南京理工大学

来华留学博士研究生

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二〇二二年七月

INDEX

Doctoral Program in Mechanical Engineering

1. Introduction

Doctoral students in this discipline should master the solid and broad basic theory and systematic and in-depth expertise of mechanical engineering, and be familiar with the trend of this discipline； Have a realistic, scientific and rigorous academic attitude and work style, a strong spirit of scientific exploration and a high sense of social responsibility; Have the ability to find, propose, analyze and solve cutting-edge scientific and engineering technical problems by comprehensively using the theories, methods and technical means of mechanical engineering, and make creative achievements in the research direction; Have a comprehensive vision of the frontier of disciplines, and have certain interdisciplinary research ability; Have a certain ability of international exchange and cooperation; Have the ability of lifelong learning; After graduation, it is suitable to engage in work that requires theoretical knowledge of mechanical engineering and scientific research ability of frontier exploration.

2. Research Directions

（1）Methodology of modern mechanical design
（2）Servo precision transmission and mechanism
（3）Intelligent robots and bionic technology
（4）Digital design and manufacturing
（5）Advanced processing technology and equipment
（6）Intelligent machinery
（7）MEMS
（8）Smart & intelligent electromechanical systems
（9）Mechanics-electronics-hydraulics technology
（10）Dynamics & dynamic simulation of electromechanical system
（11）Vehicle power device simulation
（12）Vehicle safety

3. Duration of studies

Full time PhD students are expected to complete their studies and earn their degrees in 4 to 6 years, and they will be disqualified from the program after 6 years.

4. Credits requirements

Students are required to complete at least 18 degree credits from courses in Section 5 with a minimum of 16 coursework credits and 2 obligatory courses.

5. Curriculum

Course No.	Course Name	Semester	Credits
I. Fundamental Courses			**4**
L371A002	Chinese	Fall	2
L371A003	Introduction to Chinese Classics	Fall	2
II. Core Courses			**6+**
L113A018	Multi-body system dynamics	Spring	3
L113A017	Elastic-plastic mechanics	Spring	3
L113A008	Stochastic Mathematics	Fall	3
L113A016	Continuum mechanics	Fall	2
III. Major Electives			**4+**
L101C011	Academic frontier of Mechanical engineering	Spring	2
L101C012	Disciplinary thematic studies (seminar)	Spring	2
L101C014	Engineering Measurement Technologies	Spring	3
L101C015	Theory of Mechanism and Robotics	Spring	3
L101C009	Modern Theory & Methods of Mechanical Design	Fall	2
L101C008	Modern Theory & Methods of Manufacturing	Fall	2
L108B001	Modeling and Simulation of Mechanics	Spring	2
IV. Thesis Credits			
L0000003	Dissertation Proposal II	Fall	**2**
L0000004	Academic Activities II	Fall	
Total Credits Required			**18+**
NOTE: Graduate students are usually expected to meet the course requirements in the first academic year, including: I. Fundamental Courses, II. Core Courses, and sufficient elective courses in III. Major Electives.			

6. PhD Dissertation Topic and Research Proposal

PhD dissertation proposal should be no less than 10000 words long and has at least 80 references, half of which must be published in the recent 5 years. A PhD student should choose a research topic for the PhD dissertation and spend no less than 2 years on the dissertation research and writing, all under an advisor's guidance.

Detailed regulations and requirements on PhD dissertation are documented in the "***NJUST Regulations about the Topic Selection, Research Proposal and Composition of Postgraduate Theses and Dissertations***". The PhD dissertation research proposal writing and defense should be completed in no later than the second academic year of the program.

7. Requirements for innovation achievements

Before graduation, each doctoral student should obtain a certain number of innovative achievements closely related to the research content of the dissertation.

Detailed requirements are documented in "***NJUST Regulations on the Basic Requirements for Innovation Achievements for Graduate Students Applying for Degree*** " and specific standards for each discipline.

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Doctoral Program in Chemical Engineering & Technology

1. Introduction

The primary discipline of Chemical Engineering and Technology contains six secondary discipline master programs in chemical engineering, chemical technology, applied chemistry, bio-chemical, industrial catalysis, and explosions chemical. This primary discipline has a PhD program and a postdoctoral program. The secondary disciplines have some state-level key disciplines, national special majors, provincial brand majors, the National Chemistry Experimental Teaching Demonstration Center, and the National Chemical Engineering Practice Professional Education Center.

2. Research Directions

(1) Chemical reaction engineering
(2) Fine chemical engineering
(3) Industrial catalysis
(4) Pyrotechnic & pyrotechnics technique
(5) Biopharmaceutical

3. Duration of studies

Full time PhD students are expected to complete their studies and earn their degrees in 4 to 6 years, and they will be disqualified from the program after 6 years.

4. Credits requirements

Students are required to complete at least 18 degree credits from courses in Section 5 with a minimum of 16 coursework credits and 2 obligatory courses.

5. Curriculum

Course No.	Course Name	Semester	Credits
I. Fundamental Courses			**4**
L371A002	Chinese	Fall	2
L371A003	Introduction to Chinese Classics	Fall	2
II. Core Courses			**8+**
S103C009	Organic Reactions	Spring	2
B103B004	Design of Organic Moleculars	Fall	2
S103C001	Catalysis in Asymmetric Synthesis	Fall	2
S103C057	Scientific Writing for Chemistry	Spring	2
S103B053	Chemical Separation Engineering	Fall	2
S103C031	Pyrotechnics	Spring	2
S103C030	Modern Instrumental Analysis	Fall	2
S102C001	Protein Engineering	Fall	2

III. Major Electives			4+
S103C028	Chemistry & Technology of High Explosives	Fall	2
S103C029	Chemistry & Technology of Propellants	Fall	2
S103B003	Thermal Safety of Chemical Process	Fall	2
S102C040	Cell Engineering	Spring	2
S103C060	Progress of Modern Biochemical Engineering	Fall	2
S102C041	Enzyme Engineering	Spring	2
IV. Thesis Credits			
L0000003	Dissertation Proposal II	Fall	**2**
L0000004	Academic Activities II	Fall	
Total Credits Required			**18+**
NOTE: Graduate students are usually expected to meet the course requirements in the first academic year, including: I. Fundamental Courses, II. Core Courses, and sufficient elective courses in III. Major Electives.			

