SOFTWARE ENGINEERING, GRADUATE CERTIFICATE

Stand out in a rapidly changing career landscape with a Software Engineering Graduate Certificate. Ideal for current software professionals looking to advance their careers or those seeking a career change into this high-demand field.

This program is one of the few software engineering graduate certificate programs in Wisconsin. It prepares you for leadership roles on software development teams and provides you with the skills to drive technical innovation in many industries.

Study at a college known for innovators—including Microsoft Chairman and CEO Satya Nadella, who completed graduate studies in computer science at UWM.

Admission Requirements

Application Deadlines

Application deadlines vary by program, please review the application deadline chart (http://uwm.edu/graduateschool/program-deadlines/) for specific programs. Other important dates and deadlines can be found by using the One Stop calendars (https://uwm.edu/onestop/dates-and-deadlines/).

Application

- Admission to a graduate certificate program requires formal student application through the Graduate School admissions application (https://uwm.edu/applygrad/) system, including the required admissions application fee.
- Certificate programs will inform the Graduate School of their admission recommendation for an applicant. The final admission decision is made by the Graduate School.
- Early application to the certificate program is recommended; late application is possible, but may incur delays for certificate conferral related to time required for credit tracking.
- Applicants must possess a baccalaureate degree and have a minimum 2.75 cumulative undergraduate grade point average to be admitted into a certificate program.

Admission

The minimum GPA for admission is that set for all graduate programs by the graduate school. Applicants should generally have a prior degree in computer science, or computer engineering, or any other area that requires academic preparation in mathematics and computer science. Students accepted or enrolled in the masters in computer science at UWM are immediately eligible for admission to this certificate. Eligible students should apply to the UWM Graduate School in order to be enrolled.

Credits and Courses

The Graduate Certificate in Software Engineering requires a minimum of 15 credits, as described below. At least 12 credits must be taken at UWM.

Code	Title	Credits
Required Courses		
COMPST 703	Software Development Life Cycle [1]	3
or INFOST 691	Special Topics in Information Science:	
COMPSCI 552	Advanced Object-Oriented Programming	3
COMPSCI 736	Advanced Software Engineering	3
Elective Courses		
Select 6 credits from the following:		6
COMPST 789	Software Internship	
COMPSCI 557G	Introduction to Database Systems	
COMPSCI 737	Software Project Management	
COMPSCI 738	Program Analysis for Software Engineering	
COMPSCI 747	Principles & Practices of User Interface Design	
COMPSCI 761	Software Testing and Verification	
COMPSCI 790	Advanced Topics in Computer Science: (if appropriate topic)	
Total Credits		**15**

[1] Only INFOST 691 with topic "Software Engineering Principles" may substitute for COMPST 703.

If a student has taken a similar course to one of the required three here as an undergraduate, the program director may permit the student to take an elective to substitute for the required course. The inclusion of a special topic offering must be approved by the program director, but approval can be expected if the course is in an area of software engineering.

Additional Requirements

Grade Point Average Requirement

The student must achieve a GPA of 3.00 or higher in courses making up the certificate, and must have an overall GPA of 3.00 or higher in all their graduate work.

Time Limit

Once admitted to the certificate, the student must complete it within four academic years.

Transfer Credit

No more than 20% of the required credits may be taken at an institution other than UWM. These courses are subject to Graduate School transfer policy and must be approved by the director of the certificate program.

Articulation with Degree Programs

1. Credits and courses required for a certificate may double count toward meeting UWM graduate degree requirements subject to the following restrictions:
   - Degree programs must approve the courses from certificates that can double count toward the degree.
   - All credits taken in completion of certificate requirements may count towards a UWM graduate degree as long as they do not contribute more than 90% of the total credits needed to obtain the degree. (Note: Students in PhD programs must still complete the minimum residency requirements)
   - Certificate courses used toward meeting degree requirements must be completed within the time limit for transfer credit.
2. Courses completed for a degree may be counted toward a subsequent certificate, subject to all certificate policy requirements.

3. A course may count toward no more than one certificate and one degree.
4. Students may not earn a certificate subsequent to a concentration in the same area.

Software Engineering Graduate Certificate Learning Outcomes

Upon successful completion of the Graduate Certificate in Software Engineering, students will be able to:

1. Apply systematic software development methodologies including waterfall, agile and DevOps practices to manage complex software projects from conception to deployment.
2. Design and implement robust software architectures using design patterns and best practices for maintainable, scalable systems.
3. Integrate modern software engineering tools and practices including version control, continuous integration/continuous deployment (CI/CD), automated testing and collaborative development environments.
4. Demonstrate proficiency in software quality assurance through testing strategies, code review processes, and verification techniques to ensure reliable software delivery.
5. Communicate effectively with stakeholders including technical teams, project managers, and clients regarding software requirements, programs, and technical decisions.
6. Adapt to emerging technologies and methodologies in the rapidly evolving software engineering field through continuous learning and professional development.