南京理工大学

硕士留学生

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研究生院

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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** |
| ***I. Fundamental Courses*** | **6** |
| L371A001 | Chinese I | Fall | 4 |
| L371A003 | Introduction to Chinese Classics | Fall | 2 |
| ***II. Core Courses*** | **8+** |
| 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 |
| ***III. Major Electives*** | **8+** |
| 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 |
| ***IV. Thesis Credits*** |
| L0000001 | Thesis Proposal | Fall | 2 |
| L0000002 | Academic Activities | Spring |
| **Total Credits Required** | **28+** |
| 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** |
| ***I. Fundamental Courses*** | **6** |
| L371A001 | Chinese I | Fall | 4 |
| L371A003 | Introduction to Chinese Classics | Fall | 2 |
| ***II. Core Courses*** | **8+** |
| S103C009 | Organic Reactions | Spring | 2 |
| B103B004 | Design of Organic Moleculars | Fall | 2 |
| S103C001 | Catalysis in Asymmetric Synthesis | Spring | 2 |
| S103C005 | Journal-Style Scientific Writing Skills | Spring | 1 |
| S103C031 | Pyrotechnics | Springl | 2 |
| S103C030 | Modern Instrumental Analysis | Fall | 2 |
| ***III. Major Electives*** | **8+** |
| 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 |
| ***IV. Thesis Credits*** |
| L0000001 | Thesis Proposal | Fall | **2** |
| L0000002 | Academic Activities | Spring |
| **Total Credits Required** | **28+** |
| 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**](http://dict.youdao.com/w/curriculum/)

|  |  |  |  |
| --- | --- | --- | --- |
| **Course No.** | **Course Name** | **Semester** | **Credits** |
| ***I. Fundamental Courses*** | **6** |
| L371A001 | Chinese I | Fall | 4 |
| L371A003 | Introduction to Chinese Classics | Fall | 2 |
| ***II. Core Courses*** | **8+** |
| 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 |
| ***III. Major Electives*** | **8+** |
| 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 |
| ***IV. Thesis Credits*** |
| L0000001 | Thesis Proposal | Fall | **2** |
| L0000002 | Academic Activities | Spring |
| **Total Credits Required** | **28+** |
| 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**](http://dict.youdao.com/w/curriculum/)

|  |  |  |  |
| --- | --- | --- | --- |
| **Course No.** | **Course Name** | **Semester** | **Credits** |
| ***I. Fundamental Courses*** | **6** |
| L371A001 | Chinese I | Fall | 4 |
| L371A003 | Introduction to Chinese Classics | Fall | 2 |
| ***II. Core Courses*** | **8+** |
| 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 |
| ***III. Major Electives*** | **8+** |
| 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 |
| ***IV. Thesis Credits*** |
| L0000001 | Thesis Proposal | Fall | 2 |
| L0000002 | Academic Activities | Spring |
| **Total Credits Required** | **28+** |
| 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 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**](http://dict.youdao.com/w/curriculum/)

