Master Program in Engineering Management

Discipline Classification: Social Science First Class Discipline Code: 1256

First Class Discipline Name: Engineering Management

Second Class Discipline Code: 125604 Second Class Discipline Name: Logistics Engineering & Management

According to the master's student program of Nanjing University of Information Science & Technology (hereinafter referred to as NUIST) as well as the relevant regulations of NUIST on international students, the NUIST master's degree program for international students is formulated as follows.

1. Introduction to the Discipline

The School of Management Science and Engineering boasts a highly-internationalized faculty team and has been committed to promoting extensive international education cooperation. Our school keeps up with academic frontiers and international trends. The School of Management Science and Engineering is continuously propelled by the significant advances in information technology. The school have established research group and laboratories in big data analytics, logistics engineering and management, fostering close relationships with related industries and institutions.

2. Objectives

The Master of Engineering Management program aims to cultivate high-level talents who have a solid theoretical foundation and broad professional knowledge in the field of engineering management, possess advanced scientific and technological methods and modern technological means to solve practical problems in engineering management, have the ability to analyze, plan, design, manage, and operate complex engineering systems, complex production systems, and service systems, and have innovative consciousness and independent ability to undertake engineering management work.

Students in the programme should master systematic political and ideological theories,

firmly establish a correct outlook on world and life, love the motherland, abide by laws and regulations, have good moral character, rigorous study style, be physically and mentally healthy, and have strong entrepreneur spirit and dedication. They should be familiar with the principles and policies of our Party and country, understand our national conditions, possess a global perspective, be proficient in using foreign languages, be familiar with international rules and have great international competitiveness.

In addition, the programme will develop a range of transferable skills that can be utilized in a wide variety of future careers such as research, analysis, problem solving and programming. There will also be the opportunity to improve presentation, communication and intercultural communication skills. Graduates of this programme are expected to undertake the jobs related to information collection, analysis and management for institutions, such as national meteorological departments, industrial and commercial enterprises, financial institutions, and scientific research institutions.

3. Study Directions

The programme trains students to master systematic knowledge and skills in inter-disciplines such as big data analysis and digital economy , to analyze the data for business operations by the use of information models. Specifically, it includes the following four research directions:

1) Supply Chain Engineering Management;
2) Meteorological and Environmental Engineering Management;
3) Digital Economy and Emerging Industry Management.

4. Educational System and Length of Study

The length of education for master students is two (2) years.

If due to special circumstances a master student is unable to graduate on time, the student must apply in person, and following the supervisor’s opinion and signature, the approval of the affiliated School must be sought. The application should then be submitted to the Graduate School for approval and the College of International Students for archiving. The maximum length of time

that master's students can study at the University in that degree is five (5) years and during this extension period, international students shall pay for the study and accommodation as required.

5. Course Introduction

5.1. Course Introduction

Introduction to Engineering Management: Introduction to Engineering Management, as a compulsory course for the Master's program in Engineering Management, aims to provide freshmen with a professional introduction, introducing the disciplinary system, basic concepts, and theoretical methods of engineering management. It helps students establish a full lifecycle awareness, environmental awareness, economic management awareness, and legal awareness, cultivate basic abilities to solve engineering problems, enhance confidence in professional prospects, and learning initiative.

Engineering Economics: By studying engineering economics, students can master the theoretical framework and basic methods for evaluating the economic effects of engineering projects, including time value of money, cash flow estimation, project evaluation, etc. These skills are crucial for conducting effective engineering economic analysis and cost calculations. In addition, the engineering economics course helps students understand the impact of market environment, technological environment, policy changes, and other factors on engineering economic decision-making, providing scientific basis for economic decision-making in engineering investment projects. Therefore, engineering economics is not only an important foundational course for the Master of Engineering Management program, but also a key factor in cultivating engineering management talents with comprehensive analytical abilities.

Big data analysis and application: The course offers a comprehensive introduction to the field of big data, focusing on its role in transforming industries and decision-making processes. Topics include the foundational principles of big data, data collection, storage, and management techniques, as well as data cleaning and preprocessing. Students will gain insight into analytical frameworks and tools for processing large datasets, such as data mining, machine learning, and visualization. Additionally, the course addresses data privacy, ethics, and security considerations. By the end, students will have the fundamental skills required to conduct big data analyses and apply data-driven strategies, equipping them for advanced studies and practical big data

applications.