6. PhD Dissertation Topic and Research Proposal

PhD dissertation proposal should be no less than 10000 words long and has at least 80 references, half of which must be published in the recent 5 years. A PhD student should choose a research topic for the PhD dissertation and spend no less than 2 years on the dissertation research and writing, all under an advisor's guidance.

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7. Requirements for innovation achievements

Before graduation, each doctoral student should obtain a certain number of innovative achievements closely related to the research content of the dissertation. Detailed requirements are documented in ***"NJUST Regulations on the Basic Requirements for Innovation Achievements for Graduate Students Applying for Degree "*** and specific standards for each discipline.

8. PhD Dissertation Requirements

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Doctoral Program in Environmental Science & Engineering

1. Introduction

The Environmental Science & Engineering (ESE) discipline at the Nanjing University of Science and Technology was developed from the Environmental Engineering (EE) major that was founded in 1979 and started to recruit undergraduates in 1980. We began to offer master and doctoral programs in EE in 1987 and 2000 respectively, master program in Environmental Science (ES) in 2003, and doctoral program and postdoctoral fellowship in Environmental Science & Engineering in 2010 and 2012, respectively. EE was also elected as a key discipline of Jiangsu province as well as of the Ministry of Industry and Information Technology. The ESE major was among the top 1% of the ESI international disciplines. Hundreds of graduates held senior leadership and technical positions in environmental protection bureaus and monitoring stations at or above the county level, and more than 20 provincial and ministerial-level environmental science academies served as directors or chief engineers, and many of them won youth awards. Those enhanced the social reputation of the discipline.

2. Research Directions

(1) Wastewater treatment and resource reuse
(2) Air pollution control engineering
(3) Environmental biotechnology
(4) Environmental monitoring technology

3. Duration of studies

Full time PhD students are expected to complete their studies and earn their degrees in 4 to 6 years, and they will be disqualified from the program after 6 years.

4. Credits requirements

Students are required to complete at least 18-degree credits from courses in Section 5 with a minimum of 16 coursework credits and 2 obligatory courses.

5. Curriculum

Course No.	Course Name	Semester	Credits
I. Fundamental Courses			**4**
L371A002	Chinese	Fall	2
L371A003	Introduction to Chinese Classics	Fall	2
II. Core Courses			**8+**
L113A014	Wavelet Analysis	Spring	3
L102B003	Application & Theory of Water Treatment	Spring	2
L102B004	Air Pollution & its Control	Spring	2
L102B005	Environmental Chemistry	Fall	2

S103C057	Scientific Writing Skills for Chemistry	Spring	2
III. Major Electives			**4+**
L102C005	Environmental Biotechnology	Fall	2
L102C004	Water Treatment Chemicals & Their Applications	Spring	2
L102C003	Membrane Technology for New Energy Applications	Spring	2
S102C005	Ecomaterials	Spring	2
L102C019	Environmental data analysis	Spring	2
W102C001	Air pollution control and prevention	Spring	2
W102C002	Academic Writing	Spring	1
IV. Thesis Credits			
L0000003	Dissertation Proposal II	Fall	**2**
L0000004	Academic Activities II	Spring	
Total Credits Required			**18+**
NOTE: Graduate students are usually expected to meet the course requirements in the first academic year, including: I. Fundamental Courses, II. Core Courses, and sufficient elective courses in III. Major Electives.			

6. PhD Dissertation Topic and Research Proposal

PhD dissertation proposal should be no less than 10000 words long and has at least 80 references, half of which must be published in the recent 5 years. A PhD student should choose a research topic for the PhD dissertation and spend no less than 2 years on the dissertation research and writing, all under an advisor's guidance.

Detailed regulations and requirements on PhD dissertation are documented in the "***NJUST Regulations about the Topic Selection, Research Proposal and Composition of Postgraduate Theses and Dissertations***". The PhD dissertation research proposal writing and defense should be completed in no later than the second academic year of the program.

7. Requirements for innovation achievements

Before graduation, each doctoral student should obtain a certain number of innovative achievements closely related to the research content of the dissertation. Detailed requirements are documented in ***"NJUST Regulations on the Basic Requirements for Innovation Achievements for Graduate Students Applying for Degree "*** and specific standards for each discipline.

8. PhD Dissertation Requirements

Detailed regulations and requirements on PhD dissertation are documented in the "***NJUST Regulations about the Topic Selection, Research Proposal and Composition of Postgraduate Theses and Dissertations***", and "***NUST Style Sheet for Theses and Dissertations***". For a joint effort with others, or a follow-up of previous work, the student should clearly specify his/her contribution to the thesis.

Doctoral Program in Optical Engineering

1. Introduction

The Optical Engineering discipline at the Nanjing University of Science and Technology was developed from the Artillery Command System major at the PLA Military Engineering Institute that was founded in 1953. In 1986, it was qualified as a doctoral program; in 1998, it was awarded for Post-Doctoral Mobile Station as well as "Yangtze River Scholar" Scheme by the State Education Commission; in 2002, it was established as the key discipline by both the National Defense Division and Jiangsu province; in 2005, it was approved as the national key discipline cultivation base at Jiangsu province; in 2007, it was established as a first-rate national key discipline as well as national defense characteristic discipline; in 2010, it was rated as the Jiangsu province superior discipline; in 2012, it was approved as the key discipline by the Ministry of Industry and Information Technology. In the 2013 national academic evaluation, it was rated as the 8th best national program in its category, elevated from the previous 9th finish, and it was among the top 1% of the ESI international disciplines.

2. Research Directions

(1) Optoelectronic information detection and image processing
(2) Optical testing and intelligent optoelectronic instruments
(3) Laser physics and application technology
(4) Optoelectronic physics and technology
(5) Bio-medical photonics
(6) Micro- and nano-optoelectronic devices and applications
(7) Optical fiber technology and applications

3. Duration of studies

Full time PhD students are expected to complete their studies and earn their degrees in 4 to 6 years, and they will be disqualified from the program after 6 years.

