

# 南京理工大学 硕士留学生

## 培 养 方 案

研究生院  
二〇一八年



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# Master 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 master students are expected to complete their studies and earn their degrees in 2.5 to 5 years, and they will be disqualified from the program after 5 years.

## 4. Credits requirements

Students are required to complete at least 28 degree credits from courses in Section 5 with a minimum of 26 coursework credits and 2 obligatory courses.

## 5. Curriculum

Course No.	Course Name	Semester	Credits
<b><i>I. Fundamental Courses</i></b>			<b>6</b>
L371A001	Chinese I	Fall	4
L371A003	Introduction to Chinese Classics	Fall	2
<b><i>II. Core Courses</i></b>			<b>8+</b>
L113A010	Matrix Analysis and Computation	Fall	2
L113A003	Advanced Dynamics	Spring	3
L113A004	Elastoplasticity and Its Application	Fall	3
L101B001	Theory and Application of Finite Element Method	Spring	2

<b>III. Major Electives</b>			<b>8+</b>
L101C009	Modern Theory and Methods of Mechanical Design	Fall	2
L101C008	Modern Theory and Methods of Manufacturing	Fall	2
S101B025	Modern Sensing and Detection	Fall	3
L101C005	Guidance and Control Technology	Spring	3
L101C003	Mechatronics Technology Basis on information processing and controlling	Fall	3
L101C014	Engineering Measurement Technologies	Spring	3
L101C015	Theory of Mechanism and Robotics	Spring	3
L101C001	Automation Technology of Mechanical Manufacturing and Engineering Application	Spring	3
S101C054	Computer Aided Engineering and its Application	Spring	3
S101B009	Precision testing technology and Instruments	Fall	3
S101C003	MEMS and Microfabrication Technology	Fall	2
<b>IV. Thesis Credits</b>			
L0000001	Thesis Proposal	Fall	2
L0000002	Academic Activities	Spring	
<b>Total Credits Required</b>			<b>28+</b>
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. Thesis Topic and Proposal

A master student is supposed to choose his/her research direction under an advisor's guidance. The student should actively study, research and survey in the chosen research direction. The student is expected to choose a research topic for the postgraduate thesis and confirm the significance of the topic in a thesis proposal. The thesis proposal should be submitted and defended at the beginning of the second year of study.

Detailed regulations and requirements on master's thesis can be found in the "*NJUST Regulations about the Topic Selection, Research Proposal and Composition of Postgraduate Theses and Dissertations*".

## 7. Publication

Before graduation, each master student should have at least one academic paper published. Detailed requirements are documented in "*NUST regulations on a postgraduate's publications of their research work*".

## 8. Degree Thesis Requirement

MA Degree thesis is one of the most important parts for graduate education, which provides students with training on academic research or specific technology application, enhances students' abilities to innovate and to apply the knowledge to their research, and encourages them to discover, analyze and solve problems in their

fields.

Detailed regulations and requirements on master's thesis 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.

# Master Program in Chemical Engineering & Technology

## 1. Introduction

The primary discipline of Chemical Engineering and Technology includes six secondary discipline master programs in chemical engineering, chemical technology, applied chemistry, bio-chemical, industrial catalysis, and explosions chemical. We also offer doctoral and postdoctoral programs in this primary discipline. 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 and pyrotechnics technique
- (5) Biopharmaceutical
- (6) Design and synthesis of energetic material
- (7) Preparation process and equipment of special chemical material

## 3. Duration of studies

Full time master students are expected to complete their studies and earn their degrees in 2.5 to 5 years, and they will be disqualified from the program after 5 years.

## 4. Credits requirements

Students are required to complete at least 28 degree credits from courses in Section 5 with a minimum of 26 coursework credits and 2 obligatory courses.

## 5. Curriculum

Course No.	Course Name	Semester	Credits
<b><i>I. Fundamental Courses</i></b>			<b>6</b>
L371A001	Chinese I	Fall	4
L371A003	Introduction to Chinese Classics	Fall	2
<b><i>II. Core Courses</i></b>			<b>8+</b>
S103C009	Organic Reactions	Spring	2
B103B004	Design of Organic Moleculars	Fall	2
S103C001	Catalysis in Asymmetric Synthesis	Spring	2
S103C005	Journal-Style Scientific Writing Skills	Spring	1
S103C031	Pyrotechnics	Spring	2
S103C030	Modern Instrumental Analysis	Fall	2
<b><i>III. Major Electives</i></b>			<b>8+</b>
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
L102B001	Advanced Organic Chemistry	Fall	2
L102C001	Biocatalysis & Biotransformation	Spring	2
L102C002	Experimental Data Analysis for Biologists	Spring	2
<b>IV. Thesis Credits</b>			
L0000001	Thesis Proposal	Fall	2
L0000002	Academic Activities	Spring	
<b>Total Credits Required</b>			<b>28+</b>
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. Thesis Topic and Proposal

A master student is supposed to choose his/her research direction under an advisor's guidance. The student should actively study, research and survey in the chosen research direction. The student is expected to choose a research topic for the postgraduate thesis and confirm the significance of the topic in a thesis proposal. The thesis proposal should be submitted and defended at the beginning of the second year of study.

Detailed regulations and requirements on master's thesis can be found in the *"NJUST Regulations about the Topic Selection, Research Proposal and Composition of Postgraduate Theses and Dissertations"*.

## 7. Publication

Before graduation, each master student should have at least one academic paper published or accepted for publication. Detailed requirements are documented in *"NUST regulations on a postgraduate's publications of their research work"*.

## 8. Degree Thesis Requirement

MA Degree thesis is one of the most important parts for graduate education, which provides students with training on academic research or specific technology application, enhances students' abilities to innovate and to apply the knowledge to their research, and encourages them to discover, analyze and solve problems in their fields.

Detailed regulations and requirements on master's thesis 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.

# Master Program in Environmental Science & Engineering

## 1. Introduction

Nanjing University of Science and 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, 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 master students are expected to complete their studies and earn their degrees in 2.5 to 5 years, and they will be disqualified from the program after 5 years.

## 4. Credits requirements

Students are required to complete at least 28 degree credits from courses in Section 5 with a minimum of 26 coursework credits and 2 obligatory courses.

