name of the First-level Discipline	Mechanics
一级学科代码	0801
Code of the First-level Discipline	0801
二级学科名称	智能制造与机器人
Name of the Second-level Discipline	Intelligent Manufacturing and Robotics
二级学科代码	0801Z1
Code of the First-level Discipline	0801Z1

南方科技大学研究生院制

Issued by the Graduate School of Southern University of Science and Technology

2025 年 4 月 20 日

## 一、培养目标

1. 遵纪守法，身心健康；具有良好的道德品质和学术修养，具有创新意识、学术精神和社会责任感；

Cultivate students who abide by laws and regulations, have good physical and mental health, possess good moral qualities and academic cultivation, have innovative consciousness, academic spirit, and social responsibility.

2. 具有坚实宽广的数学、力学及智能制造、机器人相关领域的理论基础，掌握系统深入的专业知识和娴熟的计算或实验技能，了解本学科的现状、发展方向和国际学术研究前沿，以及国家重大工程技术问题对本专业的需求；能够在科学或专门技术上做出创造性的成果，具有独立从事高水平科学研究的能力；

Cultivate students with a solid and broad theoretical foundation in mathematics, mechanics, intelligent manufacturing, robotics and other related fields, to systematically and deeply master the solid theoretical foundations and specialized knowledge in the field of "Intelligent Manufacturing and Robotics", to gain a deep understanding of the current status, development direction, and international academic research frontiers of this discipline, as well as the requirements of major national engineering and technical issues for this major. Be able to make creative achievements in science or specialized technology, and to have the ability to independently engage in high-level scientific research.

3. 培养学生良好的逻辑思维能力，能熟练使用中英文进行科技论文撰写和学术交流。

Enhance students' logical thinking skills, ensure they stay updated on the latest advancements in their discipline, and equip them with the ability to write scientific papers and engage in academic communication proficiently in both Chinese and English.

4. 鼓励学科交叉，培养具有广阔的国际视野和世界胸怀的国际化复合型人才；

毕业后可胜任智能制造与机器人学科或相关学科的教学、科研或相应的行政管理等工作。

Encourage interdisciplinary collaboration and to cultivate internationally competitive talents with a global vision and cross-disciplinary expertise. Cultivates students to become professionals competent in autonomously conducting teaching, research, or administrative management in the field of Control Science and Engineering and allied disciplines; cultivating individuals with a rigorous and pragmatic scientific approach, robust psychological resilience, physical fitness, and the qualities of knowledge creation, innovation, and entrepreneurship to excel as outstanding talents.

## 二、主要学科方向 Main Research Fields

序号 No.	学科方向 Research Areas	主要研究方向 Main Research Focus
1	创新设计与先进制造 Innovative Design and Advanced Manufacturing	(1) 先进设计与精密制造 (2) 增减材制造与 3D 打印 (3) 软物质功能材料设计与制造 (4) 多能场特种加工 (5) 等离子体加工 (1) Innovative Design and Intelligent (2) Manufacturing, Additive Manufacturing and 3D Printing (3) Functional Soft Material Engineering (4) Multi-physics Field Advanced Manufacturing (5) Plasma-based Machining
2	机器人科学与技术 Robotics	

		<p>(1) 机器人系统与自动控制</p> <p>(2) 机器学习</p> <p>(3) 人机可视交互</p> <p>(4) 多传感器融合技术</p> <p>(5) 特种机器人</p> <p>(6) 足式机器人</p> <p>(7) 微纳机器人</p> <p>(1) Robotic Systems and Automatic Control</p> <p>(2) Machine Learning</p> <p>(3) Human-Robot Visual Interaction</p> <p>(4) Multi-sensor Fusion Technology</p> <p>(5) Special-purpose Robots</p> <p>(6) Legged Robots</p> <p>(7) Micro/Nano Robots</p>
3	<p>光场微纳制造</p> <p>Optical</p> <p>micro/nano-manufactu</p> <p>ring</p>	<p>(1) 超快激光加工</p> <p>(2) 微纳光学器件</p> <p>(3) 光子 AI 芯片</p> <p>(4) 分子光刻</p> <p>(1) Ultrafast Laser Machining</p> <p>(2) Micro/Nano Optical Devices</p> <p>(3) Photonic AI Chip</p> <p>(4) Molecular Lithography</p>
4	<p>新能源技术</p> <p>Neu-energy Technology</p>	<p>(1) 储能科技与工程技术</p> <p>(2) 可再生能源利用技术</p> <p>(3) 太阳能利用技术</p> <p>(1) Energy Storage Technology and Engineering</p>

