西北工业大学

Northwestern Polytechnical University

博士留学研究生培养方案

Doctor’s Degree Program for International Students

研究生院

Graduate School

2018 年 6 月

西北工业大学关于博士留学研究生培养的具体规定

根据《中华人民共和国学位条例》和《中华人民共和国学位条例暂行实施办法》中关于授予外国留学生博士学位的规定，以及国务院学位委员会、教育部的有关文件精神，结合我校情况，特制定《西北工业大学关于博士留学研究生培养的具体规定》。

此规定是制定攻读博士学位留学研究生培养计划，进行培养工作的主要依据，也是招收博士留学研究生和授予学位的依据之一。

我校博士留学研究生分为**中文培养**和**全英文培养**两种类型。我校有权授予博士学位的学科均可招收攻读博士学位的中文培养留学研究生；制订了博士留学研究生全英文培养方案的学科，经研究生院审批后可以招收全英文培养博士留学研究生。

此规定作为攻读博士学位留学研究生培养的总体要求，各学科可根据此规定制订适合于本学科的博士留学研究生培养方案。培养方案一经批准，即应遵照执行，如有变动，应按原审批程续办理更改。

各学科博士留学研究生培养方案中的研究方向、课程设置等可根据本学科的不同要求及本规定进行制定；其中培养目标、培养方式、学习年限、培养环节、发表论文及科研成果要求等具体要求如下。

一、培养目标

1．了解中国的文化、政治、经济与历史，掌握一定程度的汉语。

2．掌握所在学科坚实宽广的基础理论和系统深入的专门知识，具有独立从事科学研究工作的能力，在科学或专门技术上做出创造性的成果。

3．具有良好的学术道德和敬业精神，具有科学严谨、求真务实的学习态度和工作作风，身心健康，综合素质高。

二、研究方向

培养方案中应明确列出本学科可以培养博士留学研究生的若干研究方向。

培养方案中所列的研究方向是招生及培养的依据，要求应是本学科中相当于三级学科的学术领域，且导师及学科内其他教师已做了较多的研究工作、目前仍在进行研究并有比较稳定的课题与经费。应有一定数量的研究方向能反映出学科发展前沿领域的特

色，跟踪国内外同类学科发展的先进水平。

对于交叉或边缘学科中的新兴研究方向，可根据其学科基础暂时纳入相应学科的培养方案中，待条件成熟、经申请批准成立新学科后，另行制定培养方案。

三、培养方式

博士留学研究生的培养采取导师为第一责任人的导师负责制，也可以实行以导师为主的指导小组负责制。指导小组的组成可根据博士留学研究生的研究方向及课题内容由导师提名、学院领导批准，小组成员一般由 3~5 名副教授以上专业技术职务的教师（含导师）组成，导师在博士留学研究生培养中起主导作用。同时，指导小组应协助导师对博士留学研究生的课程学习、科学研究和学位论文进行指导。学院及学位分委员会要指导和检查博士留学研究生的培养工作。

在培养过程中，应采取理论学习和科学研究相结合的办法，特别要注意培养博士留学研究生的创新能力、独立工作能力、自学能力、分析和解决实际问题的能力；要鼓励博士留学研究生参加学术活动、独立钻研、自己选题和从事探索性的研究。对于缺乏实践经验和因学科交叉而专业知识不足的博士留学研究生，应创造条件让他们弥补这些不足之处。

四、学习方式及年限

采用全日制学习方式，学习年限一般为 3～5 年。

五、课程设置

博士留学研究生的课程学习应至少取得 16 学分。

课程要求：

课程类型	课　程　内　容	要求	学分
学位必修课	公共课（汉语语言、中国概况）	必修	8 学分
	基础理论课	必修	至少 2 学分
	专业基础课	必修	2~4 学分
学位选修课	专业课	选修	至少 4 学分

博士留学研究生的课程计划应在入学后 20 天内制定完毕，课程学习一般应在入学

后一年内完成。

中文培养博士留学研究生的基础理论课、专业基础课和专业课在我校国内学历博士研究生同一学科培养方案中进行选择，并随国内博士研究生同堂上课。

全英文培养博士留学研究生的基础理论课、专业基础课和专业课全部采用英语授课，课程在我校公布的博士留学研究生全英文培养方案中进行选择。

六、培养环节

1. 课程学习

课程学习是博士留学研究生重要的培养环节，需达到相关学分要求。

2. 科研实践

在培养博士留学研究生的实践环节上，应积极营造创新、合作的环境氛围。践行知行统一，着重培养博士留学研究生的科研能力、创新能力、团队合作与组织能力。导师要加强博士留学研究生参与国家自然科学基金等国家级科研项目的申报、立项等科学研究的指导环节。

3. 论文开题

论文开题工作是博士留学研究生进行学位论文工作的起点。博士留学研究生应在导师指导下，阅读有关文献，形成“文献综述”；开题报告应就选题的科学意义、选题背景、研究内容、预期目标、研究方法和课题条件等做出论证。

学院、学位分会与导师须协商成立博士学位论文开题评审小组，评审小组由至少三名正高级专业技术职务的人员组成，设组长 1 人，博士留学研究生应向评审小组汇报论文开题报告，评审小组进行严格评审并给出评审意见。

评审通过者，准予继续进行论文研究工作，不合格者予以黄牌警告并限期整改，重新进行论文开题汇报，评审仍不合格者终止培养或走其他分流途径。

博士留学研究生的论文开题工作一般应在入学后第二学期内或第三学期初完成，具体由导师与所在学位分会决定，但论文开题通过至申请答辩的时间一般不少于两年。

4. 中期考核

博士留学研究生在论文开题后一年左右，应撰写学位论文中期进展报告并向考核小组作学位论文中期汇报。中期汇报的内容应包括：论文工作是否按开题报告预定的内容及论文计划进度进行；已完成的研究内容，参加的科研学术情况；目前存在的或预期可能出现的问题，拟采用的解决方案等；下一步的工作计划和研究内容等，同时，还应列

出投稿论文、发表论文、专利和科研成果等能证明论文研究进展的材料。

根据论文中期的研究进展和学科发展，允许博士留学研究生对论文开题时的论文选题（题目、内容、研究计划等）做出必要的调整。申请学位论文答辩时，学位论文的主要内容应与中期考核后确定的学位论文的内容基本一致。

学院、学位分会与导师协商组成中期考核小组，考核小组由至少三名具有高级专业技术职务的人员组成，设组长 1 人，考核小组负责对博士留学研究生学位论文开题以来的研究进展进行检查评审，听取中期汇报并进行严格评审。通过者，准予继续进行论文研究工作，不合格者予以黄牌警告并限期整改，重新进行论文中期汇报，再次考核仍不合格者终止培养或走其他分流途径。

5. 学位论文撰写

博士学位论文是博士留学研究生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，博士学位论文应具有创造性和相当的工作量，应能反映出博士留学研究生已经掌握了所在学科坚实宽广的基础理论和系统深入的专门知识，具有独立从事科学研究工作的能力，在科学或专门技术上做出了创造性的成果。具体要求按《西北工业大学关于学位论文撰写的规定》执行。

中文培养博士留学研究生的学位论文应由中文撰写，包含一个相应的英文摘要；全英文培养博士留学研究生的学位论文应由英文撰写，包含一个相应的中文摘要。

6. 学位论文预答辩和答辩

申请博士学位论文答辩前学位分会根据实际情况可进行预答辩，预答辩由学位分会和导师共同组织专家进行，参加预答辩的专家一般应为本学科的教授，人数不少于 3 人，预答辩完成后，须给出明确结论和论文修改意见。预答辩不合格者限期整改，重新进行预答辩。申请学位论文答辩参照校学位评定委员会的规定执行。

中文培养博士留学研究生的学位论文答辩，应使用汉语进行答辩；全英文培养博士留学研究生的学位论文答辩，应使用英语进行答辩。

七、发表论文及科研成果要求

博士留学研究生在攻读学位期间发表论文的数量和水平是研究生培养质量和学位授予质量的重要标志之一，鼓励博士留学研究生发表高水平论文。博士留学研究生发表学术论文的基本要求见《西北工业大学关于研究生在学期间发表学术论文的规定》。

Regulations on Cultivating International Students in Doctor's Program of Northwestern Polytechnical University

Regulations on Cultivating International Students in Doctor's Program of Northwestern Polytechnical University are formulated in accordance with conferring doctor's degree on international students in *Regulations of the People's Republic of China on Academic Degrees, Interim Measures for Implementation of the Regulations of the People's Republic of China on Academic Degrees* and norms of relevant documents carried out by the Academic Degree Committee of the State Council and Ministry of Education and in combination with practical situations of NPU.

These regulations are the main foundation for formulating and implementing the doctor's program for international students. They are also the fundamental principles for those students' recruitment and their doctor's degree conferment.

We offer two types of doctor's program for those international students--- cultivated in English and in Chinese respectively. Those Disciplines that are authorized to confer doctor's degree in NPU shall recruit applied international students and cultivate them in Chinese. As for English-cultivated disciplines, after being approved by the Graduate School of NPU, shall also recruit international students applying for doctor's degree and cultivate them in English.

These regulations are the general requirements for cultivating international students in doctor's program. Each separate discipline shall formulate its own cultivating program for international students. Once approved, the program shall be put into enforcement strictly. If there are any changes, alterations shall be made according to the original approval procedures.

The research fields and curriculum for the international students in doctor's program shall be formulated in accordance with their different requirements. The provisions of cultivating objectives, cultivating plans, duration of study, cultivating process, publishing papers and requirements for scientific achievements are as follows:

A. **Cultivating Objectives**

a. to enable international students to have a comprehensive understanding of China, including its politics, economy, history as well as culture and to enable them to have basic capability to understand and communicate with others in Chinese.

b. to equip international students with all-round basic theories and systematic and professional knowledge in disciplines concerned, and with skills to do scientific research independently so

as to make creative contributions in science and technology.

c. to benefit students' physical and mental health, and to provide them with good academic ethics and spirits and to cultivate their scientific and practical learning attitude and working style.

B. **Research Field**

Research fields for international students in cultivating plans of doctor's program should be listed explicitly.

The research fields are the basis of recruiting and cultivating the international students. The research fields are required to be in the third-level academic areas in disciplines. Mentors and other teachers in disciplines concerned are required to have done much research work and their programs are still continuing supported by stable subjects and funds in relevant fields. The research fields must reflect cutting edge of disciplines concerned, and follow advanced scientific development at home or abroad.

Those emerging research fields in the interdisciplinary or marginal disciplines can be incorporated into the doctor's program based on relevant disciplines. The corresponding doctor's program should be formulated after new disciplines' approval and establishment.

C. **Cultivating Plan**

Cultivating international students in doctor's program is based on the mentor responsibility system which adopts a mentor as the first responsible one or a mentor-based responsibility of the instructing team. The instructing team, composed of 3-5 associate professors and professional teachers (including mentors), shall be nominated by mentors and then approved by relevant schools with mentors playing a leading role in the international graduates' cultivating according to research fields and contents of subjects. The instructing team shall assist mentors to instruct in courses, research work and dissertation. Schools and the Branch of Degree Committee shall guide and inspect the program of cultivating the international students' pursuing doctor's degree.

During the process of cultivating program, both theoretical study and scientific research shall be combined together. The program shall pay attention to cultivate the ability of doing scientific work creatively and independently, to teach them how to learn by themselves, how to analyze and solve practical problems. To participate in academic activities and to be engaged in research independently are encouraged

and supported, and to select the research field of the thesis and to do exploring research are also welcomed. For those students who are lack of experience and expertise and interdisciplinary knowledge, mentors and schools shall create favorable environment for them to make up.

D. **Types of Study and Duration**

The doctor's program requires 3-5 years of full time study.

E. **Curriculum Requirements**

International students in doctor's program should get at least 16 credits in courses concerned.

Curriculum requirements:

Curriculum	Course Content	Requirement	Credits
Compulsory Courses	Public Courses (Chinese Language, Brief Introduction of China)	Compulsory	8 credits
	Basic Theory Courses	Compulsory	≥ 2 credits
	Basic Specialized Courses	Compulsory	2 ~ 4 credits
Elective Courses	Specialized Courses	Elective	≥ 4 credits

The curriculum plans for international students in doctor's program shall be completed within 20 days after enrollment, and the courses concerned shall be finished within one year after entrance.

The courses of basic theory, specialized basic courses and specialized courses for international students cultivated in Chinese shall be selected among the courses the same as in domestic academic doctor's cultivating program. And the international students shall attend the classes concerned together with domestic students of NPU.

The basic theory courses, basic specialized courses and specialized courses of international students cultivated in English shall be taught in English. And all these courses can be selected among the courses in the doctor's program of English-cultivated.

F. **Cultivating Process**

a. Course of Study

Course of study in the doctor's program is an important process in cultivating postgraduates, which

shall meet relevant requirements for credits.

b. Scientific Research

During the process of conducting scientific research in the doctor's program, mentors and relevant schools shall create innovative and cooperative atmosphere, insist on the combination of theoretical knowledge and real practices and emphasize on cultivating students' capability in the aspects of research, creativity, team-work and organizing. Mentors shall offer international students more scientific guidance on the application for the National Natural Science Foundation and the establishment of national scientific research projects.

c. Dissertation Proposal

The dissertation proposal of the doctor's program is a starting point for dissertation writing. Students shall read relevant books and write literature reviews under the guidance of their mentors. The proposal shall include significance of selected topic, research background, contents of research, expected objective, research methodology and premises of research etc.

Reviewing panels of doctor's program shall be established under the agreement among the relevant school, the Branch of Degree Committee and mentors. The panels shall consist of at least three senior professional technicians, one of them be the chairman of reviewing panels. The students are required to make a presentation on their dissertation proposal and then the reviewing panels evaluate the proposals strictly and make decisions.

The international students in the doctor's program who pass the assessment shall be permitted to continue their dissertation writing. For those who fail, they shall be given yellow card warning and make rectifications within a time limit, and then make presentations again. If they still fail, their doctor's degree shall be terminated or they shall be cultivated in other reversed programs.

The dissertation proposal of doctor's program is designed to be finished in the second semester or at the beginning of the third semester. The requirements for dissertation proposal are decided by mentors and the Branch of Degree Committees. The whole process from the proposal to application for defense of dissertation shall be no less than two years.

d. Mid-term Assessment

The interim progress report of the dissertation writing of doctor's program shall be submitted and reported to the assessment team around one year after the approval of proposal. The content of the report shall include the following aspects: whether the dissertation writing is conducted in accordance with the previously expected contents and schedule of research or not; the completed research; academic research

activities; current or potential problems and possible solutions, and further work of research. Materials such as submitted papers, published papers, patents and scientific research achievements shall be included in the reports.

In terms of the interim progress and the development of disciplines concerned, the international students in the doctor's program are allowed to make necessary adjustments about certain contents in their proposals (including title, contents, schedule planning, etc). When they apply for the oral defense of dissertation of doctor's degree, the contents of the dissertation shall be basically consistent with the confirmed contents in the mid-term assessment.

Similarly, the assessment team for the mid-term assessment is established under the agreement among the school, the Branch of Degree Committee and mentors. The team shall consist of at least three senior professional technicians (one of them as the chairman). The assessment team shall evaluate the interim progress report. The international students in the doctor's program who pass the assessment shall be permitted to continue their dissertation writing. For those who fail the assessment, they shall be given yellow card warning and need to modify it in stipulated time, and then report it again. If they still cannot pass the assessment, the doctor's degree shall be terminated or they shall be cultivated in other programs.

e. Dissertation Writing

Dissertation of Doctor's degree is a systematic and academic research result done by the students independently under the guidance of their mentors. The dissertation shall be academic and be finished by considerable efforts and reflect the students have already mastered the basic theoretical knowledge and systematic and specialized knowledge under the disciplines concerned, been equipped with the capability of making scientific research independently and generated creative products in science or in a special technology. As for the requirements of dissertation writing, please refer to *The Regulations of Degree Dissertation Writing in Northwestern Polytechnical University*.

The dissertation of international students cultivated in Chinese shall be written in Chinese and a corresponding abstract in English is required while cultivated in English shall be written in English and a corresponding abstract in Chinese is also required.

f. Preliminary and Formal Dissertation Defense

Before the international students apply for formal dissertation defense in the doctor's program, the preliminary defense shall be held by the Branch of Degree Committee according to the specific situations. The experts attending preliminary defense shall be organized by the Branch of Degree Committee and

mentors. These experts are usually the professors in relevant disciplines. There shall be at least three professors attending the preliminary defense. After the preliminary defense, the experts shall make conclusions and decisions. For those who fail in the preliminary defense, they are required to modify their dissertation and make another oral defense in stipulated time. As for the application of dissertation defense, please refer to the regulations formulated by the University Degree Evaluation Committee.

