

南方科技大学

学术型博士研究生培养方案

SUSTech

Doctoral Program (Research Degree) for International Students

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

适用于 2022 级

This PhD Program applies to the international doctoral students admitted in 2022

2022 年 7 月 4 日

一、培养目标 Program Objectives

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； Observe discipline and law; be physically and mentally healthy; have good morality and academic attainment; hold the awareness of innovation, academic spiritual and social responsibility;
2. 具有坚实宽广的数学、力学及物理学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； Have solid, broad theoretical foundations in mathematics, mechanics, physics and related fields; master systematic, in-depth professional knowledge and excellent computing or experimental skills; understand the current situation, development trend and international academic research frontier of the discipline, as well as the needs of major national engineering technology issues for the discipline;
3. 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； Make creative achievements in scientific or special technology; have the ability to independently carry out high-level scientific research;
4. 至少掌握一门外语，能够熟练地阅读本专业的外文资料，能够进行国际学术交流。具有良好的英文写作能力与合格的中文写作能力； Master at least one foreign language; be able to fluently read literature of the discipline in a foreign language, and conduct international academic exchange; Have good English proficiency in writing and qualified Chinese proficiency in writing;
5. 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； Encourage interdisciplinary research; cultivate international interdisciplinary talents with broad international awareness and world vision;
6. 毕业后可胜任力学学科或相关学科的教学、科研或相应的行政管理等工作。 Be able to serve in jobs such as teaching, scientific research of mechanics or related disciplines or corresponding administrative management.

二、主要学科方向 Major Research Areas

序号 No.	学科方向 Research Areas	主要研究方向 Main Research Focus
1	流体力学 Fluid Mechanics	(1) 湍流 (2) 计算流体力学

		(3) 空气动力学及气动声学 (4) 环境与地球流体力学 (5) 流变学与复杂流体 (1) Turbulence (2) Computational Fluid Dynamics (3) Aerodynamics and Aeroacoustics (4) Environment and Earth Fluid Dynamics (5) Rheology and Complex Fluids
2	固体力学 Solid Mechanics	(1) 先进材料与结构力学 (2) 计算固体力学 (3) 生物与软物质力学 (4) 地球科学动力学 (5) 断裂力学与疲劳 (1) Advanced Materials and Structural Mechanics (2) Computational Solid Mechanics (3) Biomechanics and Soft Matter Mechanics (4) Earth Science Dynamics (5) Fracture Mechanics and Fatigue
3	工程力学 Engineering Mechanics	(1) 能源动力工程 (2) 环境治理工程 (3) 航空结构强度 (4) 材料加工成型 (5) 水资源工程 (1) Energy and Power Engineering (2) Environmental Governance Engineering (3) Aeronautical Structure Strength (4) Materials Machine-Shaping (5) Water Resources Engineering

三、学习年限 Program Duration

类型 Type of Students	基本学习年限 Normal Program Duration
硕士起点博士研究生 PhD students with a master's degree	4 years

四、应修学分 Required Credits

课程类别 Course Type	学分 Credits
	硕士起点博士研究生 PhD students with a master's degree

公共课 General Required Courses	英语课 English language courses	2
	中国汉语课 Chinese language courses	4
	中国概况课 Chinese cultural courses	2
	通识通修课 General research courses	2
专业课 Discipline-based courses		9
学术活动 Academic activities		2
劳动教育 Labor Education		1
开题报告 Doctoral dissertation opening report		1
中期考核 Mid-period assessment		1
最终学术报告 Final academic report		1
总计 Total		25

五、 学术活动 Academic Activities

研究生应定期参加课题组的学术讨论会，博士生应参加不少于 16 次学术讲座。其中必听讲座包括科学道德与学风建设类讲座、实验室安全教育类讲座、心理健康教育与咨询类讲座和职业素养与规划类讲座各 1 次。满足学术活动要求后经培养单位审查通过，记 2 学分。

Graduate students should participate in the academic seminars of the research group regularly, and PhD student should attend at least 16 academic lectures. Among which student should attend at least once for each category listed bellowed: lectures on scientific ethics and study style construction, laboratory safety education, mental health education and consultation, and professional quality and planning. After meeting the requirements of academic activities and reviewed and approved by cultivated department, 2 credits will be recorded.