4. Credits requirements

Students are required to complete at least 18 degree credits from courses in Section 5 with a minimum of 16 coursework credits and 2 obligatory courses.

5. Curriculum

Course No.	Course Name	Semester	Credits
I. Fundamental Courses			**4**
L371A002	Chinese	Fall	2
L371A003	Introduction to Chinese Classics	Fall	2
II. Core Courses			**6+**
L113A008	Stochastic Mathematics	Spring	3
L113A010	Matrix Analysis and Computation	Spring	3

B104B001	Principle of Optics	Spring	3
L104B009	Modern Photonics	Spring	3
L104B008	Modern Optical Engineering	Spring	3
III. Major Electives			**4+**
L104C015	Progresses in Modern Optical Information Technology	Spring	2
L104C016	Progresses in Modern Optical Testing	Spring	2
L104C014	Progresses in Laser Physics	Spring	2
L104C017	Progresses in Optoelectronic Physics Technology	Spring	2
L104C012	Progresses in Micro-and Nano-optoelectronic Devices And Applications	Spring	2
L104C013	Progresses in Biophotonics	Spring	2
IV. Thesis Credits			
L0000003	Dissertation Proposal II	Fall	**2**
L0000004	Academic Activities II	Spring	
Total Credits Required			**18+**
NOTE: Graduate students are usually expected to meet the course requirements in the first academic year, including: I. Fundamental Courses, II. Core Courses, and sufficient elective courses in III. Major Electives.			

6. PhD Dissertation Topic and Research Proposal

PhD dissertation proposal should be no less than 10000 words long and has at least 80 references, half of which must be published in the recent 5 years. A PhD student should choose a research topic for the PhD dissertation and spend no less than 2 years on the dissertation research and writing, all under an advisor's guidance.

Detailed regulations and requirements on PhD dissertation are documented in the "***NJUST Regulations about the Topic Selection, Research Proposal and Composition of Postgraduate Theses and Dissertations***". The PhD dissertation research proposal writing and defense should be completed in no later than the second academic year of the program.

7. Requirements for innovation achievements

Before graduation, each doctoral student should obtain a certain number of innovative achievements closely related to the research content of the dissertation. Detailed requirements are documented in ***"NJUST Regulations on the Basic Requirements for Innovation Achievements for Graduate Students Applying for Degree "*** and specific standards for each discipline.

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Doctoral Program in Information and Communication Engineering

1. Introduction

Information and Communication Engineering is to study new theory, new methodology and new technology of all kinds of electronic, communication, information systems and related signal processing aspects based on information source coding, transmission, exchange and information networks. Based on information science and engineering, this discipline, with its goals to develop China's electronic information industries, focuses on the research, design, development and implementation of electronics and communication information systems. It includes communication and information systems on communications, as well as theory and technology on information signal and information processing.

2. Research Directions

(1) Wireless networks and communications
(2) Modern signal processing

3. Duration of studies

Full time PhD students are expected to complete their studies and earn their degrees in 4 to 6 years, and they will be disqualified from the program after 6 years.

4. Credits requirements

Students are required to complete at least 18 degree credits from courses in Section 5 with a minimum of 16 coursework credits and 2 obligatory courses.

5. Curriculum

Course No.	Course Name	Semester	Credits
I. Fundamental Courses			**4**
L371A002	Chinese	Fall	2
L371A003	Introduction to Chinese Classics	Fall	2
II. Core Courses			**6+**
L113A013	Basis of Modern Analysis	Fall	2
L113A014	Wavelet Analysis	Fall	3
L113A010	Matrix Analysis and Computation	Fall	3
L104B010	Speech Signal Digital Processing	Spring	2
III. Major Electives			**4+**
L104C008	Advanced Signal Processing	Spring	2
L104C011	New Advances in Signal Processing	Spring	2
L104C010	New Advances in Communications	Spring	2
L104C019	Internet of Things Technology	Spring	2
IV. Thesis Credits			

L0000003	Dissertation Proposal II	Fall	**2**
L0000004	Academic Activities II	Spring	
Total Credits Required			**18+**
NOTE: Graduate students are usually expected to meet the course requirements in the first academic year, including: I. Fundamental Courses, II. Core Courses, and sufficient elective courses in III. Major Electives.			

6. PhD Dissertation Topic and Research Proposal

PhD dissertation proposal should be no less than 10000 words long and has at least 80 references, half of which must be published in the recent 5 years. A PhD student should choose a research topic for the PhD dissertation and spend no less than 2 years on the dissertation research and writing, all under an advisor's guidance.

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Before graduation, each doctoral student should obtain a certain number of innovative achievements closely related to the research content of the dissertation. Detailed requirements are documented in ***"NJUST Regulations on the Basic Requirements for Innovation Achievements for Graduate Students Applying for Degree "*** and specific standards for each discipline.

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Detailed regulations and requirements on PhD dissertation are documented in the "***NJUST Regulations about the Topic Selection, Research Proposal and Composition of Postgraduate Theses and Dissertations***", and "***NUST Style Sheet for Theses and Dissertations***". For a joint effort with others, or a follow-up of previous work, the student should clearly specify his/her contribution to the thesis.

Doctoral Program in Electromagnetic Field and Microwave Technology/Circuit and System

1. Introduction

The secondary disciplines of "electromagnetic field and microwave technology" and "circuit and system" belong to national first-level disciplines of "Electronic Science and Technology", they were approved to establish doctoral programs in 2000 and 2005 respectively. The discipline of "electromagnetic field and microwave technology" was approved as a national key discipline. The first-level discipline "Electronic Science and technology" was approved as the key discipline of Jiangsu Province in 2011, 2016 and 2021, and the key discipline of integration of informatization and industrialization of the Ministry of Industry and Information Technology (MIIT) in 2012. These disciplines have teachers and talents such as winners of The National Science Fund for Distinguished Young Scholars, winners of the National Science Fund for Excellent Young Scholars, winners of Leading Talent of Technological Innovation of Ten-Thousands Talents Program, young scholars of the Chang Jiang Scholars Program of the Ministry of Education, and scholars selected for the 1000 Talents Plan for Young Talents. The main employment destinations of graduates include research institutes, large companies in the IT industry, colleges and universities.