## 5. Curriculum

Course No.	Course Name	Semester	Credits
<b><i>I. Fundamental Courses</i></b>			<b>6</b>
L371A001	Chinese I	Fall	4
L371A003	Introduction to Chinese Classics	Fall	2
<b><i>II. Core Courses</i></b>			<b>8+</b>
L113A001	Methods in Applied Math	Spring	2
L102C005	Environmental Biotechnology	Fall	2
L102B003	Application & Theory of Water Treatment	Spring	2
L102B004	Air Pollution & its Control	Spring	2
S102B007	Solid Wastes Disposal & Resource	Spring	2
<b><i>III. Major Electives</i></b>			<b>8+</b>
L102B005	Environmental Chemistry	Fall	2
L102C003	Membrane Technology for New Energy Applications	Spring	2
L102C004	Water Treatment Chemicals & Their Applications	Spring	2
		Spring	2

S102C005	Ecomaterials	Spring	2
L102C019	Environmental data analysis	Spring	2
<b>IV. Thesis Credits</b>			
L0000001	Thesis Proposal	Fall	2
L0000002	Academic Activities	Spring	
<b>Total Credits Required</b>			<b>28+</b>
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. Thesis Topic and Proposal

A master student is supposed to choose his/her research direction under an advisor's guidance. The student should actively study, research and survey in the chosen research direction. The student is expected to choose a research topic for the postgraduate thesis and confirm the significance of the topic in a thesis proposal. The thesis proposal should be submitted and defended at the beginning of the second year of study.

Detailed regulations and requirements on master's thesis can be found in the *"NJUST Regulations about the Topic Selection, Research Proposal and Composition of Postgraduate Theses and Dissertations"*.

## 7. Publication

Before graduation, each master student should have at least one academic paper published or accepted for publication. Detailed requirements are documented in *"NUST regulations on a postgraduate's publications of their research work"*.

## 8. Degree Thesis Requirement

MA Degree thesis is one of the most important parts for graduate education, which provides students with training on academic research or specific technology application, enhances students' abilities to innovate and to apply the knowledge to their research, and encourages them to discover, analyze and solve problems in their fields.

Detailed regulations and requirements on master's thesis 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.

# Master 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 master students are expected to complete their studies and earn their degrees in 2.5 to 5 years, and they will be disqualified from the program after 5 years.

## 4. Credits requirements

Students are required to complete at least 28 degree credits from courses in Section 5 with a minimum of 26 coursework credits and 2 obligatory courses.

## 5. Curriculum

Course No.	Course Name	Semester	Credits
<b><i>I. Fundamental Courses</i></b>			<b>6</b>
L371A001	Chinese I	Fall	4
L371A003	Introduction to Chinese Classics	Fall	2
<b><i>II. Core Courses</i></b>			<b>8+</b>
L113A010	Matrix Analysis and Computation	Spring	3
L113A005	Mathematic Modeling and System Simulation	Spring	2
S104B001	Advanced Physical Optics	Spring	3

L104B006	Fundamentals of Optical Engineering	Fall	3
L104B005	Foundations of Image Sciences	Spring	3
L104B004	Laser Principle and Application	Spring	3
L104B003	Introduction to Fourier Optics	Fall	3
<b>III. Major Electives</b>			<b>8+</b>
S104C004	Fiber Optics and Optical Fiber Applied Technology	Spring	3
L104C004	Charge-coupled Devices Imaging Technology	Spring	3
L104C006	Modern Optical Testing	Spring	3
S104C001	Digital Video Processing	Fall	3
S104B002	Optoelectronic Properties of Solids	Spring	3
S104C005	Semiconductor Optoelectronic Technology	Spring	3
<b>IV. Thesis Credits</b>			
L0000001	Thesis Proposal	Fall	2
L0000002	Academic Activities	Spring	
<b>Total Credits Required</b>			<b>28+</b>
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. Thesis Topic and Proposal

A master student is supposed to choose his/her research direction under an advisor's guidance. The student should actively study, research and survey in the chosen research direction. The student is expected to choose a research topic for the postgraduate thesis and confirm the significance of the topic in a thesis proposal. The thesis proposal should be submitted and defended at the beginning of the second year of study.

Detailed regulations and requirements on master's thesis can be found in the "*NJUST Regulations about the Topic Selection, Research Proposal and Composition of Postgraduate Theses and Dissertations*".

## 7. Publication

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## 8. Degree Thesis Requirement

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Detailed regulations and requirements on master's thesis 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.

# Master 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, data 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, as well as theory and technology concerning signal (audio and image) and information processing.

## 2. Research Directions

- (1) Wireless networks and communications
- (2) Signal processing and applications

## 3. Duration of studies

Full time master students are expected to complete their studies and earn their degrees in 2.5 to 5 years, and they will be disqualified from the program after 5 years.

## 4. Credits requirements

Students are required to complete at least 28 degree credits from courses in Section 5 with a minimum of 26 coursework credits and 2 obligatory courses.

## 5. Curriculum

Course No.	Course Name	Semester	Credits
<b><i>I. Fundamental Courses</i></b>			<b>6</b>
L371A001	Chinese I	Fall	4
L371A003	Introduction to Chinese Classics	Fall	2
<b><i>II. Core Courses</i></b>			<b>8+</b>
L113A010	Matrix Analysis and Computation	Spring	3
L113A007	Numerical Analysis	Spring	2
L104B001	Software Radio Technology	Spring	3
S104B023	Digital Communications	Fall	3
L104C008	Advanced Signal Processing	Spring	2
S104C034	Radio Frequency Circuits Theory and Technology	Fall	3
<b><i>III. Major Electives</i></b>			<b>8+</b>
L104C003	Wireless Sensor Networks	Spring	2
L104C002	Principles of Wireless Communications	Spring	2
S104C060	Multi-Sensor Data Fusion Technology	Spring	2
L104C018	Digital Image Processing	Fall	2

S104C054	Introduction to Modern Wireless System	Fall	2
L106C002	Digital Signal Processing	Spring	2
<b>IV. Thesis Credits</b>			
L0000001	Thesis Proposal	Fall	2
L0000002	Academic Activities	Spring	
<b>Total Credits Required</b>			<b>28+</b>
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. Thesis Topic and Proposal

A master student is supposed to choose his/her research direction under an advisor's guidance. The student should actively study, research and survey in the chosen research direction. The student is expected to choose a research topic for the postgraduate thesis and confirm the significance of the topic in a thesis proposal. The thesis proposal should be submitted and defended at the beginning of the second year of study.

