

南京理工大学
博士留学生

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研究生院
二〇一八年

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Doctoral Program in Mechanical Engineering

1. Introduction

The Mechanical Engineering discipline holds a first-class Master's degree-granting in China and doctorate-granting with post-doctoral program of Mechanical Engineering. It covers the following five second-level disciplines: mechanical manufacturing and automation, mechanical design and theory, mechatronic engineering, vehicle engineering and industrial engineering. Mechatronic engineering is the key discipline of Jiangsu Province.

2. Research directions

As the first-level discipline of Nanjing university of Science and technology for the mechanical engineering, the key research directions are:

- (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, Testing & control
- (7) MEMS
- (8) Smart & intelligent electromechanical systems
- (9) Mechanics-electronics-hydraulics technology
- (10) Dynamics & dynamic simulation of electromechanical system
- (11) Modern vehicle design theory, methods and techniques
- (12) Vehicle electronic control and intelligent

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>I. Fundamental Courses</i>			4
L371A002	Chinese	Fall	2
L371A003	Introduction to Chinese Classics	Fall	2
<i>II. Core Courses</i>			6+
L113A018	Multi-body system dynamics	Spring	2
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
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. Publication

To meet the degree requirements, a PhD student is required to have a certain number of academic publications related to the dissertation research. Detailed requirements are documented in "*NUST regulations on a postgraduate's publications of their research work*".

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 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 catalyst study
- (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>I. Fundamental Courses</i>			4
L371A002	Chinese	Fall	2
L371A003	Introduction to Chinese Classics	Fall	2
<i>II. Core Courses</i>			8+
S103C009	Organic Reactions	Spring	2
B103B004	Design of Organic Moleculars	Fall	2
S103C001	Catalysis in Asymmetric Synthesis	Fall	2
S103C005	Journal-Style Scientific Writing Skills	Spring	1
S103C031	Pyrotechnics	Spring	2
S103C030	Modern Instrumental Analysis	Fall	2
<i>III. Major Electives</i>			4+
S103C002	Progress in Biological Techniques	Spring	2
S103C028	Chemistry & Technology of High Explosives	Fall	2
S103C029	Chemistry & Technology of Propellants	Fall	2
S103B003	Thermal Safety of Chemical Process	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. Publication

To meet the degree requirements, a PhD student is required to have a certain number of academic publications related to the dissertation research. Detailed requirements are documented in "*NUST regulations on a postgraduate's publications of their research work*".

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 Environmental Science & Engineering

1. Introduction

Nanjing University of Science & Technology (NUST) was one of the earliest universities to establish the major of Environmental Engineering (EE) in China. The major was established 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 (ESE) in 2010 and 2012 respectively. EE was also elected as a key discipline of the “Tenth, Eleventh and Twelfth 5-Year Guideline” of Jiangsu province as well as of the Ministry of Industry and Information Technology.

2. Research Directions

- (1) Wastewater treatment and resource reuse engineering
- (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>I. Fundamental Courses</i>			4
L371A002	Chinese	Fall	2
L371A003	Introduction to Chinese Classics	Fall	2
<i>II. Core Courses</i>			8+
L113A012	Intelligent Optimization Algorithms	Fall	2
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
S103C005	Journal-Style Scientific Writing Skills	Spring	1
<i>III. Major Electives</i>			4+
L102C005	Environmental Biotechnology	Fall	2
L102C006	Fundamentals & Materials of Membrane Separation	Fall	2
S102B007	Solid Wastes Disposal and Resource	Spring	2

S102C005	Ecomaterials	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. Publication

To meet the degree requirements, a PhD student is required to have a certain number of academic publications related to the dissertation research. Detailed requirements are documented in "*NUST regulations on a postgraduate's publications of their research work*".