2. Research Directions

（1）Computational Electromagnetics
（2）Circuits and System of RF/Microwave/Millimeter Wave
（3）Antenna and Metamaterials
（4）Reliability of Circuits and System

3. Duration of studies

Full time PhD students are expected to complete their studies and earn their degrees in 4 to 6 years, and they will be disqualified from the program after 6 years.

4. Credits requirements

Students are required to complete at least 18 degree credits from courses in Section 5 with a minimum of 16 coursework credits and 2 obligatory courses.

5. Curriculum

Course No.	Course Name	Semester	Credits
I. Fundamental Courses			**4**
L371A002	Chinese	Fall	2
L371A003	Introduction to Chinese Classics	Fall	2
II. Core Courses			**6+**
L113A005	Mathematic Modeling and System Simulation	Spring	2

L113A006	Applied Partial Differential Equations	Spring	3
L113A014	Wavelet Analysis	Fall	3
B104Z010	Front of Electromagnetic Theory	Spring	2
B104Z017	Modern Microwave and Millimeter Wave Technology	Spring	2
III. Major Electives			**4+**
L113A010	Matrix Analysis and Computation	Fall	3
L113A007	Numerical Analysis	Spring	2
S104C067	Information Processing and Machine Learning	Fall	2
L104B001	Software Radio Technology	Spring	3
S104B016	Advanced Theory of Electromagnetic Field	Fall	3
S104C034	Radio Frequency Circuits Theory and Technology	Fall	3
S104C042	Antenna Theory and Technology	Fall	2
S104B020	Computational Electromagnetics	Spring	3
S104C054	Introduction to Modern Wireless System	Fall	2
S104B005	Physical and Numerical Analysis of Semiconductor Devices	Spring	3
S104B026	Nanoelectronics and Devices	Spring	3
S104B023	Digital Communications	Fall	3
L104C008	Advanced Signal Processing	Spring	2
S104C019	Theory and Technology of Electromagnetic Compatibility	Fall	2
L106C002	Digital Signal Processing	Spring	2
L104C018	Digital Image Processing	Fall	2
IV. Thesis Credits			
L0000003	Dissertation Proposal II	Fall	**2**
L0000004	Academic Activities II	Spring	
Total Credits Required			**18+**
NOTE: Graduate students are usually expected to meet the course requirements in the first academic year, including: I. Fundamental Courses, II. Core Courses, and sufficient elective courses in III. Major Electives.			

6. PhD Dissertation Topic and Research Proposal

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Doctoral Program in Computer Science and Technology

1. Introduction

The School of Computer Science and Engineering at NUST consists of several teaching and research departments and laboratories, namely the Department of Computer Science and Technology, the Department of Software Engineering, the Department of Intelligent Science and Technology, the Department of Digital Media Theory and Engineering, the Department of Computer Network and Communication Technology, the Computer Science and Engineering Experimental Center, the Computer Application Institute, the Information Processing and Security Technology Institute, and the Intelligent Robotics Institute. The school also owns the Ministry-of-Education Key Laboratory of "Intelligent Perception and Systems for High-Dimensional Information", and the Jiangsu Key Laboratory of Image and Video Understanding for Public Safety.

The school has a national key discipline in "Pattern Recognition and Intelligent Systems", two Jiangsu provincial key disciplines in “Computer Science and Technology” and "Software Engineering". We own primary discipline doctoral programs in "Computer Science and Technology" and "Software Engineering", and secondary discipline doctoral program in "Pattern Recognition and Intelligent Systems" and the corresponding post-doctoral workstations. We also provide master programs in "Computer Science and Technology", "Pattern Recognition and Intelligent Systems", "Software Engineering", and "Biomedical Engineering". The school's programs are supported by the national "985" Project innovation Platform.

2. Research Directions

(1) Pattern recognition and intelligent system
(2) Computer science and technology
(3) Software engineering

3. Duration of studies

Full time PhD students are expected to complete their studies and earn their degrees in 4 to 6 years, and they will be disqualified from the program after 6 years.

4. Credits requirements

Students are required to complete at least 18 degree credits from courses in Section 5 with a minimum of 16 coursework credits and 2 obligatory courses.

5.Curriculum

Course No.	Course Name	Semester	Credits
I. Fundamental Courses			**4**
L371A002	Chinese II	Fall	2
L371A003	Introduction to Chinese Classics	Fall	2
II. Core Courses			**6+**

L113A010	Matrix Analysis and Computation	Spring	3
L113A008	Stochastic Mathematics	Fall	3
B106B002	Advanced System Software Theory and Technologies	Spring	2
S106C050	Advanced Machine Learning	Fall	2
III. Major Electives			**4+**
L106C008	Information Security and Applied Cryptography	Fall	2
L106C007	Computer Vision	Fall	2
L106C009	Pattern Recognition	Spring	2
B106C002	Services Computing and Business Process Management (II)	Spring	2
IV. Thesis Credits			
L0000003	Dissertation Proposal II	Fall	**2**
L0000004	Academic Activities II	Fall	
Total Credits Required			**18+**
NOTE: Graduate students are usually expected to meet the course requirements in the first academic year, including: I. Fundamental Courses, II. Core Courses, and sufficient elective courses in III. Major Electives.			

6. PhD Dissertation Topic and Research Proposal

PhD dissertation proposal should be no less than 10000 words long and has at least 80 references, half of which must be published in the recent 5 years. A PhD student should choose a research topic for the PhD dissertation and spend no less than 2 years on the dissertation research and writing, all under an advisor's guidance.