Detailed regulations and requirements on master's thesis can be found in the "*NJUST Regulations about the Topic Selection, Research Proposal and Composition of Postgraduate Theses and Dissertations*".

## 7. Publication

Before graduation, each master student should have at least one academic paper published. Detailed requirements are documented in "*NUST regulations on a postgraduate's publications of their research work*".

## 8. Degree Thesis Requirement

MA Degree thesis is one of the most important parts for graduate education, which provides students with training on academic research or specific technology application, enhances students' abilities to innovate and to apply the knowledge to their research, and encourages them to discover, analyze and solve problems in their fields.

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# **Master Program in Computer Science and Technology**

## **1. Introduction**

The School of Computer Science and Engineering 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 boasts the national Key Laboratory of Intelligent Perception and Systems for High-Dimensional Information founded by the Ministry of Education, and the provincial Key Laboratory of Image and Video Understanding for Public Safety of Jiangsu.

The school has one national key discipline in Pattern Recognition and Intelligent Systems, two Jiangsu provincial key disciplines in Computer Science and Technology, and Software Engineering. We offer 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 architecture
- (3) Computer software and theory
- (4) Computer application technology
- (5) Intelligent computing and system
- (6) Intelligent robot
- (7) Biomedical engineering
- (8) Software engineering and methodology
- (9) Service science and software architecture
- (10) Applied software engineering

## **3. Duration of studies**

Full time master students are expected to complete their studies and earn their degrees in 2.5 to 5 years, and they will be disqualified from the program after 5 years.

## **4. Credits requirements**

Students are required to complete at least 28 degree credits from courses in Section 5 with a minimum of 26 coursework credits and 2 obligatory courses.

## 5. Curriculum

Course No.	Course Name	Semester	Credits
<b><i>I. Fundamental Courses</i></b>			<b>6</b>
L371A001	Chinese I	Fall	4
L371A003	Introduction to Chinese Classics	Fall	2
<b><i>II. Core Courses</i></b>			<b>8+</b>
L113A010	Matrix Analysis and Computation	Spring	3
L113A002	Applied Statistics	Spring	2
L113A008	Stochastic Mathematics	Spring	2
L113A012	Intelligent Optimization Algorithms	Fall	2
S106C004	Fundamentals of Image Analysis	Fall	2
S106C037	Distributed Systems and Parallel Computing	Spring	2
S106B005	The Formal Semantics of Program	Fall	2
L106B001	Principles and Methods of Artificial Intelligence	Fall	2
<b><i>III. Major Electives</i></b>			<b>8+</b>
L106C002	Digital Signal Processing	Spring	2
L106C004	Pattern Recognition Technology	Spring	2
S106C005	Services Computing and Business Process Management(I)	Spring	2
L106C003	Formal Specification and Testing of Software	Spring	2
L106C006	The Architectures and Protocols of the Next-Generation Internet	Spring	2
L106C001	Data Mining & Big Data Analysis	Fall	2
L106C005	Software Evaluation and Copyright Protection	Spring	2
S106C007	Trusted Computing Technologies	Spring	2
S106C034	Advanced Network Simulation Techniques	Fall	2
<b><i>IV. Thesis Credits</i></b>			
L0000001	Thesis Proposal	Fall	<b>2</b>
L0000002	Academic Activities	Spring	
<b>Total Credits Required</b>			<b>28+</b>
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. Thesis Topic and Proposal

A master student is supposed to choose his/her research direction under an advisor's guidance. The student should actively study, research and survey in the chosen research direction. The student is expected to choose a research topic for the postgraduate thesis and confirm the significance of the topic in a thesis proposal. The

thesis proposal should be submitted and defended at the beginning of the second year of study.

Detailed regulations and requirements on master's thesis can be found in the *"NJUST Regulations about the Topic Selection, Research Proposal and Composition of Postgraduate Theses and Dissertations"*.

### **7.Publication**

Before graduation, each master student should have at least one academic paper published or accepted for publication. Detailed requirements are documented in *"NUST regulations on a postgraduate's publications of their research work"*.

### **8. Degree Thesis Requirement**

MA Degree thesis is one of the most important parts for graduate education, which provides students with training on academic research or specific technology application, enhances students' abilities to innovate and to apply the knowledge to their research, and encourages them to discover, analyze and solve problems in their fields.

Detailed regulations and requirements on master's thesis 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.

# **Master Program in Mechanics**

## **1. Introduction**

Mechanics and Ballistics, founded in 1960, is a national key discipline. It offers bachelor, master and doctoral degrees, and post-doctoral program as well. The mechanics discipline, based on the 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 master students are expected to complete their studies and earn their degrees in 2.5 to 5 years, and they will be disqualified from the program after 5 years.

## **4. Credits requirements**

Students are required to complete at least 28 degree credits from courses in Section 5 with a minimum of 26 coursework credits and 2 obligatory courses.

## 5. Curriculum

Course No.	Course Name	Semester	Credits
<b><i>I. Fundamental Courses</i></b>			<b>6</b>
L371A001	Chinese I	Fall	4
L371A003	Introduction to Chinese Classics	Fall	2
<b><i>II. Core Courses</i></b>			<b>8+</b>
L113B008	Elasticity Theory	Fall	3
L113A003	Advanced Dynamics	Spring	3
L108B002	Multiphase Reaction Fluid Dynamics	Fall	3
L108B001	Modeling & Simulation of Mechanics	Fall	2
<b><i>III. Major Electives</i></b>			<b>8+</b>
L108C003	Launch Dynamics	Fall	3
L108C001	Computational Mechanics of Explosion	Spring	2
S108B004	Introduction to Structural Dynamics & Aerodynamic Elasticity	Fall	3
L108C002	Heat Transfer	Fall	3
L108C004	Vibration & Control	Fall	3
<b><i>IV. Thesis Credits</i></b>			<b>2</b>
L0000001	Thesis Proposal	Fall	<b>2</b>
L0000002	Academic Activities	Spring	
<b>Total Credits Required</b>			<b>28+</b>
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. Thesis Topic and Proposal

A master student is supposed to choose his/her research direction under an advisor's guidance. The student should actively study, research and survey in the chosen research direction. The student is expected to choose a research topic for the postgraduate thesis and confirm the significance of the topic in a thesis proposal. The thesis proposal should be submitted and defended at the beginning of the second year of study.

Detailed regulations and requirements on master's thesis can be found in the "*NJUST Regulations about the Topic Selection, Research Proposal and Composition of Postgraduate Theses and Dissertations*".