		(2) Renewable Energy Utilization Technology (3) Solar Energy Utilization Technology
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### 三、修业年限 **Stipulated Length of Study**

类型 Type of Students	基本学习年限 Normal Duration	最长修业年限 Maximum Duration
硕士起点博士研究生 PhD students with a master's degree	3-4 学年 3-4 years	6 学年 6 years

### 四、课程学习基本要求 **Basic requirements for course study**

1. 研究生应在培养方案规定的课程范围内修满规定学分。其他课程成绩录入成绩单，但不计入规定学分。

Graduate students must complete the required credits as outlined below. Though credits earned from other courses are recorded on the transcript, they do not count as the required credits.

2. 学术学位研究生应在个人培养计划中修读至少一门论文写作指导类课程。

Students should take at least one course on thesis writing.

3. 汉语和中国概况类课程为接受学历教育国际研究生的必修课。

Courses on the Chinese language and an overview of China are compulsory for international graduate students enrolled in degree program.

课程性质 Course Type		学分要求 Course Credits
公共课 General Courses	思想政治理论课 Ideological and political theory courses	2
	英语课	2

	English courses	
	通识课 general education courses	2
专业课 Specialized courses		9 (专业必修课 $\geq$ 6) 9 (compulsory specialized courses $\geq$ 6)
劳动教育 Labor education		1
学术研究训练 Academic research training	学术交流 Academic Exchange	2
	开题报告 The Proposal	1
	中期考核 Midterm Assessment	1
	总结报告 Summary Report	12
总学分 Total Credits		$\geq 32$

## 五、劳动教育 Labor education

劳动教育是中国特色社会主义教育制度的重要内容。研究生劳动教育应结合产业新业态、劳动新形态等新型生产劳动和服务型劳动，运用学科和专业知识开展实习实训、专业服务、科普活动、社会实践、创新创业、志愿者服务等校内外劳动锻炼活动，累计不少于 32 学时，填报劳动教育活动记录，经培养单位审查通

过后记 1 学分。

Labor education is a vital component of the socialistic education system with Chinese characteristics. Labor education for graduate students should integrate new forms of production and services, such as emerging industrial and innovative labor forms. During labor education, graduate students are supposed to apply their professional knowledge through internships, professional services, science popularization activities, social practice, innovation and entrepreneurship, volunteer services, or other on- and off-campus labor education activities. Students must complete no less than 32 hours of labor education. Upon completion, students should submit the *Graduate Student Labor Education Record Form*, and one credit will be granted after approval by the relevant educational unit.

## 六、学术研究训练 **Academic Research Training**

学术学位研究生应完成学术研究训练。学术研究训练是学术学位研究生提升从事学术研究工作能力的重要环节，主要包括学术交流、开题报告、中期考核、总结报告等。

Graduate students are required to complete the academic research training, which is a crucial component in developing their ability to engage in academic research. This training encompasses a range of activities, including academic exchanges, proposal, midterm assessment, and summary report.

### (一) 学术交流 **Academic Exchange**

研究生应定期参加课题组的学术讨论会，参加学术讲座、中国研究生创新实践系列大赛、国内外学术会议等，博士生应参加不少于 16 次学术讲座。满足培养方案规定的学术交流活动要求后，经培养单位审查通过后记 2 学分。

Graduate students should regularly attend academic seminars within their research

groups, as well as academic lectures, the China Postgraduate Innovation & Practice Competitions, and both domestic and international academic conferences. Students must attend at least 16 academic lectures, with at least one lecture from each category listed below: scientific research ethics, laboratory safety education, mental health education and consultation, and career planning. Upon fulfilling the academic exchange activity requirements and receiving review and approval from the relevant educational units, two credits will be granted.

## **(二) 开题报告 The proposal**

研究生应在导师指导下确定学位论文的研究题目，制定论文工作计划，完成开题报告。开题报告应包括文献综述、选题背景及意义、研究内容、可行性分析、工作特色及难点、预期成果及可能的创新点等。开题报告一般采用中文撰写，其他特殊情况可根据学校相关规定执行。

Each graduate student is required to select a research topic for their dissertation, formulate a work plan, and complete a dissertation proposal under the guidance of their supervisor. The proposal should include a literature review, the background and significance of the topic, the research content, the unique challenges and characteristics of the work, the expected outcomes, and any potential innovations, etc.