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7. Requirements for innovation achievements

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Doctoral Program in Mechanics

1. Introduction

Mechanics and Ballistics, founded in 1960, is a national key major. It offers several bachelor, master and doctoral programs, as well as a post-doctoral program. The mechanics discipline, based on mechanics theory and its applications, focuses on the fundamental theory, numerical simulations and test techniques for systems of civil use and military use. As a project technical chief or technology topics chief, our school presided over and completed a lot of key projects, including 6 items of the State 973 Projects, 5 items of the 863 Projects, 4 items of the National Security Specials, more than 100 items of the National Natural Science Foundations, national & ministerial key projects, and 3 items of international cooperation projects, with a total research funding of more than RMB300 million. Among them, 2 items won the National Technology Invention Second Prizes (ranking 1st) and 2 items won the National Science & Technology Progress Second Prizes (ranking 3rd). Our school has more than 90 invention patents authorized, and over 10 monographs and 500 SCI and EI papers published. Among the faculty members are more than 20 national leading talents and national young talents. The school has the Transient Physics State Key Laboratory, Advanced Science Center of Complex Equipment System Dynamics, and the Mechanical Experiment Demonstration Center of Jiangsu Province, the total value of the experimental equipment exceeding one hundred million. The laboratories cover an area of more than 20,000 square meters, and have a collection of more than 20 million books.

2. Research Directions

(1) Launch dynamics
(2) Theory of multibody system dynamics & its applications
(3) Theory of elastic-plastic mechanics & its applications
(4) Fluid control & high-speed air dynamics
(5) Detonation propulsion & noise control
(6) Explosion mechanics & security, ballistics
(7) Vibration control
(8) Ballistics, flight dynamics & control

3. Duration of studies

Full time PhD students are expected to complete their studies and earn their degrees in 4 to 6 years, and they will be disqualified from the program after 6 years.

4. Credits requirements

Students are required to complete at least 18 degree credits from courses in Section 5 with a minimum of 16 coursework credits and 2 obligatory courses.

5. Curriculum

Course No.	Course Name	Semester	Credits
I. Fundamental Courses			**4**
L371A002	Chinese	Fall	2
L371A003	Introduction to Chinese Classics	Fall	2
II. Core Courses			**8+**
L108B005	Sensitivity Analysis & Optimization	Spring	2
L113A018	Multibody System Dynamics	Spring	3
S108C010	Transfer Matrix Method for Multibody Systems	Fall	3
L113A017	Elastic-Plastic Mechanics	Spring	3
III. Major Electives			**3+**
L108C010	Advanced Launch Dynamics	Fall	3
S108C049	Reduced Multibody System Transfer Matrix Method	Spring	3
IV. Thesis Credits			
L0000003	Dissertation Proposal II	Fall	**2**
L0000004	Academic Activities II	Spring	
Total Credits Required			**18+**
NOTE: Graduate students are usually expected to meet the course requirements in the first academic year, including: I. Fundamental Courses, II. Core Courses, and sufficient elective courses in III. Major Electives.			

6. PhD Dissertation Topic and Research Proposal

PhD dissertation proposal should be no less than 10000 words long and has at least 80 references, half of which must be published in the recent 5 years. A PhD student should choose a research topic for the PhD dissertation and spend no less than 2 years on the dissertation research and writing, all under an advisor's guidance.

Detailed regulations and requirements on PhD dissertation are documented in the ***"NJUST Regulations about the Topic Selection, Research Proposal and Composition of Postgraduate Theses and Dissertations"***. The PhD dissertation research proposal writing and defense should be completed in no later than the second academic year of the program.

7.Requirements for innovation achievements

Before graduation, each doctoral student should obtain a certain number of innovative achievements closely related to the research content of the dissertation. Detailed requirements are documented in ***"NJUST Regulations on the Basic Requirements for Innovation Achievements for Graduate Students Applying for Degree"*** and specific standards for each discipline.

8. PhD Dissertation Requirements

Detailed regulations and requirements on PhD dissertation are documented in the ***"NJUST Regulations about the Topic Selection, Research Proposal and***

Composition of Postgraduate Theses and Dissertations", and ***"NUST Style Sheet for Theses and Dissertations"***. For a joint effort with others, or a follow-up of previous work, the student should clearly specify his/her contribution to the thesis.

Doctoral Program in Control Science and Engineering

1. Introduction

Control science and engineering is a discipline that studies the theory, method, technology and their engineering application. It is one of the most important scientific theories and achievements in the 20th century, and its theoretical development and technological progress at all stages are closely related to the needs of production and social practice. This discipline was authorized in 2000 as the second batch of first-level discipline to offer doctoral degree in China. It consists of "Control Theory and Control Engineering", "Detection Technology and Automation Device", "System Engineering", "Pattern Recognition and Intelligent System", "Navigation, Guidance and Control" and other five second-level discipline doctoral programs Among them "Control Science and Engineering" is a key first-level discipline in Jiangsu Province, a national key first-level discipline (under cultivation), and a key construction discipline of the national "211 Project"; "Pattern Recognition and Intelligent System" is a key national discipline. Over the years, the discipline has made remarkable achievements in postgraduate cultivation and academic research. It has undertaken a number of high-level projects represented by national key R&D projects, key projects of the National Natural Science Foundation of China, and key projects of national defense basic scientific research. The scientific research achievements have reached the domestic leading and international advanced level, and won the first prize of the National Science and Technology Progress Award, the second prize of the National Natural Science Award and the first prize of the Provincial and Ministerial Science and Technology Progress Award.

2. Research Directions

(1) Automatic control theory and application
(2) Measurement technology and automatic equipment
(3) Complex engineering system modeling, control and optimization
(4) Pattern recognition and intelligent system
(5) Navigation, guidance and control

3. Duration of studies

Full time PhD students are expected to complete their studies and earn their degrees in 4 to 6 years, and they will be disqualified from the program after 6 years.

4. Credits requirements

Students are required to complete at least 18 degree credits from courses in Section 5 with a minimum of 16 coursework credits and 2 obligatory courses.