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>I. Fundamental Courses</i>			4
L371A002	Chinese	Fall	2
L371A003	Introduction to Chinese Classics	Fall	2
<i>II. Core Courses</i>			6+
L113A014	Wavelet Analysis	Spring	3
L113A008	Stochastic Mathematics	Spring	3
L113A010	Matrix Analysis and Computation	Spring	3

B104B001	Principle of Optics	Spring	3
L104B008	Modern Photonics	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	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. Publication

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8. PhD Dissertation Requirements

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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

- (6) Wireless networks and communications
- (7) 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>I. Fundamental Courses</i>			4
L371A002	Chinese	Fall	2
L371A003	Introduction to Chinese Classics	Fall	2
<i>II. Core Courses</i>			6+
L113A013	Basis of Modern Analysis	Spring	2
L113A014	Wavelet Analysis	Spring	3
L113A010	Matrix Analysis and Computation	Spring	3
L104B007	Space-time Wireless Communications	Spring	2
<i>III. Major Electives</i>			4+
L104C009	Modern Digital Communications Technology	Spring	2
L104C008	Advanced Signal Processing	Spring	2
L104C011	New Advances in Signal Processing	Spring	2
L104C010	New Advances in Communications	Spring	2
<i>IV. Thesis Credits</i>			
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. Publication

To meet the degree requirements, a PhD student is required to have a certain number of academic publications related to the dissertation research. Detailed requirements are documented in "*NUST regulations on a postgraduate's publications of their research work*".

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 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>I. Fundamental Courses</i>			4
L371A002	Chinese	Fall	2
L371A003	Introduction to Chinese Classics	Fall	2
<i>II. Core Courses</i>			6+
L113A010	Matrix Analysis and Computation	Spring	3

L113A008	Stochastic Mathematics	Spring	3
L113A012	Intelligent Optimization Algorithms	Fall	2
B106B002	Advanced System Software Theory and Technologies	Spring	2
S106C006	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.

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. Publication

To meet the degree requirements, a PhD student is required to have a certain number of academic publications related to the dissertation research. Detailed requirements are documented in "*NUST regulations on a postgraduate's publications of their research work*".

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 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 high-level talents, including academicians, the State 973 Technical Chiefs, New Century Excellent Talents, etc. The school has the Transient Physics State Key Laboratory, 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) 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>I. Fundamental Courses</i>			4
L371A002	Chinese	Fall	2
L371A003	Introduction to Chinese Classics	Fall	2
<i>II. Core Courses</i>			8+
L108B005	Sensitivity Analysis & Optimization	Fall	2
L113A018	Multibody System Dynamics	Spring	3
S108C010	Transfer Matrix Method for Multibody Systems	Spring	3
B108C003	Structural Dynamics & Aerodynamic Elasticity	Fall	3
<i>III. Major Electives</i>			3
L108C010	Advanced Launch Dynamics	Spring	3
<i>IV. Thesis Credits</i>			
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. Publication

To meet the degree requirements, a PhD student is required to have a certain number of academic publications related to the dissertation research. Detailed requirements are documented in "*NUST regulations on a postgraduate's publications of their research work*".

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

Automation technology is widely used in many fields including industry, agriculture, aerospace and national defense. The specialty of automation has a long history, strong faculty force, and superior teaching facilities. It is a Jiangsu provincial key brand discipline and a national characteristic discipline. The discipline has gained many honors and titles, such as national distinguished teachers and national excellent teaching teams. The faculty advocates the student-centered teaching philosophy and has built a set of practical education system for training system designers.

The discipline focuses on the following four research areas: motion control systems, process control systems, network control systems, and embedded control systems. The discipline has several national and provincial essence courses, a national bilingual teaching demonstration course, and a provincial automation experimental teaching demonstration center which plays a great role in the cultivation of students' scientific literacy and innovation capabilities. The undergraduates have won more than twenty outstanding awards, first-place awards and second-place awards in various national undergraduate competitions, such as the Challenge Cup National Undergraduate Curricular Academic Science and Technology Works Competition, the Industrial Automation Challenge Contest, the National Undergraduate Intelligent Car Contest, the Chinese Robot Contest, and the National Undergraduate Electronic Design Contest. The graduates can undertake system design, product manufacture, and software/hardware development in automatic filed. They possess strong practical ability and can adapt to the needs of the society. The employment rate of the past three years exceeded 99% and over 60% of the graduates were admitted to various universities for further study.