**时间：**普博生应在第三学期结束前完成。

**Time:** The proposal should be completed before the third semester for regular doctoral students.

**方式：**提交书面报告加答辩。答辩时长不少于 1 小时。开题考核委员会至少由 5 名博士研究生导师组成，其中至少包含 1 名非本系的相关专家，委员总人数为奇数，可包括导师。答辩秘书由获得相关学科博士学位人员担任。

The graduate student will present the proposal as both a written report and an oral defense. The oral defense must be at least 60 minutes long. The Proposal Committee



shall consist of an odd number of at least 5 doctoral advisors from relevant disciplines. Additionally, at least one committee member must be an external expert outside the department, and the advisor may be included.

**结果：**通过或不通过。考核决议采取不记名投票的方式，经全体成员三分之二或以上同意方可通过。考核通过的博士研究生应根据考核意见修改开题报告。

开题报告通过的，记 1 学分。第一次开题报告未通过的，可在 6 个月内再次开题报告，仍未通过的，予以分流。未按时参加开题报告的，成绩记为“未通过”。\*博士研究生学位论文的主要研究方向和研究内容有重大变动时，应重新进行开题考核。

**Result:** Pass or Fail. The result shall be determined through anonymous voting, requiring approval by two-thirds or more of all members. Doctoral students whose proposals are approved must revise their thesis proposals in accordance with the evaluation feedback. One (1) credit will be granted upon the successful completion of the proposal. Any graduate student who fails his/her proposal presentation should attend a second proposal presentation within six (6) months thereafter. Graduate students who fail their second proposal presentation will be diverted to a different program. Students will receive a grade of “fail” if they fail to attend the proposal presentation on schedule.

### （三）中期考核 Interim Assessment

在学术研究训练过程中期，各培养单位应对研究生的综合能力、训练态度、精力投入、学位论文进展情况等方面进行检查。

During the midterm phase of the academic research training, each educational unit should assess students' overall competence, training attitude, level of commitment, and progress on their dissertation work.

**时间：**普博生应在第五学期结束前完成。

The assessment should be completed before the fifth semester.

**方式：**中期考核采用书面报告和答辩的组合形式，其中答辩的时长不少于 1 小时。中期考核考核委员会至少由 3-5 名博士研究生导师组成，委员会总人数为奇数，可包括导师。

**Method:** The graduate student will present the Midterm Assessment as both a written report and an oral defense. The oral defense must be at least 60 minutes long. The Midterm Assessment Committee shall consist of an odd number of at least 5 doctoral advisors in the relevant disciplines. Additionally, at least one committee member must be an external expert outside the department, and the advisor may be included.

**结果：**通过或不通过。中期考核通过的，记 1 学分。第一次中期考核未通过的，可在 6 个月内再次中期考核，仍未通过的，予以分流。未按时参加中期考核的，成绩记为“未通过”。

**Result:** Pass or Fail. The result shall be determined through anonymous voting, requiring approval by two-thirds or more of all members. One (1) credit will be granted upon the successful completion of the interim assessment. Any graduate student who fails the first interim assessment should participate in a second interim assessment within six (6) months thereafter. Graduate students who fail the second interim assessment will be diverted to a different program. Students will receive a grade of “fail” if they fail to participate in the interim assessment on schedule.

#### **（四）总结报告 Summary Report**

在完成学术研究工作后、距正式答辩三个月前，研究生应对学术研究训练进行总结，并提交书面报告并答辩，其中答辩时长不少于 1 小时。总结报告考核委员会至少由 5 名博士研究生导师组成，其中至少包含 1 名非本系的相关专家，委员会总人数为奇数，可包括导师。总结报告内容涵盖多个学科领域的，应在每个相关学科聘请至少一位专家参加。

考核通过，记 12 学分。未通过者应按照审查意见重新进行。

Upon completion of their academic research and at least three months before their dissertation defense, students must summarize their academic research training and present it through a written report and an oral defense. The oral defense must be at least 60 minutes long.

