BACHELOR OF SCIENCE IN MECHANICAL ENGINEERING

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Mechanical engineers are employed in the research, design, development and manufacturing of a broad range of tools, engines, machines and other mechanical devices and components. Through exposure to the University Curriculum, foundational coursework in science, mathematics, major field courses, and extracurricular activities, students graduating with a BS in Mechanical Engineering achieve intellectual proficiencies in critical thinking and reasoning, scientific literacy, quantitative reasoning, information fluency, creative thinking and visual literacy. They are prepared to enter the profession or to pursue graduate studies with a solid foundation in the breadth of mechanical engineering. They also achieve interpersonal proficiencies in written and oral communication, responsible citizenship, diversity awareness and sensitivity and social intelligence.

The BS in Mechanical Engineering program requires a minimum of 122 credits for degree completion.

Within the policies of the School of Computing & Engineering, the Mechanical Engineering program enforces credit limits during the academic terms. Exceeding 18 credits in the Fall or Spring semester, 4 credits in the January term, or 10 credits in each Summer term requires the approval of the dean's office.

Please see footnotes for additional information.

Code	Title	Credits
University Curriculum (http://catalog.qu.edu/academics/university-curriculum/)		**49**
Required program courses for the University Curriculum		
EC 111	Principles of Microeconomics	
MER 110	3D Solid Modeling and Printing for Innovators [1]	
Foundational Courses for Mechanical Engineering		
Computer Science Course		
CSC 105	Computing: Multidisciplinary Approach	3
or CSC 106	Introduction to Programming for Engineers	
Math and Science Requirement (30 total credits counted in program and university curriculum)		
MA 151	Calculus I [2]	
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
MA 285	Applied Statistics [2]	
CHE 110 & 110L	General Chemistry I and General Chemistry I Lab [2]	
PHY 121	University Physics [2]	
PHY 122	University Physics II [2]	
Common Engineering Curriculum		
ENR 210	Engineering Economics and Project Management	3
ENR 395	Professional Development Seminar	1
Mechanical Engineering Courses		
MER 210	Statics	3
MER 240	Introduction to Mechanical Engineering Design	1
MER 220 & 220L	Mechanics of Materials and Mechanics of Materials Lab	4
MER 221	Dynamics	3
MER 230 & 230L	Engineering Materials and Engineering Materials Lab	4
MER 250	Computer Aided Design	3
MER 310	Fluid Mechanics	3
MER 320	Thermodynamics	3
MER 330 & 330L	Introduction to Circuits and Introduction to Circuits Lab	4
MER 340 & 340L	Manufacturing/Machine Component Design and Manufacturing/Machine Component Design Lab	4
MER 350	Mechanical Engineering Design	3
MER 360	Heat Transfer	3
MER 470 & 470L	Dynamic Modeling and Control and Dynamic Modeling and Controls Lab	4
MER 490	Engineering Professional Experience	0
MER 498	ME Major Design Experience [3]	3
Directed Study Electives		**9**
Select one of the following options:		
Three technical electives (any MER elective or 200-level or higher CER, IER, SER, MA, BIO, CHE course)		
Three graduate courses toward 3+1 or 4+1 ME/MBA		
Three graduate courses toward 4+1 ME/Masters in Cybersecurity		
Three electives used toward completion of a minor		
Other options as approved by the ME program director		
Total Credits		**122**

1 Students may substitute ENR 110 and MER 111

2 Course is required for the Engineering program. The credits are accounted for in the University Curriculum.

3 Course is defined as the Integrative Capstone.

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

For students who begin their program taking MA 140, the first 4 semesters are slightly different than what is outlined below, but can still achieve the BS in Mechanical Engineering in 122 credits.

Course	Title	Credits
First Year		
Fall Semester		
CSC 106	Introduction to Programming for Engineers	3
EN 101	Introduction to Academic Reading and Writing (UC Writing 1)	3
FYS 101	First-Year Seminar (UC Foundations Inquiry)	3
MA 151	Calculus I (UC Personal Inquiry 2)	4
MER 110	3D Solid Modeling and Printing for Innovators (UC Personal Inquiry 2)	3
	Credits	**16**
Spring Semester		
EN 102	Academic Writing and Research (UC Writing 2)	3
MA 153	Calculus II: Part A	2
MA 154	Calculus II: Part B	2
MER 210	Statics	3
PHY 121	University Physics (UC Personal Inquiry 1 Natural Sciences)	4
	Credits	**14**
Second Year		
Fall Semester		
CHE 110 & 110L	General Chemistry I and General Chemistry I Lab (UC Natural Science with Lab)	4
MA 251	Calculus III	4
MER 220 & 220L	Mechanics of Materials and Mechanics of Materials Lab	4
MER 250	Computer Aided Design	3
	Credits	**15**
Spring Semester		
EC 111	Principles of Microeconomics (UC Social Science)	3
ENR 210	Engineering Economics and Project Management	3
MA 265	Matrix Algebra and Differential Equations	4
MA 285	Applied Statistics (UC Math)	3
University Curriculum course		3
	Credits	**16**
Third Year		
Fall Semester		
ENR 395	Professional Development Seminar	1
MER 221	Dynamics	3
MER 310	Fluid Mechanics	3
PHY 122	University Physics II (UC Personal Inquiry 2)	4
University Curriculum course		3
	Credits	**14**
Spring Semester		
MER 240	Introduction to Mechanical Engineering Design	1
MER 320	Thermodynamics	3
MER 330 & 330L	Introduction to Circuits and Introduction to Circuits Lab	4
MER 340 & 340L	Manufacturing/Machine Component Design and Manufacturing/Machine Component Design Lab	4
University Curriculum course		3
	Credits	**15**
Fourth Year		
Fall Semester		
MER 230 & 230L	Engineering Materials and Engineering Materials Lab	4
MER 350	Mechanical Engineering Design	3
MER 360	Heat Transfer	3
Technical Elective		3
University Curriculum course		3
MER 490	Engineering Professional Experience	0
	Credits	**16**
Spring Semester		
MER 470 & 470L	Dynamic Modeling and Control and Dynamic Modeling and Controls Lab	4
MER 498	ME Major Design Experience	3
Technical Elective		3
Technical Elective		3
University Curriculum course		3
	Credits	**16**
	Total Credits	**122**

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 after graduation, mechanical engineering program alumni are expected to:

1. Attain multiple positions of responsibility in which they:
   a. contribute to teams
   b. manage resources
   c. solve complex problems
   d. communicate information

e. influence decisions
f. act ethically
g. balance constraints

2. Continue self-development through formal and informal learning opportunities.
3. Obtain sustained employment and/or further education in a technical/professional field.
4. Develop a capacity to engage independently in meaningful creative endeavors.

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 Mechanical Engineering

A minimum of 60 credits is required for transfer into the BS in Mechanical 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
General Chemistry I with Lab		4
Introduction to Engineering		3
Elective		3
	Credits	**17**
Spring Semester		
English II		3
Calculus-Based Physics		4
Calculus II		4
General Chemistry II with Lab		4
	Credits	**15**
Second Year		
Fall Semester		
Calculus-Based Physics II		4
Calculus III - Multivariable		4
Elective		3
Elective		3
	Credits	**14**
Spring Semester		
Differential Equations		3
Engineering Statics		3
Microeconomics		3
Engineering Dynamics		3
Elective		3
	Credits	**15**
	Total Credits	**61**