Quantitative Analysis: Models and Methods: The quantitative analysis methods in engineering management provide students with scientific decision-making basis, helping them better cope with project risks and ensure the smooth implementation of projects. Secondly, these methods quantitatively evaluate the risks in engineering projects through mathematical and statistical techniques, ensuring the accuracy and completeness of data, thereby providing project managers with more accurate decision-making basis. Finally, the scientific and precise nature of quantitative analysis methods make it an indispensable foundational course in the Master of Engineering Management program, helping students master the basic quantitative analysis methods and tools for solving engineering management problems.

Operations management: The course primarily studies the principles of operational activities and scientific management approaches for improving the efficiency and effectiveness of operations processes, and enhancing the competitiveness of the organization. By learning this course, students can become qualified in modern business management. Topics addressed include operation strategy, process design, location planning, facility layout, production scheduling, inventory management and so on. The course focuses on theoretical aspects of the operational system as well as its activities, such as strategy formulation, process selection, location and facility layout strategies and methods, production scheduling strategies and method, inventory control models and so on.

Supply Chain Management: Supply chain management plays a crucial role in the successful implementation of engineering projects. It integrates the material procurement, production planning, inventory control, and product distribution of engineering projects to ensure efficient resource utilization and timely completion of projects. By optimizing the supply chain, engineering managers can effectively reduce costs, improve quality and response speed, thereby enhancing overall project performance and enterprise competitiveness.

5.2. Course Requirement

5.2.1 Degree Course (20 Credits)

A — General Basic Courses (10 credits)

B — Professional Basic Courses (10 credits)

5.2. 2. Non-Degree Courses (12 credits)

C — Limited Elective Courses (3 credits)

D — Professional Elective Courses (7 credits)

E — Practical Components / Practice Modules (2 credits)

6. Training Style and Methods

The program of master's students is a combination of course and thesis work. Usually, the course work will be done within one (1) year and the thesis work takes one year.

The training of master's students is implemented with the supervisor tutorial system. With this system, supervision is carried out with a combination of a supervisor and a group of others.

7. Midterm Evaluation

Master's students in the third semester will have a midterm evaluation, which is to evaluate students' moral behaviors, course scores, research progress and other related performances. Students who have failed the evaluation can apply for re-evaluation after six (6) months whereas the postponed period is no longer than one (1) year.

8. Degree Thesis

（1）Topic Selection and Thesis Proposal

The master's degree thesis proposal should be completed in the early third semester. For those who need to postpone the submission of the proposal due to special circumstances, a written application should be submitted to the Graduate School in advance and the time limit for delay shall not exceed two (2) months. After the proposal is accepted, changes are not permitted in principle. If there is, however, a major change in topic selection, the proposal should be rewritten.

（2）Midterm Evaluation

Training unit shall organize an assessment panel to conduct a comprehensive review of each student's thesis progress. If a student fails the first mid-term assessment, an early warning mechanism will be activated to remind the student to make timely improvements. After making corrections within the specified period, the student may apply for a second assessment. If the

student fails the second mid-term assessment and is deemed by the assessment panel to be unsuitable for continued training, the student will be given a certificate of completion rather than a degree, in accordance with university regulations. All students are expected to take the mid-term assessment seriously, complete their thesis progress on time, and ensure successful passage of the assessment.

（2）Thesis Writing Requirements

This is in accordance with the University thesis writing requirements.

（3）Thesis Pre-defense and Defense

Master's students must complete all the required courses, pass all the courses and midterm evaluation, complete academic and practice activities and acquire required credits before they are allowed to apply for thesis pre-defense which is held before the end of March each year. Then they will go for blind review of the thesis. Only those students who have passed the pre-defense and blind review can apply for the final defense.

（4）Degree Applications

Degree applications is carried out according to the specific implementation procedures outlined in the *Nanjing University of Information Science & Technology Masters and Doctorate Degree Conferment Regulations* and the *Nanjing University of Information Science & Technology Regulations on the Program and Qualifications of International Master Students (Trial)*.

Students must complete sufficient coursework in the program to earn no fewer than twenty seven (27) credits, including at least twenty (20) credits from degree courses, achieve the required academic results, pass HSK Level 3 (or above), and successfully complete the thesis defense.

9. Practice

Practice is combined with Academic Reports and other practice activities. It is worth two (2) credits.

During the period of master's degree thesis work, a public academic report should be held at least once (excluding the Thesis Proposal). The student's supervisor and the school affiliated are responsible for assessing the quality of the academic report. Master's students should also participate in no less than six (6) academic activities including (but not limited to) academic reports, conferences, teaching and technology competitions both on and off the University campus.