## 7. Publication

Before graduation, each master student should have at least one academic paper published or accepted for publication. Detailed requirements are documented in "*NUST regulations on a postgraduate's publications of their research work*".

## **8. Degree Thesis Requirement**

MA Degree thesis is one of the most important parts for graduate education, which provides students with training on academic research or specific technology application, enhances students' abilities to innovate and to apply the knowledge to their research, and encourages them to discover, analyze and solve problems in their fields.

Detailed regulations and requirements on master's thesis 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.

# **Master 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 centre 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 master students are expected to complete their studies and earn their degrees in 2.5 to 5 years, and they will be disqualified from the program after 5 years.

## **4. Credits requirements**

Students are required to complete at least 28 degree credits from courses in Section 5 with a minimum of 26 coursework credits and 2 obligatory courses.

## 5. Curriculum

Course No.	Course Name	Semester	Credits
<b><i>I. Fundamental Courses</i></b>			<b>6</b>
L371A001	Chinese I	Fall	4
L371A003	Introduction to Chinese Classics	Fall	2
<b><i>II. Core Courses</i></b>			<b>8+</b>
L113A010	Matrix Analysis and Computation	Spring	3
L113A008	Stochastic Mathematics	Spring	2
L110B001	Linear System Theory	Fall	2
L110B002	Introduction to Optimal Control	Fall	2
L110B003	System Modeling & Identification	Fall	2
B110B005	Stability & Robustness Theory	Spring	2
<b><i>III. Major Electives</i></b>			<b>12+</b>
L110B004	Introduction to Output Regulation Theory	Fall	2
L110C011	Intelligent Control & Application	Fall	2
L110C005	Modern Digital Servo System	Fall	2
L110C006	Modern Simulation Technology & Application	Spring	2
S110C038	Video & Image Processing Technology	Spring	2
L110C004	Introduction to Robot Control	Fall	2
L110C001	Embedded Control System Design & Applications	Spring	2
L110C003	Hybrid Systems Modeling, Control, & Applications to Complex Systems	Spring	2
S110C067	Process Control	Spring	2
L110C018	Filtering, Estimation Theory and Application	Spring	2
L110C007	Navigation Principle	Spring	2
<b><i>IV. Thesis Credits</i></b>			
L0000001	Thesis Proposal	Fall	<b>2</b>
L0000002	Academic Activities	Spring	
<b>Total Credits Required</b>			<b>28+</b>
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. Thesis Topic and Proposal

A master student is supposed to choose his/her research direction under an advisor's guidance. The student should actively study, research and survey in the chosen research direction. The student is expected to choose a research topic for the postgraduate thesis and confirm the significance of the topic in a thesis proposal. The thesis proposal should be submitted and defended at the beginning of the second year



of study.

Detailed regulations and requirements on master's thesis can be found in the "*NJUST Regulations about the Topic Selection, Research Proposal and Composition of Postgraduate Theses and Dissertations*".

## **7. Publication**

Before graduation, each master student should have at least one academic paper published. Detailed requirements are documented in "*NJUST regulations on a postgraduate's publications of their research work*".

## **8. Degree Thesis Requirement**

MA Degree thesis is one of the most important parts for graduate education, which provides students with training on academic research or specific technology application, enhances students' abilities to innovate and to apply the knowledge to their research, and encourages them to discover, analyze and solve problems in their fields.

Detailed regulations and requirements on master's thesis 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.

## Master 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 Directions

- (1) Partial Differential Equations
- (2) Image Processing
- (3) Optimization
- (4) Information Security\
- (5) Geometrical Analysis
- (6) Financial mathematics
- (7) Stochastic Analysis and Statistics
- (8) Dynamical System
- (9) Control Theory for Uncertain Systems

### 3. Duration of studies

Full time master students are expected to complete their studies and earn their degrees in 2.5 to 5 years, and they will be disqualified from the program after 5 years.

### 4. Credits requirements

Students are required to complete at least 28 degreecredits from courses in Section 5 with a minimum of 26 coursework credits and 2 obligatory courses.

### 5. Curriculum

Course No.	Course Name	Semester	Credits
<b><i>I. Fundamental Courses</i></b>			<b>6</b>
L371A001	Chinese I	Fall	4
L371A003	Introduction to Chinese Classics	Fall	2
<b><i>II. Core Courses</i></b>			<b>8+</b>
L113A009	Functional Analysis	Fall	3
L113B004	Algebra	Fall	3
L113B005	Modern Differential Geometry	Fall	3
L113B006	Modern Statistics Analysis	Fall	3
L113B007	Modern Theory of Partial Differential Equations	Spring	3
L113A012	Intelligent Optimization Algorithms	Fall	2

S113B007	Modern Scientific Computing	Spring	3
<b>III. Major Electives</b>			<b>8+</b>
S113C006	Elliptic Partial Differential Equations	Spring	3
L113C008	Numerical Computing for Inverse Problems	Fall	3
L113C007	Nonlinear Optimization	Fall	3
L113C009	Stochastic Processes	Fall	3
L113C006	Modern Cryptography	Fall	3
L113C005	Mathematical Finance	Spring	3
L113C010	Uncertainty Theory and Applications	Fall	3
<b>IV. Thesis Credits</b>			
L0000001	Thesis Proposal	Fall	2
L0000002	Academic Activities	Spring	
<b>Total Credits Required</b>			<b>28+</b>
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. Thesis Topic and Proposal

A master student is supposed to choose his/her research direction under an advisor's guidance. The student should actively study, research and survey in the chosen research direction. The student is expected to choose a research topic for the postgraduate thesis and confirm the significance of the topic in a thesis proposal. The thesis proposal should be submitted and defended at the beginning of the second year of study.

Detailed regulations and requirements on master's thesis can be found in the "*NJUST Regulations about the Topic Selection, Research Proposal and Composition of Postgraduate Theses and Dissertations*".

## 7. Publication

Before graduation, each master student should have at least one academic paper published. Detailed requirements are documented in "*NUST regulations on a postgraduate's publications of their research work*".

## 8. Degree Thesis Requirement

MA Degree thesis is one of the most important parts for graduate education, which provides students with training on academic research or specific technology application, enhances students' abilities to innovate and to apply the knowledge to their research, and encourages them to discover, analyze and solve problems in their fields.

Detailed regulations and requirements on master's thesis 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.

## Master 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 master students are expected to complete their studies and earn their degrees in 2.5 to 5 years, and they will be disqualified from the program after 5 years.