5. Curriculum

Course No.	Course Name	Semester	Credits
I. Fundamental Courses			**4**
L371A002	Chinese	Fall	2
L371A003	Introduction to Chinese Classics	Fall	2
II. Core Courses			**6+**
L113A009	Functional Analysis	Fall	3
L113A010	Matrix Analysis and Computation	Spring	3
L110B004	Introduction to Nonlinear System Theory	Fall	2
B110B005	Stability & Robustness Theory	Spring	2
III. Major Electives			**4+**
L110B002	Introduction to Optimal Control	Fall	2
L110C011	Intelligent Control & Application	Fall	2
L110C003	Hybrid systems Modeling, Control & Applications to complex systems	Spring	2
L110C018	Filtering, Estimation Theory and Application	Spring	2
L110C012	Latest Developments on Control Theory & Engineering Discipline	Spring	2
L110C013	Latest Developments on Measurement Technique & Automation Equipment Discipline	Spring	2
L110C014	Latest Developments on Navigation, Guidance & Control Discipline	Spring	2
L110C015	Latest Developments on System Engineering Discipline	Spring	2
IV. Thesis Credits			
L0000003	Dissertation Proposal II	Fall	**2**
L0000004	Academic Activities II	Spring	
Total Credits Required			**18+**
NOTE: Graduate students are usually expected to meet the course requirements in the first academic year, including: I. Fundamental Courses, II. Core Courses, and sufficient elective courses in III. Major Electives.			

6. PhD Dissertation Topic and Research Proposal

PhD dissertation proposal should be no less than 10000 words long and has at least 80 references, half of which must be published in the recent 5 years. A PhD student should choose a research topic for the PhD dissertation and spend no less than 2 years on the dissertation research and writing, all under an advisor's guidance.

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Before graduation, each doctoral student should obtain a certain number of innovative achievements closely related to the research content of the dissertation. Detailed requirements are documented in ***"NJUST Regulations on the Basic Requirements for Innovation Achievements for Graduate Students Applying for Degree"*** and specific standards for each discipline.

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Doctoral Program in Mathematics

1. Introduction

Mathematics is a scientific system to study quantitative relation, space form and the deduction system, etc. It is a subject with rigor, logicality, abstract, accuracy, creativity and imagination. Mathematics plays an important role in science research, technology, engineering, economics, finance and management.

We own primary discipline doctoral and master programs in Mathematics including five secondary discipline programs "Pure Mathematics", "Numerical Mathematics", "Applied Mathematics", "Probability and Statistics", "Operations Research and Control Theory".

2. Research Directions

(1) Geometry
(2) Complex Analysis
(3) Partial Differential Equations and Dynamical System,
(4) Image Processing
(5) Optimization
(6) Control Theory for Complex System and Uncertain Systems
(7) Financial mathematics and financial engineering
(8) Statistical inference methods and applications in big data
(9) Applied probability and stochastic processes
(10) Inverse Problem Theory

3. Duration of studies

Full time PhD students are expected to complete their studies and earn their degrees in 4 to 6 years, and they will be disqualified from the program after 6 years.

4. Credits requirements

Students are required to complete at least 19 degree credits from courses in Section 5 with a minimum of 17 coursework credits and 2 obligatory courses.

5. Curriculum

Course No.	Course Name	Semester	Credits
I. Fundamental Courses			**4**
L371A002	Chinese	Fall	2
L371A003	Introduction to Chinese Classics	Fall	2
II. Core Courses			**9+**
L130B009	Sparse and Low-rank Approximation Modeling	Spring	3
L130B007	Geometric Analysis on Manifolds	Spring	3
L130B001	Stochastic Differential Equations	Fall	3
L130B002	Algorithms and Applications of Optimization	Fall	3

L130B008	Stability Theory of Dynamical Systems	Fall	3
III. Major Electives			**4+**
L130C010	Development of Analysis and Geometry	Spring	2
L130C001	Development of Numerical Analysis，Optimization and Control	Spring	2
L130C011	Development of Stochastic and Financial Mathematics	Spring	2
L130C002	Development on Mathematical Theory in Inverse Problem and Image Processing	Spring	2
IV. Thesis Credits			
L0000003	Dissertation Proposal II	Fall	**2**
L0000004	Academic Activities II	Spring	
Total Credits Required			**19+**
NOTE: Graduate students are usually expected to meet the course requirements in the first academic year, including: I. Fundamental Courses, II. Core Courses, and sufficient elective courses in III. Major Electives.			

6. PhD Dissertation Topic and Research Proposal

PhD dissertation proposal should be no less than 10000 words long and has at least 80 references, half of which must be published in the recent 5 years. A PhD student should choose a research topic for the PhD dissertation and spend no less than 2 years on the dissertation research and writing, all under an advisor's guidance.

Detailed regulations and requirements on PhD dissertation are documented in the "***NJUST Regulations about the Topic Selection, Research Proposal and Composition of Postgraduate Theses and Dissertations***". The PhD dissertation research proposal writing and defense should be completed in no later than the second academic year of the program.

7. Requirements for innovation achievements

Before graduation, each doctoral student should obtain a certain number of innovative achievements closely related to the research content of the dissertation. Detailed requirements are documented in ***"NJUST Regulations on the Basic Requirements for Innovation Achievements for Graduate Students Applying for Degree "*** and specific standards for each discipline.

8. PhD Dissertation Requirements

Detailed regulations and requirements on PhD dissertation are documented in the "***NJUST Regulations about the Topic Selection, Research Proposal and Composition of Postgraduate Theses and Dissertations***", and "***NUST Style Sheet for Theses and Dissertations***". For a joint effort with others, or a follow-up of previous work, the student should clearly specify his/her contribution to the thesis.

Doctoral Program in Materials Science and Engineering

1. Introduction

Materials Science is a subject field researching on the relationship among the formation, structure, processing, property and performance of materials. It is committed to the performance optimization, processing optimization, and development & application of materials.

2. Research Directions

(1) Advanced Metals and intermetallic compounds
(2) Additive and intelligent manufacturing
(3) New display materials and devices
(4) Nano and heterogeneous metal materials
(5) Material connection and control
(6) Advanced materials processing technology and surface engineering
(7) Materials calculation and characterization
(8) New energy materials
(9) Information functional material

3. Duration of studies

Full time PhD students are expected to complete their studies and earn their degrees in 4 to 6 years, and they will be disqualified from the program after 6 years.

4. Credits requirements

Students are required to complete at least 18 degree credits from courses in Section 5 with a minimum of 16 coursework credits and 2 obligatory courses.