Students are required to take records on the *Academic Activities Brochure* and only qualified students can have the final defense.

Attachment: Curriculum for International Master's Students in Engineering Management

Type	Course		Class Hours	Credits	Opening Semester	Teaching Method	Form of Evaluation	Note
A	入学教育	Orientation	16	1	1	In-Person Instruction	Exam	9 credits
	中国概况Ⅰ	China Overview Ⅰ	32	1	1	In-Person Instruction	Exam	
	中国概况Ⅱ	China Overview Ⅱ	32	1	2	In-Person Instruction	Exam	
	综合汉语Ⅰ	Comprehensive Chinese Ⅰ	96	2	1	In-Person Instruction	Exam	
	综合汉语Ⅱ	Comprehensive Chinese Ⅱ	96	2	2	In-Person Instruction	Exam	
	国际汉语能力强化	Chinese Language Proficiency Enhancement	64	2	3	In-Person Instruction	Exam	
	中国文化与气象	Chinese Culture and Meteorology	32	1	1	In-Person Instruction	Exam	Electives of Chinese Culture at Least 1 credit
	中华文化与传播	Chinese Culture and Communication	32	1	1	In-Person Instruction	Exam	
	跨文化交际	Cross-cultural Communication	32	1	2	In-Person Instruction	Exam	
B	工程管理前沿	Frontiers of Engineering Management	32	2	1	In-Person Instruction	Coursework	10 credits
	定量分析：模型与方法	Quantitative Analysis: Models and Methods	32	2	2	In-Person Instruction	Coursework	
	运筹学	Operations Research	32	2	1	In-Person Instruction	Coursework	
	工程经济学	Engineering Economic	32	2	2	In-Person Instruction	Coursework	
	工程管理导论	Introduction of Engineering Management	32	2	1	In-Person Instruction	Coursework	
C	供应链管理	Supply Chain Management	32	2	2	In-Person Instruction	Exam	3 credits
	人工智能通识课	General Education Course in Artificial Intelligence	16	1	2	In-Person Instruction	Coursework	

D	工程统计学	Engineering Statistics	32	2	1	In-Person Instruction	Coursework	No less than 7 credits
	运营管理	Operations Management	32	2	1	In-Person Instruction	Coursework	
	系统建模与仿真	System Modeling and Simulation	32	2	1	In-Person Instruction	Coursework	
	预测与决策	Forecast and Decision	32	2	2	In-Person Instruction	Coursework	
	博弈论	Game Theory	32	2	2	In-Person Instruction	Coursework	
E	学术报告和实践活动 (必修)	Academic Seminars （Compulsory）	32	2	2	Others	Others	2 credits

Note：A) General Courses; B) Major Compulsory Course; C) Limited-Elective Course; D) Major Elective Course; E) Practice

Schedule 2: Contents and Requirements of Each Stage in the Master's Degree Program

Stage	Arrangements and Requirements	Time Point
1. Formulating the Individualized Study Plan	Based on the curriculum and in light of the student's actual situation, conducted under the guidance of the supervisor.	Within 1 week after enrollment
2. Coursework Stage	Arranged according to the course settings shown in Schedule 1.	
3. Academic Activities	During the period of study, the student shall participate in no fewer than 8 academic activities (including at least 2 activities outside the student's own secondary discipline).	
4. Thesis Proposal	Write the thesis proposal and organize a proposal defense.	Completed by the early of the third semester
5. Mid-term Assessment	Each training unit shall organize an assessment panel to conduct a comprehensive review of the student's thesis progress. Students who fail the assessment will trigger an early warning mechanism. If a student fails the mid-term assessment a second time and is deemed unsuitable for continued training, they will be given a certificate of completion rather than a degree.	Completed by the early of the third semester
6. Pre-defense	Each training unit shall organize a pre-defense expert panel to rigorously review the student's degree thesis or practical achievements, focusing on academic/research quality and innovation, workload, research outcomes, key conclusions or results, academic norms, etc., and provide specific suggestions for revision. Only after passing the pre-defense may the student submit the degree thesis or practical achievements for external review.	Completed in the early of the fourth semester
7. Final Thesis Defense	After passing the college's defense qualification review, the student shall undergo degree thesis review and defense in accordance with the university's relevant regulations on thesis evaluation and defense.	Completed in the fourth semester