### 4. Credits requirements

Students are required to complete at least 28 degree credits from courses in Section 5 with a minimum of 26 coursework credits and 2 obligatory courses.

### 5. Curriculum

Course No.	Course Name	Semester	Credits
<b><i>I. Fundamental Courses</i></b>			<b>6</b>
L371A001	Chinese I	Fall	4
L371A003	Introduction to Chinese Classics	Fall	2
<b><i>II. Core Courses</i></b>			<b>8+</b>
L113A002	Applied Statistics	Spring	2
S116B003	Phase Transformation and Kinetics in Materials	Fall	3
S116B007	Quantum Mechanics and Solid State Physics	Fall	3
S116B009	Advanced Characterization Techniques For Materials	Spring	2
S116B004	Physical Foundation for Crystal Growth	Fall	3
<b><i>III. Major Electives: 6 of the following</i></b>			<b>8+</b>
L116C003	Modern Detection of Materials and Structures	Spring	2
L116C009	Photoelectric Functional Materials Experiment	Spring	2
L116C012	Solidification theory	Spring	2
L116C013	Synthesis and Preparation Method of Materials	Spring	2

S116B010	Mechanics of Composite Materials	Fall	2
L116C005	Materials for Renewable Energy and Sustainable Environment	Spring	2
L116C011	Tissue Engineering	Spring	2
<b>IV. Thesis Credits</b>			
L0000001	Thesis Proposal	Fall	2
L0000002	Academic Activities	Spring	
<b>Total Credits Required</b>			<b>28+</b>
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. Thesis Topic and Proposal

A master student is supposed to choose his/her research direction under an advisor's guidance. The student should actively study, research and survey in the chosen research direction. The student is expected to choose a research topic for the postgraduate thesis and confirm the significance of the topic in a thesis proposal. The thesis proposal should be submitted and defended at the beginning of the second year of study.

Detailed regulations and requirements on master's thesis can be found in the *"NJUST Regulations about the Topic Selection, Research Proposal and Composition of Postgraduate Theses and Dissertations"*.

## 7. Publication

Before graduation, each master student should have at least one academic paper published or accepted for publication. Detailed requirements are documented in *"NUST regulations on a postgraduate's publications of their research work"*.

## 8. Degree Thesis Requirement

MA Degree thesis is one of the most important parts for graduate education, which provides students with training on academic research or specific technology application, enhances students' abilities to innovate and to apply the knowledge to their research, and encourages them to discover, analyze and solve problems in their fields.

Detailed regulations and requirements on master's thesis 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.

# Master Program in Power Engineering & Engineering

## Thermophysics

### 1. Introduction

Power Engineering and Engineering Thermophysics of Nanjing University of Science and Technology (NUST) is a key discipline of Jiangsu province, and also a key construction brand discipline of NUST. Nanjing efficient heat transfer engineering technology center is affiliated to this discipline. “Thermal Energy and Power Engineering Central Lab” is a basic experimental teaching demonstration center of Jiangsu province.

The discipline consists of five secondary discipline master programs in Engineering Thermophysics, Thermal Engineering, Refrigeration & Cryogenic Engineering, Power Machinery & Engineering, and New Energy Science & Engineering.

### 2. Research Directions

(1) **Engineering Thermophysics:** Heat and mass transfer theory and enhancement technology; Advanced thermophysics test technology; Electronic equipment thermal control theory and technology; Multiphase reactive flow and combustion technology; Thermal equipment design theory and its dynamic characteristics; Energy saving technology in industrial process.

(2) **Thermal Engineering:** Combustion theory and pollutant control technology in the process of the electric energy production and heat energy utilization; Biofuel combustion chemistry and diagnostics technology; Clean efficient development and utilization of fossil fuels; Thermal process automatic control; Flame image processing and combustion control optimization; Thermal equipment system status monitoring and fault diagnosis system.

(3) **Refrigeration and Cryogenic Engineering:** Refrigeration, air conditioning and cryogenic engineering technology; Energy utilization and environmental control in refrigeration air conditioner; Air conditioner system energy saving and its automation; and Dynamic characteristics of refrigeration air conditioner.

(4) **Power Machinery and Engineering:** Internal combustion engine supercharge, structure and performance optimization, and reliability analysis; Power system and electronic control; Internal combustion engine combustion and emission control; Leaf blade machine pneumatic thermodynamics.

(4) **New Energy Science and Engineering:** Solar energy efficient photovoltaic conversion technology (solar cells, solar thermal photovoltaic, etc.); Solar energy full spectrum photoelectric-photothermal coupling utilization technology; Biomass conversion and energy utilization technology; Fan reliability and testing technology; Development and application of distributed energy and new energy for vehicles.

### 3. Duration of studies

Full time master students are expected to complete their studies and earn their degrees in 2.5 to 5 years, and they will be disqualified from the program after 5 years.

#### 4. Credits requirements

Students are required to complete at least 28 degree credits from courses in Section 5 with a minimum of 26 coursework credits and 2 obligatory courses.

#### 5. Curriculum

Course No.	Course Name	Semester	Credits
<b><i>I. Fundamental Courses</i></b>			<b>6</b>
L371A001	Chinese I	Fall	4
L371A003	Introduction to Chinese Classics	Fall	2
<b><i>II. Core Courses</i></b>			<b>8+</b>
L113A010	Matrix Analysis and Computation	Spring	3
L113A008	Stochastic Mathematics	Spring	3
L113A006	Applied Partial Differential Equations	Spring	3
S108B001	Advanced Engineering Thermodynamics	Fall	3
L108B003	Advanced Combustion Theory	Spring	3
S108B003	Advanced Heat Transfer	Fall	3
<b><i>III. Major Electives</i></b>			<b>8+</b>
L108C009	Computational Heat Transfer	Spring	2
L108C006	Enhanced Heat Transfer Theory & Technology	Spring	2
L108C005	Advanced Energy Chemistry	Fall	2
L108C008	New Progress in Thermal Science	Fall	2
L108C007	Modern Refrigeration & Cryogenic Technology	Fall	2
<b><i>IV. Thesis Credits</i></b>			
L0000001	Thesis Proposal	Fall	2
L0000002	Academic Activities	Spring	
<b>Total Credits Required</b>			<b>28+</b>
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. Thesis Topic and Proposal

A master student is supposed to choose his/her research direction under an advisor's guidance. The student should actively study, research and survey in the chosen research direction. The student is expected to choose a research topic for the postgraduate thesis and confirm the significance of the topic in a thesis proposal. The thesis proposal should be submitted and defended at the beginning of the second year of study.