The dissertation defense of the students cultivated in Chinese shall be done in Chinese while the cultivated in English shall be done in English.

G. **Requirements for Paper Publishing and Research Achievements**

The quantity and quality of the published papers for the international students in the doctor's program are one of the important standards in measuring the quality of Doctor's program cultivating and Doctor's degree conferment. The international students are encouraged to publish papers with high quality. As for the specific requirements for paper publishing, please refer to *Regulations on Publishing Academic Papers during the Period of Graduate Studies in Northwestern Polytechnical University*.

各学科（学院）博士留学研究生全英文培养

研究方向及课程设置

Research Field and Curriculum Provision

目　录

Contents

1. 航空器结构与适航技术（航空学院）

Aircraft Structures and Airworthiness Technology（School of Aeronautics）

学科代码（Discipline Code） **0801Z2**

一、研究方向（Research Field）

序号 No.	主要研究方向 Main Research Field
1	飞行器结构完整性 Aircraft Structural Integrity
2	飞行器结构动强度设计、分析、验证 Aircraft Structural Dynamics and Strength Design, Analysis and Verification
3	航空器结构适航技术 Aircraft Structural Airworthiness Technology

二、课程设置（Curriculum Provision）

至少取得 16 学分，其中：公共课 8 学分，基础理论课至少 2 学分，专业基础课至少 2 学分，专业课至少 4 学分。

At least 16 credits, including 8 credits of public courses, at least 2 credits of basic theory courses, at least 2 credits of basic specialized courses and at least 4 credits of specialized courses.

1．公共课（学位必修课，8 学分）

Public Courses (degree compulsory, 8 credits)

课程编号 Course Code	课程名称 Course Name	学时 Learning Hour	学分 Credit	开课学期 Learning Semester	考核方式 Assessment
D26G11001	汉语语言 I Chinese Language I	60	3.0	1	考试 Exam
D26G11002	汉语语言 II Chinese Language II	60	3.0	2	考试 Exam
D26G12001	中国概况 Brief Introduction of China	40	2.0	1	考试 Exam

2．基础理论课（学位必修课，在下列课程中至少选 2 学分）

Basic Theory Courses (degree compulsory, at least 2 credits, selected from the following courses)

课程编号 Course Code	课程名称 Course Name	学时 Learning Hour	学分 Credit	开课学期 Learning Semester	考核方式 Assessment
D11G12001	近代统计方法 Modern Mathematics Statistics	40	2.0	1	考试 Exam
D11G12002	近代数值分析 Modern Numerical Analysis	40	2.0	1	考试 Exam

3．专业基础课（学位必修课，在下列课程中至少选 2 学分）

Basic Specialized Courses (degree compulsory, at least 2 credits, selected from the following courses)

课程编号 Course Code	**课程名称** Course Name	**学时** Learning Hour	**学分** Credit	**开课学期** Learning Semester	**考核方式** Assessment
D01M12001	结构耐久性与损伤容限分析 Durability and Damage Tolerance Analysis of Structures	40	2.0	1	考试 Exam
D01M12002	连续介质力学 Fundamentals of Continuum Mechanics	40	2.0	1	考试 Exam
D01M12003	冲击动力学 Impact Dynamics	40	2.0	2	考试 Exam
D01M12004	高等结构动力学 Advanced Dynamics of Structures	40	2.0	2	考试 Exam
D01M12005	高等弹性力学 Advanced Elasticity	40	2.0	1	考试 Exam
D01M12006	计算固体力学 Computational Mechanics for Solid	40	2.0	1	考试 Exam

4．专业课（学位选修课，至少选 4 学分）

Specialized Courses (degree elective, at least 4 credits)

课程编号 Course Code	**课程名称** Course Name	**学时** Learning Hour	**学分** Credit	**开课学期** Learning Semester	**考核方式** Assessment
D01M12007	固体力学研究的新进展 The Advance in Solid Mechanics	40	2.0	2	考试 Exam
D01M12008	先进复合材料力学 Mechanics of Advanced Composite Materials	40	2.0	1	考试 Exam
D01M12009	振动测试原理与方法 Principles and Methods of Vibration Test	40	2.0	1	考试 Exam
D01M12010	轻质材料结构分析理论及应用 Theory and Application of Light Weight Materials and Structures	40	2.0	1	考试 Exam
D01M12011	塑性力学 Theory of Plasticity	40	2.0	2	考试 Exam
D01M12012	计算断裂力学 Computational Fracture Mechanics	40	2.0	2	考试 Exam
D01M12014	随机振动与谱分析 Random Vibration and Spectral Analysis	40	2.0	1	考试 Exam

2. 流体力学（航空学院）

Fluid Mechanics（School of Aeronautics）

学科代码（Discipline Code） **080103**

一、研究方向（Research Field）

序号 No.	主要研究方向 Main Research Field
1	理论空气动力学与流动控制 Theoretical Aerodynamics and Flow Control
2	飞行器设计空气动力学 Aerodynamics on Vehicle Design
3	计算流体力学 Computational Fluid Dynamics
4	实验空气动力学 Experimental Fluid Dynamics
5	高超声速空气动力学 Hypersonic Aerodynamics
6	气动声学 Aeroacoustics
7	多学科耦合空气动力学 Multi-Disciplinary Coupled Aerodynamics
8	工业空气动力学与风工程 Industrial Aerodynamics and Wind Engineering

二、课程设置（Curriculum Provision）

至少取得 16 学分，其中：公共课 8 学分，基础理论课至少 2 学分，专业基础课至少 2 学分，专业课至少 4 学分。

At least 16 credits, including 8 credits of public courses, at least 2 credits of basic theory courses, at least 2 credits of basic specialized courses and at least 4 credits of specialized courses.

1．公共课（学位必修课，8 学分）

Public Courses (degree compulsory, 8 credits)

课程编号 Course Code	课程名称 Course Name	学时 Learning Hour	学分 Credit	开课学期 Learning Semester	考核方式 Assessment
D26G11001	汉语语言 I Chinese Language I	60	3.0	1	考试 Exam
D26G11002	汉语语言 II Chinese Language II	60	3.0	2	考试 Exam
D26G12001	中国概况 Brief Introduction of China	40	2.0	1	考试 Exam

2．基础理论课（学位必修课，在下列课程中至少选 2 学分）

Basic Theory Courses (degree compulsory, at least 2 credits, selected from the following courses)

课程编号 Course Code	**课程名称** Course Name	**学时** Learning Hour	**学分** Credit	**开课学期** Learning Semester	**考核方式** Assessment
D11G12001	近代统计方法 Modern Mathematics Statistics	40	2.0	1	考试 Exam
D11G12002	近代数值分析 Modern Numerical Analysis	40	2.0	1	考试 Exam

3．专业基础课（学位必修课，在下列课程中至少选 2 学分）

Basic Specialized Courses (degree compulsory, at least 2 credits, selected from the following courses)

课程编号 Course Code	**课程名称** Course Name	**学时** Learning Hour	**学分** Credit	**开课学期** Learning Semester	**考核方式** Assessment
D01M12015	空气动力学 Aerodynamics	40	2.0	1	考试 Exam
D01M12016	实验流体力学 Experimental Fluid Dynamics	40	2.0	2	考试 Exam
D01M12017	粘性流体力学 Viscous Fluid Dynamics	40	2.0	2	考试 Exam
D01M12018	计算流体力学 Computational Fluid Dynamics	40	2.0	2	考试 Exam

4．专业课（学位选修课，至少选 4 学分）

Specialized Courses (degree elective, at least 4 credits)

课程编号 Course Code	**课程名称** Course Name	**学时** Learning Hour	**学分** Credit	**开课学期** Learning Semester	**考核方式** Assessment
D01M12019	高超声速空气动力学 Hypersonic Aerodynamics	40	2.0	1	考试 Exam
D01M12020	风洞实验技术 Techniques of Wind Tunnel Test	40	2.0	2	考试 Exam
D01M12021	航空声学 Aeroacoustics	40	2.0	1	考试 Exam
D01M12022	流固耦合力学 Fluid-Structure Interaction	40	2.0	2	考试 Exam
D01M12023	湍流理论与方法 Theory and Method for Turbulence	40	2.0	2	考试 Exam
D01M12024	气动弹性及载荷 Aeroelasticity and Loads	40	2.0	2	考试 Exam
D01M12025	风洞设计 Wind Tunnel Design	40	2.0	1	考查 Test

3. 载运工具运用工程（航空学院）

Means of Transport Applied Engineering（School of Aeronautics）

学科代码（Discipline Code） **082304**

一、研究方向（Research Field）

序号 No.	主要研究方向 Main Research Field
1	机载维护与健康管理 Airborne Maintenance and Health Management
2	航空器可靠性及保障技术 Reliability and Ensurance Technology of Aircraft
3	飞行器适航技术 Airworthiness Technology of Aircraft

二、课程设置（Curriculum Provision）

至少取得 16 学分，其中：公共课 8 学分，基础理论课至少 2 学分，专业基础课至少 2 学分，专业课至少 4 学分。

At least 16 credits, including 8 credits of public courses, at least 2 credits of basic theory courses, at least 2 credits of basic specialized courses and at least 4 credits of specialized courses.

1．公共课（学位必修课，8 学分）

Public Courses (degree compulsory, 8 credits)

课程编号 Course Code	课程名称 Course Name	学时 Learning Hour	学分 Credit	开课学期 Learning Semester	考核方式 Assessment
D26G11001	汉语语言 I Chinese Language I	60	3.0	1	考试 Exam
D26G11002	汉语语言 II Chinese Language II	60	3.0	2	考试 Exam
D26G12001	中国概况 Brief Introduction of China	40	2.0	1	考试 Exam

2．基础理论课（学位必修课，在下列课程中至少选 2 学分）

Basic Theory Courses (degree compulsory, at least 2 credits, selected from the following courses)

课程编号 Course Code	课程名称 Course Name	学时 Learning Hour	学分 Credit	开课学期 Learning Semester	考核方式 Assessment
D11G12001	近代统计方法 Modern Mathematics Statistics	40	2.0	1	考试 Exam
D11G12002	近代数值分析 Modern Numerical Analysis	40	2.0	1	考试 Exam

3．专业基础课（学位必修课，在下列课程中至少选 2 学分）

Basic Specialized Courses (degree compulsory, at least 2 credits, selected from the following courses)

课程编号 Course Code	**课程名称** Course Name	**学时** Learning Hour	**学分** Credit	**开课学期** Learning Semester	**考核方式** Assessment
D01M12026	现代信号处理及应用 Advanced Signal Processing and It's Application	40	2.0	2	考试 Exam
D01M12027	电子系统故障诊断预测理论与方法 Theories and Methods of Fault Diagnosis and Prognosis for Electronic Systems	40	2.0	2	考试 Exam
D01M12028	摩擦学原理与应用 Tribology Theory and Application	40	2.0	2	考试 Exam

4．专业课（学位选修课，至少选 4 学分）

Specialized Courses (degree elective, at least 4 credits)

课程编号 Course Code	**课程名称** Course Name	**学时** Learning Hour	**学分** Credit	**开课学期** Learning Semester	**考核方式** Assessment
D01M12029	智能图形图像处理 Intelligent Graphics and Image Processing	40	2.0	1	考试 Exam
D01M12030	飞机结构维修与适航 Aircraft Structural Repair and Airworthiness	40	2.0	1	考试 Exam
D01M12032	机载系统容错设计与可靠性工程 Fault-tolerant Design and Reliability Engineering for Airborne System	40	2.0	2	考试 Exam
D01M12033	VHDL 语言与复杂数字系统设计 VHDL and Complex Digital System Design	40	2.0	2	考试 Exam

4. 飞行器设计（航空学院）

Flight Vehicle Design（School of Aeronautics）

学科代码（Discipline Code） **082501**

一、 研究方向（Research Field）

序号 No.	主要研究方向 Main Research Field
1	飞行器总体设计 Conceptual Design of Flight Vehicle
2	飞行器结构设计 Structural Design of Flight Vehicle
3	飞行器飞行动力学与控制 Flight Dynamics and Control of Flight Vehicle
4	飞行器可靠性工程 Reliability Engineering of Flight Vehicle

二、课程设置（Curriculum Provision）

至少取得 16 学分，其中：公共课 8 学分，基础理论课至少 2 学分，专业基础课至少 2 学分，专业课至少 4 学分。

At least 16 credits, including 8 credits of public courses, at least 2 credits of basic theory courses, at least 2 credits of basic specialized courses and at least 4 credits of specialized courses.

1．公共课（学位必修课，8 学分）

Public Courses (degree compulsory, 8 credits)

课程编号 Course Code	课程名称 Course Name	学时 Learning Hour	学分 Credit	开课学期 Learning Semester	考核方式 Assessment
D26G11001	汉语语言 I Chinese Language I	60	3.0	1	考试 Exam
D26G11002	汉语语言 II Chinese Language II	60	3.0	2	考试 Exam
D26G12001	中国概况 Brief Introduction of China	40	2.0	1	考试 Exam

2．基础理论课（学位必修课，在下列课程中至少选 2 学分）

Basic Theory Courses (degree compulsory, at least 2 credits, selected from the following courses)

课程编号 Course Code	课程名称 Course Name	学时 Learning Hour	学分 Credit	开课学期 Learning Semester	考核方式 Assessment
D11G12001	近代统计方法 Modern Mathematics Statistics	40	2.0	1	考试 Exam
D11G12002	近代数值分析 Modern Numerical Analysis	40	2.0	1	考试 Exam

3．专业基础课（学位必修课，在下列课程中至少选 2 学分）

Basic Specialized Courses (degree compulsory, at least 2 credits, selected from the following courses)

课程编号 Course Code	**课程名称** Course Name	**学时** Learning Hour	**学分** Credit	**开课学期** Learning Semester	**考核方式** Assessment
D01M12034	飞行器总体综合设计基础 Elements of Flight Vehicle Conceptual Design	40	2.0	2	考试 Exam
D01M12035	结构系统的优化理论与设计方法 Optimization Theory and Design Approach of Structure	40	2.0	2	考试 Exam
D01M12036	可靠性及 PHM 分析与设计方法新进展 The Advance in Reliability and PHM Analysis and Design	40	2.0	2	考试 Exam

4．专业课（学位选修课，至少选 4 学分）

Specialized Courses (degree elective, at least 4 credits)

课程编号 Course Code	**课程名称** Course Name	**学时** Learning Hour	**学分** Credit	**开课学期** Learning Semester	**考核方式** Assessment
D01M12037	结构可靠性理论与设计 Structural Reliability Theory and Design	40	2.0	2	考试 Exam
D01M12038	现代计算力学分析方法 Analysis Method of Modern Computational Mechanics	40	2.0	2	考试 Exam
D01M12039	现代飞行动力学 Modern Flight Dynamics	40	2.0	2	考试 Exam
D01M12040	复合材料结构先进设计方法 Advanced Design Method of Composite Material Structure	40	2.0	2	考试 Exam

5. 导航、制导与控制（航天学院）

Navigation, Guidance and Control（School of Astronautics）

学科代码（Discipline Code） **081105**

一、研究方向（Research Field）

序号 No.	主要研究方向 Main Research Field
1	飞行器制导与控制系统 Guidance and Control System of Flight Vehicles
2	飞行控制与仿真技术 Flight Control and Simulation Technique
3	先进控制理论及应用 Advanced Control Theories and Their Application

二、课程设置（Curriculum Provision）

至少取得 16 学分，其中：公共课 8 学分，基础理论课至少 2 学分，专业基础课至少 2 学分，专业课至少 4 学分。

At least 16 credits, including 8 credits of public courses, at least 2 credits of basic theory courses, at least 2 credits of basic specialized courses and at least 4 credits of specialized courses.