|  |  |  |  |
| --- | --- | --- | --- |
| **Course No.** | **Course Name** | **Semester** | **Credits** |
| ***I. Fundamental Courses*** | **6** |
| L371A001 | Chinese I | Fall | 4 |
| L371A003 | Introduction to Chinese Classics | Fall | 2 |
| ***II. Core Courses*** | **8+** |
| 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 |
| ***III. Major Electives*** | **8+** |
| 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 |
| ***IV. Thesis Credits*** |
| L0000001 | Thesis Proposal | Fall | 2 |
| L0000002 | Academic Activities | Spring |
| **Total Credits Required** | **28+** |
| 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 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** |
| ***I. Fundamental Courses*** | **6** |
| L371A001 | Chinese I | Fall | 4 |
| L371A003 | Introduction to Chinese Classics | Fall | 2 |
| ***II. Core Courses*** | **8+** |
| 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 |
| ***III. Major Electives*** | **8+** |
| 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 |
| ***IV. Thesis Credits*** |
| L0000001 | Thesis Proposal | Fall | **2** |
| L0000002 | Academic Activities | Spring |
| **Total Credits Required** | **28+** |
| 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** |
| ***I. Fundamental Courses*** | **6** |
| L371A001 | Chinese I | Fall | 4 |
| L371A003 | Introduction to Chinese Classics | Fall | 2 |
| ***II. Core Courses*** | **8+** |
| L113B008 | Elasticity Theory | Fall | 3 |
| L113A003 | Advanced Dynamics | Spring | 3 |
| L108B002 | Multiphase Reaction Fluid Dynamics | Fall | 3 |
| L108B001 | Modeling & Simulation of Mechanics  | Fall | 2 |
| ***III. Major Electives*** | **8+** |
| 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 |
| ***IV. Thesis Credits*** | 2 |
| L0000001 | Thesis Proposal | Fall | **2** |
| L0000002 | Academic Activities | Spring |
| **Total Credits Required** | **28+** |
| 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**](http://dict.youdao.com/w/curriculum/)

|  |  |  |  |
| --- | --- | --- | --- |
| **Course No.** | **Course Name** | **Semester** | **Credits** |
| ***I. Fundamental Courses*** | **6** |
| L371A001 | Chinese I | Fall | 4 |
| L371A003 | Introduction to Chinese Classics | Fall | 2 |
| ***II. Core Courses*** | **8+** |
| 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 |
| ***III. Major Electives*** | **12+** |
| 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 |
| ***IV. Thesis Credits*** |
| L0000001 | Thesis Proposal | Fall | **2** |
| L0000002 | Academic Activities | Spring |
| **Total Credits Required** | **28+** |
| 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 Mathematics

**1. Introduction**

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

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

**2. Research Directions**

(1) 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**](http://dict.youdao.com/w/curriculum/)

|  |  |  |  |
| --- | --- | --- | --- |
| **Course No.** | **Course Name** | **Semester** | **Credits** |
| ***I. Fundamental Courses*** | **6** |
| L371A001 | Chinese I | Fall | 4 |
| L371A003 | Introduction to Chinese Classics | Fall | 2 |
| ***II. Core Courses*** | **8+** |
| 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 |
| ***III. Major Electives*** | **8+** |
| 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 |
| ***IV. Thesis Credits*** |
| L0000001 | Thesis Proposal | Fall | 2 |
| L0000002 | Academic Activities | Spring |
| **Total Credits Required** | **28+** |
| 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 effortwith 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**](http://dict.youdao.com/w/curriculum/)

|  |  |  |  |
| --- | --- | --- | --- |
| **Course No.** | **Course Name** | **Semester** | **Credits** |
| ***I. Fundamental Courses*** | **6** |
| L371A001 | Chinese I | Fall | 4 |
| L371A003 | Introduction to Chinese Classics | Fall | 2 |
| ***II. Core Courses*** | **8+** |
| 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 |
| ***III. Major Electives:*** 6of the following | **8+** |
| 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](http://dict.baidu.com/s?wd=composite%20material) | Fall | 2 |
| L116C005 | Materials for Renewable Energy and Sustainable Environment | Spring | 2 |
| L116C011 | Tissue Engineering | Spring | 2 |
| ***IV. Thesis Credits*** |
| L0000001 | Thesis Proposal | Fall | **2** |
| L0000002 | Academic Activities | Spring |
| **Total Credits Required** | **28+** |
| 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**](http://dict.youdao.com/w/curriculum/)

