BACHELOR OF SCIENCE IN SOFTWARE ENGINEERING

Program Contact: Jonathan Blake (Jonathan.Blake@quinnipiac.edu)
203-582-8539

Computers are ubiquitous, and thus so is the code to run devices, applications and even the machines themselves. The most complicated artifacts built by humans are software systems, and software engineers design and develop these systems. Using cutting edge engineering principles and practices in a hands-on team-oriented environment, software engineering students learn how to build the code of the future.

Through exposure to the University Curriculum, foundational coursework in science, mathematics, major field courses and extracurricular activities, students graduating with a BS in Software Engineering achieve intellectual proficiencies in critical thinking and reasoning, scientific literacy, quantitative reasoning, information fluency and creative thinking and visual literacy. They also achieve interpersonal proficiencies in written and oral communication, responsible citizenship, diversity awareness and sensitivity and social intelligence.

BS in Software Engineering Curriculum

Note: a minimum grade of C- is required for all computer science and software engineering course prerequisites, unless otherwise stated.

Within the policies of the School of Computing and Engineering, the Software Engineering program enforces credit limits during the academic terms. Exceeding 18 credits in the fall or spring semesters, 4 credits in the January term, or 10 credits in each summer term requires the approval of the dean's office.

Code	Title	Credits
University Curriculum		
Foundations of Inquiry:		
FYS 101	First-Year Seminar	3
EN 101	Introduction to Academic Reading and Writing	3
EN 102	Academic Writing and Research	3
Quantitative Literacy:		
MA 205	Introduction to Discrete Mathematics (CSC 205)	3
Disciplinary Inquiry:		
Take one of the following Natural Science courses [1]		4
BIO 101 & 101L	General Biology I and General Bio Lab I,General Biology I Lab	
BIO 150 & 150L	General Biology for Majors and General Biology for Majors Laboratory	
PHY 121	University Physics	
CHE 110 & 110L	General Chemistry I and General Chemistry I Lab	
Humanities, Social Sciences, Fine Arts [2]		9
Personal Inquiry I:		
Take a second Natural Science course [1]		4
Take two additional courses from within Humanities, Social Sciences, Fine Arts [2]		6
Personal Inquiry II:		
MA 141	Calculus of a Single Variable	3
Take an additional 5 UC credits (some of the Additional Requirements below could count)		5
Integrative Capstone:		
University Capstone		3
Common Engineering Curriculum		
ENR 395	Professional Development Seminar	1
Additional Requirements [3]		
MA 285	Applied Statistics	3
Additional 13 credits of Mathematics or Science		13
Any UC Natural Science Elective in BIO, BMS, CHE, PHY or SCI or in another science discipline with program director approval. If those electives are in the same discipline as the 8-credit Natural Science sequence, program director approval is needed.		
Mathematics elective from the following list:		
MA 150	Integral Calculus With Applications	
MA 153	Calculus II: Part A	
MA 154	Calculus II: Part B	
MA 229	Linear Algebra	
MA 301	Foundations of Advanced Mathematics	
MA 305	Discrete Mathematics	
MA 315	Theory of Computation	
MA 318	Cryptography	
MA 378	Mathematical Modeling	
Or any Mathematics course with rigor at least equivalent to MA 141 with program director approval		
Software Engineering Courses		
CSC 110 & 110L	Programming and Problem Solving and Programming and Problem Solving Lab	4
CSC 111 & 111L	Data Structures and Abstraction and Data Structures and Abstraction Lab	4
CSC 215	Algorithm Design and Analysis	3
SER 120 & 120L	Object-Oriented Design and Programming and Object-Oriented Design and Programming Lab	4
SER 210	Software Engineering Design and Development	3
SER 225	Introduction to Software Development	3
SER 305	Advanced Computational Problem Solving	3
SER 340	Full-Stack Development 1:Software Requirements Analysis	3
SER 341	Full-Stack Development 2: Software Design	3
SER 330	Software Quality Assurance	3

SER 350	Software Project Management	3
SER 490	Engineering Professional Experience	0-1
SER 491	Senior Capstone I	3
SER 492	Senior Capstone II	3
CSC/SER Elective: CSC 210, CSC 240 or any CSC or SER course at the 300 level or above [4]		3
SER Elective: Any two additional SER courses at the 300 level or above		6
Total Credits		**114-115**

1 The second Natural Science course must be a continuation of the first course.
2 Courses must be from different areas.
3 Total math/science credits must equal a minimum of 30 credits.
4 Waived with approved minor.
Complete additional coursework to reach 120 credits. This coursework must include any missing UC credits from Personal Inquiry II above.