1．公共课（学位必修课，8 学分）

Public Courses (degree compulsory, 8 credits)

课程编号 Course Code	课程名称 Course Name	学时 Learning Hour	学分 Credit	开课学期 Learning Semester	考核方式 Assessment
D26G11001	汉语语言 I Chinese Language I	60	3.0	1	考试 Exam
D26G11002	汉语语言 II Chinese Language II	60	3.0	2	考试 Exam
D26G12001	中国概况 Brief Introduction of China	40	2.0	1	考试 Exam

2．基础理论课（学位必修课，在下列课程中至少选 2 学分）

Basic Theory Courses (degree compulsory, at least 2 credits, selected from the following courses)

课程编号 Course Code	课程名称 Course Name	学时 Learning Hour	学分 Credit	开课学期 Learning Semester	考核方式 Assessment
D11G12001	近代统计方法 Modern Mathematics Statistics	40	2.0	1	考试 Exam
D11G12002	近代数值分析 Modern Numerical Analysis	40	2.0	1	考试 Exam

3．专业基础课（学位必修课，在下列课程中至少选 2 学分）

Basic Specialized Courses (degree compulsory, at least 2 credits, selected from the following courses)

课程编号 Course Code	课程名称 Course Name	学时 Learning Hour	学分 Credit	开课学期 Learning Semester	考核方式 Assessment
D02M12012	自适应控制及应用 Adaptive Control and Application	40	2.0	2	考试 Exam
D02M12014	系统辨识 System Identification	40	2.0	2	考试 Exam
D02M12015	航天器控制 Space Vehicle Control	40	2.0	2	考试 Exam
D02M12016	组合导航与复合制导 Integrated Navigation and Composite Guidance	40	2.0	2	考试 Exam
D02M12030	现代鲁棒控制理论及应用 Modern Robust Control Theory and Application	40	2.0	2	考试 Exam
D02M12031	控制系统的故障检测与诊断技术 Failure Detection and Diagnosis Technology of Control System	40	2.0	2	考试 Exam

4．专业课（学位选修课，至少选 4 学分）

Specialized Courses (degree elective, at least 4 credits)

课程编号 Course Code	课程名称 Course Name	学时 Learning Hour	学分 Credit	开课学期 Learning Semester	考核方式 Assessment
D02M12005	航天器制导与控制 Guidance and Control of Space Vehicles	40	2.0	2	考试 Exam
D02M12006	计算智能导论 Introduction to Intelligence	40	2.0	2	考试 Exam
D02M12007	面向机器知觉的仿生智能感知 Bio-inspired Intelligent Perception for Machine Awareness	40	2.0	2	考试 Exam
D02M12008	卫星导航原理与应用 Elements and Application of Satellite Navigation System	40	2.0	1	考试 Exam
D02M12032	现代导弹制导与控制 Guidance and Control of Modern Missile	40	2.0	2	考试 Exam
D02M12033	智能机器人环境感知与控制 Environment Perception and Control of Intelligent Robot	40	2.0	2	考试 Exam

6. 航空宇航科学与技术（航天学院）

Aeronautical and Astronautical Science and Technology（School of Astronautics）

学科代码（Discipline Code） **082500**

一、研究方向（Research Field）

序号 No.	主要研究方向 Main Research Field
1	发动机总体设计 Propulsion System Design
2	发动机燃烧与流动 Combustion and Flow in Engine
3	传热、传质与热结构 Heat and MassTransfer, Thermo-Stucture
4	发动机测试与故障诊断 Testing and fault Diagnosis of Propulsion System
5	飞行器总体设计 Conceptual Design of Flight Vehicle
6	飞行器结构设计 Structural Design of Flight Vehicle
7	飞行器飞行动力学与控制 Flight Dynamics and Control of Flight Vehicle
8	空天飞行器系统与技术 Aerospace Flight Vehicle System and Technology
9	飞行器系统工程与仿真 Flight Vehicle System Engineering and Technology

二、课程设置（Curriculum Provision）

至少取得 16 学分，其中：公共课 8 学分，基础理论课至少 2 学分，专业基础课至少 2 学分，专业课至少 4 学分。

At least 16 credits, including 8 credits of public courses, at least 2 credits of basic theory courses, at least 2 credits of basic specialized courses and at least 4 credits of specialized courses.

1．公共课（学位必修课，8 学分）

Public Courses (degree compulsory, 8 credits)

课程编号 Course Code	课程名称 Course Name	学时 Learning Hour	学分 Credit	开课学期 Learning Semester	考核方式 Assessment
D26G11001	汉语语言 I Chinese Language I	60	3.0	1	考试 Exam
D26G11002	汉语语言 II Chinese Language II	60	3.0	2	考试 Exam
D26G12001	中国概况 Brief Introduction of China	40	2.0	1	考试 Exam

2．基础理论课（学位必修课，在下列课程中至少选 2 学分）

Basic Theory Courses (degree compulsory, at least 2 credits, selected from the following courses)

课程编号 Course Code	**课程名称** Course Name	**学时** Learning Hour	**学分** Credit	**开课学期** Learning Semester	**考核方式** Assessment
D11G12001	近代统计方法 Modern Mathematics Statistics	40	2.0	1	考试 Exam
D11G12002	近代数值分析 Modern Numerical Analysis	40	2.0	1	考试 Exam

3．专业基础课（学位必修课，在下列课程中至少选 2 学分）

Basic Specialized Courses (degree compulsory, at least 2 credits, selected from the following courses)

课程编号 Course Code	**课程名称** Course Name	**学时** Learning Hour	**学分** Credit	**开课学期** Learning Semester	**考核方式** Assessment
D02M12012	自适应控制及应用 Adaptive Control and Application	40	2.0	2	考试 Exam
D02M12013	飞行器姿态与轨道力学 Orbital and Attitude Dynamics of Flight Vehicle	40	2.0	2	考试 Exam
D02M12014	系统辨识 System Identification	40	2.0	1	考试 Exam
D02M12015	航天器控制 Space Vehicle Control	40	2.0	2	考试 Exam
D02M12016	组合导航与复合制导 Integrated Navigation and Composite Guidance	40	2.0	2	考试 Exam
D02M12017	相似与模拟 Analogy and Simulation	40	2.0	2	考试 Exam
D02M12018	计算传热学 Numerical Heat Transfer	40	2.0	2	考试 Exam
D02M12019	现代流体动力学 Modern Fluid Dynamics	40	2.0	2	考试 Exam
D02M12020	飞行器系统工程 System Engineering of Flight Vehicle	40	2.0	2	考试 Exam
D02M12021	燃烧物理学 Combustion Physics	40	2.0	2	考试 Exam
D02M12022	飞行器多学科设计优化 Multidisciplinary Design Optimization of Flight Vehicle	40	2.0	2	考试 Exam
D02M12023	轨道机动动力学与相对导航 Orbital Maneuvering Dynamics and Relative Navigation	40	2.0	2	考试 Exam

D02M12024	能源供应与推进系统控制技术 Energy Supply and Propulsion Control Technology	40	2.0	1	考试 Exam
D02M12034	燃烧化学 Formulation and Performances of Propellants	40	2.0	1	考试 Exam

4．专业课（学位选修课，至少选 4 学分）

Specialized Courses (degree elective, at least 4 credits)

课程编号 Course Code	**课程名称** Course Name	**学时** Learning Hour	**学分** Credit	**开课学期** Learning Semester	**考核方式** Assessment
D02M12025	高等计算流体力学 Advanced Computational Fluid Dynamics	40	2.0	2	考试 Exam
D02M12026	等离子体动力学 Plasm Dynamics	40	2.0	2	考试 Exam
D02M12027	非线性有限元 Nonlinear Finite Element	40	2.0	2	考试 Exam
D02M12028	空间飞行器流体力学 Space Vehicle Hydromechanics	40	2.0	2	考试 Exam
D02M12029	结构动态设计 Dynamic Structure Design	40	2.0	2	考试 Exam
D02M12009	火箭发动机设计 Design of Rocket Engine	40	2.0	2	考试 Exam
D02M12010	火箭推进 Rocket Propulsion	40	2.0	2	考试 Exam
D02M12011	两相流 Two-phase Flows	40	2.0	2	考试 Exam

7. 声学（航海学院）

Acoustics（School of Marine Science and Technology ）

学科代码（Discipline Code） **070206**

一、研究方向（Research Field）

序号 No.	主要研究方向 Main Research Field
1	物理声学 Physical Acoustics
2	水声学 Underwater Acoustics
3	声信息处理 Acoustic Signal Processing

二、课程设置（Curriculum Provision）

至少取得 16 学分，其中：公共课 8 学分，基础理论课至少 2 学分，专业基础课至少 2 学分，专业课至少 4 学分。

At least 16 credits, including 8 credits of public courses, at least 2 credits of basic theory courses, at least 2 credits of basic specialized courses and at least 4 credits of specialized courses.

1．公共课（学位必修课，8 学分）

Public Courses (degree compulsory, 8 credits)

课程编号 Course Code	课程名称 Course Name	学时 Learning Hour	学分 Credit	开课学期 Learning Semester	考核方式 Assessment
D26G11001	汉语语言 I Chinese Language I	60	3.0	1	考试 Exam
D26G11002	汉语语言 II Chinese Language II	60	3.0	2	考试 Exam
D26G12001	中国概况 Brief Introduction of China	40	2.0	1	考试 Exam

2．基础理论课（学位必修课，在下列课程中至少选 2 学分）

Basic Theory Courses (degree compulsory, at least 2 credits, selected from the following courses)

课程编号 Course Code	课程名称 Course Name	学时 Learning Hour	学分 Credit	开课学期 Learning Semester	考核方式 Assessment
D11G12001	近代统计方法 Modern Mathematics Statistics	40	2.0	1	考试 Exam
D11G12002	近代数值分析 Modern Numerical Analysis	40	2.0	1	考试 Exam

3．专业基础课（学位必修课，在下列课程中至少选 2 学分）

Basic Specialized Courses (degree compulsory, at least 2 credits, selected from the following courses)

课程编号 Course Code	**课程名称** Course Name	**学时** Learning hour	**学分** Credit	**开课学期** Learning semester	**考核方式** Assessment
D03M12001	理论声学 Theoretical Acoustics	40	2.0	2	考试 Exam

4．专业课（学位选修课，至少选 4 学分）

Specialized courses (degree elective, at least 4 credits)

课程编号 Course Code	**课程名称** Course Name	**学时** Learning hour	**学分** Credit	**开课学期** Learning semester	**考核方式** Assessment
D03M12002	计算海洋声学 Computational Ocean Acoustics	40	2.0	2	考试 Exam
D03M12003	粒子滤波原理及其应用 The Principle and Application of Particle Filter	40	2.0	1	考查 Test

8. 信息与通信工程（航海学院）

Information and Communication Engineering

（School of Marine Science and Technology）

学科代码（Discipline Code） **081000**

一、研究方向（Research Field）

序号 No.	主要研究方向 Main Research Field
1	通信与信息系统 Communication and Information System
2	信号与信息处理 Signal and Information Processing
3	通信与信息系统 Communication and Information System

二、课程设置（Curriculum Provision）

至少取得 16 学分，其中：公共课 8 学分，基础理论课至少 2 学分，专业基础课至少 2 学分，专业课至少 4 学分。

At least 16 credits, including 8 credits of public courses, at least 2 credits of basic theory courses, at least 2 credits of basic specialized courses and at least 4 credits of specialized courses.

1．公共课（学位必修课，8 学分）

Public Courses (degree compulsory, 8 credits)

课程编号 Course Code	课程名称 Course Name	学时 Learning Hour	学分 Credit	开课学期 Learning Semester	考核方式 Assessment
D26G11001	汉语语言 I Chinese Language I	60	3.0	1	考试 Exam
D26G11002	汉语语言 II Chinese Language II	60	3.0	2	考试 Exam
D26G12001	中国概况 Brief Introduction of China	40	2.0	1	考试 Exam

2．基础理论课（学位必修课，在下列课程中至少选 2 学分）

Basic Theory Courses (degree compulsory, at least 2 credits, selected from the following courses)

课程编号 Course Code	课程名称 Course Name	学时 Learning Hour	学分 Credit	开课学期 Learning Semester	考核方式 Assessment
D11G12001	近代统计方法 Modern Mathematics Statistics	40	2.0	1	考试 Exam
D11G12002	近代数值分析 Modern Numerical Analysis	40	2.0	1	考试 Exam

3．专业基础课（学位必修课，在下列课程中至少选 2 学分）

Basic Specialized Courses (degree compulsory, at least 2 credits, selected from the following courses)

课程编号 Course Code	**课程名称** Course Name	**学时** Learning Hour	**学分** Credit	**开课学期** Learning Semester	**考核方式** Assessment
D03M12004	数字信号处理理论及应用 Digital Signal Processing Theory and Applications	60	3.0	1	考试 Exam
D03M12005	水声通信原理 The Principle of Underwater Acoustic Communications	40	2.0	1	考试 Exam
D03M12006	信号检测与估值 Signal Detection and Estimation	40	2.0	1	考试 Exam
D03M12007	水下信号与信息处理 Underwater Signal & Information Processing	40	2.0	2	考试 Exam
D03M12008	现代谱分析 Modern Spectral Analysis	40	2.0	1	考试 Exam
D03M12009	阵列信号处理 Array Signal Processing	40	2.0	2	考试 Exam
D03M12010	自适应信号处理 Adaptive signal processing	60	3.0	2	考试 Exam

4．专业课（学位选修课，至少选 4 学分）

Specialized Courses (degree elective, at least 4 credits)

课程编号 Course Code	**课程名称** Course Name	**学时** Learning Hour	**学分** Credit	**开课学期** Learning Semester	**考核方式** Assessment
D03M12011	自适应滤波理论与实现 Adaptive Filter and Implementation	60	3.0	2	考查 Test
D03M12012	海洋多维信息可视化技术 The Technology of Multi-Dimensions Information Visualization for Marine	40	2.0	2	考试 Exam
D03M12013	时频分析及应用 Time Frequency Analysis and Its Application	40	2.0	2	考试 Exam
D03M12014	MIMO 阵列信号处理 MIMO Array Signal Processing	40	2.0	2	考试 Exam

9. 船舶与海洋工程（航海学院）

Naval Architecture and Marine Engineering（School of Marine Science and Technology ）

学科代码（Discipline Code） **082400**

一、研究方向（Research Field）

序号 No.	主要研究方向 Main Research Field
1	海洋声学 Ocean Acoustics
2	水声信号与信息处理 Underwater acoustic signal and information processing
3	声呐技术 Sonar technique
4	导航制导与控制 Navigation, Guidance and Control
5	水下机器人技术 Underwater Vehicle Technology
6	先进控制理论与仿真技术 Advance Control Theory and Simulation Technology
7	船舶与海洋结构物设计制造 Design and Manufacturer of Ships and Marine Structures

二、课程设置（Curriculum Provision）

至少取得 16 学分，其中：公共课 8 学分，基础理论课至少 2 学分，专业基础课至少 2 学分，专业课至少 4 学分。

At least 16 credits, including 8 credits of public courses, at least 2 credits of basic theory courses, at least 2 credits of basic specialized courses and at least 4 credits of specialized courses.

1．公共课（学位必修课，8 学分）

Public Courses (degree compulsory, 8 credits)

课程编号 Course Code	课程名称 Course Name	学时 Learning Hour	学分 Credit	开课学期 Learning Semester	考核方式 Assessment
D26G11001	汉语语言 I Chinese Language I	60	3.0	1	考试 Exam
D26G11002	汉语语言 II Chinese Language II	60	3.0	2	考试 Exam
D26G12001	中国概况 Brief Introduction of China	40	2.0	1	考试 Exam

2．基础理论课（学位必修课，在下列课程中至少选 2 学分）

Basic Theory Courses (degree compulsory, at least 2 credits, selected from the following courses)

课程编号 Course Code	课程名称 Course Name	学时 Learning Hour	学分 Credit	开课学期 Learning Semester	考核方式 Assessment
D11G12001	近代统计方法 Modern Mathematics Statistics	40	2.0	1	考试 Exam
D11G12002	近代数值分析 Modern Numerical Analysis	40	2.0	1	考试 Exam

3．专业基础课（学位必修课，在下列课程中至少选 2 学分）

Basic Specialized Courses (degree compulsory, at least 2 credits, selected from the following courses)

课程编号 Course Code	课程名称 Course Name	学时 Learning Hour	学分 Credit	开课学期 Learning Semester	考核方式 Assessment
D03M12015	水下航行器流体力学 Unmanned Underwater Vehicle Fluid Mechanics	40	2.0	2	考试 Exam
D03M12016	水下航行器优化设计 Optimization Design of Automatic Underwater Vehicle	40	2.0	2	考试 Exam
D03M12017	海洋航行器动力学 Dynamics of Ocean Vehicles	40	2.0	2	考试 Exam
D03M12018	非线性控制系统 Nonlinear Control Systems	40	2.0	1	考试 Exam
D03M12019	最优估计理论 Optimal Estimation Theory	40	2.0	1	考试 Exam
D03M12020	实用数字信号处理 Applied Digital Signal Processing	40	2.0	2	考试 Exam
D03M12009	阵列信号处理 Array Signal Processing	40	2.0	2	考试 Exam
D03M12021	随机信号原理 Principle of Random Signal Processing	40	2.0	2	考试 Exam
D03M12010	自适应信号处理 Adaptive Signal Processing	40	2.0	2	考试 Exam

4．专业课（学位选修课，至少选 4 学分）

Specialized Courses (degree elective, at least 4 credits)

课程编号 Course Code	课程名称 Course Name	学时 Learning Hour	学分 Credit	开课学期 Learning Semester	考核方式 Assessment
D03M12022	水动力学 Hydrodynamics	40	2.0	1	考试 Exam

D03M12023	超空泡航行体流体动力学 Fluid Dynamics of Supercavitating Vehicles	40	2.0	1	考试 Exam
D03M12024	可靠性和维修性 Reliability and Maintainability	40	2.0	2	考试 Exam
D03M12025	机器人导论 Introduction to Robotics	40	2.0	2	考试 Exam
D03M12026	水下航行器导航与定位技术 Navigation and Positioning of Underwater Vehicle	40	2.0	1	考试 Exam
D03M12002	计算海洋声学 Computational Ocean Acoustics	40	2.0	2	考试 Exam
D03M12027	信息论与编码 Information Theory and Coding	40	2.0	2	考试 Exam
D03M12028	水声换能器及基阵 Transducers and Arrays for Underwater Sound	40	2.0	2	考查 Test

10. 兵器科学与技术（航海学院）

Armament Science and Technology（School of Marine Science and Technology）

学科代码（Discipline Code） **082600**

一、研究方向（Research Field）

序号 No.	主要研究方向 Main Research Field
1	武器总体设计技术 Weapon Overall Design Technology
2	武器导航与控制技术 Weapon Navigation and Control Technology
3	水下信号处理与自导技术 Underwater Signal Process and Self-Guidance Technology
4	特种能源理论与动力推进技术 Special Energy Theory and Power Technique
5	武器系统工程与仿真技术 Weapon System Engineering and Simulation Technology
6	发射、回收理论与技术 Launch and Recovery Theory and Technology

二、课程设置（Curriculum Provision）

至少取得 16 学分，其中：公共课 8 学分，基础理论课至少 2 学分，专业基础课至少 2 学分，专业课至少 4 学分。

At least 16 credits, including 8 credits of public courses, at least 2 credits of basic theory courses, at least 2 credits of basic specialized courses and at least 4 credits of specialized courses.

