BACHELOR OF SCIENCE IN CIVIL ENGINEERING

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The BS in Civil Engineering has a broad-based curriculum that provides exposure to technical issues and design in a number of civil engineering sub-disciplines including: structural, environmental, geotechnical, hydraulic/water resources and construction management. Civil engineering projects are often multidisciplinary in nature and can involve large public works. Specifically, civil engineers design, build and maintain a variety of projects including: roads, buildings, tunnels, retaining walls, dams, bridges, airports, water supplies and sewerage systems.

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

The BS in Civil Engineering program requires a minimum of 124 credits for degree completion:

Within the policies of the School of Computing & Engineering, the Civil 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 (http://catalog.qu.edu/academics/university-curriculum/)		**50**
Foundational Courses for Civil Engineering		
CSC 106	Introduction to Programming for Engineers	3
MA 153	Calculus II: Part A	2
MA 154	Calculus II: Part B	2
MA 251	Calculus III	4
MA 265	Matrix Algebra and Differential Equations	4
Common Engineering Curriculum		
ENR 395	Professional Development Seminar	1
Civil Engineering Courses		
CER 210	Statics	3
CER 220 & 220L	Mechanics of Materials and Mechanics of Materials Lab	4
CER 230	Infrastructure Engineering	3
CER 260	Introduction to Construction Management	3
CER 240 & 240L	Civil Engineering Site Design and Civil Engineering Site Design Lab	3
CER 310	Fluid Mechanics	3
CER 320	Structural Analysis	3
CER 325	Construction Materials	1
CER 330 & 330L	Fundamentals of Environmental Engineering and Fundamentals of Environmental Engineering Lab	3
CER 340 & 340L	Introduction to Geotechnical Engineering and Foundation Design and Introduction to Geotechnical Engineering and Foundation Design Lab	4
CER 350 & 350L	Hydrology/Hydraulic Design and Hydrology/Hydraulic Design Lab	4
CER 420	Design of Concrete Structures	3
CER 445	Advanced Geotechnical Engineering and Foundation Design	3
CER 455 & 455L	Advanced Environmental Engineering and Advanced Environmental Engineering Lab	3
CER 490	Engineering Professional Experience	0
CER 497	Design of Civil Engineering Systems I	3
CER 498	Design of Civil Engineering Systems II	3
Select two Civil Engineering Electives		**6**
Technical Elective [1]		**3**
Required courses that also count toward the University Curriculum		
ENR 110	The World of an Engineer	
EC 111	Principles of Microeconomics	
MA 151	Calculus I	
CHE 110 & 110L	General Chemistry I and General Chemistry I Lab	
BIO 101 & 101L	General Biology I and General Biology I Lab	
PHY 121	University Physics	
Take 4 credits from:		
CHE 111 & 111L	General Chemistry II and General Chemistry II Lab	
BIO 102 & 102L	General Biology II and General Biology Lab II	
PHY 122	University Physics II	
Total Credits		**124**

[1] Includes any CER elective or an MER, IER, SER, MA, PHY, BIO or CHE course at 200 level or higher with department chair approval.

Course plans are subject to change. Course availability, potential transfer credits, and course prerequisite completion may influence the final course schedule for each program.

Course	Title	Credits
First Year		
Fall Semester		
ENR 110	The World of an Engineer (UC Personal Inquiry 2)	3
CSC 106	Introduction to Programming for Engineers	3
MA 151	Calculus I (UC Math)	4
FYS 101	First-Year Seminar (UC Foundations Inquiry)	3
EN 101	Introduction to Academic Reading and Writing (UC Writing 1)	3
	Credits	**16**
Spring Semester		
MA 153	Calculus II: Part A	2
MA 154	Calculus II: Part B	2
EN 102	Academic Writing and Research (UC Writing 2)	3
CER 210 or MER 210	Statics or Statics	3
University Curriculum course		3
PHY 121	University Physics (UC Personal Inquiry 2)	4
	Credits	**17**
Second Year		
Fall Semester		
CER 220 or MER 220	Mechanics of Materials or Mechanics of Materials	3
CER 220L or MER 220L	Mechanics of Materials Lab or Mechanics of Materials Lab	1
MA 251	Calculus III	4
CER 230	Infrastructure Engineering	3
CHE 110 & 110L	General Chemistry I and General Chemistry I Lab (UC Disciplinary Inquiry Natural Sciecne)	4
	Credits	**15**
Spring Semester		
CER 260	Introduction to Construction Management	3
CER 240 & 240L	Civil Engineering Site Design and Civil Engineering Site Design Lab	3
CER 320	Structural Analysis	3
MA 265	Matrix Algebra and Differential Equations	4
EC 111	Principles of Microeconomics (UC Disciplinary Inquiry Social Sciences)	3
	Credits	**16**
Third Year		
Fall Semester		
CER 330 & 330L	Fundamentals of Environmental Engineering and Fundamentals of Environmental Engineering Lab	3
CER 310 or MER 310	Fluid Mechanics or Fluid Mechanics	3
CER 420	Design of Concrete Structures	3
CER 340 & 340L	Introduction to Geotechnical Engineering and Foundation Design and Introduction to Geotechnical Engineering and Foundation Design Lab	4
University Curriculum course		3
	Credits	**16**
Spring Semester		
CER 455 & 455L	Advanced Environmental Engineering and Advanced Environmental Engineering Lab	3
CER 350 & 350L	Hydrology/Hydraulic Design and Hydrology/Hydraulic Design Lab	4
CER elective		3
BIO 101 & 101L	General Biology I and General Biology I Lab (UC Personal Inquiry 1 Natural Science)	4
ENR 395	Professional Development Seminar	1
	Credits	**15**
Fourth Year		
Fall Semester		
CER 497	Design of Civil Engineering Systems I	3
CER 325	Construction Materials	1
CER elective		3
UC Curriculum Course		3
UC Natural Science course [1]		4
CER 490	Engineering Professional Experience	0
	Credits	**14**
Spring Semester		
CER 498	Design of Civil Engineering Systems II	3
CER 445	Advanced Geotechnical Engineering and Foundation Design	3
Technical elective		3
University Curriculum course		3
University Curriculum course		3
	Credits	**15**
	Total Credits	**124**

[1] Students should choose from PHY 122 ***or*** CHE 111 ***and*** CHE 111L ***or*** BIO 102 ***and*** BIO 102L

Student Outcomes

Attainment of the following competencies 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 following graduation, graduates of the civil engineering program shall become successful professionals recognized for their:

1. Ability to apply new knowledge, tools and technology to find sustainable solutions to the problems of a rapidly changing world.
2. Communication of complex ideas and problems to a professional audience.
3. Professionalism and ability to consider the technical, social and ethical consequences of their work.
4. Leadership, mentorship and contributions to their profession and community.
5. Pursuit of intellectual, personal and professional development.

Admission Requirements: School of Computing & Engineering

The requirements for admission into the undergraduate School of Computing & 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 Civil Engineering

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

Course	Title	Credits
First Year		
Fall Semester		
English I		3
Calculus I		4
Introduction to Engineering		3
Elective		3
Elective		3
	Credits	**16**
Spring Semester		
English II		3
Calculus-Based Physics		4
Calculus II		4
General Chemistry I with Lab		4
	Credits	**15**
Second Year		
Fall Semester		
Calculus-Based Physics II		4
Calculus III - Multivariable		4
Introduction to Biology with Lab		4
Elective		3
	Credits	**15**
Spring Semester		
Differential Equations		3
Engineering Statics		3
History Elective		3
Elective		3
Elective		3
	Credits	**15**
	Total Credits	**61**