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>I. Fundamental Courses</i>			4
L371A002	Chinese	Fall	2
L371A003	Introduction to Chinese Classics	Fall	2
<i>II. Core Courses</i>			6+
L113A009	Functional Analysis	Fall	3
L113A010	Matrix Analysis and Computation	Spring	3
L110B005	Probability Theory & Stochastic Processes	Fall	3
L110B004	Introduction to Output Regulation Theory	Fall	2
B110B005	Stability & Robustness Theory	Spring	2
<i>III. Major Electives</i>			4+
L110C003	Hybrid systems Modeling, Control & Applications to complex systems	Spring	2
L110C009	Time delay systems	Spring	2
L110B002	Introduction to Optimal Control	Fall	2
L110C018	Filtering, Estimation Theory and Application	Spring	2
L110C011	Intelligent Control & Application	Fall	2
L110C012	Latest Developments on Control Theory & Engineering Discipline	Spring	2
L110C015	Latest Developments on System 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
<i>IV. Thesis Credits</i>			
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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academic year of the program.

7. Publication

To meet the degree requirements, a PhD student is required to have a certain number of academic publications related to the dissertation research. Detailed requirements are documented in "*NUST regulations on a postgraduate's publications of their research work*".

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 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, logicity, 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 Direction

- (4) Partial Differential Equations
- (5) Image Processing
- (6) Optimization
- (7) Geometrical Analysis
- (8) Stochastic Analysis and Statistics
- (9) Dynamical System
- (10) Control Theory for Uncertain Systems

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>I. Fundamental Courses</i>			4
L371A002	Chinese	Fall	2
L371A003	Introduction to Chinese Classics	Fall	2
<i>II. Core Courses</i>			8+
L113B014	parse and Low-rank Approximation Modeling	Spring	3
L113B009	Geometric Analysis on Manifolds	Spring	3
L113B012	Stochastic Analysis	Fall	3
L113B013	Theory and Algorithm on Development of Optimization	Fall	3
L113B011	Stability Theory of Dynamical Systems	Fall	3
<i>III. Major Electives</i>			4+
L113C014	Development of Analysis and Geometry	Spring	2
L113C015	Development of Numerical Analysis and	Spring	2

	Optimization		
L113C016	Development of Stochastic and Financial Mathematics	Spring	2
L113C020	Development on Mathematical Theory in Control and Inverse Problem in Mathematics	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. Publication

To meet the degree requirements, a PhD student is required to have a certain number of academic publications related to the dissertation research. Detailed requirements are documented in "*NUST regulations on a postgraduate's publications of their research work*".

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) New metal and advanced composite materials
- (2) Nano-materials and technology
- (3) Advanced functional materials
- (4) New energy materials
- (5) Biomaterials
- (6) Inorganic Non-metallic Materials
- (7) Surface engineering
- (8) Advanced materials processing technology
- (9) Bonding 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 Provision

Course No.	Course Name	Semester	Credits
<i>I. Fundamental Courses</i>			4
L371A002	Chinese	Fall	2
L371A003	Introduction to Chinese Classics	Fall	2
<i>II. Core Courses</i>			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
<i>III. Major Electives</i>			4+
S116B009	Advanced Characterization Techniques for Materials	Spring	2
S116B010	Mechanics of Composite Materials	Fall	2
<i>IV. Thesis Credits</i>			
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. Publication

To meet the degree requirements, a PhD student is required to have a certain number of academic publications related to the dissertation research. Detailed requirements are documented in "*NUST regulations on a postgraduate's publications of their research work*".