|  |  |  |  |
| --- | --- | --- | --- |
| **Course No.** | **Course Name** | **Semester** | **Credits** |
| ***I. Fundamental Courses*** | **6** |
| L371A001 | Chinese I | Fall | 4 |
| L371A003 | Introduction to Chinese Classics | Fall | 2 |
| ***II. Core Courses*** | **8+** |
| 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 |
| ***III. Major Electives*** | **8+** |
| 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 |
| ***IV. Thesis Credits*** |
| L0000001 | Thesis Proposal | Fall | 2 |
| L0000002 | Academic Activities | Spring |
| **Total Credits Required** | **28+** |
| 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** |
| ***I. Fundamental Courses*** | **6** |
| L371A001 | Chinese I | Fall | 4 |
| L371A003 | Introduction to Chinese Classics | Fall | 2 |
| ***II. Core Courses*** | **8+** |
| 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 |
| ***III. Major Electives*** | **8+** |
| 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 |
| ***IV. Thesis Credits*** |
| L0000001 | Thesis Proposal | Fall | 2 |
| L0000002 | Academic Activities | Spring |
| **Total Credits Required** | **28+** |
| 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**](http://dict.youdao.com/w/curriculum/)

|  |  |  |  |
| --- | --- | --- | --- |
| **Course No.** | **Course Name** | **Semester** | **Credits** |
| ***I. Fundamental Courses*** | **6** |
| L371A001 | Chinese I | Fall | 4 |
| L371A003 | Introduction to Chinese Classics | Fall | 2 |
| ***II. Core Courses*** | **13** |
| 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 |
| ***III. Major Electives*** | **9** |
| 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 |
| ***IV. Thesis Credits*** |
| L0000001 | Thesis Proposal | Fall | **2** |
| L0000002 | Academic Activities | Spring |
| **Total Credits Required** | **30+** |
| 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**](http://dict.youdao.com/w/curriculum/)

|  |  |  |  |
| --- | --- | --- | --- |
| **Course No.** | **Course Name** | **Semester** | **Credits** |
| ***I. Fundamental Courses*** | **6** |
| L371A001 | Chinese I | Fall | 4 |
| L371A003 | Introduction to Chinese Classics | Fall | 2 |
| ***II. Core Courses*** | **11** |
| L113A015 | Elastic Mechanics | Spring | 3 |
| S113B008 | Computational Physics | Spring | 2 |
| L113A014 | Wavelet Analysis | Spring | 3 |
| S116B004 | Physical Foundation for Crystal Growth | Fall | 3 |
| ***III. Major Electives*** | **9** |
| 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 |
| ***IV. Thesis Credits*** |
| L0000001 | Thesis Proposal | Fall | 2 |
| L0000002 | Academic Activities | Spring |
| **Total Credits Required** | **28+** |
| 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 engneering, 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**](http://dict.youdao.com/w/curriculum/)

|  |  |  |  |
| --- | --- | --- | --- |
| **Course No.** | **Course Name** | **Semester** | **Credits** |
| ***I. Fundamental Courses*** | **6** |
| L371A001 | Chinese I | Fall | 4 |
| L371A003 | Introduction to Chinese Classics | Fall | 2 |
| ***II. Core Courses*** | **8+** |
| 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 |
| ***III. Major Electives*** | **8+** |
| 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 |
| ***IV. Thesis Credits*** |
| L0000001 | Thesis Proposal | Fall | 2 |
| L0000002 | Academic Activities | Spring |
| **Total Credits Required** | **28+** |
| 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***".

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**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) TheoreticalLinguistics

(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** |
| ***I. Fundamental Courses*** | **6** |
| L371A001 | Chinese I | Fall | 4 |
| L371A003 | Introduction to Chinese Classics | Fall | 2 |
| ***II. Core Courses*** | **8+** |
| 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 |
| ***III. Major Electives: Foreign Linguistics*** | **8+** |
| 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 |
| ***III. Major Electives:*** ***Literature*** |
| 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 |
| ***III. Major Electives: Translation*** |
| 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 |
| ***IV. Thesis Credits*** |
| L0000001 | Thesis Proposal | Fall | **2** |
| L0000002 | Academic Activities | Spring |
| **Total Credits Required** | **28+** |
| 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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