

University of Indianapolis – Shaheen College of Arts & Sciences

2025-2026 Curriculum Guide for Software Engineering majors (SWEN)

Bachelor of Arts or Bachelor of Science

Software Engineering (SE) is an engineering discipline that focuses on the application of engineering principles to the design and development of reliable software. There is significant emphasis on rigorous requirements, specifications, and testing protocols as well as software architecture, design and management.

Freshman and Sophomore Year

• CHEM	150	General Chemistry I (3)
• CHEM	151	General Chemistry Laboratory I (1)
• CSCI	155	Introduction to Programming (3)
• CSCI	156	Object-Oriented Programming (3)
• CSCI	240	Data Structures and Algorithms (4)
• ENGR	185	Orientation to Engineering (1)
• ENGR	196	Introduction to Engineering (Design Lab I) (3)
• ENGR	198	Engineering Design Lab II (1)
• ENGR	210	Engineering Economics (3)
• ENGR	296	Engineering Design Lab III (1)
• ENGR	298	Engineering Design Lab IV (1)
• MATH	190	Calculus and Analytic Geometry I (4)
• MATH	191	Calculus and Analytic Geometry II (4)
• MATH	195	Discrete Mathematics (4)
• MATH	280	Linear Algebra (4)
• MATH	330	Differential Equations (3)
• PHYS	153	General Physics I, Calculus Based (4)
• PHYS	163	General Physics II, Calculus Based (4)
• PHYS	230	Laboratory Instrumentation I (3) (Embedded Systems/Data Analysis)
• SWEN	200	Intro to Software Engineering (3)
• SWEN	230	Advanced C Programming (2)

Junior and Senior Year

• CSCI	350	Programming Languages (4)
• CSCI	370	Database Systems (4)
• CSCI	420	Networks and Distributed Computing (4)
• ENGR	396	Engineering Design Lab V (1)
• ENGR	398	Engineering Design Lab VI (1)
• ENGR	496	Engineering Design Lab VII (1)
• ENGR	498	Engineering Design Lab VIII (2) (capstone)
• PHYS	280	Scientific Computing I (3) (W/S)
• SWEN	310	Operating Systems (3)
• SWEN	320	Software Validation and Testing (3)
• SWEN	330	Software Architecture (3)
• SWEN	400	Software Project Management (3)

NOTES:

- A grade of C- (1.7 on a 4.0 scale) or higher is required in all courses in the Bachelor of Science Degree at the University of Indianapolis.
- A minimum of 120 hours is required to earn a Bachelor of Science Degree from the University of Indianapolis.
- A typical SWEN major can satisfy degree requirements with 128 credits.

- An average grade of C or higher is required in all required Engineering, Mathematics , Science and Computer Science courses for the Software Engineering Program.
- A student may complete more than one major as long as each major has at least 24 discrete hours. Please see the Academic Catalog for additional details.

REMEMBER: If you have any questions about the Software Engineering major requirements, contact a faculty advisor from the R. B. Annis School of Engineering (Kenneth Reid, 788-3657; Annis Hall, Room 105) or your academic advisor. Courses and requirements sometimes change so keep in contact with your advisor.