1．公共课（学位必修课，8 学分）

Public Courses (degree compulsory, 8 credits)

课程编号 Course Code	课程名称 Course Name	学时 Learning Hour	学分 Credit	开课学期 Learning Semester	考核方式 Assessment
D26G11001	汉语语言 I Chinese Language I	60	3.0	1	考试 Exam
D26G11002	汉语语言 II Chinese Language II	60	3.0	2	考试 Exam
D26G12001	中国概况 Brief Introduction of China	40	2.0	1	考试 Exam

2．基础理论课（学位必修课，在下列课程中至少选 2 学分）

Basic Theory Courses (degree compulsory, at least 2 credits, selected from the following courses)

课程编号 Course Code	课程名称 Course Name	学时 Learning Hour	学分 Credit	开课学期 Learning Semester	考核方式 Assessment

D11G12001	近代统计方法 Modern Mathematics Statistics	40	2.0	1	考试 Exam
D11G12002	近代数值分析 Modern Numerical Analysis	40	2.0	1	考试 Exam

3．专业基础课（学位必修课，在下列课程中至少选 2 学分）

Basic Specialized Courses (degree compulsory, at least 2 credits, selected from the following courses)

课程编号 Course Code	**课程名称** Course Name	**学时** Learning Hour	**学分** Credit	**开课学期** Learning Semester	**考核方式** Assessment
D03M12015	水下航行器流体力学 Unmanned Underwater Vehicle Fluid Mechanics	40	2.0	2	考试 Exam
D03M12026	水下航行器导航与定位技术 Navigation and Positioning of Underwater Vehicle	40	2.0	1	考试 Exam
D03M12011	自适应滤波理论与实现 Adaptive Filter and Implementation	60	3.0	2	考查 Test
D03M12013	时频分析及应用 Time frequency Analysis and Its Application	40	2.0	2	考试 Exam

4．专业课（学位选修课，至少选 4 学分）

Specialized Courses (degree elective, at least 4 credits)

课程编号 Course Code	**课程名称** Course Name	**学时** Learning Hour	**学分** Credit	**开课学期** Learning Semester	**考核方式** Assessment
D03M12017	海洋航行器动力学 Dynamics of Ocean Vehicles	40	2.0	2	考试 Exam
D03M12018	非线性控制系统 Nonlinear Control Systems	40	2.0	1	考试 Exam
D03M12006	信号检测与估值 Signal Detection and Estimation	40	2.0	1	考试 Exam
D03M12007	水下信号与信息处理 Underwater Signal & Information Processing	40	2.0	2	考试 Exam
D03M12029	随机信号分析 Random Signal Analysis	40	2.0	1	考试 Exam

11. 材料学（材料学院）

Materials Science（School of Materials Science and Engineering）

学科代码（Discipline Code） **080502**

一、研究方向（Research Field）

序号 No.	主要研究方向 Main Research Field
1	金属材料 Metal Materials
2	无机非金属材料 Inorganic Materials
3	材料的结构与性能 Materials Structure and Property
4	材料的腐蚀与表面技术 Corrosion and Surface Technology of Materials
5	纳米材料 Nano Materials
6	生物材料（生命学院） Biomaterials（School of Life Sciences）
7	材料设计与制备的计算机模拟 Modeling of Materials Design and Processing

二、课程设置（Curriculum Provision）

至少取得 16 学分，其中：公共课 8 学分，基础理论课至少 2 学分，专业基础课至少 2 学分，专业课至少 4 学分。

At least 16 credits, including 8 credits of public courses, at least 2 credits of basic theory courses, at least 2 credits of basic specialized courses and at least 4 credits of specialized courses.

1．公共课（学位必修课，8 学分）

Public Courses (degree compulsory, 8 credits)

课程编号 Course Code	课程名称 Course Name	学时 Learning Hour	学分 Credit	开课学期 Learning Semester	考核方式 Assessment
D26G11001	汉语语言 I Chinese Language I	60	3.0	1	考试 Exam
D26G11002	汉语语言 II Chinese Language II	60	3.0	2	考试 Exam
D26G12001	中国概况 Brief Introduction of China	40	2.0	1	考试 Exam

2．基础理论课（学位必修课，在下列课程中至少选 2 学分）

Basic Theory Courses (degree compulsory, at least 2 credits, selected from the following courses)

课程编号 Course Code	课程名称 Course Name	学时 Learning Hour	学分 Credit	开课学期 Learning Semester	考核方式 Assessment
D11G12001	近代统计方法 Modern Mathematics Statistics	40	2.0	1	考试 Exam
D11G12002	近代数值分析 Modern Numerical Analysis	40	2.0	1	考试 Exam

3．专业基础课（学位必修课，在下列课程中至少选 2 学分）

Basic Specialized Courses (degree compulsory, at least 2 credits, selected from the following courses)

课程编号 Course Code	课程名称 Course Name	学时 Learning Hour	学分 Credit	开课学期 Learning Semester	考核方式 Assessment
D04M12001	材料科学与工程 Materials Science and Engineering	40	2.0	2	考试 Exam
D04M12002	凝固技术 Solidification Technology	40	2.0	2	考试 Exam
D04M12003	复合材料原理 Fundamentals of Composites	40	2.0	2	考试 Exam
D04M12004	固相焊接技术 Solid-State Welding	40	2.0	2	考试 Exam
D04M12005	高温合金 Superalloys	40	2.0	2	考试 Exam
D04M12006	纳米合金 Nanoalloy	40	2.0	2	考试 Exam
D04M12007	材料的电子显微分析 Electron Microscopy and Analysis for Materials	40	2.0	2	考试 Exam
D04M12008	凝固微观组织数值模拟 Solidification Microstructure Simulation	40	2.0	2	考试 Exam
D04M12009	碳/碳复合材料 Carbon-carbon Composites	40	2.0	2	考试 Exam
D04M12010	材料物理 Materials Physics	60	3.0	2	考试 Exam
D04M12011	高温材料表面防护及涂层技术 Surface Protection and Coating Technique for High-temperature Materials	40	2.0	2	考试 Exam
D04M12012	碳材料导论 Introduction to Carbon Materials	40	2.0	2	考试 Exam
D04M12013	纳米材料与纳米技术 Nanostructured Materials and Nanotechnology	40	2.0	2	考试 Exam
D04M12014	材料计算模拟与设计 Computational Materials Modelling and Design	40	2.0	2	考试 Exam

D04M12015	半导体物理与材料特性 Physics and Materials Properties of Semiconductors	40	2.0	1	考试 Exam
D04M12016	熔体特性与熔体生长技术 Melt Characteristics and Melt Growth Techniques	40	2.0	1	考试 Exam

4．专业课（学位选修课，至少选 4 学分）

Specialized Courses (degree elective, at least 4 credits)

课程编号 Course Code	**课程名称** Course Name	**学时** Learning Hour	**学分** Credit	**开课学期** Learning Semester	**考核方式** Assessment
D04M12017	化学气相沉积原理 Principles of Chemical Vapor Deposition	40	2.0	2	考查 Test
D04M12018	位错理论与材料强度 Dislocations Theory of and Material Strength	40	2.0	2	考查 Test
D04M12019	现代热喷涂技术 Modern Thermal Spray Technology	40	2.0	2	考查 Test
D04M12020	左手材料的光学电磁导论 Introduction to Optics and Electromagnetism in Metamaterials	40	2.0	2	考查 Test
D04M12021	轻金属及其合金的凝固加工 Solidification Processing of Light Metals and Alloys	40	2.0	2	考查 Test
D04M12022	现代焊接技术 Modern Welding Technology	40	2.0	2	考查 Test
D04M12023	第一性原理模拟 First Principles Simulation	40	2.0	2	考查 Test
D04M12024	塑性成形多尺度建模仿真 Multiscale Modeling and Simulation of Material Plastic Forming	40	2.0	2	考查 Test
D04M12025	沥青材料 Pitch Materials	40	2.0	1	考查 Test
D04M12026	新型能源材料 Advanced Energy Materials	40	2.0	2	考查 Test
D04M12027	交通智能新型碳材料 New Carbon Materials for Intelligent Transportation	40	2.0	2	考查 Test
D04M12028	晶体生长基础 Fundamental of Crystal Growth	40	2.0	1	考查 Test
D04M12029	材料的先进表征技术 Advanced Characterization Techniques of Materials	40	2.0	2	考查 Test

D04M12030	材料微结构分析与表征 Microstructure Analysis of Advanced Materials	40	2.0	1	考查 Test
D04M12031	热力学极值原理及其应用 Thermodynamic Extremal Principle and Its Application	40	2.0	1	考查 Test
D04M12032	功能陶瓷导论 Introduction to Functional Ceramics	40	2.0	1	考查 Test
D04M12033	先进反应堆结构材料 Advanced Nuclear Structural Materials	40	2.0	1	考查 Test
D04M12034	电化学原理、方法与应用 Fundamentals、Measurement Methods and Applications of Electrochemistry	40	2.0	1	考查 Test
D04M12035	复合材料基体学 Matrix Materialogy of Composite Material	40	2.0	1	考查 Test
D04M12036	金属塑性加工的现代力学原理 Modern Mechanics Principle for Metal Plastic Forming	40	2.0	1	考查 Test
D04M12037	光谱学与光谱分析 Spectroscopy and Spectral Analysis	40	2.0	1	考查 Test
D04M12038	有机电子学 Organic Electronics	40	2.0	1	考查 Test
D04M12039	生物涂层原理与技术 Principle and Technology of Biological Coating	40	2.0	1	考查 Test
D04M12040	固体缺陷化学基础 Fundamental of Defect Chemistry of Solids	40	2.0	2	考查 Test
D04M12041	磁场下材料的分析与处理 Materials Analysis and Processing in Magnetic Fields	40	2.0	2	考查 Test
D04M12042	太阳能燃料的生成与技术 Solar energy conversion materials and technology	40	2.0	2	考查 Test
D04M12043	纳米生物材料 Nanobiotechnology	40	2.0	2	考查 Test
D04M12044	过渡金属氧化物 Transitional Metal Oxides	40	2.0	1	考查 Test

12. 材料加工工程（材料学院）

Materials Processing Engineering（School of Materials Science and Engineering）

学科代码（Discipline Code） **080503**

一、研究方向（Research Field）

序号 No.	主要研究方向 Main Research Field
1	材料热处理 Materials Heat-treatment
2	凝固技术 Solidification Processing
3	塑性成形技术 Plastic Forming
4	焊接技术 Welding Technology
5	材料设计与制备的计算机模拟 Modeling of Materials Design and Processing

二、课程设置（Curriculum Provision）

至少取得 16 学分，其中：公共课 8 学分，基础理论课至少 2 学分，专业基础课至少 2 学分，专业课至少 4 学分。

At least 16 credits, including 8 credits of public courses, at least 2 credits of basic theory courses, at least 2 credits of basic specialized courses and at least 4 credits of specialized courses.

1．公共课（学位必修课，8 学分）

Public Courses (degree compulsory, 8 credits)

课程编号 Course Code	课程名称 Course Name	学时 Learning Hour	学分 Credit	开课学期 Learning Semester	考核方式 Assessment
D26G11001	汉语语言 I Chinese Language I	60	3.0	1	考试 Exam
D26G11002	汉语语言 II Chinese Language II	60	3.0	2	考试 Exam
D26G12001	中国概况 Brief Introduction of China	40	2.0	1	考试 Exam

2．基础理论课（学位必修课，在下列课程中至少选 2 学分）

Basic Theory Courses (degree compulsory, at least 2 credits, selected from the following courses)

课程编号 Course Code	课程名称 Course Name	学时 Learning Hour	学分 Credit	开课学期 Learning Semester	考核方式 Assessment

D11G12001	近代统计方法 Modern Mathematics Statistics	40	2.0	1	考试 Exam
D11G12002	近代数值分析 Modern Numerical Analysis	40	2.0	1	考试 Exam

3．专业基础课（学位必修课，在下列课程中至少选 2 学分）

Basic Specialized Courses (degree compulsory, at least 2 credits, selected from the following courses)

课程编号 Course Code	**课程名称** Course Name	**学时** Learning Hour	**学分** Credit	**开课学期** Learning Semester	**考核方式** Assessment
D04M12001	材料科学与工程 Materials Science and Engineering	40	2.0	2	考试 Exam
D04M12002	凝固技术 Solidification Technology	40	2.0	2	考试 Exam
D04M12003	复合材料原理 Fundamentals of Composites	40	2.0	2	考试 Exam
D04M12004	固相焊接技术 Solid-State Welding	40	2.0	2	考试 Exam
D04M12005	高温合金 Superalloys	40	2.0	2	考试 Exam
D04M12006	纳米合金 Nanoalloy	40	2.0	2	考试 Exam
D04M12007	材料的电子显微分析 Electron Microscopy and Analysis for Materials	40	2.0	2	考试 Exam
D04M12008	凝固微观组织数值模拟 Solidification Microstructure Simulation	40	2.0	2	考试 Exam
D04M12009	碳/碳复合材料 Carbon-carbon Composites	40	2.0	2	考试 Exam
D04M12010	材料物理 Materials Physics	60	3.0	2	考试 Exam
D04M12011	高温材料表面防护及涂层技术 Surface Protection and Coating Technique for High-temperature Materials	40	2.0	2	考试 Exam
D04M12012	碳材料导论 Introduction to Carbon Materials	40	2.0	2	考试 Exam
D04M12013	纳米材料与纳米技术 Nanostructured Materials and Nanotechnology	40	2.0	2	考试 Exam
D04M12014	材料计算模拟与设计 Computational Materials Modelling and Design	40	2.0	2	考试 Exam
D04M12015	半导体物理与材料特性 Physics and Materials Properties of Semiconductors	40	2.0	1	考试 Exam

D04M12016	熔体特性与熔体生长技术 Melt Characteristics and Melt Growth Techniques	40	2.0	1	考试 Exam

4．专业课（学位选修课，至少选 4 学分）

Specialized Courses (degree elective, at least 4 credits)