The Summary Report Committee shall consist of an odd number of at least 5 doctoral advisors from relevant disciplines, including at least one advisor from other departments and the advisor may be included.

Upon successful approval, 12 credits will be awarded. Students who do not pass the review must revise their summary based on the feedback provided and resubmit for approval.

## 七、毕业(学位)论文工作要求 Requirements for Thesis/Dissertation

(一) 学术学位研究生毕业(学位)论文是在导师指导下独立完成的、系统完整的学术研究工作的总结,是评价研究生完成学术研究训练、具备学术研究工作能力并达到申请毕业(学位)条件的主要依据,应体现研究生达到了学业(学位)标准。

A student's thesis/dissertation must offer a comprehensive summary of their academic research and be completed independently by the student under the guidance of their supervisor. It serves as the primary basis for evaluating whether the student has successfully completed the research training, demonstrated academic research skills, and is eligible to apply for graduation and degree conferral. The thesis/dissertation should demonstrate that the student has met all academic requirements.

(二) 研究生应当按照学校相关规定撰写毕业(学位)论文。

Each student must complete their thesis/dissertation in accordance with the relevant regulations of the University.

## 八、毕业和学位授予

研究生在学校规定修业年限内，完成培养方案规定内容（包括课程、训练和答辩），成绩合格，达到学校毕业要求的，依照《南方科技大学研究生毕业实施细则》（南科大研院发〔2025〕1号）规定的要求和程序申请毕业。通过毕业审核，学校准予毕业，并发给毕业证书。

Any graduate student who fulfills the requirements of their degree program, including courses, trainings, and oral defenses, within the prescribed duration and achieves the required scores may apply for graduation in accordance with the *Graduation Regulations on Postgraduate Programs of the Southern University of Science and Technology* (SUSTech Graduate School (2025) No. 1). Upon successfully passing the graduation evaluation and meeting the University's graduation criteria, the student will be granted graduation and awarded a diploma.

毕业生达到博士学业要求、学术水平的，依照《南方科技大学学位管理实施办法》（南科大〔2024〕174号）相关规定授予学位。

Any graduate student who fulfills the doctoral training requirements and academic standards will be awarded a doctoral degree in accordance with the *Implementation Measures for Degree Management in Southern University of Science and Technology* (SUSTech〔2024〕No. 174).

## 九、审核意见

经机械与能源工程系学位评定分委员会审议，认为该培养方案符合智能制造与机器人学科普博生培养要求，审核通过。

Upon review by the Academic Degree Evaluation Sub-Committee, this training program is deemed to meet the cultivation requirements and has been approved.

负责人签名（签章）：

Signature (Seal) of the Person in Charge:



经力学学科学位评定分委员会审议，认为该培养方案符合力学学科学科普博生培养要求，审核通过。

Upon review by the Academic Degree Evaluation Sub-Committee, this training program is deemed to meet the cultivation requirements and has been approved.

负责人签名（签章）：

Signature (Seal) of the Person in Charge:

日期：

Date:



## 智能制造与机器人 培养方案附录

### Appendices to the Doctoral Program in Intelligent Manufacturing and Robotics

#### 附录一：公共课 Appendix I: General Courses

##### I 国内研究生公共课

##### I General Courses for Domestic Postgraduate Students

课程类别 Course Type	课程代码 Course Code	课程名称 Course	开课 学期 Semester	学分 Credits	学时 Credit Hours	备注 Remarks
思政理论课 Ideological and political theory courses	GGC5021	中国马克思主义与当代 Chinese Marxism and Contemporary	秋/春 Fall& Spring	2	32	
英语课 English courses	GGC5046	南科大研究生英语 SUSTech Post-graduate English	秋 Fall	2	32	
	GGC5056	Writing for Publication	春 Spring	2	32	
通识必修课 General education courses	GGC5013	科学研究方法（或其他科技论文写作课） Methods of Scientific Research (or other English writing courses)	秋/春 Fall& Spring	2	32	

	MEE5004	实验室安全通识基础 General Education of Laboratory Safety	秋 Fall	1	16	机能系学生 额外必修
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\*在我校获得硕士学位且已修过《南科大研究生英语》的普博生，公共英语课应选修 GGC5056 《Writing for publication》课程。

\*Regular doctoral students who have obtained a master's degree in SUSTech and completed the GGC5046 SUSTech Post-graduate English are required to enroll in GGC5056 Writing for Publication.