六、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、社会实践、勤工助学、创新创业、志愿者服务等校外劳动锻炼活动，累计不少于 32 学时，完成后撰写劳动教育总结报告，经培养单位审查通过后记 1 学分。

Labor education is an important part of the socialist education system with Chinese characteristics. Graduate labor education should combine new production labor and service-oriented labor such as new industrial formats and new forms of labor, and use discipline and professional knowledge to carry out off campus labor training activities such as internship and training, professional services, social practice, work study, innovation and entrepreneurship, volunteer services, with a total of not less than 32 Credit hours. After completion, student shall write a labor education summary report, and record 1 credit after reviewed and approved by cultivated department.

*力航系学生选修指定实践课程，完成 32 学时实践活动并提交总结报告，经培养单位审查通过后记 1 学分。

*Students of department of Mechanics and Aerospace engineering should take the designated practical courses, complete 32 Credit hours of practical activities and submit a summary report. After reviewed and approved by cultivated department, 1 credit will be recorded.

七、开题报告 Doctoral Dissertation Opening Report

内容：考核博士研究生所选课题的研究背景、研究计划及创新点、预期成果等；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；

Contents: Assess the research background, research plan, innovation points, and expected results etc of the topic selected by the PhD student; The opening report should include literature review, background and significance of the topic, research content, feasibility analysis, work characteristics and difficulties, expected results and possible innovations, etc;

时间：硕士起点的博士研究生应在第三学期结束前通过开题考核，通过后记 1

学分。自开题报告通过至学位论文答辩的时间一般不少于两学年；

Time: The PhD student with a master's degree shall pass the Opening Report Assessment before the end of the third semester after entering the university, successfully pass should count as 1 credits. Normally, the time period between passing the Opening Report Assessment and the defense of the dissertation should be more than two academic years;

方式: 提交书面报告加答辩；

Mode: Submit a written report to attend the oral defense;

组织: 博士开题考核的答辩时长不少于 1 小时。开题考核委员会至少由 5 名相关学科的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；

Organizing: The duration of oral defense for PhD Dissertation Proposal Assessment shall be no shorter than 1 hour. The Dissertation Proposal Assessment Committee shall consist of at least 5 doctoral advisors in the related disciplines, who shall include at least 1 related expert from outside the same department; the total number of committee members shall be an odd number, 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。考核未通过的博士研究生应在六个月内进行第二次考核，仍未通过者，按学校相关规定处理。

Result: PASS or FAIL. The resolution for the Assessment shall be made through secret ballot, and a PASS requires approval from at least two thirds of all the committee members. The PhD student having passed the Assessment shall modify his/her dissertation proposal according to the assessment opinions. Those PhD students having failed shall attend the second examination within six months; if still failing, they shall be subject to the relevant regulations of the School.

*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。

* The PhD student shall attend a new Dissertation Proposal Assessment if the main research direction or research content of his/her dissertation has undergone major changes.

八、中期考核 Mid-period Assessment

内容: 中期考核是对博士生的综合能力、论文工作进展情况以及工作态度、精力投入等方面进行检查的环节；博士生个人需对学位论文进展情况进行小结，根据学位论文选题，说明已取得的阶段性成果、下一步的工作计划和研究内容、与开题报告内容的符合情况等，填写《博士学位论文中期进展考核表》。

Contents: The Mid-period Assessment is the part to check the comprehensive ability of PhD students, the progress of thesis work, work attitude, energy input and other aspects; PhD students should summarize the progress of their dissertations, explain the phased results achieved, the future research plan and research content, and the compliance with the content of the opening report according to the topic selection of their dissertations, and fill in the mid-term progress assessment form of PhD dissertations.

时间: 硕士起点博士研究生中期考核应在第五学期结束前完成，通过后记 1 学分。

Time: The PhD student with a master's degree shall pass the Mid-period assessment before the end of the fifth academic year, successfully pass should counted as 1 credits.

方式: 提交《考核表》；

Mode: Submit the assessment report;

组织: 考核小组由 3-5 人组成，成员应为相关学科的博导、教授；

Organizing: About 3-5 doctoral advisors in the related disciplines shall be included in the assessment team;

结果: 通过或不通过。考核未通过的研究生应在六个月内进行第二次考核，两次未通过者应予以退学，未取得过硕士学位的博士生可转为硕士生培养。

Result: PASS or FAIL. Those having failed shall apply for the second examination within six months; if still failing, they shall discontinue the schooling or learn as a master's student, according to the relevant regulations of the School.