课程编号 Course Code	**课程名称** Course Name	**学时** Learning Hour	**学分** Credit	**开课学期** Learning Semester	**考核方式** Assessment
D04M12017	化学气相沉积原理 Principles of Chemical Vapor Deposition	40	2.0	2	考查 Test
D04M12018	位错理论与材料强度 Dislocations Theory of and Material Strength	40	2.0	2	考查 Test
D04M12019	现代热喷涂技术 Modern Thermal Spray Technology	40	2.0	2	考查 Test
D04M12020	左手材料的光学电磁导论 Introduction to Optics and Electromagnetism in Metamaterials	40	2.0	2	考查 Test
D04M12021	轻金属及其合金的凝固加工 Solidification Processing of Light Metals and Alloys	40	2.0	2	考查 Test
D04M12022	现代焊接技术 Modern Welding Technology	40	2.0	2	考查 Test
D04M12023	第一性原理模拟 First Principles Simulation	40	2.0	2	考查 Test
D04M12024	塑性成形多尺度建模仿真 Multiscale Modeling and Simulation of Material Plastic Forming	40	2.0	2	考查 Test
D04M12025	沥青材料 Pitch Materials	40	2.0	1	考查 Test
D04M12026	新型能源材料 Advanced Energy Materials	40	2.0	2	考查 Test
D04M12027	交通智能新型碳材料 New Carbon Materials for Intelligent Transportation	40	2.0	2	考查 Test
D04M12028	晶体生长基础 Fundamental of Crystal Growth	40	2.0	1	考查 Test
D04M12029	材料的先进表征技术 Advanced Characterization Techniques of Materials	40	2.0	2	考查 Test
D04M12030	材料微结构分析与表征 Microstructure Analysis of Advanced Materials	40	2.0	1	考查 Test

D04M12031	热力学极值原理及其应用 Thermodynamic Extremal Principle and Its Application	40	2.0	1	考查 Test
D04M12032	功能陶瓷导论 Introduction to Functional Ceramics	40	2.0	1	考查 Test
D04M12033	先进反应堆结构材料 Advanced Nuclear Structural Materials	40	2.0	1	考查 Test
D04M12034	电化学原理、方法与应用 Fundamentals、Measurement Methods and Applications of Electrochemistry	40	2.0	1	考查 Test
D04M12035	复合材料基体学 Matrix Materialogy of Composite Material	40	2.0	1	考查 Test
D04M12036	金属塑性加工的现代力学原理 Modern Mechanics Principle for Metal Plastic Forming	40	2.0	1	考查 Test
D04M12037	光谱学与光谱分析 Spectroscopy and Spectral Analysis	40	2.0	1	考查 Test
D04M12038	有机电子学 Organic Electronics	40	2.0	1	考查 Test
D04M12039	生物涂层原理与技术 Principle and Technology of Biological Coating	40	2.0	1	考查 Test
D04M12040	固体缺陷化学基础 Fundamental of Defect Chemistry of Solids	40	2.0	2	考查 Test
D04M12041	磁场下材料的分析与处理 Materials Analysis and Processing in Magnetic Fields	40	2.0	2	考查 Test
D04M12042	太阳能燃料的生成与技术 Solar energy conversion materials and technology	40	2.0	2	考查 Test
D04M12043	纳米生物材料 Nanobiotechnology	40	2.0	2	考查 Test
D04M12044	过渡金属氧化物 Transitional Metal Oxides	40	2.0	1	考查 Test

13. 机械工程（机电学院）

Mechanical Engineering（School of Mechanical Engineering）

学科代码（Discipline Code） **080200**

一、研究方向（Research Field）

序号 No.	主要研究方向 Main Research Field
1	航空宇航制造工程 Aeronautical and Astronautical Manu- facturing Engineering
2	微机电系统及纳米技术 MEMS and Nano Technologies
3	仿生机电及智能机器人 Biomimetic Mechatronical System and Intelligent Robotics
4	智能制造系统 Intelligent Manufacturing System
5	工业设计 Industrial Design

二、课程设置（Curriculum Provision）

至少取得 16 学分，其中：公共课 8 学分，基础理论课至少 2 学分，专业基础课至少 2 学分，专业课至少 4 学分。

At least 16 credits, including 8 credits of public courses, at least 2 credits of basic theory courses, at least 2 credits of basic specialized courses and at least 4 credits of specialized courses.

1．公共课（学位必修课，8 学分）

Public Courses (degree compulsory, 8 credits)

课程编号 Course Code	课程名称 Course Name	学时 Learning Hour	学分 Credit	开课学期 Learning Semester	考核方式 Assessment
D26G11001	汉语语言 I Chinese Language I	60	3.0	1	考试 Exam
D26G11002	汉语语言 II Chinese Language II	60	3.0	2	考试 Exam
D26G12001	中国概况 Brief Introduction of China	40	2.0	1	考试 Exam

2．基础理论课（学位必修课，在下列课程中至少选 2 学分）

Basic Theory Courses (degree compulsory, at least 2 credits, selected from the following courses)

课程编号 Course Code	课程名称 Course Name	学时 Learning Hour	学分 Credit	开课学期 Learning Semester	考核方式 Assessment
D11G12001	近代统计方法 Modern Mathematics Statistics	40	2.0	1	考试 Exam

D11G12002	近代数值分析 Modern Numerical Analysis	40	2.0	1	考试 Exam

3．专业基础课（学位必修课，在下列课程中至少选 2 学分）

Basic Specialized Courses (degree compulsory, at least 2 credits, selected from the following courses)

课程编号 Course Code	**课程名称** Course Name	**学时** Learning Hour	**学分** Credit	**开课学期** Learning Semester	**考核方式** Assessment
D05M12001	几何造型原理和应用 Principles and Applications for Geometric Modeling	40	2.0	1	考试 Exam
D05M12002	结构优化理论与有限元分析 Theoretical Structural optimization and Finite Element Analysis	40	2.0	1	考试 Exam
D05M12003	系统可靠性理论及应用 System Reliability Theory and Applications	40	2.0	1	考查 Test

4．专业课（学位选修课，至少选 4 学分）

Specialized Courses (degree elective, at least 4 credits)

课程编号 Course Code	**课程名称** Course Name	**学时** Learning Hour	**学分** Credit	**开课学期** Learning Semester	**考核方式** Assessment
D05M12004	仿生机电设计方法 Biomimetic Approach to Design and Control Mechatronics	40	2.0	2	考试 Exam
D05M12005	智能机器人学 Intelligent Robotics	40	2.0	2	考试 Exam
D05M12006	微纳机电系统 Introduction to MEMS and NEMS	40	2.0	1	考查 Test
D05M12007	结构疲劳与断裂 Fatigue and Fracture of Structure	40	2.0	1	考试 Exam
D05M12008	计划调度原理及算法 Planning and Scheduling：Theory and Algorithms	40	2.0	2	考查 Test
D05M12009	实时制造执行系统 Real-time Manufacturing Execution System	40	2.0	2	考查 Test
D05M12010	产品生命周期管理理论与方法 Product Lifecycle Management Theory and Methods	40	2.0	2	考试 Exam
D05M12011	复合材料工程力学 Engineering Mechanics of Composite Materials	40	2.0	2	考试 Exam

14. 固体力学（力学与土木建筑学院）

Solid Mechanics（School of Mechanics, Civil Engineering and Architecture）

学科代码（Discipline Code） **080102**

一、研究方向（Research Field）

序号 No.	主要研究方向 Main Research Field
1	宏细微观力学与损伤力学 Macro Micro Mechanics and Damage Mechanics
2	先进复合材料与智能材料结构的力学行为 Mechanical Behavior of Advanced Composites and Smart Materials and Structures
3	材料力学行为及其计算机模拟 Mechanical Behavior of Material and Its Computer Simulation

二、课程设置（Curriculum Provision）

至少取得 16 学分，其中：公共课 8 学分，基础理论课至少 2 学分，专业基础课至少 2 学分，专业课至少 4 学分。

At least 16 credits, including 8 credits of public courses, at least 2 credits of basic theory courses, at least 2 credits of basic specialized courses and at least 4 credits of specialized courses.

1．公共课（学位必修课，8 学分）

Public Courses (degree compulsory, 8 credits)

课程编号 Course Code	课程名称 Course Name	学时 Learning Hour	学分 Credit	开课学期 Learning Semester	考核方式 Assessment
D26G11001	汉语语言 I Chinese Language I	60	3.0	1	考试 Exam
D26G11002	汉语语言 II Chinese Language II	60	3.0	2	考试 Exam
D26G12001	中国概况 Brief Introduction of China	40	2.0	1	考试 Exam

2．基础理论课（学位必修课，在下列课程中至少选 2 学分）

Basic Theory Courses (degree compulsory, at least 2 credits, selected from the following courses)

课程编号 Course Code	课程名称 Course Name	学时 Learning Hour	学分 Credit	开课学期 Learning Semester	考核方式 Assessment
D11G12001	近代统计方法 Modern Mathematics Statistics	40	2.0	1	考试 Exam
D11G12002	近代数值分析 Modern Numerical Analysis	40	2.0	1	考试 Exam

3．专业基础课（学位必修课，在下列课程中至少选 2 学分）

Basic Specialized Courses (degree compulsory, at least 2 credits, selected from the following courses)

课程编号 Course Code	课程名称 Course Name	学时 Learning Hour	学分 Credit	开课学期 Learning Semester	考核方式 Assessment
D06M12001	高等复合材料力学 Advanced Mechanics of Composite Materials	40	2.0	2	考试 Exam
D06M12002	连续介质损伤力学 The Continuum Damage Mechanics	40	2.0	2	考试 Exam
D06M12003	计算纳米力学 Computational Nanomechanics	40	2.0	2	考试 Exam

4．专业课（学位选修课，至少选 4 学分）

Specialized Courses (degree elective, at least 4 credits)

课程编号 Course Code	课程名称 Course Name	学时 Learning Hour	学分 Credit	开课学期 Learning Semester	考核方式 Assessment
D06M12004	纳米材料及结构的力学行为 Mechanical Behavior of Nanonmaterials and Nanonstructure	40	2.0	2	考试 Exam
D06M12005	智能结构与材料 Intelligent Structure and Materials	40	2.0	1	考试 Exam
D06M12006	损伤力学及其应用 Damage Mechanics and Application	40	2.0	2	考试 Exam
D06M12007	力学中的非线性问题分析方法 Applied Nonlinear Mechanics	40	2.0	2	考试 Exam
D06M12008	结构可靠性分析基础 Fundamentals of Structure Reliability Analysis	40	2.0	2	考试 Exam

15. 动力工程及工程热物理（动力与能源学院）

Power Engineering and Engineering Thermophysics（School of Power and Energy）

学科代码（Discipline Code） **080700**

一、研究方向（Research Field）

序号 No.	主要研究方向 Main Research Field
1	工程热物理 Engineering Thermophysics
2	热能工程 Thermal Energy Engineering
3	动力机械及工程 Power Machinery and Engineering
4	流体机械及工程 Fluid Machinery and Engineering
5	风能和太阳能系统及工程 Wind &Solar Energy System Engineering

二、课程设置（Curriculum Provision）

至少取得 16 学分，其中：公共课 8 学分，基础理论课至少 2 学分，专业基础课至少 2 学分，专业课至少 4 学分。

At least 16 credits, including 8 credits of public courses, at least 2 credits of basic theory courses, at least 2 credits of basic specialized courses and at least 4 credits of specialized courses.

1．公共课（学位必修课，8 学分）

Public Courses (degree compulsory, 8 credits)

课程编号 Course Code	课程名称 Course Name	学时 Learning Hour	学分 Credit	开课学期 Learning Semester	考核方式 Assessment
D26G11001	汉语语言 I Chinese Language I	60	3.0	1	考试 Exam
D26G11002	汉语语言 II Chinese Language II	60	3.0	2	考试 Exam
D26G12001	中国概况 Brief Introduction of China	40	2.0	1	考试 Exam

2．基础理论课（学位必修课，在下列课程中至少选 2 学分）

Basic Theory Courses (degree compulsory, at least 2 credits, selected from the following courses)

课程编号 Course Code	课程名称 Course Name	学时 Learning Hour	学分 Credit	开课学期 Learning Semester	考核方式 Assessment
D11G12001	近代统计方法 Modern Mathematics Statistics	40	2.0	1	考试 Exam

D11G12002	近代数值分析 Modern Numerical Analysis	40	2.0	1	考试 Exam

3．专业基础课（学位必修课，在下列课程中至少选 2 学分）

Basic Specialized Courses (degree compulsory, at least 2 credits, selected from the following courses)

课程编号 Course Code	**课程名称** Course Name	**学时** Learning Hour	**学分** Credit	**开课学期** Learning Semester	**考核方式** Assessment
D07M12001	现代航空发动机控制 The Advanced Control System of Aeroengines	40	2.0	1	考试 Exam
D07M12002	叶轮机非定常流动理论及气动稳定性 Theory of Unsteady Flow and Aerostability in Turbomachinery	40	2.0	2	考试 Exam
D07M12003	高等动力学 Advanced Dynamics of Rotating Machinery	40	2.0	2	考试 Exam
D07M12004	反应流体动力学 Reactive Flow Dynamics	40	2.0	2	考试 Exam

4．专业课（学位选修课，至少选 4 学分）

Specialized Courses (degree elective, at least 4 credits)

课程编号 Course Code	**课程名称** Course Name	**学时** Learning Hour	**学分** Credit	**开课学期** Learning Semester	**考核方式** Assessment
D07M12005	湍流理论 Turbulence Theory	40	2.0	2	考试 Exam
D07M12006	旋涡运动与分离流动的基本理论 Basic Theory of Vortex Motion and Separation Flow in Turbomachinery	40	2.0	2	考试 Exam
D07M12007	旋转机械故障诊断技术 Condition Monitoring and Faults Diagnosis of Rotating Machinery	40	2.0	2	考试 Exam
D07M12008	燃气轮机燃烧 Gas Turbine Combustion	40	2.0	2	考试 Exam
D07M12009	气动声学 Aeroacoustics	40	2.0	1	考试 Exam
D07M12010	高等传热学 Advanced Heat Transfer	40	2.0	1	考试 Exam
D07M12011	叶轮机气动弹性力学 Turbomachinery Unsteady Flow and Aero-elasticity	40	2.0	2	考查 Test
D07M12012	不可逆热力学动力学理论 Kinetic Theory and Irreversible Thermodynamics	40	2.0	2	考查 Test

D07M12013	PIV 测量技术 Particle Image Velocimetry Measurement Technique	40	2.0	2	考查 Test

16. 航空宇航科学与技术（动力与能源学院）

Aeronautical and Astronautical Science and Technology（School of Power and Energy）

学科代码（Discipline Code） **082500**

一、研究方向（Research Field）

序号 No.	主要研究方向 Main Research Field
1	发动机总体设计 Propulsion System Design
2	推进系统气动热力学 Thermodynamics of Propulsion System
3	叶轮机械气动热力学 Thermodynamics of Turbo Machinery
4	发动机燃烧与流动 Combustion and Flow of Propulsion System
5	强度、振动与可靠性 Strength, Vibration and Reliability
6	航空推进系统控制 Aero Propulsion System Control
7	测试、热工程信息处理、状态监测与故障诊断 Measurement, Thermal Engineering Information Processing, Condition Monitoring and Fault Diagnosis

二、课程设置（Curriculum Provision）

至少取得 16 学分，其中：公共课 8 学分，基础理论课至少 2 学分，专业基础课至少 2 学分，专业课至少 4 学分。

At least 16 credits, including 8 credits of public courses, at least 2 credits of basic theory courses, at least 2 credits of basic specialized courses and at least 4 credits of specialized courses.