## II 国际研究生公共课

### II General Courses for International Postgraduate Students

课程 类别 Course Type	课程 代码 Course Code	课程 名称 Course	开课 学期 Semester	学分 Credits	学时 Credit Hours	备注 Remarks
汉语和中国概况类 课程 Chinese language and China overview courses	CLE7001	基础汉语 I Elementary Chinese I	秋 Fall	2	64	国际研究生 必选 Both are compulsory for international students
	CLE7002	基础汉语 II Elementary Chinese II	春 Spring	2	64	
	CLE033	中国文化 Introduction to Chinese Culture	秋 Fall	2	32	国际研究生二选 一 One is compulsory for international students
	CLE034	中国历史 Introduction to Chinese History	春 Spring	2	32	
通识必修课 General education	GGC504 6	南科大研究生 英语 SUSTech	秋 Fall	2	32	

courses		Post-graduate English				
	GGC501 3	科学研究方法 (或其他科技 论文写作课) Methods of Scientific Research (or other English writing courses)	秋/春 Fall& Spring	2	32	

附录二：专业基础课列表 Appendix II: Professional basic theoretical courses(Select at least one of the following)

课程代码 Course Code	课程名称 Course	开课 学期 Semester	学分 Credits	学时 Credit Hours	备注 Remarks
MAE5004	高等流体力学 Advanced Fluid Mechanics	秋 Fall	3	48	必修三 选一 select at least one course
MAE5006	高等弹性力学 Advanced Elasticity	春 Spring	3	48	
MAE8001	高等连续介质力学 Advanced Continuum Mechanics	秋 Fall	3	48	
SDM5029	矩阵分析及其应用 Matrix Analysis and Its Applications	秋 Fall	3	48	必修 四选一 select at least one course
SDM5027	矩阵分析 Matrix Analysis	春 Spring	3	48	
MAE5003	高等应用数学 Advanced Methods in Applied Mathematics	春 Spring	3	48	
MAE5002	高等数值分析 Advanced Numerical Methods	秋/春 Fall& Spring	3	48	



附录三：专业核心课列表 Appendix III: Core Specialized Courses

课程代码 Course Code	课程名称 Course	开课 学期 Semester	学分 Credits	学时 Credit Hours	备注 Remarks
MEE5201	创新设计理论与应用 Innovation Design Theory and Application	春 Spring	3	64	
MEE5205	断裂力学与失效分析 Failure Analysis and Fracture Mechanics of Engineering Materials	秋 Fall	3	48	
MEE5210	微观组织表征与分析 Microstructure Characterization and Analysis	秋 Fall	3	48	
MEE5217	工程材料：力学性能与测试 Engineering materials: mechanical properties and tests	春 Spring	3	48	
MEE5301	先进制造基础 Fundamentals of Advanced Manufacturing Technology	秋 Fall	3	48	
MEE5304	复合制造技术前沿 Frontiers in Hybrid Manufacturing Processes	秋 Fall	3	48	
CSE5001	高级人工智能 Advanced Artificial Intelligence	秋 Fall	3	64	
SME5017	微机电系统设计 MEMS Design	春 Spring	3	48	
SDM5006	系统辨识与自适应控制 System Identification and Adaptive Control	秋 Fall	3	48	
SDM5013	深度学习和强化学习 Deep Learning and Reinforcement Learning	春 Spring	2	32	
MEE5207	先进激光加工及检测技术 Advanced Laser-Based Processing and Detection Technology	秋 Fall	3	48	
MEE5406	储能原理与技术 Principle and Technology of Energy Storage	春 Spring	3	48	

**修课说明:**

\*专业必修课包括专业基础课及专业核心课，总学分需 $\geq 6$ 学分；

\*在满足总学分要求的前提下，可以用专业必修课学分代替专业选修课学分。

**Course Enrollment Guidelines:**

\*Required courses include foundational courses and core courses, with total credit  $\geq 6$ .

\*Under the condition of fulfilling the total credit requirement, students may use credits from required courses to fulfill elective course requirements.

