MASTER OF SCIENCE IN SOFTWARE ENGINEERING

Program

Prerequisites and Foundation Competencies

The MSSE degree requires students to have competencies that will allow them to pursue graduate coursework. Knowledge and/or experience in data structures, applications programming, systems analysis and design, and mathematics is required. Gaps in knowledge and experience in these areas can be remedied by the following bridge courses offered in the MSSE program:

Code	Title	Credits
CPSC 4357	Database Management Systems	3
CPSC 1101	Introduction to Computing	3

Students who are accepted conditionally into the program with certain bridge courses should complete the bridge requirement within two semesters with a grade of B or higher to satisfy the bridge requirement.   Students may take graduate level courses and bridge courses at the same time. Bridge courses do not count for credit towards the degree.

Program Requirements

MSSE students will complete three required courses, as described below. In addition, students should select additional electives from one or more specialization areas in which they have an interest, namely computer programming, web technologies, database architecture, computer networking, and data science. Students may also take two elective courses offered in any engineering, math, or business graduate program with approval.

The program requires two capstone or thesis courses and three required core courses listed below to cover the software project management and software development life cycle of requirements gathering, analysis, design, prototyping, implementation, testing, deployment, and maintenance. Completion of a minimum of 8 three-credit courses, plus the two-semester capstone or thesis course, for a total of 30 credits, comprise the graduation requirements for the MSSE program.

To earn the Master of Science in Software Engineering, students complete the following:

Code	Title	Credits
SWEG 5301	Software Engineering Methods	3
SWEG 5302	Software Design Methods	3
SWEG 5320	Software Testing and Maintenance	3
Capstone or Thesis Option		
SWEG 6961	Capstone Professional Project I [1]	3
or SWEG 6971	Thesis I	
SWEG 6962	Capstone Professional Project II [1]	3
or SWEG 6972	Thesis II	
Elective Courses		
Select five elective courses [2]		15
Total Credits		**30**

[1] Students have two options for a two-semester long required course sequence:
  1. Capstone Option: The Capstone projects are team driven. The results of these projects provide a library of case studies, designs, and tools that will be of general interest to information technology professionals and organizations in the area.
  Students in the Software Capstone Project class are typically organized into teams that contribute to a significant real-world software development project. These projects are chosen to advance the student's knowledge in topics related to the specialization areas. Students consult with their advisors and instructors to determine which projects will contribute most to their education. A capstone topic should be approved by the instructor and accepted by the director of the program prior to starting the capstone sequence.
  2. Thesis Option: Students may choose the thesis option with the agreement of a faculty member and approval by the program director.

In the event that a student in one option (Capstone or Thesis) wishes to switch to the other option, the course that was taken in one option will not count toward fulfilling the graduation requirement. Capstone or thesis classes can be taken only after the completion of 9 credits at the minimum.

[2] Electives may be chosen from courses listed under Software Engineering Graduate Certificate Programs, as well as SWEG 5900 Special Topics (Shell) and SWEG 5990 Independent Study, or any other graduate-level engineering course, under advisement of the department chair or academic advisor.