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.
 - a. Understanding and characterizing micro/nano-scale heat and mass transfer.
 - b. Theory and technology for thermal management of electronic devices.
 - c. Understanding and tuning heat and mass transfer for extreme conditions.
 - d. Phase change heat transfer and its enhancement.
- (2) Target infrared radiation and radiative heat transfer.
 - a. Theory and technology for near/far-field thermal radiation.
 - b. Target infrared radiation simulations.
 - c. Measurements of material radiative properties.
 - d. Characterizing and tuning thermal radiation.
- (3) Clean combustion and pollutants control.
 - a. Advanced diagnosis theory and technology on combustion.
 - b. Combustion chemistry and kinetics.
 - c. Combustion reaction control.
 - d. Theory and technology of combustion pollutants control.
 - e. Combustion theory and technology of aero-engine.
 - f. Utilization of solid waste resources.
 - g. CO₂ capture and utilization of low carbon energy.
- (4) Detonation propulsion technology.
 - a. Continuous rotating detonation engine technology.
 - b. Continuous detonation turbine-combined engine technology.
 - c. Solid powder fuel detonation engine technology.
 - d. Integrated design technology of continuous detonation engine and aircraft.
- (5) Renewable energy technology.
 - a. Solar photovoltaics.
 - b. Hybrid solar photovoltaic/thermal technology.
 - c. Biomass energy conversion technology.
 - d. Reliability of wind turbines and its diagnosis.
 - e. Hydrogen energy and fuel cells.

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>I. Fundamental Courses</i>			4
L371A002	Chinese	Fall	2
L371A003	Introduction to Chinese Classics	Fall	2
<i>II. Core Courses</i>			8+
L113A010	Matrix Analysis and Computation	Spring	3
L113A008	Stochastic Mathematics	Spring	3
L113A006	Applied Partial Differential Equations	Spring	3
L113A007	Numerical Analysis	Spring	2
<i>III. Major Electives</i>			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
L108C011	Gas Turbine Combustion	Spring	2
L108C012	Low Carbon Utilization of Energy	Fall	2
L108C013	Evaluation Method of Energy System	Fall	2
L108C014	Micro- and Nano-manufacturing: Applications and Challenges	Spring	2
<i>IV. Thesis Credits</i>			
L0000003	Dissertation Proposal II	Fall	2
L0000004	Academic Activities II	Fall	
Total Credits Required			18+
<p>NOTE:</p> <p>(1) PhD students are required to attend academic conferences for at least twice before defending their theses.</p> <p>(2) PhD students are required to present their research at the PhD Student Forum for at least twice before defending their theses.</p> <p>(3) PhD students are required to submit annual report on their research.</p> <p>(4) PhD 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.</p>			

6. PhD Dissertation Topic and Research Proposal

PhD dissertation proposal should be no less than 10000 words long and has at least 80 references, 1/3 of which must be published in English and 1/3 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. Publication

To meet the degree requirements, a PhD student is required to have a certain number of academic publications related to the dissertation research. Detailed requirements are documented in "*NUST regulations on a postgraduate's publications of their research work*".

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.

2. Research Directions

- (1) Quality management & quality engineering
- (2) Manufacturing operations & supply chain management
- (3) Information systems & knowledge management

Course No.	Course Name	Semester	Credits
<i>I. Fundamental Courses</i>			4
L371A002	Chinese	Fall	2
L371A003	Introduction to Chinese Classics	Fall	2
<i>II. Core Courses</i>			8+
L107B008	Management Science & Systems Engineering	Fall	3
L107B009	Advanced Statistical Methods	Fall	3
L107B010	Game Theory	Spring	3
L107B011	Optimization Theory & Methods	Spring	3
<i>III. Major Electives</i>			6+
L107C014	Quality management & quality engineering research topics	Fall	2
L107C015	Manufacturing operations & supply chain management research topics	Fall	2
L107C016	Information systems & knowledge management research topics	Fall	2
L107C017	Management evaluation & decision analysis research topics	Spring	2
L107C018	Industry development and innovation management research topics	Spring	2
<i>IV. Thesis Credits</i>			
L0000003	Dissertation Proposal II	Fall	2
L0000004	Academic Activities II	Fall	
Total Credits Required			20+
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.			

- (4) Management evaluation & decision analysis
- (5) Industry development and innovation management

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 20 degree credits from courses in Section 5 with a minimum of 18 coursework credits and 2 obligatory courses.

5. Curriculum

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. Publication

To meet the degree requirements, a PhD student is required to have a certain number of academic publications related to the dissertation research. Detailed requirements are documented in "*NJUST regulations on a postgraduate's publications of their research work*".

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 "*NJUST 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.