Detailed regulations and requirements on master's thesis can be found in the "*NJUST Regulations about the Topic Selection, Research Proposal and*

*Composition of Postgraduate Theses and Dissertations"*.

### **7. Publication**

Before graduation, each master student should have at least one academic paper published. Detailed requirements are documented in "*NUST regulations on a postgraduate's publications of their research work*".

### **8. Degree Thesis Requirement**

MA Degree thesis is one of the most important parts for graduate education, which provides students with training on academic research or specific technology application, enhances students' abilities to innovate and to apply the knowledge to their research, and encourages them to discover, analyze and solve problems in their fields.

Detailed regulations and requirements on master's thesis 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.



# Master Program in Biochemical Engineering

## 1. Introduction

The Biochemical Engineering program at the Nanjing University of Science and Technology (NUST) belongs to the primary discipline of Chemical Engineering and Technology that is authorized by the State Council to offer master's (M.S.) and doctoral (Ph.D.) degrees. This program started to recruit undergraduate students in 1997, and was authorized to establish a research center for postdoctoral fellows a year later, resulting in a complete training system covering B.S., M.S., Ph.D. and postdoctoral research. We have a highly qualified and distinguished group of faculty, some of whom are recipients of a number of awards including the Plan for One Thousand Talents, the National Science Fund for Outstanding Young Scholars, the New Century Excellent Talents funded by the Ministry of Education, and Distinguished Professors funded by Jiangsu Provincial Department of Education. The faculty members have excellent expertise in the areas of biological resources utilization, molecular metabolism/function, and biosensors design/characterization.

## 2. Research Directions

(1) *Biological resource engineering* focuses on discovering biological resources from animal, plant and microorganisms and extending to advanced applications of biological active materials. In general, the research projects include extraction, isolation, structural characterization, and chemical modification of important natural products followed by biological activity assays.

(2) *Microbial fermentation and metabolic engineering* focuses on developing breeding techniques for industrial microbial strains, metabolism control, genetic engineering, cell cultivation techniques, and engineered antibody design.

(3) *Biocatalysis and biotransformation* covers structure-function studies of biomolecules, developments in bio-separation and bio-determination techniques, developing environmentally friendly bio-energies, bio-chemicals, and bio-medicines, as well as detoxifications/biodegradations of environmental pollutants.

(4) *Biosensors* focus on the design and characterization of bio-fuel electrodes, bio-nanomaterials and biosensors.

## 3. Duration of studies

Full time master students are expected to complete their studies and earn their degrees in 2.5 to 5 years, and they will be disqualified from the program after 5 years.

## 4. Credits requirements

Students are required to complete at least 28 degree credits from courses in Section 5 with a minimum of 26 coursework credits and 2 obligatory courses.

## 5. Curriculum

Course No.	Course Name	Semester	Credits
<b><i>I. Fundamental Courses</i></b>			<b>6</b>
L371A001	Chinese I	Fall	4
L371A003	Introduction to Chinese Classics	Fall	2
<b><i>II. Core Courses</i></b>			<b>8+</b>
L113A007	Numerical Analysis	Spring	2
L102B002	Modern Biological Technology	Spring	3
L102B001	Advanced Organic Chemistry	Fall	2
S102C040	Cell Engineering	Spring	2
S103C005	Journal-Style Scientific Writing Skills	Spring	1
<b><i>III. Major Electives</i></b>			<b>8+</b>
S103C002	Progress in Biological Techniques	Spring	2
L102C001	Biocatalysis & Biotransformation	Spring	2
S102C041	Enzyme Engineering	Spring	2
S106C001	Bioinformatics	Spring	2
S102C001	Protein Engineering	Fall	2
<b><i>IV. Thesis Credits</i></b>			
L0000001	Thesis Proposal	Fall	2
L0000002	Academic Activities	Spring	
<b>Total Credits Required</b>			<b>28+</b>
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. Thesis Topic and Proposal

A master student is supposed to choose his/her research direction under an advisor's guidance. The student should actively study, research and survey in the chosen research direction. The student is expected to choose a research topic for the postgraduate thesis and confirm the significance of the topic in a thesis proposal. The thesis proposal should be submitted and defended at the beginning of the second year of study.

Detailed regulations and requirements on master's thesis can be found in the "*NJUST Regulations about the Topic Selection, Research Proposal and Composition of Postgraduate Theses and Dissertations*".

## 7. Publication

Before graduation, each master student should have at least one academic paper published or accepted for publication. Detailed requirements are documented in "*NUST regulations on a postgraduate's publications of their research work*".

## **8. Degree Thesis Requirement**

MA Degree thesis is one of the most important parts for graduate education, which provides students with training on academic research or specific technology application, enhances students' abilities to innovate and to apply the knowledge to their research, and encourages them to discover, analyze and solve problems in their fields.

Detailed regulations and requirements on master's thesis 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.

## Master Program in International Trade

### 1. Introduction

The Department of International Trade launched the master's program in 2000 and now has more than 10 supervisors. The department has undertaken many social science research projects funded by the Ministry of Education and Jiangsu provincial government, and numerous other projects of significant academic and practical value. The department has been sufficiently funded for graduate research activities.

Graduates of the department have pursued careers at government departments, institutions of higher education, research institutes, and business organizations of various types. Graduates are qualified for research positions involving areas of economic theories and policies and for important management positions covering specific economic and business issues.

### 2. Research Directions

- (1) International trade: theories and practices
- (2) International investment: theories and practices
- (3) International finance: theories and practices

### 3. Duration of studies

Full time master students are expected to complete their studies and earn their degrees in 2.5 to 5 years, and they will be disqualified from the program after 5 years.

### 4. Credits requirements

Students are required to complete at least 30 credits from courses in Section 5 in the curriculum with a minimum of 28 coursework credits and 2 thesis credits.

