

*University of Indianapolis – Shaheen College of Arts & Sciences***2024-2025 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.