#### 附录四：专业选修课列表 Appendix IV: Elective professional courses

课程代码	课程名称	开课学期	学分	学时	备注
MEE5107	微加工与微系统 Micro-fabrication and Micro-systems	秋 Fall	3	48	
MEE5108	微型机器人 Micro-robotics	春 Spring	3	56	
MEE5115	自主机器人系统 Autonomous Robotic Systems	春 Spring	3	48	
MEE5111	先进机器人驱动技术 Advance Actuation for Robots	春 Spring	3	64	
MEE5116	高等机构动力学 Advanced Kinematics and Dynamics of Mechanisms	秋 Fall	3	64	
MEE5117	机构与机器人中的旋量代数与 李群李代数 Screw Algebra, Lie Groups and Lie Algebra in Mechanism	春 Spring	3	48	
MEE5213	软材料学科前沿 Frontiers of Soft Materials Science	春 Spring	3	48	
MEE5214	软物质物理基础 Fundamental Physics of Soft Matter	秋 Fall	3	48	
MEE5215	柔性电子制造：材料、器件与 工艺 Flexible and Wearable Electronics: Design and Fabrication Techniques	春 Spring	3	48	
MEE5216	功能软材料与 4D 打印 Soft Functional Materials and 4D Printing	秋 Fall	3	48	
MEE5218	工程结构分析与性能 Engineering structure analysis and properties	秋 Fall	3	48	
MEE5219	3D 打印原理及应用 Principles and Applications of 3D Printing	春 Spring	3	48	
MEE5305	等离子体原理与应用 Fundamentals and applications of plasma	春 Spring	3	48	

MEE5307	精密加工技术 Precision Machining Technology	秋 Fall	3	48	
MEE5402	新能源技术：氢能与燃料电池技术 New energy technology: hydrogen and fuel cell technology	秋 Fall	3	48	
MEE5405	太阳能热利用技术 Solar Thermal Energy Utilization Technologies	春 Spring	3	48	
MEE5410	锂离子电池技术 Lithium Ion Battery Technology	秋 Fall	3	48	
MEE5409	高等能源器件分析测试 Advanced Analysis Methods for Energy Devices	春 Spring	3	64	
MEE5411	新能源转化与利用技术 Renewable Energy Conversion and Utilization Technology	春 Spring	3	48	

#### 附录五：相近研究方向专业选修课列表

#### Appendix IV: Elective Specilized Courses in Related Fields

课程代码 Course Code	课程名称 Course	开课学期 Semester	学分 Credits	学时 Total Credit Hours
BME5008	运动生物力学 Sports Biomechanics	春 Spring	3	48
BME5002	先进生物材料 Advanced Biomaterials	秋 Fall	3	48
BME5011	骨骼组织工程 Bone Tissue Engineering	春 Spring	3	48
BME5012	人脑智能与机器智能 Brain Intelligence and Machine Learning	秋 Fall	3	48
PHY5013	先进电子显微学 Advanced Electron Microscopy	秋 Fall	3	48
PHY5031	微纳结构加工 Nano-structure Manufacturing	秋 Fall	3	48
CSE5003	高级算法 Advanced Algorithms	秋 Fall	3	64
CSE5005	高级计算机网络与大数据 Advanced Computer Network and Big Data	秋 Fall	3	64
CSE5002	智能数据分析	春 Spring	3	48

	Intelligent Data Analysis			
CSE5010	无线网络与移动计算 Wireless Network and Mobile Computing	秋 Fall	3	64
CSE5012	演化计算及其应用 Evolutionary Calculation and Its Application	春 Spring	3	64
CSE5014	密码学与网络安全 Cryptography and Network Security	春 Spring	2	32
CSE5018	高级优化算法 Advanced optimization algorithms	春 Spring	3	64
CSE5019	强化学习 Reinforcement Learning	秋 Fall	3	64
CSE5020	高级分布式系统 Advanced Distributed Systems	秋 Fall	3	64
CSE5021	软件分析 Software Analysis	春 Spring	3	64
CSE5022	高级多智能体系统 Advanced Multi Agent Systems	春 Spring	3	48
EEE5021	高级非线性优化技术 Advanced Nonlinear Optimization	秋 Fall	3	64
EEE5026	无线通信系统优化 Optimization of Communication Systems	秋 Fall	3	48
EEE5034	信号检测与估计 Signal detection and estimation	秋 Fall	3	48
EEE5046	现代信号处理 Modern signal processing	秋 Fall	3	48
EEE5047	微纳传感器与应用 Micro-Nano sensors and applications	秋 Fall	3	48
EEE5049	高等电磁理论 Advanced Electromagnetic Theory	秋 Fall	3	48
EEE5055	现代半导体器件物理 Physics of Modern Semiconductor Devices	秋 Fall	3	48
EEE5060	集成电路设计与 EDA Integrated Circuit Design with EDA Design Methodology	春 Spring	3	48
EEE5051	电子科学与技术科学前沿 Frontiers of Electronic Science and Technology Science	秋 Fall	1	16
EEE5062	计算方法 Introduction of Algorithms	春 Spring	3	48
EEE5058	信息技术基础 Information Technology Fundamentals	春 Spring	3	48
EEE5057	电子功能材料与元器件	秋 Fall	3	48