5. Curriculum

Course No.	Course Name	Semester	Credits
I. Fundamental Courses			**4**
L371A002	Chinese	Fall	2
L371A003	Introduction to Chinese Classics	Fall	2
II. Core Courses			**8+**
L113A015	Elastic Mechanics	Spring	3
S116B007	Quantum Mechanics and Solid State Physics	Fall	3
S116B003	Phase Transformation and Kinetics in Materials	Fall	3
S116B004	Physical Foundation for Crystal Growth	Fall	3
III. Major Electives			**4+**
S116B009	Advanced Characterization Techniques for Materials	Spring	2
S116B010	Mechanics of Composite Materials	Fall	2
IV. Thesis Credits			

L0000003	Dissertation Proposal II	Fall	**2**
L0000004	Academic Activities II	Fall	
Total Credits Required			**18+**
NOTE: Graduate students are usually expected to meet the course requirements in the first academic year, including: I. Fundamental Courses, II. Core Courses, and sufficient elective courses in III. Major Electives.			

6. PhD Dissertation Topic and Research Proposal

PhD dissertation proposal should be no less than 10000 words long and has at least 80 references, half of which must be published in the recent 5 years. A PhD student should choose a research topic for the PhD dissertation and spend no less than 2 years on the dissertation research and writing, all under an advisor's guidance.

Detailed regulations and requirements on PhD dissertation are documented in the "***NJUST Regulations about the Topic Selection, Research Proposal and Composition of Postgraduate Theses and Dissertations***". The PhD dissertation research proposal writing and defense should be completed in no later than the second academic year of the program.

7. Requirements for innovation achievements

Before graduation, each doctoral student should obtain a certain number of innovative achievements closely related to the research content of the dissertation. Detailed requirements are documented in ***"NJUST Regulations on the Basic Requirements for Innovation Achievements for Graduate Students Applying for Degree "*** and specific standards for each discipline.

8. PhD Dissertation Requirements

Detailed regulations and requirements on PhD dissertation are documented in the "***NJUST Regulations about the Topic Selection, Research Proposal and Composition of Postgraduate Theses and Dissertations***", and "***NUST Style Sheet for Theses and Dissertations***". For a joint effort with others, or a follow-up of previous work, the student should clearly specify his/her contribution to the thesis.

Doctoral Program in Power Engineering and Engineering Thermophysics

1. Introduction

Power Engineering and Engineering Thermophysics of Nanjing University of Science and Technology (NUST) is the first class discipline for doctoral degree, the key discipline of Jiangsu province, and also a key construction brand discipline of NUST. MIIT Key Laboratory of Thermal Control of Electronic Equipment, National Key Laboratory of Transient Physics and Nanjing Efficient Heat Transfer Engineering Technology Center are affiliated to this discipline.

2. Research Directions

(1) Heat and mass transfer and its enhancement.
(2) Target infrared radiation and radiative heat transfer.
(3) Clean combustion and pollutants control.
(4) Detonation propulsion technology.
(5) Renewable energy technology.

3. Duration of studies

Full time PhD students are expected to complete their studies and earn their degrees in 4 to 6 years, and they will be disqualified from the program after 6 years.

4. Credits requirements

Students are required to complete at least 18 degree credits from courses in Section 5 with a minimum of 16 coursework credits and 2 obligatory courses.

5. Curriculum

Course No.	Course Name	Semester	Credits
I. Fundamental Courses			**4**
L371A002	Chinese	Fall	2
L371A003	Introduction to Chinese Classics	Fall	2
II. Core Courses			**8+**
L113A010	Matrix Analysis and Computation	Fall	3
L113A008	Stochastic Mathematics	Spring	3
L113A006	Applied Partial Differential Equations	Spring	3
L113A007	Numerical Analysis	Spring	2
III. Major Electives			**4+**
S108B001	Advanced Engineering Thermodynamics	Fall	3
L108B003	Advanced Combustion Theory	Spring	3
S108B003	Advanced Heat Transfer	Fall	3

L108C009	Computational Heat Transfer	Spring	2
L108C012	Low Carbon Utilization of Energy	Fall	2
IV. Thesis Credits			
L0000003	Dissertation Proposal II	Fall	**2**
L0000004	Academic Activities II	Spring	
Total Credits Required			**18+**
NOTE: Graduate students are usually expected to meet the course requirements in the first academic year, including: I. Fundamental Courses, II. Core Courses, and sufficient elective courses in III. Major Electives.			

6. PhD Dissertation Topic and Research Proposal

PhD dissertation proposal should be no less than 10000 words long and has at least 80 references, half of which must be published in the recent 5 years. A PhD student should choose a research topic for the PhD dissertation and spend no less than 2 years on the dissertation research and writing, all under an advisor's guidance.

Detailed regulations and requirements on PhD dissertation are documented in the ***"NJUST Regulations about the Topic Selection, Research Proposal and Composition of Postgraduate Theses and Dissertations"***. The PhD dissertation research proposal writing and defense should be completed in no later than the second academic year of the program.

7. Requirements for innovation achievements

Before graduation, each doctoral student should obtain a certain number of innovative achievements closely related to the research content of the dissertation. Detailed requirements are documented in ***"NJUST Regulations on the Basic Requirements for Innovation Achievements for Graduate Students Applying for Degree"*** and specific standards for each discipline.

8. PhD Dissertation Requirements

Detailed regulations and requirements on PhD dissertation are documented in the ***"NJUST Regulations about the Topic Selection, Research Proposal and Composition of Postgraduate Theses and Dissertations"***, and ***"NUST Style Sheet for Theses and Dissertations"***. For a joint effort with others, or a follow-up of previous work, the student should clearly specify his/her contribution to the thesis.

Doctoral Program in Management Science & Engineering

1. Introduction

Management Science and Engineering is one of the major disciplines of Nanjing University of Science & Technology (NJUST), and offers both master and doctoral programs, and has a postdoctoral research center. After years of exploration and development, this discipline has formed a "six in one" discipline development system, which includes quality management and quality engineering, production operation and supply chain management, management evaluation and decision-making analysis, information system and knowledge management, industrial development and energy management, innovation management and corporate finance. Focusing on the major practical needs of national economic and social development, this discipline has conducted a large number of important projects, such as key projects of the National Natural Science Foundation, major projects of the National Social Science Foundation, and national key R&D projects, to support national and local economic construction.