1．公共课（学位必修课，8 学分）

Public Courses (degree compulsory, 8 credits)

课程编号 Course Code	课程名称 Course Name	学时 Learning Hour	学分 Credit	开课学期 Learning Semester	考核方式 Assessment
D26G11001	汉语语言 I Chinese Language I	60	3.0	1	考试 Exam
D26G11002	汉语语言 II Chinese Language II	60	3.0	2	考试 Exam
D26G12001	中国概况 Brief Introduction of China	40	2.0	1	考试 Exam

2．基础理论课（学位必修课，在下列课程中至少选 2 学分）

Basic Theory Courses (degree compulsory, at least 2 credits, selected from the following courses)

课程编号 Course Code	课程名称 Course Name	学时 Learning Hour	学分 Credit	开课学期 Learning Semester	考核方式 Assessment
D11G12001	近代统计方法 Modern Mathematics Statistics	40	2.0	1	考试 Exam
D11G12002	近代数值分析 Modern Numerical Analysis	40	2.0	1	考试 Exam

3．专业基础课（学位必修课，在下列课程中至少选 2 学分）

Basic Specialized Courses (degree compulsory, at least 2 credits, selected from the following courses)

课程编号 Course Code	课程名称 Course Name	学时 Learning Hour	学分 Credit	开课学期 Learning Semester	考核方式 Assessment
D07M12001	现代航空发动机控制 The Advanced Control System of Aeroengines	40	2.0	1	考试 Exam
D07M12002	叶轮机非定常流动理论及气动稳定性 Theory of Unsteady Flow and Aerostability in Turbomachinery	40	2.0	1	考试 Exam
D07M12003	高等动力学 Advanced Dynamics of Rotating Machinery	40	2.0	1	考试 Exam
D07M12004	反应流体动力学 Reactive Flow Dynamics	40	2.0	1	考试 Exam

4．专业课（学位选修课，至少选 4 学分）

Specialized Courses (degree elective, at least 4 credits)

课程编号 Course Code	课程名称 Course Name	学时 Learning Hour	学分 Credit	开课学期 Learning Semester	考核方式 Assessment
D07M12005	湍流理论 Turbulence Theory	40	2.0	2	考试 Exam
D07M12006	旋涡运动与分离流动的基本理论 Basic Theory of Vortex Motion and Separation Flow in Turbomachinery	40	2.0	2	考试 Exam
D07M12007	旋转机械故障诊断技术 Condition Monitoring and Faults Diagnosis of Rotating Machinery	40	2.0	2	考试 Exam
D07M12008	燃气轮机燃烧 Gas Turbine Combustion	40	2.0	2	考试 Exam
D07M12009	气动声学 Aeroacoustics	40	2.0	1	考试 Exam
D07M12010	高等传热学 Advanced Heat Transfer	40	2.0	1	考试 Exam

D07M12011	叶轮机气动弹性力学 Turbomachinery Unsteady Flow and Aero-elasticity	40	2.0	2	考查 Test
D07M12012	不可逆热力学动力学理论 Kinetic Theory and Irreversible Thermodynamics	40	2.0	2	考查 Test
D07M12013	PIV 测量技术 Particle Image Velocimetry Measurement Technique	40	2.0	2	考查 Test

17. 信息与通信工程（电子信息学院）

Information and Communication Engineering（School of Electronics and Information）

学科代码（Discipline Code） **081000**

一、研究方向（Research Field）

序号 No.	主要研究方向 Main Research Field
1	信号与信息处理的理论与技术 Signal and Information Processing Theory and Technology
2	传感信号与信息的获取与处理 Sensing Signal/Information Acquisition and Processing
3	机器视觉与图像处理 Computer Vision and Image Processing
4	智能感知、目标识别与信息对抗 Intelligent Sensing, Target Recognition, and Information Warfare
5	无线通信、多媒体通信与组网技术 Wireless Communication, Multimedia Communication and Networking Technology
6	卫星导航与定位技术 Satellite Navigation and Positioning Technology
7	工业信息化 Industrial Informatization

二、课程设置（Curriculum Provision）

至少取得 16 学分，其中：公共课 8 学分，基础理论课至少 2 学分，专业基础课至少 2 学分，专业课至少 4 学分。

At least 16 credits, including 8 credits of public courses, at least 2 credits of basic theory courses, at least 2 credits of basic specialized courses and at least 4 credits of specialized courses.

1．公共课（学位必修课，8 学分）

Public Courses (degree compulsory, 8 credits)

课程编号 Course Code	课程名称 Course Name	学时 Learning Hour	学分 Credit	开课学期 Learning Semester	考核方式 Assessment
D26G11001	汉语语言 I Chinese Language I	60	3.0	1	考试 Exam
D26G11002	汉语语言 II Chinese Language II	60	3.0	2	考试 Exam
D26G12001	中国概况 Brief Introduction of China	40	2.0	1	考试 Exam

2．基础理论课（学位必修课，在下列课程中至少选 2 学分）

Basic Theory Courses (degree compulsory, at least 2 credits, selected from the following courses)

课程编号 Course Code	课程名称 Course Name	学时 Learning Hour	学分 Credit	开课学期 Learning Semester	考核方式 Assessment
D11G12001	近代统计方法 Modern Mathematics Statistics	40	2.0	1	考试 Exam
D11G12002	近代数值分析 Modern Numerical Analysis	40	2.0	1	考试 Exam

3．专业基础课（学位必修课，在下列课程中至少选 2 学分）

Basic Specialized Courses (degree compulsory, at least 2 credits, selected from the following courses)

课程编号 Course Code	课程名称 Course Name	学时 Learning Hour	学分 Credit	开课学期 Learning Semester	考核方式 Assessment
D08M12001	现代通信高级论题 Advanced Topics in Communication	40	2.0	1	考试 Exam
D08M12002	信号与信息处理高级论题 Advanced Topics on Signal and Information Processing	40	2.0	1	考试 Exam

4．专业课（学位选修课，至少选 4 学分）

Specialized Courses (degree elective, at least 4 credits)

课程编号 Course Code	课程名称 Course Name	学时 Learning Hour	学分 Credit	开课学期 Learning Semester	考核方式 Assessment
D08M12003	无线通信网络技术 Wireless Communication Networking Technology	40	2.0	2	考试 Exam
D08M12004	数字图像处理 Digital Image Processing	40	2.0	2	考试 Exam
D08M12005	遥感图像分析与处理 Analysis and Processing of Remote Sensing Images	40	2.0	1	考试 Exam
D08M12006	数字视频处理 Digital Video Processing	40	2.0	2	考试 Exam
D08M12007	高级数字通信 Advanced Digital Communications	40	2.0	2	考试 Exam
D08M12008	计算机通信网络 Computer Communication Networks	40	2.0	1	考试 Exam
D08M12009	统计信号处理 Statistical Signal Processing	40	2.0	1	考试 Exam
D08M12010	模式识别 Pattern Recognition	40	2.0	2	考试 Exam
D08M12011	特征提取与目标识别 Feature Extraction and Object Recognition	40	2.0	1	考试 Exam
D08M12012	阵列信号处理 Array Signal Processing	40	2.0	2	考试 Exam

D08M12013	空时无线通信 Space-time Wireless Communications	40	2.0	2	考试 Exam

18. 电子科学与技术（电子信息学院）

Electronics Science and Technology（School of Electronics and Information）

学科代码（Discipline Code） **080900**

一、研究方向（Research Field）

序号 No.	主要研究方向 Main Research Field
1	电路与系统 Electronic Circuit and System
2	电磁场与微波技术 Electromagnetic Field and Microwave Technology
3	微电子与固体电子学 Microelectronics and Solid State Electronics
4	物理电子学 Physic Electronics
5	航空电子综合技术 Integrated Avionics Technology

二、课程设置（Curriculum Provision）

至少取得 16 学分，其中：公共课 8 学分，基础理论课至少 2 学分，专业基础课至少 2 学分，专业课至少 4 学分。

At least 16 credits, including 8 credits of public courses, at least 2 credits of basic theory courses, at least 2 credits of basic specialized courses and at least 4 credits of specialized courses.

1．公共课（学位必修课，8 学分）

Public Courses (degree compulsory, 8 credits)

课程编号 Course Code	课程名称 Course Name	学时 Learning Hour	学分 Credit	开课学期 Learning Semester	考核方式 Assessment
D26G11001	汉语语言 I Chinese Language I	60	3.0	1	考试 Exam
D26G11002	汉语语言 II Chinese Language II	60	3.0	2	考试 Exam
D26G12001	中国概况 Brief Introduction of China	40	2.0	1	考试 Exam

2．基础理论课（学位必修课，在下列课程中至少选 2 学分）

Basic Theory Courses (degree compulsory, at least 2 credits, selected from the following courses)

课程编号 Course Code	课程名称 Course Name	学时 Learning Hour	学分 Credit	开课学期 Learning Semester	考核方式 Assessment
D11G12001	近代统计方法 Modern Mathematics Statistics	40	2.0	1	考试 Exam

D11G12002	近代数值分析 Modern Numerical Analysis	40	2.0	1	考试 Exam

3．专业基础课（学位必修课，在下列课程中至少选 2 学分）

Basic Specialized Courses (degree compulsory, at least 2 credits, selected from the following courses)

课程编号 Course Code	**课程名称** Course Name	**学时** Learning Hour	**学分** Credit	**开课学期** Learning Semester	**考核方式** Assessment
D08M12019	高等天线理论 Advanced Antenna Theory	40	2.0	2	考试 Exam
D08M12022	综合航空电子系统 Integrated Avionics Systems	40	2.0	1	考试 Exam
D08M12025	现代数字信号处理 Modern Digital Signal Processing	40	2.0	1	考试 Exam
D08M12030	半导体器件物理 Physics of Semiconductor Devices	40	2.0	1	考试 Exam

4．专业课（学位选修课，至少选 4 学分）

Specialized Courses (degree elective, at least 4 credits)

课程编号 Course Code	**课程名称** Course Name	**学时** Learning Hour	**学分** Credit	**开课学期** Learning Semester	**考核方式** Assessment
D08M12001	现代通信高级论题 Advanced Topics in Communication	40	2.0	1	考试 Exam
D08M12002	信号与信息处理高级论题 Advanced Topics on Signal and Information Processing	40	2.0	1	考试 Exam
D08M12003	无线通信网络技术 Wireless Communication Networking Technology	40	2.0	2	考试 Exam
D08M12005	遥感图像分析和处理 Analysis and Processing of Remote Sensing Images	40	2.0	1	考试 Exam
D08M12009	统计信号处理 Statistical Signal Processing	40	2.0	1	考试 Exam
D08M12010	模式识别 Pattern Recognition	40	2.0	2	考试 Exam
D08M12015	控制与决策高级论题 Advanced Topics on Control and Decision	40	2.0	2	考试 Exam
D08M12016	无人系统协同控制与优化 Unmanned Systems Cooperative Control & Optimization	40	2.0	2	考试 Exam
D08M12017	数据挖掘原理 Principles of Data Mining	40	2.0	2	考试 Exam

D08M12018	军事运筹学 Military Operational Research	40	2.0	2	考试 Exam
D08M12020	机器学习方法及应用 Method and Application of Machine Learning	40	2.0	2	考试 Exam
D08M12021	基于内容的视觉信息检索 Content-based Vision Information Retrieval	40	2.0	2	考试 Exam
D08M12023	人工智能理论与应用 The Theory of Artificial Intelligence and Its Applications	40	2.0	2	考试 Exam
D08M12024	微波测量 Microwave Measurements	40	2.0	1	考试 Exam
D08M12026	微波通信系统设计概论 Introduction to Design of Microwave Communication System	40	2.0	2	考试 Exam
D08M12027	压缩感知理论及其应用 Compressive Sensing Theories and its Applications	40	2.0	2	考试 Exam
D08M12028	高等电磁计算方法 Advanced Computational Electromagnetic Method	40	2.0	2	考试 Exam
D08M12029	超材料理论与应用 Metamaterials Theory and Application	40	2.0	2	考试 Exam
D08M12031	无线系统中的智能天线 Smart Antennas for Wireless Systems	40	2.0	2	考试 Exam
D08M12032	电子装备多学科优化设计 Multidisciplinary Optimization Design of Electronic Equipment	40	2.0	2	考试 Exam
D08M12033	非平稳信号分析与处理 Non-stationary Signal Analysis and Processing	40	2.0	2	考试 Exam
D08M12034	现代光学进展论题 Topics on The Progress of Modern Optics	40	2.0	1	考试 Exam
D08M12035	生物光学成像 Optical Bioimaging	40	2.0	2	考试 Exam
D08M12036	二维半导体物理 Two Dimensional Semiconductor Physics	40	2.0	2	考试 Exam
D08M12037	纳米生物传感导论 Introduction to Nanobiosensors	40	2.0	2	考试 Exam

D08M12038	现代半导体物理与器件 Modern Semiconductor Physics and Devices	40	2.0	2	考试 Exam
D08M12039	先进能源进展 Progress in Advanced Energy	40	2.0	2	考试 Exam
D08M12040	有机微纳半导体 Organic Micro-/Nano-semiconductors	40	2.0	2	考试 Exam
D08M12041	锂离子电池技术 Lithium Ion Battery Technology	40	2.0	2	考试 Exam
D08M12042	有机电子学进展 Progress of Organic Electronics	40	2.0	2	考试 Exam
D08M12043	有机光电子学导论 Introduction to Organic Optoelectronics	40	2.0	2	考试 Exam

19. 电气工程（自动化学院）

Electrical Engineering（School of Automation）

学科代码（Discipline Code） **080800**

一、研究方向（Research Field）

序号 No.	主要研究方向 Main Research Field
1	电机及控制 Motor and Control
2	电力电子应用 Power Electronics Applications
3	电力系统及其自动化 Power System and its Automation
4	脉冲功率技术 Pulsed Power Technology
5	电工新技术 New Electrical Technology

二、课程设置（Curriculum Provision）

至少取得 16 学分，其中：公共课 8 学分，基础理论课至少 2 学分，专业基础课至少 2 学分，专业课至少 4 学分。

At least 16 credits, including 8 credits of public courses, at least 2 credits of basic theory courses, at least 2 credits of basic specialized courses and at least 4 credits of specialized courses.

1．公共课（学位必修课，8 学分）

Public Courses (degree compulsory, 8 credits)

课程编号 Course Code	课程名称 Course Name	学时 Learning Hour	学分 Credit	开课学期 Learning Semester	考核方式 Assessment
D26G11001	汉语语言 I Chinese Language I	60	3.0	1	考试 Exam
D26G11002	汉语语言 II Chinese Language II	60	3.0	2	考试 Exam
D26G12001	中国概况 Brief Introduction of China	40	2.0	1	考试 Exam

2．基础理论课（学位必修课，在下列课程中至少选 2 学分）

Basic Theory Courses (degree compulsory, at least 2 credits, selected from the following courses)

课程编号 Course Code	课程名称 Course Name	学时 Learning Hour	学分 Credit	开课学期 Learning Semester	考核方式 Assessment
D11G12001	近代统计方法 Modern Mathematics Statistics	40	2.0	1	考试 Exam

D11G12002	近代数值分析 Modern Numerical Analysis	40	2.0	1	考试 Exam

3．专业基础课（学位必修课，在下列课程中至少选 2 学分）

Basic Specialized Courses (degree compulsory, at least 2 credits, selected from the following courses)

课程编号 Course Code	**课程名称** Course Name	**学时** Learning Hour	**学分** Credit	**开课学期** Learning Semester	**考核方式** Assessment
D09M12001	电气系统非线性控制 Nonlinear Control of Electrical System	40	2.0	2	考试 Exam
D09M12002	稀土永磁电机理论 Theory of Rare Earth Permanent Magnet Electric Machines	40	2.0	1	考试 Exam
D09M12003	永磁电机实时仿真控制技术 Real-time Simulation based Control Technique of Permanent Magnet Electrical Machine	40	2.0	2	考查 Test
D09M12004	电能质量分析与控制 Power Quality Analysis and Control in Power Systems	40	2.0	2	考试 Exam
D09M12005	电力系统控制 Power System Control	40	2.0	1	考查 Test

4．专业课（学位选修课，至少选 4 学分）

Specialized Courses (degree elective, at least 4 credits)

课程编号 Course Code	**课程名称** Course Name	**学时** Learning Hour	**学分** Credit	**开课学期** Learning Semester	**考核方式** Assessment
D09M12006	特种发电技术及应用 Special Generation Technology and Application	40	2.0	1	考试 Exam
D09M12007	高性能同步电机及控制 High Performance Synchronous Machine and Control	40	2.0	1	考试 Exam
D09M12008	新型电机控制技术 Novel Electric Machine Control Technology	40	2.0	1	考试 Exam
D09M12009	交流调速系统故障诊断与容错控制技术 Fault Diagnosis and Fault Tolerant Control for AC Drive System	40	2.0	1	考试 Exam
D09M12010	航空交流起动发电技术 Aircraft Brushless Synchronous Starter/Generator Technique	40	2.0	2	考试 Exam

D09M12011	先进电力电子变换技术 Advanced Power Conversion Techniques	40	2.0	2	考试 Exam
D09M12012	智能故障检测与容错控制 Intelligent Fault Detection and Fault Tolerant Control	40	2.0	2	考查 Test
D09M12013	先进控制技术在电力电子中的应用 Advanced Control Theory Applied in Power Electronics and Drives	40	2.0	2	考试 Exam
D09M12014	电力系统计算机控制技术 Computer Control Technology for Power System	40	2.0	2	考试 Exam
D09M12015	独立电力系统动态模拟与仿真 Modeling and Simulation of Isolated Power System	40	2.0	1	考试 Exam
D09M12016	电力系统通信 Communication in Electrical Power Systems	40	2.0	1	考查 Test

20. 控制科学与工程（自动化学院）

Control Science and Engineering（School of Automation）

学科代码（Discipline Code） **081100**

一、研究方向（Research Field）

序号 No.	主要研究方向 Main Research Field	所在学院 School
1	控制理论与控制工程 Control Theory and Control Engineering	自动化学院 School of Automation
2	检测技术与自动化装置 Detection Technique and Automation Devices	
3	模式识别与智能系统 Pattern Recognition & Intelligent Systems	
4	导航、制导与控制 Navigation, Guidance & Control	
5	系统工程 Systems Engineering	电子信息学院 School of Electronics and Information

二、课程设置（Curriculum Provision）

至少取得 16 学分，其中：公共课 8 学分，基础理论课至少 2 学分，专业基础课至少 2 学分，专业课至少 4 学分。

At least 16 credits, including 8 credits of public courses, at least 2 credits of basic theory courses, at least 2 credits of basic specialized courses and at least 4 credits of specialized courses.