### 5. Curriculum

Course No.	Course Name	Semester	Credits
<b><i>I. Fundamental Courses</i></b>			<b>6</b>
L371A001	Chinese I	Fall	4
L371A003	Introduction to Chinese Classics	Fall	2
<b><i>II. Core Courses</i></b>			<b>13</b>
L107B001	Economic Math	Fall	3
L107B002	Intermediate Macroeconomics	Spring	2
L107B003	Intermediate Microeconomics	Fall	2
L107B004	International Economics	Spring	2
L107B012	International Financial Management	Spring	2
L107B007	International Business Negotiation	Fall	2
<b><i>III. Major Electives</i></b>			<b>9</b>

L107C011	Intermediate International Trade: Theory & Practice	Fall	3
L107C002	International Marketing	Fall	2
L107C003	International Economic Relations	Fall	2
L107C004	International Brand Management	Spring	2
L107C012	International Business Research Topics	Spring	2
L107C013	Current Issues in International Trade	Spring	2
<b>IV. Thesis Credits</b>			
L0000001	Thesis Proposal	Fall	2
L0000002	Academic Activities	Spring	
<b>Total Credits Required</b>			<b>30+</b>
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. Thesis Topic and Proposal

A master student is supposed to choose his/her research direction under an advisor's guidance. The student should actively study, research and survey in the chosen research direction. The student is expected to choose a research topic for the postgraduate thesis and confirm the significance of the topic in a thesis proposal. The thesis proposal should be submitted and defended at the beginning of the second year of study.

Detailed regulations and requirements on master's thesis can be found in the "*NJUST Regulations about the Topic Selection, Research Proposal and Composition of Postgraduate Theses and Dissertations*".

## 7. Publication

Before graduation, each master student should have at least one academic paper published. Detailed requirements are documented in "*NUST regulations on a postgraduate's publications of their research work*".

## 8. Degree Thesis Requirement

MA Degree thesis is one of the most important parts for graduate education, which provides students with training on academic research or specific technology application, enhances students' abilities to innovate and to apply the knowledge to their research, and encourages them to discover, analyze and solve problems in their fields.

Detailed regulations and requirements on master's thesis 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.

# Master Program in Physics

## 1. Introduction

The School of Physics at of Nanjing University of Science and Technology (NJUST) consists of several teaching and research departments and laboratories, namely the Department of Applied Physics, the Department of Information Physics and Engineering, and the Center of Physical Experiments. The school's programs are supported by the National "985" Project Innovation Platform. Now, the school provides master programs in Condense Matter physics, Atomic physics, Optics, Acoustics, and Plasma Physics.

In recent years, the research in physics has been supported by many funds. More and more papers have been published in high-quality journals such as Physical Review Letters, Applied Physics Letters, Journal of the American Chemistry Society, Optics Express, and Optics Letter.

## 2. Research Areas

- (1) Condensed matter Physics
- (2) Atomic physics
- (3) Optics
- (4) Acoustics
- (5) Plasma Physics

## 3. Duration of studies

Full time master students are expected to complete their studies and earn their degrees in 2.5 to 5 years, and they will be disqualified from the program after 5 years.

## 4. Credits requirements

Students are required to complete at least 28 degree credits from courses in Section 5 with a minimum of 26 coursework credits and 2 obligatory courses.

## 5. Curriculum

Course No.	Course Name	Semester	Credits
<b><i>I. Fundamental Courses</i></b>			<b>6</b>
L371A001	Chinese I	Fall	4
L371A003	Introduction to Chinese Classics	Fall	2
<b><i>II. Core Courses</i></b>			<b>11</b>
L113A015	Elastic Mechanics	Spring	3
S113B008	Computational Physics	Spring	2
L113A014	Wavelet Analysis	Spring	3
S116B004	Physical Foundation for Crystal Growth	Fall	3
<b><i>III. Major Electives</i></b>			<b>9</b>
L113C012	Laser Physics	Spring	2
L113C013	X-ray Diffraction	Fall	2

L113C011	Energy Band Theory of Solids	Spring	2
S113C010	Advanced Solid state Physics	Fall	3
S116B002	Materials Physics	Fall	3
<b>IV. Thesis Credits</b>			
L0000001	Thesis Proposal	Fall	2
L0000002	Academic Activities	Spring	
<b>Total Credits Required</b>			<b>28+</b>
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. Thesis Topic and Proposal

A master student is supposed to choose his/her research direction under an advisor's guidance. The student should actively study, research and survey in the chosen research direction. The student is expected to choose a research topic for the postgraduate thesis and confirm the significance of the topic in a thesis proposal. The thesis proposal should be submitted and defended at the beginning of the second year of study.

Detailed regulations and requirements on master's thesis can be found in the "*NJUST Regulations about the Topic Selection, Research Proposal and Composition of Postgraduate Theses and Dissertations*".

## 7. Publication

Before graduation, each master student should have at least one academic paper published. Detailed requirements are documented in "*NUST regulations on a postgraduate's publications of their research work*".

## 8. Degree Thesis Requirement

MA Degree thesis is one of the most important parts for graduate education, which provides students with training on academic research or specific technology application, enhances students' abilities to innovate and to apply the knowledge to their research, and encourages them to discover, analyze and solve problems in their fields.

Detailed regulations and requirements on master's thesis 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.

## Master Program in Civil Engineering

### 1. Introduction

The Department of Civil Engineering was founded in 1993, and has made remarkable progress since then. Central to the activities of the Department is overall responsibility for structural systems, geotechnical engineering, bridge & tunnel engineering, and disaster prevention & reduction Engineering natural resources, in which, in particular, aspects of safety, ecology, form, economic feasibility and social processes are be taken into account and balanced against one another. The department now offers 30-40 graduate courses in those division.

In teaching activities, the department imparts an in-depth knowledge of mathematical and scientific principles, as well as of engineering-specific skills; particular attention is paid to the capacity for interdisciplinary discourse, management skills and critical thinking. Researches carried out the department creates the basis necessary for the planning, construction, operation and protection of our infrastructure. The department has well-qualified faculty and experienced staff supported by well-equipped laboratories, computing facilities and skilled technical staff.

### 2. Research Directions

- (1) Structural engineering
- (2) Geotechnical engineering
- (3) Bridge and tunnel engineering
- (4) Disaster prevention and reduction engineering

### 3. Duration of studies

Full time master students are expected to complete their studies and earn their degrees in 2.5 to 5 years, and they will be disqualified from the program after 5 years.

### 4. Credits requirements

Students are required to complete at least 28 degreecredits from courses in Section 5 with a minimum of 26 coursework credits and 2 obligatory courses.