九、最终学术报告 Final Academic Report

在学位论文工作基本完成后，距正式答辩至少三个月前，博士生须做论文工作总结报告。最终学术报告由各培养单位组织，邀请不少于 5 名本学科或

相关学科博士生导师组成评议委员会。评议委员会需要有至少 1 名学位评定分委员会委员参加，属于交叉学科培养的，应当聘请相关学科至少两位专家参加。最终学术报告通过后方可提交学位论文送审，记 1 学分。未通过者应重新进行最终学术报告。

After the dissertation work is basically completed, PhD student must make a summary report of the dissertation work at least three months before the formal defense. The final academic report is organized by each cultivated department, and no less than 5 doctoral mentors of the cultivated discipline or related disciplines are invited to form a evaluation committee. The evaluation committee needs to have at least one member of the degree evaluation sub committee. If it belongs to interdisciplinary cultivated program, it should hire at least two experts from relevant disciplines to participate. After the final academic report is passed, the PhD Dissertation can be submitted for examination, and 1 credit will be recorded. Those who fail to pass the examination shall make a final academic report again.

十、学位论文总体要求 General Requirements of PhD Dissertation

选题：具有重要科学意义或工程价值

Topic Selection: The topic shall be of important scientific significance or engineering value.

学术水平：1. 具有独创性，由作者独立完成，立意明确。2、论文作者对本课题范围内的国内外发展动向、主要文献资料有较全面的了解和正确的评述。3、论文必须文句简练、通顺、数据可靠，图表清楚，严格准确地表达研究成果，实事求是的提出结论。4、论文对所学领域研究具有改进和创新的地方，具有一定学术价值。5、论文要有较高的学术水平和深度，表明作者已具备独立从事科学研究的能力。

Academic Level: 1. With originality, it shall be independently completed by the author, with explicit conception. 2. The dissertation author has a relatively comprehensive understanding and correct review of domestic and foreign development trends and major literature on the selected topic. 3. The dissertation shall be concise, smooth, and reliable in data, with clear figures and tables, strictly and correctly expressing research achievements and truly presenting conclusions. 4. The dissertation has made certain improvement and

innovation in the research of the studied field, with certain academic value. 5. The dissertation shall have reached a relatively high academic level and depth, proving that the author has the ability to independently carry out scientific research.

时间：博士研究生应在学校规定的期限内提交学位论文，在导师的指导下由博士研究生独立完成；

Time: The PhD student shall submit the PhD dissertation within the time limit specified by the university, which shall be independently completed by the PhD student under the advisor's guidance;

语言：学位论文可采用中文、英文撰写，论文摘要和介绍部分要求用中英文双语书写，其中中文部分为 1000~2000 字，均以能将规定内容阐述清楚为原则；其他特殊情况可根据学校相关规定执行；

Language: The dissertation may be written in Chinese or English; the abstract and the introduction parts shall be written in both Chinese and English, of which the Chinese part shall consist of 1000 to 2000 words, clearly stating the specified contents; for any other special situation, refer to the relevant regulations of the School;

查重：原则上“去除本人已发表文献复制比”低于 5%，视为查重通过；复制比在 5%~10%之间，须填写说明，导师、系主任（或负责研究生工作的系主任）签字确认同意后，视为通过；复制比高于等于 10%，视为不通过。

Plagiarism Check: In principle, the “similarity rate with the author's own published literature deducted” shall be lower than 5%, which shall be deemed PASS in the check; if the similarity rate is between 5% and 10%, an explanation description must be submitted, and, subject to the signature of the advisor and the dean of department (or the vice dean of department in charge of postgraduates) for approval, it shall then be deemed PASS; any check with a similarity rate higher than or equal to 10% shall be deemed FAIL.

十一、申请学位创新成果要求

Requirements for innovative achievements of degree application

提交毕业学位论文送审申请时，除满足毕业条件外，还须取得一定的学术成果：

In addition to obtaining the necessary credits for degree courses and completing the research work prescribed by the supervisor, doctoral students are also required to have academic achievements before applying for dissertation assessment:

(一) 取得创新性科研成果，呈现形式可选择如下形式之一：

(First) Achieve innovative scientific research achievements, which can be presented in one of the following forms:

1. 在本领域顶级期刊上发表 1 篇学术论文；
1. Publish 1 paper (or being formally accepted) on any top journal in corresponding academic field.
2. 在 SCI 收录学术刊物上发表 2 篇学术论文；
2. Publish at least 2 academic papers on SCI-indexed journals.
3. 在本领域认可的学术刊物上至少发表 2 篇论文，其中 SCI 收录不少于 1 篇（1 项授权的发明专利或软件著作权可以相当于 1 篇论文）；
3. Publish at least 2 academic papers on academic journals in corresponding academic field, with at least 1 academic papers on SCI-indexed journals (an authorized invention patent or software copyright can be equivalent to one academic paper).
4. 从事国防项目研究的博士生，在 EI 收录学术刊物（会议论文不计入）上至少发表 1 篇学术论文（或 1 项授权的发明专利），以及至少 1 篇由相关权威部门出具证明的书面报告；
4. Doctoral students engaged in applied research in national defense shall publish at least one academic paper (or one authorized invention patent and conference papers are not included) on EI-indexed journals (conference papers are not included) and at least one written report certified by the relevant authoritative department.
5. 出版与论文内容密切相关的一本专著；
5. Publish a monograph which is closely related to the doctoral dissertation.
6. 取得重大研究成果，经院系学位分委会认定达到要求的，可提交学科学位评定委员会审核。
6. Achieved significant research results and are recognized by the academic

degree sub committee of department to meet the requirements can be submitted to the disciplinary degree evaluation committee for review.

(二) 博士生发表的学术论文应该是原创性的, 且与博士学位论文相关的成果, 导师必须署名(导师含副导师或联合导师, 但副导师或联合导师的审批、备案须在论文投稿之前)。发表学术成果第一作者及通讯作者的署名单位均应归属南方科技大学, 且博士生必须是所发表论文的第一或第二作者; 在博士生作为第二作者时, 第一作者应为导师。

(Second)The academic papers published by doctoral students should be original academic papers related to doctoral thesis, and the name of corresponding supervisor (include that of vice advisor or co-advisor, on condition that the approval and registration of vice advisor or co-advisor is before the contribution of the paper) are required to appear on the academic papers. Besides, the academic papers should also take Southern University of Science and Technology as the first publishing unit of the first author and the corresponding author. The doctoral students must be the first or second author of this paper, if the doctoral students is the second author then the first author should be the mentors.

有关发明专利和软件著作权等其他形式的成果署名要求与学术论文相同。学术成果是否达到要求由院系学位评定委员会审核。

Requirements on authorized invention patent or software copyright and other forms of achievements are identical to academic papers. Whether the academic achievements meet the requirements shall be reviewed by the degree evaluation committee of the department.

(三) 关于已录用待发表论文

对已被录用的学术论文, 在论文的 DOI 号确定后且网上可查, 即可认定为已刊出, 在送审资格审查时, 需提交博士研究生已录用待发表论文情况确认表和出版社提供的校对稿; 尚无 DOI 号和校对稿, 但有其它录用证明的, 需提交录用证明及博士研究生已录用待发表论文情况确认表。

(Third)About the accepted papers to be published

For the academic papers that have been accepted can be recognized as published after the DOI number of the paper is determined and can be checked online. When submitting for qualification examination, the confirmation form of PhD students' accepted papers to be published and the proofreading manuscript provided by the publisher must be submitted; If there is no DOI number and proofreading draft, but there are other accepted proofs, the accepted proofs and the confirmation form of PhD students' accepted papers to be published shall be submitted.

十二、学位论文评审 PhD Dissertation Examination

时间: 通过学位论文的形式审查和论文重合度检查后, 可申请学位论文评审。

Time: The student may apply for PhD Dissertation Examination after passing the formal examination and plagiarism check of PhD dissertation.

方式: 院系在学校规定的时间内聘请至少 3 名与论文相关学科的博士研究生导师评审学位论文, 力学学科要求使用教育部第三方平台匿名送审。

Mode: The school or department shall, within the time limit required by the university, hire at least 3 doctoral advisors in the disciplines related to the dissertation to examine the dissertation; there shall be at least 2 experts from outside the university. The discipline of mechanics requires anonymous submission for approval on the third-party platform of the Ministry of education.

结果: 参照《关于力学学科硕士博士学位论文同行专家评审的相关规定》执行。博士研究生两次申请学位论文评审的时间至少间隔三个月。第二次评审仍未通过者, 按学校相关规定处理。

Result: The dissertation examination shall followed the relevant regulations on peer expert review of master's and doctoral dissertations in mechanics. The interval for a PhD student to apply for two PhD Dissertation Examinations shall be at least six months. If still failing in the second examination, they shall be subject to the relevant regulations of the School.