1．公共课（学位必修课，8 学分）

Public Courses (degree compulsory, 8 credits)

课程编号 Course Code	课程名称 Course Name	学时 Learning Hour	学分 Credit	开课学期 Learning Semester	考核方式 Assessment
D26G11001	汉语语言 I Chinese Language I	60	3.0	1	考试 Exam
D26G11002	汉语语言 II Chinese Language II	60	3.0	2	考试 Exam
D26G12001	中国概况 Brief Introduction of China	40	2.0	1	考试 Exam

2．基础理论课（学位必修课，在下列课程中至少选 2 学分）

Basic Theory Courses (degree compulsory, at least 2 credits, selected from the following courses)

课程编号 Course Code	课程名称 Course Name	学时 Learning Hour	学分 Credit	开课学期 Learning Semester	考核方式 Assessment
D11G12001	近代统计方法 Modern Mathematics Statistics	40	2.0	1	考试 Exam

D11G12002	近代数值分析 Modern Numerical Analysis	40	2.0	1	考试 Exam

3．专业基础课（学位必修课，在下列课程中至少选 2 学分）

Basic Specialized Courses (degree compulsory, at least 2 credits, selected from the following courses)

课程编号 Course Code	**课程名称** Course Name	**学时** Learning Hour	**学分** Credit	**开课学期** Learning Semester	**考核方式** Assessment
D09M12017	线性系统理论 Linear System Theory	60	3.0	2	考试 Exam
D09M12018	计算机控制系统 Computer Control System	40	2.0	2	考试 Exam
D09M12019	信号检测与估计 Detection and Estimation Theory	40	2.0	2	考试 Exam
D09M12020	最优估计理论及应用 Estimation Theory and its Applications	40	2.0	2	考试 Exam
D09M12021	飞行控制高级论题 Advanced Topics on Flight Control	40	2.0	2	考试 Exam
D09M12022	过程控制 Process Control	40	2.0	2	考试 Exam
D09M12023	数字信号处理 Digital Signal Processing	40	2.0	2	考试 Exam
D08M12014	飞行原理 Principles of Flight	40	2.0	2	考试 Exam
D08M12015	控制与决策高级论题 Advanced Topics on Control and Decision	40	2.0	2	考试 Exam

4．专业课（学位选修课，至少选 4 学分）

Specialized Courses (degree elective, at least 4 credits)

课程编号 Course Code	**课程名称** Course Name	**学时** Learning Hour	**学分** Credit	**开课学期** Learning Semester	**考核方式** Assessment
D09M12024	移动机器人的导航、控制与遥感 Mobile Robots: Navigation Control and Remote Sensing	40	2.0	2	考试 Exam
D09M12025	控制系统可靠性分析与设计 Analysis and Design of Reliability for Control System	40	2.0	2	考试 Exam
D09M12026	飞行器系统建模与仿真 System Modeling and Simulation for Aircraft	40	2.0	2	考试 Exam
D09M12027	统计信号处理 Statistical Signal Processing	40	2.0	2	考试 Exam

D09M12028	不确定信息推理及应用 Uncertain Information Reasoning and its Application	40	2.0	2	考试 Exam
D09M12029	容错飞行控制系统 Fault-tolerance Flight Control Systems	40	2.0	2	考试 Exam
D09M12030	鲁棒控制理论及应用 Robust Control Theory and Application	40	2.0	2	考试 Exam
D09M12031	智能控制理论及其应用 Intelligent Control Theory and Its Application	40	2.0	2	考试 Exam
D09M12032	系统辨识 System Identification	40	2.0	2	考试 Exam
D09M12033	现代控制理论及工程 Modern Control Theory and Engineering	40	2.0	2	考试 Exam
D09M12034	先进控制理论及应用导论 Introduction to Advanced Control Theory and Application	40	2.0	2	考试 Exam
D09M12035	飞行控制系统设计 Flight Control System Design	40	2.0	2	考试 Exam
D09M12036	信息融合 Information Fusion	40	2.0	2	考试 Exam
D09M12037	控制系统建模与仿真 Modeling and Simulation of Control System	40	2.0	2	考试 Exam
D09M12038	非线性控制系统理论 Control Theory of Nonlinear System	40	2.0	2	考试 Exam
D08M12016	无人系统协同控制与优化 Unmanned Systems Cooperative Control & Optimization	40	2.0	2	考试 Exam
D08M12017	数据挖掘原理 Principles of Data Mining	40	2.0	2	考试 Exam
D08M12018	军事运筹学 Military Operational Research	40	2.0	2	考试 Exam

21. 计算机科学与技术（计算机学院）

Computer Science and Technology（School of Computer Science and Technology）

学科代码（Discipline Code） **081200**

一、研究方向（Research Field）

序号 No.	主要研究方向 Main Research Field
1	先进微处理器系统结构 Advanced Microprocessor Architecture
2	系统芯片与可重构计算 SOC and Reconfigurable Computing
3	数据存储与管理技术 Data Storage and Management Technology
4	信息处理与数据挖掘技术 Information Processing and Data Mining
5	系统软件理论与方法 System Software Theory and Method
6	嵌入式智能系统 Intelligent Embedded System
7	普适计算与物联网 Pervasive Computing and Internet of Things
8	并行计算 Parallel Computing
9	计算机视听觉机理及方法 Computer Visual and Auditory Mechanism and Method
10	模式识别与机器学习 Pattern Recognition and Machine Learning
11	网络监测与信息安全技术 Network Monitoring And Information Security Technology
12	航空电子系统与机载计算机技术 Avionics and Airborne Computer Technology

二、课程设置（Curriculum Provision）

至少取得 16 学分，其中：公共课 8 学分，基础理论课至少 2 学分，专业基础课和专业课至少 6 学分。

At least 16 credits, including 8 credits of public courses, at least 2 credits of basic theory courses, at least 6 credits of basic specialized courses and specialized courses.

1．公共课（学位必修课，8 学分）

Public Courses (degree compulsory, 8 credits)

课程编号 Course Code	课程名称 Course Name	学时 Learning Hour	学分 Credit	开课学期 Learning Semester	考核方式 Assessment
D26G11001	汉语语言 I Chinese Language I	60	3.0	1	考试 Exam

D26G11002	汉语语言 II Chinese Language II	60	3.0	2	考试 Exam
D26G12001	中国概况 Brief Introduction of China	40	2.0	1	考试 Exam

2．基础理论课（学位必修课，在下列课程中至少选 2 学分）

Basic Theory Courses (degree compulsory, at least 2 credits, selected from the following courses)

课程编号 Course Code	**课程名称** Course Name	**学时** Learning Hour	**学分** Credit	**开课学期** Learning Semester	**考核方式** Assessment
D11G12001	近代统计方法 Modern Mathematics Statistics	40	2.0	1	考试 Exam
D11G12002	近代数值分析 Modern Numerical Analysis	40	2.0	1	考试 Exam

3．专业基础课和专业课（学位必修课，在下列课程中至少选 6 学分）

Basic Specialized Courses and Specialized Courses (degree compulsory, at least 6 credits, selected from the following courses)

课程编号 Course Code	**课程名称** Course Name	**学时** Learning Hour	**学分** Credit	**开课学期** Learning Semester	**考核方式** Assessment
D10M12001	并行计算理论 Parallel Computing Theory	40	2.0	1	考试 Exam
D10A12001	纳米 CMOS 集成电路设计 Nanometer CMOS Integrated Circuit	40	2.0	2	考查 Test
D10A12002	高级计算机体系结构 Advanced Computer Architecture	40	2.0	1	考查 Test
D10M22001	现代数据管理理论与技术 Advanced Theory and Techniques on Data Management	40	2.0	1	考查 Test
D10M22002	统计学习理论及应用 Statistical Learning Theory and Application	40	2.0	2	考查 Test
D10A22002	信息物理融合计算技术 Cyber-physical System	40	2.0	2	考试 Exam
D10A22003	语音识别与合成 Speech Recognition and Synthesis	40	2.0	1	考查 Test
D10A22004	数据挖掘：理论与算法 Data Mining Techniques	40	2.0	1	考试 Exam
D10A22005	高级普适计算 Advanced Pervasive Computing	40	2.0	1	考查 Test
D10A22006	眼动跟踪与视觉感知 Eye Tracking and Applications	40	2.0	2	考查 Test

22. 软件工程（计算机学院）

Software Engineering（School of Computer Science and Technology）

学科代码（Discipline Code） **083500**

一、研究方向（Research Field）

序号 No.	主要研究方向 Main Research Field
1	软件工程 Software Engineering

二、课程设置（Curriculum Provision）

至少取得 16 学分，其中：公共课 8 学分，基础理论课至少 2 学分，专业基础课和专业课至少 6 学分。

At least 16 credits, including 8 credits of public courses, at least 2 credits of basic theory courses, at least 6 credits of basic specialized courses and specialized courses.

1．公共课（学位必修课，8 学分）

Public Courses (degree compulsory, 8 credits)

课程编号 Course Code	课程名称 Course Name	学时 Learning Hour	学分 Credit	开课学期 Learning Semester	考核方式 Assessment
D26G11001	汉语语言 I Chinese Language I	60	3.0	1	考试 Exam
D26G11002	汉语语言 II Chinese Language II	60	3.0	2	考试 Exam
D26G12001	中国概况 Brief Introduction of China	40	2.0	1	考试 Exam

2．基础理论课（学位必修课，在下列课程中至少选 2 学分）

Basic Theory Courses (degree compulsory, at least 2 credits, selected from the following courses)

课程编号 Course Code	课程名称 Course Name	学时 Learning Hour	学分 Credit	开课学期 Learning Semester	考核方式 Assessment
D11G12001	近代统计方法 Modern Mathematics Statistics	40	2.0	1	考试 Exam
D11G12002	近代数值分析 Modern Numerical Analysis	40	2.0	1	考试 Exam

3．专业基础课和专业课（学位必修课，在下列课程中至少选 6 学分）

Basic Specialized Courses and Specialized Courses (degree compulsory, at least 6 credits, selected from the following courses)

课程编号 Course Code	课程名称 Course Name	学时 Learning Hour	学分 Credit	开课学期 Learning Semester	考核方式 Assessment

D10M12001	并行计算理论 Parallel Computing Theory	40	2.0	1	考试 Exam
D10M22002	统计学习理论及应用 Statistical Learning Theory and Application	40	2.0	2	考查 Test
D10A22003	语音识别与合成 Speech Recognition and Synthesis	40	2.0	1	考查 Test
D10A22004	数据挖掘：理论与算法 Data Mining Techniques	40	2.0	1	考试 Exam
D10A22007	媒体智能计算及服务 Media Intelligent Computing and Services	40	2.0	1	考试 Exam
D14M12001	软件需求工程 Software Requirement Engineering	40	2.0	1	考查 Test

23. 数学（理学院）

Mathematics（School of Natural and Applied Sciences）

学科代码（Discipline Code） **070100**

一、研究方向（Research Field）

序号 No.	主要研究方向 Main Research Field
1	科学工程计算的模型、理论和方法 Modeling, Numerical Analysis and Computing Method of Science & Engineering Problems
2	应用随机动力系统 Applied Random Dynamical System
3	可靠性理论 Reliability theory
4	图与组合 Graph and Combinatorics

二、课程设置（Curriculum Provision）

至少取得 16 学分，其中：公共课 8 学分，基础理论课至少 2 学分，专业基础课至少 2 学分，专业课至少 4 学分。

At least 16 credits, including 8 credits of public courses, at least 2 credits of basic theory courses, at least 2 credits of basic specialized courses and at least 4 credits of specialized courses.

1．公共课（学位必修课，8 学分）

Public Courses (degree compulsory, 8 credits)

课程编号 Course Code	课程名称 Course Name	学时 Learning Hour	学分 Credit	开课学期 Learning Semester	考核方式 Assessment
D26G11001	汉语语言 I Chinese Language I	60	3.0	1	考试 Exam
D26G11002	汉语语言 II Chinese Language II	60	3.0	2	考试 Exam
D26G12001	中国概况 Brief Introduction of China	40	2.0	1	考试 Exam

2．基础理论课（学位必修课，在下列课程中至少选 2 学分）

Basic Theory Courses (degree compulsory, at least 2 credits, selected from the following courses)

课程编号 Course Code	课程名称 Course Name	学时 Learning Hour	学分 Credit	开课学期 Learning Semester	考核方式 Assessment
D11G12001	近代统计方法 Modern Mathematics Statistics	40	2.0	1	考试 Exam

D11G12002	近代数值分析 Modern Numerical Analysis	40	2.0	1	考试 Exam
D11G12003	图论 Graph Theory	40	2.0	1	考试 Exam

3．专业基础课（学位必修课，在下列课程中至少选 2 学分）

Basic Specialized Courses (degree compulsory, at least 2 credits, selected from the following courses)

课程编号 Course Code	**课程名称** Course Name	**学时** Learning Hour	**学分** Credit	**开课学期** Learning Semester	**考核方式** Assessment
D11M12001	多尺度分析方法 Multi-Scale Analysis Methods	40	2.0	1	考试 Exam
D11M12002	随机微分方程 Stochastic Differential Equation	40	2.0	1	考试 Exam
D11M12003	组合数学 Combinatorics	60	3.0	1	考试 Exam
D11M12004	代数组合 Algebraic Combination	40	2.0	2	考试 Exam

4．专业课（学位选修课，至少选 4 学分）

Specialized Courses (degree elective, at least 4 credits)

课程编号 Course Code	**课程名称** Course Name	**学时** Learning Hour	**学分** Credit	**开课学期** Learning Semester	**考核方式** Assessment
D11M12005	自适应有限元方法 Adaptive Finite Element Methods	40	2.0	1	考试 Exam
D11M12006	多重网格方法 Multigrid Methods	40	2.0	1	考试 Exam
D11M12007	非线性动力系统 Nonlinear Dynamical System	40	2.0	2	考试 Exam
D11M12008	随机动力系统 Random Dynamical Systems	40	2.0	1	考试 Exam
D11M12009	拟阵论 Matroid Theory	40	2.0	2	考试 Exam
D11M12010	超图理论 Hypergraph Graph	40	2.0	2	考试 Exam
D11M12011	随机运筹学 Stochastic Operations Research	40	2.0	2	考试 Exam
D11M12012	数学规划 Mathematical Programming	60	3.0	2	考试 Exam
D11M12013	整数流与圈覆盖 Integer Flows and Cycle Covers	40	2.0	2	考试 Exam
D11M12032	随机微积分与应用 Introduction to Stochastic Calculus with Application	40	2.0	1	考试 Exam

24. 光学工程（理学院）

Optical Engineering（School of Natural and Applied Sciences）

学科代码（Discipline Code） **080300**

一、研究方向（Research Field）

序号 No.	主要研究方向 Main Research Field
1	光信息技术与系统 Optical Information Technology and Systems
2	光传感技术与光电系统 Optical Sensing Technology and Optoelectronic Systems
3	光子技术及器件 Photonic Technology and Devices
4	光电信息材料与技术 Photoelectronic Information Materials and Devices
5	激光现代制造技术与工程（材料学院） Laser Modern Manufacturing Technology and Engineering （School of Materials Science and Engineering）

二、课程设置（Curriculum Provision）

至少取得 16 学分，其中：公共课 8 学分，基础理论课至少 2 学分，专业基础课至少 2 学分，专业课至少 4 学分。

At least 16 credits, including 8 credits of public courses, at least 2 credits of basic theory courses, at least 2 credits of basic specialized courses and at least 4 credits of specialized courses.

