Software Engineering, M.S.S.E.

Degrees Offered

- Masters of Science, Software Engineering (M.S.S.E.)

Nature of the Program

The Lane Department of Computer Science and Electrical Engineering offers the professionally oriented and applied Masters of Science in Software Engineering (M.S.S.E.) degree program. The M.S.S.E. provides graduate educational opportunities to working professionals with any accredited degree as well as recent graduates of an accredited BS CS, BS SE, or closely related bachelors degree. The M.S.S.E. degree is a unique fully-online program offered through Coursera that provides graduate level software engineering expertise to individuals who are currently working or endeavor to work in software engineering or the information technology industry. The program aspires to serve full-time working professionals seeking an applied master's program and wanting the flexibility an online graduate degree program offers. The coursework-only degree program allows students to complete their degree requirements with five core courses and five additional courses that deepen their understanding of aspects of software engineering relevant to their careers goals.

Program Educational Objectives

The objective of the program is to produce graduates who have the knowledge, skills, and attitudes that will ensure success in professional positions in business, industry, research, or governmental service. After completing five core courses, students will achieve proficiency in:

- Software Project Management.
- Software Analysis and Design.
- Object-Oriented Design of Software.
- Software Verification and Validation.
- Software Evolution.

Admissions for 2026-2027

MASTER ADMISSIONS

Students seeking admission to the Master of Science in Software Engineering (MSSE) program must satisfy the following requirements to be considered. All students must fulfill all items in the Admission Requirements for entry into the program.

ADMISSION REQUIREMENTS

- Submit a completed application using Major Code 3081 for Software Engineering through the WVU Online Graduate Admissions page.
- Submit a personal statement. Your personal statement should be 750 to 1,000 words and double-spaced. This is an opportunity to tell the admissions committee more about your reasons to earn an MSSE Degree and should not repeat your resume.
- Submit 2 professional and/or educational references contact information only.
- Submit official transcripts showing degree completion of a bachelor’s degree in computer science, computer engineering, software engineering, or a closely related field from an accredited University, with a minimum cumulative grade point average of 3.0 (on a 4-point scale) or better.
    - Students with a degree in other fields of study from accredited institutions will be considered for provisional admission.
    - Provisional students will be required to complete SENG 505 during their first term and two additional core (SENG 510-SENG 550) courses with a ‘B’ or above. After successful completion of SENG 505 and the two core courses, the student will move to regular graduate status. The SENG 505 course may be waived based upon three or more years of progressive software development industry experience as a software engineer or similar.
- Submit a resume that reflects your education and experience.
- GRE is not required but may be submitted to assist in admission decision.
- International applicants must meet the WVU requirement of English language proficiency.
- *Note: the credit earned for the SENG 505 course does not apply toward the required hours for the MSSE Degree.*

Major Code: 3081

Curriculum in Master of Science in Software Engineering

A candidate for the M.S. degree in software engineering must comply with the rules and regulations as outlined in the WVU Graduate Catalog and the specific requirements of the Statler College and the Lane Department of Computer Science and Electrical Engineering.

Program Requirements

All M.S. degree candidates are required to follow a planned program of study. The student's faculty advisor, in conjunction with the student's Advising and Examining Committee (AEC) will be responsible for determining the plan of study appropriate to the student's needs. The underlying principle of the planned program is to provide the student with the necessary support to complete their degree and prepare them for their career.

Curriculum Requirements

Code	Title	Hours
A minimum cumulative GPA of 3.0 is required		
Course Requirements		
Plan of Study		
Core Courses		15
SENG 510	Software Project Management	
SENG 520	Software Analysis and Design	
SENG 530	Software Verification and Validation	
SENG 540	Software Evolution	
SENG 550	Object Oriented Design	
Advanced Courses		15
Select from the following:		
CPE 538	Intro Computer Security Management	
SENG 564	Software Engineering of Mobile Applications	
SENG 565	Database Design and Implementation	
SENG 581	Quality Software Process Management	
SENG 582	Enterprise Architecture Framework	
SENG 585	Software Engineering Economics	
SENG 660	Engineering Secure Software	
SENG 695	Independent Study (Experiential Learning)	
Total Hours		30

SENG 505 is offered as a Preparatory Course and is required for those entering the program as Provisional Graduate Student with no credit counting toward fulfillment of the MSSE Program 30 credit hour requirement.

Suggested Plan of Study

The plans below illustrate the Coursework Option. It is important for students to take courses in the order specified as much as possible; all prerequisites and concurrent requirements must be observed. A typical M.S.S.E degree program that completes degree requirements in two years is as follows.

FALL ADMITS

First Year

Fall	Hours	Spring	Hours	Summer	Hours
SENG 520		3 SENG 510		3 SENG 540	3
SENG 550		3 SENG 530		3 CPE 538	3
		6		6	6

Second Year

Fall	Hours	Spring	Hours		
SENG 564		3 SENG 565		3	
SENG 581		3 SENG 582		3	
		6		6	

Total credit hours: 30

SPRING ADMITS

First Year

		Spring	**Hours**	**Summer**	**Hours**	
		SENG 510		3 SENG 540		3
		SENG 530		3 CPE 538		3
		6		6		
Second Year						
Fall	**Hours**	**Spring**	**Hours**	**Summer**	**Hours**	
SENG 520		3 SENG 565		3 SENG 585		3
SENG 550		3 SENG 582		3 SENG 660		3
		6		6		6

Total credit hours: 30

SUMMER ADMITS

First Year

				Summer	**Hours**	
				SENG 540		3
				CPE 538		3
		6				
Second Year						
Fall	**Hours**	**Spring**	**Hours**	**Summer**	**Hours**	
SENG 520		3 SENG 510		3 SENG 660		3
SENG 550		3 SENG 530		3 SENG 585		3
		6		6		6
Third Year						
Fall	**Hours**					
SENG 564		3				
SENG 581		3				
		6				

Total credit hours: 30

Major Learning Outcomes

SOFTWARE ENGINEERING

It is our goal that upon graduation our students will:

1. Apply software engineering practices to solve complex problems by analyzing and assessing needs and implementing improvements.
2. Achieve success and proficiency in the Software Engineering profession by making significant contributions to technology advancements.
3. Recognize professional responsibilities and make informed decisions in Software Engineering practices.
4. Advance as a team member or lead engaged in the Software Engineering discipline.