2. Research Directions

(1) Quality management & quality engineering
(2) Manufacturing operations & supply chain management
(3) Information systems & knowledge management
(4) Management evaluation & decision analysis research
(5) Industrial development and energy management
(6) Innovation management and corporate finance

3. Duration of studies

Full time PhD students are expected to complete their studies and earn their degrees in 4 to 6 years, and they will be disqualified from the program after 6 years.

4. Credits requirements

Students are required to complete at least 18 degree credits from courses in Section 5 with a minimum of 16 coursework credits and 2 obligatory courses.

5. Curriculum

Course No.	Course Name	Semester	Credits
I. Fundamental Courses			**4**
L371A002	Chinese	Fall	2
L371A003	Introduction to Chinese Classics	Fall	2
II. Core Courses			**8+**
L107B013	Complex system theory and method	Fall	3
L107B009	Advanced Statistical Methods	Fall	3
L107B010	Game Theory	Fall	3
L107B011	Optimization Theory & Methods	Fall	3
III. Major Electives			**4+**

L107C014	Quality management & quality engineering research topics	Spring	2
L107C015	Manufacturing operations & supply chain management research topics	Spring	2
L107C016	Information systems & knowledge management research topics	Spring	2
L107C017	Management evaluation & decision analysis research topics	Spring	2
L107C023	Industrial development and energy management topics	Spring	2
IV. Thesis Credits			
L0000003	Dissertation Proposal II	Fall	**2**
L0000004	Academic Activities II	Spring	
Total Credits Required			**18+**
NOTE: Graduate students are usually expected to meet the course requirements in the first academic year, including: I. Fundamental Courses, II. Core Courses, and sufficient elective courses in III. Major Electives.			

6. PhD Dissertation Topic and Research Proposal

PhD dissertation proposal should be no less than 10000 words long and has at least 80 references, half of which must be published in the recent 5 years. A PhD student should choose a research topic for the PhD dissertation and spend no less than 2 years on the dissertation research and writing, all under an advisor's guidance.

Detailed regulations and requirements on PhD dissertation are documented in the "***NJUST Regulations about the Topic Selection, Research Proposal and Composition of Postgraduate Theses and Dissertations***". The PhD dissertation research proposal writing and defense should be completed in no later than the second academic year of the program.

7. Requirements for innovation achievements

Before graduation, each doctoral student should obtain a certain number of innovative achievements closely related to the research content of the dissertation. Detailed requirements are documented in ***"NJUST Regulations on the Basic Requirements for Innovation Achievements for Graduate Students Applying for Degree "*** and specific standards for each discipline.

8. PhD Dissertation Requirements

Detailed regulations and requirements on PhD dissertation are documented in the "***NJUST Regulations about the Topic Selection, Research Proposal and Composition of Postgraduate Theses and Dissertations***", and "***NUST Style Sheet for Theses and Dissertations***". For a joint effort with others, or a follow-up of previous work, the student should clearly specify his/her contribution to the thesis.

Doctoral Program in Physics

1. Introduction

The Applied Physics Department of Nanjing University of Science is authorized by the State Council to grant doctorate and master degrees in the first-level physics discipline. The research directions include semiconductor materials physics, atomic molecular and ultrafast physics, theoretical physics, and laser physics.

The discipline has a strong and professional faculty, with 78 full-time teachers, including 27 professors, 33 associate professors, 1 winner of the National Science Fund for Distinguished Young Scholars, 6 National/Overseas High-level Young Talents, and 2 New Century Talents of the Ministry of Education/Cross-century Talents, 2 Specially-appointed Professors in Jiangsu Province, and 3 winners of Jiangsu Province Distinguished Young Scholars. The discipline supports 1 state key laboratory for national defense, 2 key laboratories of the Ministry of Industry and Information Technology, 1 provincial and ministerial key experimental center and 7 professional laboratories. In the past 5 years, the discipline has undertaken various scientific research projects, including 50 National Natural Science Foundation (NNSF) projects, of which funding exceeds 70 million Yuan; hosted 6 large domestic and international academic conferences; published more than 400 SCI papers in internationally renowned journals such as Physical Review series, Nature Communications, Science Advances, and Applied Physics Letters.

2. Research Directions

(1) Semiconductor Material Physics:
(2) Laser Physics
(3) Atomic Molecular and Ultrafast Physics
(4) Theoretical Physics

3. Duration of studies

Full time PhD students are expected to complete their studies and earn their degrees in 4 to 6 years, and they will be disqualified from the program after 6 years.

4. Credits requirements

Students are required to complete at least 18 degree credits from courses in Section 5 with a minimum of 16 coursework credits and 2 obligatory courses.

5. Curriculum

Course No.	Course Name	Semester	Credits
I. Fundamental Courses			**4**
L371A002	Chinese	Fall	2
L371A003	Introduction to Chinese Classics	Fall	2
II. Core Courses			**6+**
L130B005	Modern Statistics Analysis	Fall	3

S116B007	Quantum Mechanics and Solid State Physics	Fall	3
S113B008	Computational Physics	Spring	3
L130B009	Sparse and Low-rank Approximation Modeling	Spring	3
III. Major Electives			**6+**
L113C012	Laser Physics	Spring	2
S113C104	Scientific Writing Skills	Fall	2
S113C010	Advanced Solid state Physics	Fall	3
S116B002	Materials Physics	Fall	3
L113C021	Quantum Many-body Theory	Spring	2
L113C022	Quantum Field Theory	Spring	2
IV. Thesis Credits			
L0000003	Dissertation Proposal II	Fall	**2**
L0000004	Academic Activities II	Spring	
Total Credits Required			**18+**
NOTE: Graduate students are usually expected to meet the course requirements in the first academic year, including: I. Fundamental Courses, II. Core Courses, and sufficient elective courses in III. Major Electives.			

6. PhD Dissertation Topic and Research Proposal

PhD dissertation proposal should be no less than 10000 words long and has at least 80 references, half of which must be published in the recent 5 years. A PhD student should choose a research topic for the PhD dissertation and spend no less than 2 years on the dissertation research and writing, all under an advisor's guidance.

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