1．公共课（学位必修课，8 学分）

Public Courses (degree compulsory, 8 credits)

课程编号 Course Code	课程名称 Course Name	学时 Learning Hour	学分 Credit	开课学期 Learning Semester	考核方式 Assessment
D26G11001	汉语语言 I Chinese Language I	60	3.0	1	考试 Exam
D26G11002	汉语语言 II Chinese Language II	60	3.0	2	考试 Exam
D26G12001	中国概况 Brief Introduction of China	40	2.0	1	考试 Exam

2．基础理论课（学位必修课，在下列课程中至少选 2 学分）

Basic Theory Courses (degree compulsory, at least 2 credits, selected from the following courses)

课程编号 Course Code	课程名称 Course Name	学时 Learning Hour	学分 Credit	开课学期 Learning Semester	考核方式 Assessment

D11G12001	近代统计方法 Modern Mathematics Statistics	40	2.0	1	考试 Exam
D11G12002	近代数值分析 Modern Numerical Analysis	40	2.0	1	考试 Exam

3．专业基础课（学位必修课，在下列课程中至少选 2 学分）

Basic Specialized Courses (degree compulsory, at least 2 credits, selected from the following courses)

课程编号 Course Code	**课程名称** Course Name	**学时** Learning Hour	**学分** Credit	**开课学期** Learning Semester	**考核方式** Assessment
D11M12014	现代信息光学 Advanced Information Optics	40	2.0	1	考试 Exam
D11M12015	电介质物理学 Physics of Dielectric Materials	40	2.0	2	考试 Exam
D11M12016	固体光电子学 Solid Photon-electronics	40	2.0	2	考试 Exam
D11M12017	激光制造材料学 Laser Manufacturing Materials Science	40	2.0	2	考试 Exam

4．专业课（学位选修课，至少选 4 学分）

Specialized Courses (degree elective, at least 4 credits)

课程编号 Course Code	**课程名称** Course Name	**学时** Learning Hour	**学分** Credit	**开课学期** Learning Semester	**考核方式** Assessment
D11M12018	光电检测技术与系统 Electro-Optical System	40	2.0	2	考试 Exam
D11M12019	高等半导体光电子学 Advanced Semiconductor Optoelectronics	40	2.0	1	考试 Exam
D11M12020	低维材料物理 Physics of Low-dimension Materials	40	2.0	1	考试 Exam
D11M12021	智能材料与系统 Intelligent Materials and Systems	40	2.0	1	考试 Exam
D11M12022	功能材料与器件 Functional Materials and Devices	40	2.0	2	考试 Exam
D11M12023	集成化激光智能加工 Integrated Laser Intelligence Processing	40	2.0	1	考试 Exam

25. 化学（理学院）

Chemistry（School of Natural and Applied Sciences）

学科代码（Discipline Code） **070300**

一、 研究方向（Research Field）

序号 No.	主要研究方向 Main Research Field
1	高分子化学与物理 Polymer Chemistry and Physics
2	有机化学 Organic Chemistry
3	物理化学 Physical Chemistry

二、课程设置（Curriculum Provision）

至少取得 16 学分，其中：公共课 8 学分，基础理论课至少 2 学分，专业基础课至少 2 学分，专业课至少 4 学分。

At least 16 credits, including 8 credits of public courses, at least 2 credits of basic theory courses, at least 2 credits of basic specialized courses and at least 4 credits of specialized courses.

1．公共课（学位必修课，8 学分）

Public Courses (degree compulsory, 8 credits)

课程编号 Course Code	课程名称 Course Name	学时 Learning Hour	学分 Credit	开课学期 Learning Semester	考核方式 Assessment
D26G11001	汉语语言 I Chinese Language I	60	3.0	1	考试 Exam
D26G11002	汉语语言 II Chinese Language II	60	3.0	2	考试 Exam
D26G12001	中国概况 Brief Introduction of China	40	2.0	1	考试 Exam

2．基础理论课（学位必修课，在下列课程中至少选 2 学分）

Basic Theory Courses (degree compulsory, at least 2 credits, selected from the following courses)

课程编号 Course Code	课程名称 Course Name	学时 Learning Hour	学分 Credit	开课学期 Learning Semester	考核方式 Assessment
D11G12001	近代统计方法 Modern Mathematics Statistics	40	2.0	1	考试 Exam
D11G12002	近代数值分析 Modern Numerical Analysis	40	2.0	1	考试 Exam
D11G12004	近代高分子合成 Modern Polymer Synthesis	40	2.0	2	考试 Exam

3．专业基础课（学位必修课，在下列课程中至少选 2 学分）

Basic Specialized Courses (degree compulsory, at least 2 credits, selected from the following courses)

课程编号 Course Code	**课程名称** Course Name	**学时** Learning Hour	**学分** Credit	**开课学期** Learning Semester	**考核方式** Assessment
D11M12024	超分子化学 Supramolecular Chemistry	40	2.0	2	考试 Exam
D11M12025	高聚物的现代研究方法 Modern Research Methods in Polymer	40	2.0	1	考试 Exam

4．专业课（学位选修课，至少选 4 学分）

Specialized Courses (degree elective, at least 4 credits)

课程编号 Course Code	**课程名称** Course Name	**学时** Learning Hour	**学分** Credit	**开课学期** Learning Semester	**考核方式** Assessment
D11M12026	高分子材料加工进展 Progress in Materials Processing	40	2.0	2	考试 Exam
D11M12027	新能源材料与技术进展 The Progress of New Energy Material & Technology	20	1.0	1	考查 Test
D11M12028	生物聚合物和高分子生物材料 Polymeric Biomaterials	40	2.0	2	考查 Test

26. 材料物理与化学（理学院）

Materials Physics and Chemistry（School of Natural and Applied Sciences）

学科代码（Discipline Code） **080501**

一、 研究方向（Research Field）

序号 No.	主要研究方向 Main Research Field
1	空间材料科学 Space Materials Science
2	智能材料物理与化学 Smart Materials Physics and Chemistry
3	薄膜及低维材料物理 Thin Film and Low Dimensional Materials Physics
4	功能材料物理 Functional Materials Physics
5	高分子材料化学与物理 Polymeric Materials Physics and Chemistry
6	材料相变物理 Physics of Phase Change in Materials

二、课程设置（Curriculum Provision）

至少取得 16 学分，其中：公共课 8 学分，基础理论课至少 2 学分，专业基础课至少 2 学分，专业课至少 4 学分。

At least 16 credits, including 8 credits of public courses, at least 2 credits of basic theory courses, at least 2 credits of basic specialized courses and at least 4 credits of specialized courses.

1．公共课（学位必修课，8 学分）

Public Courses (degree compulsory, 8 credits)

课程编号 Course Code	课程名称 Course Name	学时 Learning Hour	学分 Credit	开课学期 Learning Semester	考核方式 Assessment
D26G11001	汉语语言 I Chinese Language I	60	3.0	1	考试 Exam
D26G11002	汉语语言 II Chinese Language II	60	3.0	2	考试 Exam
D26G12001	中国概况 Brief Introduction of China	40	2.0	1	考试 Exam

2．基础理论课（学位必修课，在下列课程中至少选 2 学分）

Basic Theory Courses (degree compulsory, at least 2 credits, selected from the following courses)

课程编号 Course Code	课程名称 Course Name	学时 Learning Hour	学分 Credit	开课学期 Learning Semester	考核方式 Assessment

D11G12001	近代统计方法 Modern Mathematics Statistics	40	2.0	1	考试 Exam
D11G12002	近代数值分析 Modern Numerical Analysis	40	2.0	1	考试 Exam

3．专业基础课（学位必修课，在下列课程中至少选 2 学分）

Basic Specialized Courses (degree compulsory, at least 2 credits, selected from the following courses)

课程编号 Course Code	**课程名称** Course Name	**学时** Learning Hour	**学分** Credit	**开课学期** Learning Semester	**考核方式** Assessment
D11M12029	快速凝固原理 Fundamentals of Rapid Solidification	40	2.0	1	考试 Exam
D11M12020	低维材料物理 Physics of Low-dimension Materials	40	2.0	1	考试 Exam
D11M12021	智能材料与系统 Intelligent Materials and Systems	40	2.0	1	考试 Exam

4．专业课（学位选修课，至少选 4 学分）

Specialized Courses (degree elective, at least 4 credits)

课程编号 Course Code	**课程名称** Course Name	**学时** Learning Hour	**学分** Credit	**开课学期** Learning Semester	**考核方式** Assessment
D11M12030	空间材料科学原理 Fundamentals of Space Materials Science	40	2.0	2	考试 Exam
D11M12031	材料物理化学 Materials Physics and Chemistry	40	2.0	2	考试 Exam
D11M12015	电介质物理学 Physics of Dielectric Materials	40	2.0	2	考试 Exam
D11M12016	固体光电子学 Solid Photon-electronics	40	2.0	2	考试 Exam

27. 管理科学与工程（管理学院）

Management Science and Engineering（School of Management）

学科代码（Discipline Code） **120100**

一、研究方向（Research Field）

序号 No.	主要研究方向 Main Research Field
1	管理系统工程 Management System Engineering
2	信息管理与信息系统 Information Management andInformation System
3	项目管理 Project Management
4	工业工程 Industrial Engineering
5	设备系统工程 Plant Systems Engineering
6	创新管理 Innovation Management

二、课程设置（Curriculum Provision）

至少取得 16 学分，其中：公共课 8 学分，基础理论课至少 2 学分，专业基础课和专业课至少 6 学分。

At least 16 credits, including 8 credits of public courses, at least 2 credits of basic theory courses, at least 6 credits of basic specialized courses and specialized courses.

1．公共课（学位必修课，8 学分）

Public Courses (degree compulsory, 8 credits)

课程编号 Course Code	课程名称 Course Name	学时 Learning Hour	学分 Credit	开课学期 Learning Semester	考核方式 Assessment
D26G11001	汉语语言 I Chinese Language I	60	3.0	1	考试 Exam
D26G11002	汉语语言 II Chinese Language II	60	3.0	2	考试 Exam
D26G12001	中国概况 Brief Introduction of China	40	2.0	1	考试 Exam

2．基础理论课（学位必修课，在下列课程中至少选 2 学分）

Basic Theory Courses (degree compulsory, at least 2 credits, selected from the following courses)

课程编号 Course Code	课程名称 Course Name	学时 Learning Hour	学分 Credit	开课学期 Learning Semester	考核方式 Assessment

D11G12001	近代统计方法 Modern Mathematical Statistics	40	2.0	1	考试 Exam
D11G12002	近代数值分析 Modern Numerical Analysis	40	2.0	1	考试 Exam
D12G12001	应用统计学 II Applied Statistics II	40	2.0	1	考试 Exam

3．专业基础课和专业课（学位必修课，在下列课程中至少选 6 学分）

Basic Specialized Courses and Specialized Courses (degree compulsory, at least 6 credits, selected from the following courses)

课程编号 Course Code	**课程名称** Course Name	**学时** Learning Hour	**学分** Credit	**开课学期** Learning Semester	**考核方式** Assessment
D12M12001	管理研究方法论 Management Research Methodology	40	2.0	1	考试 Exam
D12M12002	管理理论前沿 Leading Trend of Managerial Theories	40	2.0	2	考试 Exam
D12M12003	战略管理与模拟 Strategic Management and Simulation	40	2.0	1	考试 Exam
D12M12004	决策管理——概念与方法 Decision Management – Concepts and Methods	40	2.0	1	考试 Exam

28. 软件工程（软件与微电子学院）

Software Engineering（School of Software and Microelectronics）

学科代码（Discipline Code） **083500**

一、研究方向（Research Field）

序号 No.	主要研究方向 Main Research Field
1	软件工程 Software Engineering

二、课程设置（Curriculum Provision）

至少取得 16 学分，其中：公共课 8 学分，基础理论课至少 2 学分，专业基础课和专业课至少 6 学分。

At least 16 credits, including 8 credits of public courses, at least 2 credits of basic theory courses, at least 6 credits of basic specialized courses and specialized courses.

1．公共课（学位必修课，8 学分）

Public Courses (degree compulsory, 8 credits)

课程编号 Course Code	课程名称 Course Name	学时 Learning Hour	学分 Credit	开课学期 Learning Semester	考核方式 Assessment
D26G11001	汉语语言 I Chinese Language I	60	3.0	1	考试 Exam
D26G11002	汉语语言 II Chinese Language II	60	3.0	2	考试 Exam
D26G12001	中国概况 Brief Introduction of China	40	2.0	1	考试 Exam

2．基础理论课（学位必修课，在下列课程中至少选 2 学分）

Basic Theory Courses (degree compulsory, at least 2 credits, selected from the following courses)

课程编号 Course Code	课程名称 Course Name	学时 Learning Hour	学分 Credit	开课学期 Learning Semester	考核方式 Assessment
D11G12001	近代统计方法 Modern Mathematics Statistics	40	2.0	1	考试 Exam
D11G12002	近代数值分析 Modern Numerical Analysis	40	2.0	1	考试 Exam

3．专业基础课和专业课（学位必修课，在下列课程中至少选 6 学分）

Basic Specialized Courses and Specialized Courses (degree compulsory, at least 6 credits, selected from the following courses)

课程编号 Course Code	课程名称 Course Name	学时 Learning Hour	学分 Credit	开课学期 Learning Semester	考核方式 Assessment

D10M12001	并行计算理论 Parallel Computing Theory	40	2.0	1	考试 Exam
D10M22002	统计学习理论及应用 Statistical Learning Theory and Application	40	2.0	2	考查 Test
D10A22003	语音识别与合成 Speech Recognition and Synthesis	40	2.0	1	考查 Test
D10A22004	数据挖掘：理论与算法 Data Mining Techniques	40	2.0	1	考试 Exam
D10A22007	媒体智能计算及服务 Media Intelligent Computing and Services	40	2.0	1	考试 Exam
D14M12001	软件需求工程 Software Requirement Engineering	40	2.0	1	考查 Test

29. 生物医学工程（生命学院）

Biomedical Engineering（School of Life Sciences）

学科代码（Discipline Code） **083100**

一、研究方向（Research Field）

序号 No.	主要研究方向 Main Research Field
1	航天医学工程 Astromedical Engineering
2	蛋白质工程与药物设计 Protein Engineering and Drug Design
3	生物电磁技术 Biological Electromagnetic Technology
4	生物医学材料 Biomedical Materials

二、课程设置（Curriculum Provision）

至少取得 16 学分，其中：公共课 8 学分，基础理论课至少 2 学分，专业基础课至少 2 学分，专业课至少 4 学分。

At least 16 credits, including 8 credits of public courses, at least 2 credits of basic theory courses, at least 2 credits of basic specialized courses and at least 4 credits of specialized courses.

1．公共课（学位必修课，8 学分）

Public Courses (degree compulsory, 8 credits)

课程编号 Course Code	课程名称 Course Name	学时 Learning Hour	学分 Credit	开课学期 Learning Semester	考核方式 Assessment
D26G11001	汉语语言 I Chinese Language I	60	3.0	1	考试 Exam
D26G11002	汉语语言 II Chinese Language II	60	3.0	2	考试 Exam
D26G12001	中国概况 Brief Introduction of China	40	2.0	1	考试 Exam

2．基础理论课（学位必修课，在下列课程中至少选 2 学分）

Basic Theory Courses (degree compulsory, at least 2 credits, selected from the following courses)

课程编号 Course Code	课程名称 Course Name	学时 Learning Hour	学分 Credit	开课学期 Learning Semester	考核方式 Assessment
D11G12001	近代统计方法 Modern Mathematics Statistics	40	2.0	1	考试 Exam

D11G12002	近代数值分析 Modern Numerical Analysis	40	2.0	1	考试 Exam

3．专业基础课（学位必修课，在下列课程中至少选 2 学分）

Basic Specialized Courses (degree compulsory, at least 2 credits, selected from the following courses)

课程编号 Course Code	**课程名称** Course Name	**学时** Learning Hour	**学分** Credit	**开课学期** Learning Semester	**考核方式** Assessment
D15M12001	空间生物学与空间生物技术 Space Biology and Space Biotechnology	40	2.0	1	考试 Exam
D15M12002	骨基础生物学 Basic Bone Biology	40	2.0	1	考试 Exam
D15M12003	生物信息学 Bioinformatics	40	2.0	2	考试 Exam

4．专业课（学位选修课，至少选 4 学分）

Specialized Courses (degree elective, at least 4 credits)

课程编号 Course Code	**课程名称** Course Name	**学时** Learning Hour	**学分** Credit	**开课学期** Learning Semester	**考核方式** Assessment
D15M12004	蛋白质结晶方法学 Protein Crystallization Methodology	40	2.0	2	考试 Exam
D15M12005	骨生物学研究技术 Bone Research Protocol	40	2.0	2	考试 Exam
D15M12006	结构生物学 Structure Biology	40	2.0	1	考试 Exam
D15M12007	生物力学基础 Fundamentals of Biomechanics	40	2.0	1	考试 Exam
D15M12008	生物材料 Biomaterials	40	2.0	2	考试 Exam
D15M12009	高等生物化学 Advanced Biochemistry	40	2.0	2	考试 Exam
D15M12010	分子药理学 Molecular Pharmacology	40	2.0	2	考试 Exam