十三、学位论文答辩 Oral Defense of PhD Dissertation

学位论文答辩是申请和授予博士学位的重要程序，旨在全面考核博士研究生科学研究工作和学位论文水平。

The Oral Defense of PhD Dissertation is an essential procedure for applying for and conferring the PhD degree, aiming to comprehensively assess the PhD student's scientific research performance and PhD dissertation level.

时间：博士研究生通过学位论文评审后，可申请学位论文答辩。

Time: After passing the PhD Dissertation Examination, the PhD student may apply for the Oral Defense of PhD Dissertation.

组织：学位论文答辩委员会至少由 7 名相关学科的专家组成（含至少 1 名论文评审专家），委员总人数为奇数，其中应至少有 2 名校外专家。委员会主席一般由教授、讲席教授或具有相当职称的专家担任。所有委员应具备博士研究生导师资格和副高及以上职称，同时委员中半数以上是教授或相当职称的专家。导师不可担任委员。

Organizing: The Committee for Oral Defense of PhD Dissertation shall consist of at least 7 experts in the related disciplines (including at least 1 paper examination expert); the total number of committee members shall be an odd number, including at least 2 expert from outside the university. The committee chair shall be a professor or chair professor or an expert with equivalent professional title. All the committee members shall have the qualification of doctoral advisor and the professional title of associate professor or equivalent or higher, and at least half of those members shall be experts with the professional title of professor or equivalent. The student's advisor can not be a member here.

结果：通过和不通过。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。学位论文答辩未通过者，可在两年内（不超过博士研究生最长学习年限）修改论文，重新答辩一次，答辩前需按照博士学位论文送审要求进行再次送审，送审通过者方可答辩。二次答辩仍未通过者，学校不再受理其学位论文答辩申请。

Result: PASS or FAIL. Secret ballot is adopted here, and a PASS requires approval from at least two thirds of all the committee members. The student having failed in the Oral Defense of PhD Dissertation may modify the dissertation within two years (within the maximum program duration for the PhD student)

and attend one more oral defense; before the aforesaid oral defense, he/she shall submit it for examination again according to the requirements of PhD Dissertation Examination, and shall not attend the oral defense until the dissertation passes the examination. For any student failing again in the second oral defense, the university will no longer accept his/her application for Oral Defense of PhD Dissertation.

力学 培养方案附录

Appendices to the Doctoral Program in Mechanics

附录一：课程设置 Appendix I: Courses

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	周学时/ 总学时 Weekly Credit Hours /Total Credit Hours
公共课 General Required Courses	中国概况课 cultural Chinese courses	CLE033	中国文化 Chinese Culture	秋 Fall	2	2/32
		CLE034	中国历史 Chinese History	春 Spring	2	2/32
	Language courses English	GGC5046	南科大研究生英语 SUSTech Postgraduate English	秋 Fall	2	2/32
		GGC5056	Writing for publication	春 Spring	2	2/32
	courses Language Chinese	CLE7001	基础汉语 I Elementary Chinese I	秋 Fall	2	2/64
		CLE7002	基础汉语 II Elementary Chinese II	春 Spring	2	2/64
	General research courses 通识选修课	GGC5047	高级学术写作与交流	春 Spring	2	2/32
		GGC5039	学术写作与交流 Academic Writing and Presentation	秋 Fall	2	2/32
		GGC5024	研究方法 Research skills	春 Spring	2	2/32
		GGC5040	社会学研究方法与伦理 Social Research Methods & Ethics	秋 Fall	3	3/48
		GGC5044	英语科学写作 Communicating Science in English	春 Spring	2	2/32
		GGC5055	科学研究诚信与伦理	秋 Fall	1	1/16

