SOFTWARE ENGINEERING (MS)

The MS in Software Engineering provides students with marketable skills in methodologies, techniques, and tools of software engineering. The program encompasses the entire life-cycle of software development including requirements, analysis, design, construction, testing, and project management. Emphasis is placed on current and emerging technologies for engineering large and complex distributed software systems. According to the US Bureau of Labor Statistics, software engineering has been among the fastest growing IT professions in the US.

Concentrations

Artificial Intelligence in Software Engineering Concentration

This concentration equips students with vital skills in AI applications, blending practical learning with in-depth knowledge of AI in software engineering. It hones expertise in applying AI for enhanced software development, ensuring proficiency in AI-driven code analysis and system maintenance.

Real-Time Software and Game Systems Concentration

This concentration addresses the principles and foundations of the complex field of real-time interactive software and game systems.

Software Development and Architecture Concentration

This concentration merges the core elements of software architecture and development to provide a comprehensive learning experience. It emphasizes both the foundational methodologies and tools required for high-quality software development, and the management and design principles essential for large-scale systems.

Program Requirements	Quarter Hours
Introductory Courses	0-24
Degree Requirements	48
Total hours required	**48-72**

Learning Outcomes

Students will be able to:

- Correctly create a model of the structure and behavior of a software system.
- Design and implement, in a programming language, an executable solution to a given problem using common software principles and best practices.
- Apply appropriate software testing techniques and evaluate the quality of a software product at module, integration, and system granularity levels.
- Select and adapt suitable elements from among conventional and evolving software development life-cycle processes and apply the resulting process to a software project.
- Collaborate in teams to develop a significantly sized software system from conceptualization to completion.
- Communicate effectively design and development decisions through written and graphical demonstration.

Degree Requirements

Course Requirements

No Introductory Course may be substituted for any other course at any level.

Introductory, Foundation, Advanced, and Elective course selections are determined by the concentration chosen.

Introductory Courses

Introductory courses may be waived for any of the following conditions:

- The student has the appropriate course work to satisfy an Introductory Course.
- The student has appropriate and verified professional experience to satisfy an Introductory Course.
- If an exam is available, the student passes a Graduate Assessment Examination (GAE) in the Introductory Course area.

Degree Requirements

Students in this degree program must meet the following requirements:

- Complete a minimum of 48 graduate credit hours in addition to any required introductory courses of the designated degree program.
- Complete all graduate courses and requirements listed in the designated degree program.
- Earn a grade of C- or better in all courses of the designated degree program.
- Maintain a cumulative GPA of 2.5 or higher.
- Students pursuing a second (or more) graduate degree may not double count or retake any course that applied toward the completion of a prior graduate degree. If a required course in the second degree was already completed and applied toward a previous degree, the student must meet with a faculty advisor to discuss a new course to be completed and substituted in the new degree. This rule also applies to cross-listed courses, which are considered to be the same course but offered under different subjects.
- Students pursuing a second master's degree must complete a minimum of 48 graduate credit hours beyond their first designated degree program in addition to any required introductory courses in their second designated degree program.

Students with a GPA of 3.9 or higher will graduate with distinction.

Concentrations, tracks and specializations provide focus to the degree. In addition to any degree requirements, students are required to choose one of the following:

- Artificial Intelligence in Software Engineering Concentration, Software Engineering (MS) (https://catalog.depaul.edu/programs/software-engineering-ms/artificial-intelligence-in-software-engineering-concentration-software-engineering-ms/)
- Real-Time Software and Game Systems, Software Engineering (MS) (https://catalog.depaul.edu/programs/software-engineering-ms/real-time-software-and-game-systems-software-engineering-ms/)
- Software Development and Architecture Concentration, Software Engineering (MS) (https://catalog.depaul.edu/programs/software-engineering-ms/software-development-concentration-software-engineering-ms/)