	Electronic Functional Materials and Components			
EEE5063	半导体光电子学 Semiconductor Optoelectronics	春 Spring	3	48
EEE5059	集成电路制造技术 Integrated Circuit Manufacturing Technology	春 Spring	3	48
EEE5002	微电子材料与工艺 Microelectronic Materials and Processing	春 Spring	3	64
EEE5065	计算电磁学 Computational Electromagnetics	春 Spring	3	48
EEE5067	非线性电路与系统 Nonlinear Circuit and system	秋 Fall	3	48
EEE5069	现代工程创新科技与管理 Innovation, Technology and Management in Modern Engineering	春 Spring	3	48
EEE5301	微波器件设计方法研究 Selected Topics in Microwave Device Design	秋 Fall	1	16
EEE5346	移动机器人自主导航 Autonomous Robot Navigation	秋 Fall	3	48
EEE5347	图像视频压缩与网络通信 Image/Video Compression and Network Communication	春 Spring	3	48
EEE5349	医疗机器人技术 Medical Robotics Technology	春 Spring	3	48
EEE5501	数字控制 Digital Control	春 Spring	3	48
MAE5004	高等流体力学 Advanced Fluid Mechanics	秋 Fall	3	48
MAE5005	高等计算流体力学 Advanced Computational Fluid Mechanics	春 Spring	3	48
MAE5006	高等弹性力学 Advanced Elasticity	秋 Fall	3	48
MAE5007	高等计算固体力学 Advanced Computational Solid Mechanics	春 Spring	3	48
MAE5017	航空声学与气动噪声 Aeroacoustics	秋 Fall	3	48
MAE5018	高等空气动力学 Advanced Aerodynamics	秋 Fall	3	48

MAE5019	微纳力学 Micronano Mechanics	秋 Fall	3	48
MAE5021	断裂力学 Fracture Mechanics	春 Spring	3	48
MAE5026	海外专家讲学 Lectures from Oversea Experts	秋/春 Fall/Spring	1	16
MAE5027	界面现象 Interfacial Phenomena	春 Spring	3	48
MAE5033	光刻力学 Mechanics in Photolithography	春 Spring	3	48
MAE5034	非线性动力学与混沌 Nonlinear Dynamics and Chaos	春 Spring	3	48
MAE7001	多相流体力学 Multiphase Flow	春 Spring	3	48
MAE7002	航空发动机工程通论 General Theory of Aeroengine Engineering	春 Spring	3	48
MAE7003	软材料力学 Mechanics of Soft Materials	春 Spring	3	48
SDM5001	电子封装结构中的高分子材料失效行为 Failure Behavior of Polymer Materials in Electronic Packaging Structures	秋 Fall	3	64
SDM5003	工程复合材料结构及功能化技术 Engineering Composite Structures and Functional Technology	秋 Fall	3	64
SDM5007	工程优化方法 Engineering Optimization Methods	秋 Fall	3	48
SDM5008	高级机器人控制 Advanced Robotics Control	秋 Fall	3	48
SDM5011	控制系统设计中的线性矩阵不等式 Linear matrix inequalities in control system design	秋 Fall	3	48
SDM5013	深度学习和强化学习 Deep Learning and Reinforcement Learning	春 Spring	2	32
SDM5015	鲁棒控制 Robust Control	春 Spring	3	48
SDM5017	非线性控制系统 Nonlinear Control Systems	春 Spring	3	48
SDM5018	逻辑思维与人工智能 Logical Thinking and Artificial Intelligence	春 Spring	3	48
SDM5019	动态规划与随机控制 Dynamic Programming and Stochastic	春 Spring	3	48

