

MS in Software Engineering

The College of Technology and Computer Science offers a master's of science in software engineering that is available online and on campus. The program prepares students to be able to specify, implement, and manage large software system projects from initial concept to the end of product life that are on-time, on-budget, and meet functional requirements.

ADMISSION REQUIREMENTS

Applicants must meet the admission requirements of the Graduate School. Acceptance to the master of science degree in software engineering is based on satisfactory undergraduate grades, scores on either the Miller Analogy Test or the Graduate Record Examinations, and letters of reference. Applicants whose native language is not English must additionally submit a satisfactory score on the Test of English as a Foreign Language. Completion of an undergraduate degree in computer science, software engineering, computer engineering, electrical engineering, information systems or a related discipline is recommended for admission. Students from other disciplines or applicants with limited technical expertise are evaluated on a case-by-case basis by the program admissions committee. In some cases, remedial undergraduate courses or additional graduate courses are required as a precondition for admission. Students in the program are required to have fully functional computer hardware and full Internet connectivity. Requirements for completing the master of science in software engineering are described below.

Minimum degree requirement is **30 s.h.** of credit as follows:

1. Core.....24 s.h.
 - SENG 6200. Software Project Management (3) P/C: SENG 6230
 - SENG 6230. Software Engineering Foundations (3)
 - SENG 6240. Software Architecture and Design (3) P/C: SENG 6230
 - SENG 6250. Software Systems Modeling and Analysis (3) P/C: SENG 6230
 - SENG 6260. Software Metrics and Quality Management (3) P/C: SENG 6230
 - SENG 6270. Software Verification and Validation (3) P/C: SENG 6230
 - SENG 6280. Process Management and Lifecycle Modeling (3) P/C: SENG 6230
 - SENG 6290. Software Engineering Project (3) P: SENG 6230 or consent of instructor
2. Electives (Choose any two).....6 s.h.
 - CSCI 6130. Networking and Telecommunication (3) P: CSCI 6120 or consent of instructor
 - CSCI 6140. Mobile Communications and Wireless Security (3) P: CSCI 6130; or consent of instructor.
 - CSCI 6710. Developing e-Commerce Systems (3) P: Consent of instructor
 - DTEC 6878. Legal and Ethical Issues in Information Technology (3) P: DTEC 6823

A minimum cumulative GPA of 3.0 must be submitted for all graduate courses. No more than 6 s.h. of course work evaluated as C may be counted toward the degree.

SENG: Software Engineering

6200. Software Project Management (3) P/C: ITEC SENG 6230. Advanced methods and techniques to initiate, plan, and control large and complex software development projects.

6230. Software Engineering Foundations (3) Same as CSCI 6230 P: CSCI 4200 or consent of instructor. Software project development using software engineering principles and current software development techniques.

6240. Software Architecture and Design (3) P/C: SENG 6230. Software development issues related to software architecture and design. Examines software development and implementation

6250. Software Systems Modeling and Analysis (3) P/C: SENG 6230. Methods for the construction of software including formal notation language and its application to the analysis and specification of software system requirements.

6260. Software Metrics and Quality Management (3) P/C: SENG 6230. Software quality metrics associated with process and product metrics. Examines development of software using various types of metrics and models employed in the field of software quality engineering.

6270. Software Verification and Validation (3) P/C: SENG 6230. Verification and validation strategies and techniques throughout the software life-cycle, including processes that assure the desired software and documentation are developed and maintained.

6280. Process Management and Lifecycle Modeling (3) P/C: SENG 6230. Foundations of software management and support over the complete life cycle including maturity models, change management, and optimization.

6290. Software Engineering Project (3) P/C: SENG 6230 or consent of instructor. Practical process-based and industry-oriented view of software engineering practices. Exposure to research, software development, and implementation of professional level software.

P=Prerequisite(s); C=Corequisite(s); P/C=Prerequisite(s) or Corequisite(s); R=Recommended P, C, or P/C