专业课 Discipline-based courses	Core courses Choose one	MAE8002	高等连续介质力学 A Advanced Continuum Mechanics A	春 Spring	3	3/48
		MAE8003	高等连续介质力学 B Advanced Continuum Mechanics B	春 Spring	3	3/48
	Core courses Choose one	MAE5002	高等数值分析 Advanced Numerical Methods	春 Spring	3	3/48
		MAE5003	高等应用数学 Advanced Methods in Applied Mathematics	春 Spring	3	3/48
		ESE5017	空间统计学 Spatial Statistics	秋 Fall	3	3/48
		MEE5003	矩阵分析及其应用	秋 Fall	3	3/48
	Core courses	MAE5005	高等计算流体力学 Advanced Computational Fluid Mechanics	春 Spring	3	3/48
		MAE5007	高等计算固体力学 Advanced Computational Solid Mechanics	春 Spring	3	3/48
		MAE5029	高等实验力学 Advanced Experimental Mechanics	秋 Fall	3	3/96
		MAE5004	高等流体力学 Advanced Fluid Mechanics	秋 Fall	3	3/48
		MAE5006	高等弹性力学 Advanced Elasticity	秋 Fall	3	3/48
		MAE5020	复合材料力学 Mechanics of Composite Materials	秋 Fall	3	3/48
		MAE5021	断裂力学 Fracture Mechanics	春 Spring	3	3/48
	Electives	MAE5011	力学前沿研究讲座 Seminars for Frontier in Mechanics	秋 Fall	2	2/32
		MAE5015	湍流 Turbulence	春 Spring	3	3/48
		MAE5016	高等传热学 Advanced Heat Transfer	春 Spring	3	3/48
		MAE5017	航空声学与气动噪声 Aeroacoustics	秋 Fall	3	3/48
		MAE5018	高等空气动力学 Advanced Aerodynamics	秋 Fall	3	3/48
		MAE5019	微纳力学 Micronano Mechanics	秋 Fall	3	3/48
		MAE5022	板壳理论 Theory of Plates and Shells	春 Spring	3	3/48

	MAE5026	海外专家讲学 Lectures from Oversea Experts	春/秋 Spring & Fall	1	1/16
	MAE5027	界面现象 Interfacial Phenomena	春 Spring	3	3/48
	MAE5028	燃烧学 Fundamentals of Combustion	秋 Fall	3	3/48
	MAE5030	格子波尔兹曼方法的理论与应用 Theory and Application of lattice Boltzmann method	秋 Fall	3	3/48
	MAE5031	稀薄气体动力学: 理论与应用 Rarefied gas dynamics: theory and applications	秋 Fall	3	4/64
	MAE5032	高性能计算: 方法与实践	春 Spring	3	3/48
	MAE7001	多相流体力学 Multiphase Flow	春 Spring	3	3/48
	MAE7002	航空发动机工程通论	春 Spring	3	3/48

1. 力学与航空航天工程系博士选修高等连续介质力学 A; MAE's PhD should choose the Advanced Continuum Mechanics A.
2. 专业核心课 ≥ 6 学分; Core courses no less than 6 Credits.
3. 必修 1 门写作类通识课, 系统内可选写作类通识课均可, 不限于以上课程;
One writing general course is required, the writing general courses can be selected in the system, not limited to the above courses
4. 其他专业课可在导师指导下选修附录一、二课程。Electives can be selected from Appendix I&II.
5. 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。PhD student achieved master degree in SUSTech and already studied GGC5046 《SUSTech Graduate English》 should take GGC5056 《Writing for publication》 as the English language course.

Note:

1. . Chinese Language Requirements:

Elementary Chinese I & II, totaling 4 course credits, are mandatory for international students. Both courses would help students develop an equivalent language ability of level-3 of Chinese Proficiency Test (HSK), which is required for graduation.

博士留学生的中文能力在毕业时应至少达到《国际汉语能力标准》三级水平（等同于 HSK 汉语水平考试三级）。完成《基础汉语 I&II》课程的留学生汉语综合运用能力可达到 HSK 三级。

