

Master's Degree Training Program of the School of Software

Software Engineering (0835)

一、 Training Objectives

Students are expected to master a broad foundation of theoretical knowledge and systematic expertise in the discipline, gain an understanding of the current status, trends, and research frontiers in software engineering, and develop the ability to conduct independent scientific research. They should possess a strong sense of innovation and creative capabilities, and be able to publish their research findings in professional literature.

二、 Research Directions

1. Software Engineering Theory and Methods: Focusing on key scientific issues in software development, operation, and maintenance, research is conducted in areas such as software system modeling, optimization theories and methods, and formal analysis.

2. Software Engineering Technologies: Focusing on critical technical challenges in the development and operation of complex software systems—such as requirements, design, and architecture—research is carried out in areas including software reliability analysis and intelligent collaborative scheduling of dynamically aware networks and computing resources.

3. Software Service Engineering: Focusing on the principles, methods, and technical requirements of service-oriented software engineering, research is conducted in areas such as network content distribution, privacy protection, and secure multi-party computation.

4. Domain Software Engineering and Industrial Software: Focusing on key technological demands in fields such as intelligent cold chain logistics, food safety testing, and smart healthcare, research is conducted in areas including intelligent cold chain and safety control, magnetic resonance parameter measurement, and gene function identification.

三、 Mode of Training and Duration of Study

Duration: The standard period for full-time master's degree study is 3 years, with a maximum allowed duration of 5 years.

Credits: A total of 22 credits is required for graduation.

四、Curriculum Structure and Credit Requirements

Table1: Course Structure, Compulsory Components, and Allocation of Credit Hours and Credits

Course Title	Credit Hours	Credits	Offered Semester	Offering Department	Comments
Numerical Analysis	64	4	1	Mathematics	General Compulsory Course
Matrix Theory	32	2	1	Mathematics	General Compulsory Course
Fundamentals of Software Engineering Theory	48	3	1	Software	Major Compulsory Course
Software Architecture	48	3	1	Software	Major Compulsory Course
Distributed Systems	32	2	2	Software	Major Compulsory Course
* Big Data Analysis and Processing	32	2	2	Software	Major Compulsory Course
* Advanced Computer Networks	32	2	2	Software	Major Compulsory Course
Advanced Artificial Intelligence	32	2	2	Software	Major Compulsory Course
Advanced Digital Image Processing	32	2	2	Software	Major Compulsory Course

1. In principle, the curriculum should comprehensively cover all core courses related to the discipline and major, with reference to the *Core Course Guidelines for Academic Degree Postgraduates* and the *Core Course Guidelines for Professional Degree Postgraduates*.
2. Courses developed under the Provincial Graduate Education Quality Enhancement Project must be included in the training program and clearly indicated with an asterisk “*” before the course title.

五. Compulsory Components

1. Thesis Proposal

Graduate students are required to conduct investigations and review both domestic and international literature to understand the research progress in their discipline or specific research direction. Based on this, they should determine their research topic and complete a thesis proposal. The thesis proposal should include background and significance of the chosen topic, research developments and trends at home and abroad, main research content, proposed technical approaches and research methods, expected outcomes, timeline for the thesis work. The thesis proposal is organized by the academic degree program and, unless classified as confidential, should be presented in a public forum.

2. Mid-term Assessment

At the midpoint of the thesis work, the school organizes an assessment committee to conduct a comprehensive evaluation of the graduate student's overall competence, progress of the thesis, work attitude, and level of commitment. Students who pass the assessment are allowed to continue with the subsequent stages of their research. Unless the thesis is classified as confidential, the mid-term assessment should be conducted publicly.

3. Scientific Research and Exploration Practice

Scientific Research and Exploration Practice refers to the full process of engaging in scientific research, including literature review, research project design, data collection, data organization and analysis, as well as the writing of research reports and experimental reports. The supervisor is responsible for the assessment, and students who pass the evaluation will be awarded the corresponding credits.

4. Academic Activities

(1) Students are required to regularly participate in various academic activities organized by the school, academic program, and research groups. These activities include attending scientific conferences, academic lectures, seminars, and presenting research progress reports.

(2) During the training period, graduate students must participate in no fewer than 10 academic conferences or activities.

(3) During the training period, master's students are required to deliver at least one academic presentation.

5. Thesis Defense

Graduate students who have completed the required coursework and compulsory components, obtained the credits specified in the training program, and completed their thesis in accordance with the regulations and passed the thesis review, are eligible to apply for the thesis defense. The thesis must be reviewed by experts in the relevant field, and the defense committee must consist of no fewer than three experts.

六、Master's Thesis

The school sets explicit requirements regarding the quality of graduate theses, focusing on aspects such as political correctness, academic integrity and rigor, systematic research design, and innovation. It also establishes clear guidelines for the phased evaluation of thesis work. All key stages of the thesis process—including the

proposal, mid-term assessment, and final defense — must be guided, reviewed, and assessed in strict accordance with the university's unified timeline and the implementation plans of individual departments. These measures are enforced to ensure the overall quality of graduate theses.

七、 Graduation and Degree Conferral

Graduate students who, within the prescribed period of study, have completed all courses and compulsory components as outlined in the training program, passed all required assessments, earned the specified credits, and successfully defended their thesis, are deemed to have met the graduation requirements and are allowed to graduate. Those who meet the university's standards for degree conferral, upon application and approval by the University Academic Degree Evaluation Committee, will be awarded the corresponding academic degree.

八、 Contributors

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