### 5. Curriculum

Course No.	Course Name	Semester	Credits
<b><i>I. Fundamental Courses</i></b>			<b>6</b>
L371A001	Chinese I	Fall	4
L371A003	Introduction to Chinese Classics	Fall	2
<b><i>II. Core Courses</i></b>			<b>8+</b>
L113A010	Matrix Analysis and Computation	Spring	3
L113A002	Applied Statistics	Spring	2
S113B022	Dynamics of Structures	Spring	3
L113B001	Advanced Soil Mechanics	Spring	3
L113B002	Advanced Theory of Concrete Structures	Fall	3



L113B003	Finite Element Method in Civil Engineering	Spring	3
<b>III. Major Electives</b>			<b>8+</b>
L113C001	Advanced Seismic Theory	Spring	2
S113C026	Reliability Analysis Theory & its Engineering Application	Spring	2
S113C029	Vibration of Bridges	Spring	2
L113C002	Experiment of Modern Civil Engineering Test	Fall	2
S108B003	Advanced Foundation Engineering	Fall	2
L113C003	Modern Civil Engineering Materials	Spring	2
<b>IV. Thesis Credits</b>			
L0000001	Thesis Proposal	Fall	2
L0000002	Academic Activities	Spring	
<b>Total Credits Required</b>			<b>28+</b>
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. Thesis Topic and Proposal

A master student is supposed to choose his/her research direction under an advisor's guidance. The student should actively study, research and survey in the chosen research direction. The student is expected to choose a research topic for the postgraduate thesis and confirm the significance of the topic in a thesis proposal. The thesis proposal should be submitted and defended at the beginning of the second year of study.

Detailed regulations and requirements on master's thesis can be found in the "*NJUST Regulations about the Topic Selection, Research Proposal and Composition of Postgraduate Theses and Dissertations*".

## 7. Publication

Before graduation, each master student should have at least one academic paper published. Detailed requirements are documented in "*NUST regulations on a postgraduate's publications of their research work*".

## 8. Degree Thesis Requirement

MA Degree thesis is one of the most important parts for graduate education, which provides students with training on academic research or specific technology application, enhances students' abilities to innovate and to apply the knowledge to their research, and encourages them to discover, analyze and solve problems in their fields.

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## Master Program in Foreign Languages and Literature

### 1. Introduction

Foreign Languages and Literature is under the division of the discipline of Humanities and Social Science. It includes two secondary discipline master programs in English Language and Literature, and Foreign Linguistics and Applied Linguistics. The discipline aims to train innovative talented graduates for the society. After graduation, many graduate students work in universities, scientific research institutions, publishing houses and foreign enterprises.

### 2. Research Directions

- (1) Theoretical Linguistics
- (2) Applied Linguistics
- (3) Second Language Acquisition
- (4) Translation Studies
- (5) English Literature Studies
- (6) English Culture Studies

### 3. Duration of Studies

Full time master students are expected to complete their studies and earn their degrees in 2.5 to 5 years, and they will be disqualified from the program after 5 years.

### 4. Credits Requirements

Students are required to complete at least 28 degree credits from courses in Section 5 with a minimum of 26 coursework credits and 2 obligatory courses.

### 5. Curriculum

Course No.	Course Name	Semester	Credits
<b><i>I. Fundamental Courses</i></b>			<b>6</b>
L371A001	Chinese I	Fall	4
L371A003	Introduction to Chinese Classics	Fall	2
<b><i>II. Core Courses</i></b>			<b>8+</b>
S114B002	Exploration on Modern Linguistic Theories	Fall	2
S114B003	Twentieth Century Western Critical Theories	Fall	2
S114B004	Introduction to Translation Studies	Fall	2
S114B007	Academic Paper Writing	Spring	2
<b><i>III. Major Electives: Foreign Linguistics</i></b>			<b>8+</b>
S114B008	Applied Linguistics (compulsory course)	Fall	2
S114C002	Second Language Acquisition	Spring	2
S114C012	Stylistics	Spring	2
S114C021	Semantics and Pragmatics	Spring	2
S114C009	Intercultural Communication	Spring	2

S114C020	Discourse Analysis	Spring	2
S114C019	Educational Administration: Theory, Research, and Practice	Spring	2
S114C014	Seminars on Western Culture	Fall	2
L114C001	Empirical Methods in Linguistic Research	Spring	2
L114C002	Experimental Phonetics	Fall	2
<b>III. Major Electives: Literature</b>			
S114C017	English Novel Studies	Spring	2
S114C010	American Novel Studies	Fall	2
S114C004	Translation Criticism	Spring	2
S114C019	Educational Administration: Theory, Research, and Practice	Spring	2
S114C014	Seminars on Western Culture	Fall	2
S114C015	Modern & Contemporary English and American Poetry	Spring	2
S114C018	British and American Drama	Spring	2
S114C013	Literature Translation	Spring	2
L114C003	Comparative Literature and World Literature: An Introduction	Spring	2
<b>III. Major Electives: Translation</b>			
S114C022	A Brief History of Translation in China and in West	Fall	2
S114C006	Contrastive Analysis of English and Chinese	Fall	2
S114C007	Computer-Assisted Translation	Fall	2
S114C004	Translation Criticism	Spring	2
S114C011	Business English Translation	Spring	2
S114C013	Literature Translation	Fall	2
L114C004	Methodology of Translation Studies	Spring	2
S114C003	Legal Translation and Interpreting	Spring	2
S114C001	Media Translation	Spring	2
<b>IV. Thesis Credits</b>			
L0000001	Thesis Proposal	Fall	2
L0000002	Academic Activities	Spring	
<b>Total Credits Required</b>			<b>28+</b>
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. Thesis Topic and Proposal

A master student is supposed to choose his/her research direction under an

advisor's guidance. The student should actively study, research and survey in the chosen research direction. The student is expected to choose a research topic for the postgraduate thesis and confirm the significance of the topic in a thesis proposal. The thesis proposal should be submitted and defended at the beginning of the second year of study.

Detailed regulations and requirements on master's thesis can be found in the "*NJUST Regulations about the Topic Selection, Research Proposal and Composition of Postgraduate Theses and Dissertations*".

## **7. Publication**

Before graduation, each master student should have at least one academic paper published or accepted for publication. Detailed requirements are documented in "*NUST regulations on a postgraduate's publications of their research work*".

## **8. Degree Thesis Requirement**

MA Degree thesis is one of the most important parts for graduate education, which provides students with training on academic research or specific technology application, enhances students' abilities to innovate and to apply the knowledge to their research, and encourages them to discover, analyze and solve problems in their fields.

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