附录二：相近研究方向推荐课程

Appendix II: Recommended Courses in Related Fields

课程代码 Course Code	课程名称 Course	开课学期 Semester	学分 Credits	周学时/总学时 Weekly Credit hours /Total Credit Hours
MEE5002	项目管理基础与实践 Fundamentals and practices of project management	春 Spring	3	3/48
MEE5103	行走机器人 Walking Robot	春 Spring	3	3/48
MEE5105	工程优化基础 Engineering Optimization and Decision	秋 Fall	3	3/48
MEE5107	微加工与微系统 Microfabrication and Microsystems	秋 Fall	3	3/48
MEE5108	微型机器人 Microrobotics	春 Spring	3	3/48
MEE5110	软体机器人 Soft Robots	秋 Fall	3	3/48
MEE5114	高等机器人控制 Advanced Control for Robotics	春 Spring	3	3/48
MEE5115	自主机器人系统 Autonomous Robotic Systems	秋 Fall	3	3/48
MEE5201	创新设计理论与应用 Innovative Design Theory and Practice	春 Spring	3	3/48
MEE5207	先进激光加工及检测技术 Innovative Application of Laser	秋 Fall	3	3/48
MEE5205	断裂力学与失效分析 Failure Analysis and Fracture Mechanics of Engineering Materials	秋 Fall	3	3/48
MEE5207	先进激光加工及检测技术 Advanced Laser-Based Processing and Detection Technology	秋 Fall	3	3/48
MEE5210	微观组织表征与分析 Microstructure Characterization and Analysis	春 Spring	3	3/48
MEE5211	先进复合材料制备技术及应用 Fundamental and Applications of Advanced Composite Materials	春 Spring	3	3/48

MEE5213	软材料学科前沿 Frontiers of Soft Materials Science	春 Spring	3	3/48
MEE5214	软物质物理基础 Fundamental Physics of Soft Matter	秋 Fall	3	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	3/48
MEE5216	功能软材料与 4D 打印 Soft Functional Materials and 4D Printing	秋 Fall	3	3/48
MEE5217	工程材料：力学性能与测试 Engineering materials: mechanical properties and tests	春 Spring	3	3/48
MEE5218	工程结构分析与性能 Engineering structure analysis and properties	秋 Fall	3	3/48
MEE5301	先进制造基础 Fundamentals of Advanced Manufacturing Technology	秋 Fall	3	3/48
MEE5304	复合制造技术前沿 Frontiers in Hybrid Manufacturing Processes	秋 Fall	3	3/48
MEE5305	等离子体原理与应用 Fundamentals and applications of plasma	春 Spring	3	3/48
MEE5307	精密加工技术 Precision Machining Technology	秋 Fall	3	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	3/48
MEE5403	电化学能源工程技术研究 Studies on Engineering and Technologies of Electrochemical Energy Systems	春 Spring	3	3/48
MEE5405	太阳能热利用技术 Solar Thermal Energy Utilization Technologies	春 Spring	3	3/48
MEE5406	储能原理与技术 Principle and technology of energy storage	春 Spring	3	3/48
MEE5407	光电与光化学转化原理 Principle of solar to electricity and solar photochemistry conversion	秋 Fall	3	3/48
ESS5001	高等弹性动力学 Quantitative Seismology	秋 Fall	3	3/48
ESS5002	地球动力学 Geodynamics	春 Spring	3	3/48

ESS5027	力电耦合原理 Principal of Mechanical-Electromagnetic Coupling	春 Spring	2	2/32
ESS5032	计算地球动力学 Computational Geodynamics	春 Spring	3	3/48
MSE5001	应用量子力学 Applied Quantum Mechanics	春 Spring	3	3/48
MSE5002	高等材料化学 Advanced Materials Chemistry	春 Spring	3	3/48
MSE5003	材料力学行为 Mechanical Behaviors of Materials	春 Spring	3	3/48
MSE5010	有机与生物材料 Organic and Biological Materials	春 Spring	3	3/48
MSE5014	柔性电子材料 Materials for Flexible Electronics	春 Spring	2	2/48
MSE5018	先进材料表征技术 Advanced Materials Characterization Techniques	春 Spring	3	3/48
MSE5023	高等材料物理 Advanced Physics of Materials	秋 Fall	3	3/48
MSE5024	高等热力学与动力学 Advanced Thermodynamics & Kinetics	春 Spring	3	3/48
OCE5017	海洋环流数值模拟 Numerical Simulation of Ocean Circulation	秋 Fall	3	3/48
OCE5022	海洋和大气科学研究方法 Research method for Oceanic and atmospheric science	春 Spring	3	3/48
OCE5023	地球板块构造学 Global Plate Tectonics	秋 Fall	3	3/48
OCE5024	海洋结构物分析与设计 Analysis and Design of Offshore Structures	秋 Fall	3	3/48
OCE5025	高等海洋地震观察 Marine Seismic Observation	秋 Fall	3	3/48
OCE5026	海洋地球物理前沿 Frontiers of marine geophysics	春 Spring	3	3/48
OCE5027	海洋工程混凝土结构 Marine Concrete Structures	秋 Fall	3	3/48
OCE5028	海底天然气水合物勘探与开采 Exploration and Production of Oceanic Gas Hydrates	春 Spring	3	3/48
OCE5031	工程结构可靠性和风险量化 Engineering Structure Reliability and Risk Quantification	春 Spring	3	3/48
OCE5036	海洋土体性状及本构模型 Soil behavior and constitutive modelling	春 Spring	3	3/48