	Control			
SDM5004	产品可靠性设计与分析 Product Reliability Design and Analysis	春 Spring	3	48
DES5001	工业应用与实践中的设计创新 Design innovation in industrial application and practice	秋 Fall	3	48
DES5002	机器人设计科学与社会价值 Designing Robots for Social Good	秋 Fall	3	48
SME5002	集成电路材料与工艺 Silicon VLSI Technology, Materials, Practice	秋 Fall	3	64
SME5008	先进微纳半导体器件物理 Advanced power electronics and MEMS devices physics	秋 Fall	3	48
SME5011	射频集成电路与系统设计 Radio-Frequency Integrated Circuits and Systems Design	春 Spring	3	64
SME5001	先进电子设计自动化 EDA Introduction to Electronic Design Automation	秋 Fall	3	48
SME5009	半导体芯片封装测试与可靠性 Semiconductor IC assembly, test, and reliability	春 Spring	2	32
SME5010	高阶 CMOS 超大规模集成电路设计 Advanced CMOS VLSI Design	春 Spring	3	64
SME5013	先进电源转换器分析与设计 Advanced Power Converters Design	春 Spring	3	48
SME5014	氮化镓半导体材料与器件 GaN Semiconductor Materials and Devices	春 Spring	3	48
SME5015	微电子研究及应用报告 Seminar on Microelectronics Research & Applications	春 Spring	1	16
SME5016	电源管理集成电路设计 Power Management IC Design	秋 Fall	3	64
SME5018	高级微纳光学 Advanced Nano-optics	秋 Fall	3	48
SME5019	微电子前沿创新与技术领导力 Microelectronics Innovations & Technology Leadership	春 Spring	3	48
SME5020	超低功耗数字电路设计 Ultra-Low Power Digital Circuit Design	春 Spring	3	48

SME5021	生物传感技术及应用 Biosensing Technology and Applications	春 Spring	2	32
SME5022	集成电路前沿讲座 Frontiers in Integrated Circuit Design	春 Spring	1	16
SME5023	忆阻器导论及神经形态计算应用 Introduction to RRAM and neuromorphic computing	春 Spring	2	32
SME5024	存算一体导论 - 从材料到系统 Introduction to In-Memory Computing - From Materials to System	春 Spring	1	16
SME5025	高阶微波电路与系统设计 Advanced Microwave Circuit and System	秋 Fall	3	64
SME5026	高级模拟集成电路设计 Advanced Analog Integrated Circuit Design	秋 Fall	3	48
SME5027	硅基量子计算低温 CMOS Si-based Quantum Computing Cryogenic CMOS	秋 Fall	2	32
SME5028	电子薄膜与器件简介 Introduction to electronic thin films and devices	秋 Fall	4	64
SME5029	射频与微波系统设计 RF and Microwave System Design	秋 Fall	3	48
MSE5003	材料力学行为 Mechanical Behaviors of Materials	春 Spring	3	48
MSE5004	纳米材料学 Introduction to nanomaterials	春 Spring	3	48
MSE5018	先进材料表征技术 Advanced Materials Characterization Techniques	春 Spring	3	48
MSE5019	光学材料与超构材料 Photonic materials and metamaterials	春 Spring	3	48
MSE5023	高等材料物理 Advanced Physics of Materials	秋 Fall	3	48
MSE5025	材料科学与人工智能 Materials Science and Artificial Intelligence	春 Spring	3	48
MSE5027	材料科学中的有限元模拟 Finite Element Analysis for Materials Science	秋 Fall	3	48
MSE5029	声子学与热超结构材料 Phononics and Thermal Metamaterials	秋 Fall	3	48
MSE5031	先进半导体材料 Advanced semiconductor materials	秋 Fall	3	48
MSE5030	固体的磁性概论 Introduction to	秋 Fall	3	48



	Magnetic Properties in Solids			
MSE5024	高等热力学与动力学 Advanced Thermodynamics & Kinetics	春 Spring	3	48
MSE5001	应用量子力学 Applied Quantum Mechanics	秋 Fall	3	48
INO5016	专利与知识产权保护 Patent & Intellectual Property Protection	春 Spring	2	32
SME5030	专利基础与撰写 Patent foundation and writing	秋 Fall	1	16

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Appendix Revised in April, 2025