BACHELOR OF SCIENCE IN MECHANICAL ENGINEERING

Program Contact: Lynn Byers (lynn.byers@quinnipiac.edu)  203-582-5028

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.

BS in Mechanical Engineering Curriculum

The Bachelor of Science in Mechanical Engineering program requires 122 credits.

Within the policies of the School of Computing and 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.

Code  Title                                      Credits

University Curriculum                             
Foundations of Inquiry:
FYS 101  First-Year Seminar                      3
EN 101  Introduction to Academic Reading         3
EN 102  Academic Writing and Research            3

Quantitative Literacy:
MA 285  Applied Statistics                       3

Disciplinary Inquiry:
CHE 110  General Chemistry I                     4
& 110L  General Chemistry I Lab                  1
EC 111  Principles of Microeconomics             3
Humanities                                      3
Fine Arts                                       3

Personal Inquiry 1:
PHY 121  University Physics                      4
Humanities, Social Science, Fine Arts (2 classes; must be from two different areas)  6

Personal Inquiry 2:
ENR 110  The World of an Engineer                3
or
MER 110  3D Solid Modeling and Printing for Innovators  3
MA 151  Calculus I                               4
PHY 122  University Physics II                   4

Integrative Capstone:

University Capstone

Intercultural Understanding
3 credits within the breadth component of the university curriculum (everything other than foundations of inquiry) must be from classes marked as "I" (intercultural understanding).

In addition to the University Curriculum, students majoring in Mechanical Engineering must complete the following requirements:

Foundational Courses for Mechanical Engineering

CSC 105  Computing: Multidisciplinary Approach  3
or
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 210  Engineering Economics and Project Management  3
ENR 395  Professional Development Seminar         1

Mechanical Engineering Courses

MER 210  Fundamentals of Engineering Mechanics and Design  3
MER 240  Introduction to Mechanical Engineering Design  1
MER 220  Mechanics of Materials & 220L and Mechanics of Materials Lab  4
MER 221  Dynamics                                 3
MER 230  Engineering Materials & 230L and Engineering Materials Lab  4
MER 250  Computer Aided Design                    3
MER 310  Fluid Mechanics                          3
MER 320  Thermodynamics                           3
MER 330  Introduction to Circuits & 330L and Introduction to Circuits Lab  4
MER 340  Manufacturing/Machine & 340L Component Design and Manufacturing/Machine Component Design Lab  4
MER 350  Mechanical Engineering Design            3
MER 360  Heat Transfer                            3
MER 470  Dynamic Modeling and Control & 470L Dynamic Modeling and Controls Lab  4
MER 490  Engineering Professional Experience      3
MER 498  ME Major Design Experience               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 125

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 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 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.

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>First Year</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Fall Semester</td>
<td></td>
<td></td>
</tr>
<tr>
<td>English I</td>
<td></td>
<td>3</td>
</tr>
<tr>
<td>Calculus I</td>
<td></td>
<td>4</td>
</tr>
<tr>
<td>General Chemistry I with Lab</td>
<td></td>
<td>4</td>
</tr>
<tr>
<td>Introduction to Engineering</td>
<td></td>
<td>3</td>
</tr>
<tr>
<td>Elective</td>
<td></td>
<td>3</td>
</tr>
<tr>
<td></td>
<td></td>
<td>17</td>
</tr>
<tr>
<td>Spring Semester</td>
<td></td>
<td></td>
</tr>
<tr>
<td>English II</td>
<td></td>
<td>3</td>
</tr>
<tr>
<td>Calculus-Based Physics</td>
<td></td>
<td>4</td>
</tr>
<tr>
<td>Calculus II</td>
<td></td>
<td>4</td>
</tr>
<tr>
<td>Course</td>
<td>Credits</td>
<td></td>
</tr>
<tr>
<td>-------------------------------------------------</td>
<td>---------</td>
<td></td>
</tr>
<tr>
<td>General Chemistry II with Lab</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td><strong>Credits</strong></td>
<td><strong>15</strong></td>
<td></td>
</tr>
<tr>
<td><strong>Second Year</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Fall Semester</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Calculus-Based Physics II</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td>Calculus III · Multivariable</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td>Elective</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>Elective</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td><strong>Credits</strong></td>
<td><strong>14</strong></td>
<td></td>
</tr>
<tr>
<td><strong>Spring Semester</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Differential Equations</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>Engineering Statics</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>Microeconomics</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>Engineering Dynamics</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>Elective</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td><strong>Credits</strong></td>
<td><strong>15</strong></td>
<td></td>
</tr>
<tr>
<td><strong>Total Credits</strong></td>
<td><strong>61</strong></td>
<td></td>
</tr>
</tbody>
</table>