OCE5040	海洋工程高性能混凝土 High Performance Concrete for Marine Applications	秋 Fall	3	3/48
CHE5013	高分子物理 Polymer Physics	春 Spring	3	3/48
CHE5022	计算化学 Computational Chemistry	秋 Fall	3	3/48
CHE5038	高分子化学 Polymer Chemistry	春 Spring	3	3/48
ESE5010	高等环境化学 Advanced Environmental chemistry	秋 Fall	3	3/48
ESE5011	气候变化经济学 Climate Change Economics	春 Spring	3	3/48
ESE5013	生物信息学在环境科学中的应用 Applied Bioinformatics in Environmental Science	春 Spring	3	3/48
ESE5014	环境材料性能与表征 Function and Characterization of Eco-materials	春 Spring	3	3/48
ESE5016	环境仪器分析 Environmental Instrument Analysis	秋 Fall	2	2/40
ESE5018	痕量有机污染物的控制技术与管理 Control Technology and Management of Trace Organic Pollutants	秋 Fall	3	3/48
ESE5019	生态气候学 Ecological climatology	秋 Fall	3	3/48
ESE5021	环境纳米技术 Environmental Nanotechnology	春 Spring	2	2/32
ESE5022	环境生物技术 Environmental Biotechnology	秋 Fall	3	3/48
ESE5023	环境科学研究中的计算与编程 Computing and Programming for Environmental Research	秋 Fall	3	3/48
ESE5032	环境遥感 Environment Remote Sensing	秋 Fall	3	3/48
ESE5055	高级地下水水文学 Advanced Groundwater Hydrology	春 Spring	3	3/48
ESE5056	污染物环境行为与风险评估 Behaviour and Risk Assessment of Pollutants	春 Spring	3	3/48
ESE5058	土壤与地下水污染修复 Soil and groundwater contamination control and remediation	秋 Fall	3	3/48
ESE5090	全球水文与环境前沿 Global Hydrology and Frontier of Environmental Science	秋 Fall	3	3/48

ESE5091	环境电化学技术 Environmental Electrochemical Technologies	秋 Fall	3	3/48
ESE5092	能源与环境 Energy and the Environment	秋 Fall	3	3/48
ESE5093	反应性运移 Reactive Transport in Environment	春 Spring	3	3/48
ESE5094	遥感水文学 Remote Sensing in Hydrology	春 Spring	3	3/48
ESE5095	大气化学 Atmospheric Chemistry	秋 Fall	3	3/48
ESE5096	环境生物分析化学 Environmental Bioanalytical Chemistry	秋 Fall	3	3/48
ESE5097	质谱技术在环境领域的应用 Application of Mass Spectrometry in Environmental Field	春 Spring	3	3/48
ESE5098	持久性有机污染物与环境健康效应 Environmental health effects of persistent organic pollutants	秋 Fall	3	3/48
ESE5099	生态毒理学 Ecotoxicology	春 Spring	3	3/48
BME5002	先进生物材料 Advanced Biomaterials	秋 Fall	3	3/48
BME5008	运动生物力学 Sports Biomechanics	春 Spring	3	3/48
CSE5001	高级人工智能 Advanced Artificial Intelligence	秋 Fall	3	3/64
CSE5002	智能数据分析 Intelligent Data Analysis	春 Spring	3	3/64
CSE5003	高级算法 Advanced Algorithms	秋 Fall	3	3/64
CSE5005	高级计算机网络与大数据 Advanced Computer Networks and Big Data	秋 Fall	3	3/64
CSE5010	无线网络与移动计算 Wireless Network and Mobile Computing	秋 Fall	3	3/64
CSE5012	演化计算及其应用 Evolutionary Computation and Its Applications	春 Spring	3	3/64
CSE5018	高级优化算法 Advanced optimization algorithms	春 Spring	3	3/64

注：研究生选修上表课程，可以认定为专业选修课学分。

Note: Courses listed above can be counted as discipline-based electives.

附录修订日期 2022 年 7 月 5 日

Appendices revised on 05/07/2022