Student Outcomes

Attainment of the following outcomes prepares graduates to enter the professional practice of engineering:

1. an ability to identify, formulate, and solve complex engineering problems by applying principles of engineering, science, and mathematics.
2. an ability to apply engineering design to produce solutions that meet specified needs with consideration of public health, safety, and welfare, as well as global, cultural, social, environmental, and economic factors.
3. an ability to communicate effectively with a range of audiences.
4. an ability to recognize ethical and professional responsibilities in engineering situations and make informed judgments, which must consider the impact of engineering solutions in global, economic, environmental, and societal contexts.
5. an ability to function effectively on a team whose members together provide leadership, create a collaborative and inclusive environment, establish goals, plan tasks, and meet objectives.
6. an ability to develop and conduct appropriate experimentation, analyze and interpret data, and use engineering judgment to draw conclusions.
7. an ability to acquire and apply new knowledge as needed, using appropriate learning strategies.

Program Educational Objectives

Within four to seven years of graduation, graduates of the software engineering program are expected to:

1. Be models of ethical behavior in their profession and community.
2. Achieve sustained employment in a professional field and/or pursue additional educational opportunities.
3. Continue lifelong learning as they develop professionally and maintain currency with software engineering knowledge and skills.
4. Demonstrate professional and personal growth through leadership and mentoring roles.

Admission Requirements: School of Computing and Engineering

The requirements for admission into the undergraduate School of Computing and Engineering programs are the same as those for admission to Quinnipiac University.

Admission to the university is competitive, and applicants are expected to present a strong college prep program in high school. Prospective first-year students are strongly encouraged to file an application as early in the senior year as possible, and arrange to have first quarter grades sent from their high school counselor as soon as they are available.

For detailed admission requirements, including required documents, please visit the **Admissions** page of this catalog.

Seamless Transfer Agreement with Gateway Community College (GCC), Housatonic Community College (HCC) and Norwalk Community College (NCC)

Under this Transfer Agreement, GCC, HCC and NCC graduates will be guaranteed admission into a bachelor's degree program with third year (junior) status at Quinnipiac University on the condition that they:

- Graduate with an associate in arts, an associate in science in business, College of Technology engineering science and computer science, nursing or an allied health degree with a minimum cumulative GPA of 3.00 (this may be higher in specific programs).
- Satisfy all other Quinnipiac University transfer admission requirements and requirements for intended major.

Quinnipiac University agrees to accept the general education embedded in these associate degree programs in accordance with Quinnipiac preferred choices for general education as meeting all the requirements of its undergraduate general education except for the Integrative Capstone Experience and where courses are encumbered by the major (e.g., General Chemistry for the Disciplinary Inquiry Natural Science requirement for a Biochemistry major).

Suggested Transfer Curriculum for BS in Software Engineering

A minimum of 60 credits is required for transfer into the BS in Software Engineering program. Below is a sample plan of study for the first two years.

Course	Title	Credits
First Year		
Fall Semester		
English I		3
CSC 1201 (Introduction to Programming)		4
MATH 2600 (Calculus I)		4
Gen Ed Elective		3
Gen Ed Elective		3
	Credits	**17**
Spring Semester		
English II		3
CSC 1213 (Object-Oriented Programming)		4
MATH 2611 (Discrete Mathematics)		4

Gen Ed Elective	3
Gen Ed Elective	3
Credits	**17**
Second Year	
Fall Semester	
CSC 2216 (Data Structures and Algorithms)	4
MATH 2610 (Calculus II)	4
General Chemistry I with Lab	4
Gen Ed Elective	3
Credits	**15**
Spring Semester	
CSC 2218 (Software Engineering Methods)	4
MATH 2621 (Linear Algebra)	4
General Chemistry II with Lab	4
Computer Science Elective	3
Credits	**15**
Total Credits	**64**