School of Engineering

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Degrees Offered and Accreditation

The School of Engineering offers four-year programs leading to Bachelor of Science in Engineering (B.S.E.) degrees (134-credits) in Biomedical Engineering, Chemical Engineering*, Civil Engineering*, Computer Science and Engineering*, Computer Engineering, Electrical Engineering*, Engineering Physics, Environmental Engineering, Mechanical Engineering*, Metallurgy & Materials Engineering

Bachelor of Science (B.S.) degree (120-credits) in Computer Science Bachelor of Science (B.S.) degree (139-credits) in Management & Engineering for Manufacturing (jointly offered with the School of Business) and accredited by the Association to Advance Collegiate Schools of Business (AACSBB)

The BSE programs shown above that are asterisked (*), are accredited by the Engineering Accreditation Commission of the Accreditation Board for Engineering and Technology (EAC/ABET). The BSE in Computer Science & Engineering and the BS in Computer Science are accredited by the Computer Science Accreditation Board (CSAB). The BSE programs in Environmental Engineering, Computer Engineering, and Metallurgy & Materials Engineering, and the BS program in Management & Engineering for Manufacturing will be submitted for EAC/ABET accreditation at the earliest opportunity.

The School of Engineering and the College of Liberal Arts and Sciences offer a five-year, double-degree EUROTECH program leading to a B.S. in Engineering Degree and a B.A. degree in German. The program includes German Language courses specially designed to include engineering content, engineering courses taught partly in German, and a six-month internship in a company in Germany.

Students who wish to concentrate their elective work in a second field within the School of Engineering may elect a double major program. This program requires the completion of all requirements in both majors. Students are required to inform the Director of Advising if they change or add a major.

The School of Engineering also offers Minors in Bioinformatics, in Biomedical Engineering, in Environmental Engineering, in Information Technology, and in Metallurgy and Materials Engineering. Please refer to the “Minors” section of this publication for their descriptions.

Admission Requirements. See Admission to the University. All students admitted to the School of Engineering are required to take a calculus readiness examination prior to attending summer orientation or registering for their first semester. Students who receive an unsatisfactory grade in this examination may be required to take additional preparatory course work that may not be counted toward graduation.

Admission to Junior Year. Students should declare their major as soon as possible, but no later than the second semester of their sophomore year. All students, to be admitted to their junior year in their selected major in the School of Engineering, must have a cumulative grade point average of at least 2.0 in all courses in mathematics, sciences, and engineering applicable toward the degree.

Scholarships. $250,000 in scholarships is available to entering students with an academic merit record and more than $650,000 in scholarships and awards is available annually to continuing students in the School of Engineering. For more details visit: http://www.engr.uconn.edu/SoE/soe_sch_opp.htm.

Faculty and Student Advisors. Faculty advisors are assigned to students entering the School of Engineering according to a student’s major. Faculty advisors assist students in their course selections, counsel them in meeting their educational and career goals, and advise them in non-academic issues. The school’s Mentoring, Advising and Tutoring (MAT) Center is staffed by graduate/undergraduate students and provides tutoring, coaching and mentoring to all engineering students during the day. Evening tutoring is available in the Engineering Learning Center.

School Academic Requirements.

Students in the School of Engineering must complete the following requirements:

General Education Requirements. The University has adopted General Education Requirements in a variety of curricular areas, which must be satisfied as part of every bachelor’s degree program. These requirements appear in the “Academic Regulations” section of this Catalog.

Additionally, all majors are required to complete:

- A Plan of Study form submitted prior to entering the junior year
- MATH 115Q and 116Q (or MATH 112Q, 113Q, and 116Q), ENGR 100 and CSE 123C, and PHIL 104
- The University writing (W) course requirement is fulfilled through required major-specific W course work. Most programs have two W courses specified in the curriculum although in some curricula, an equivalent number of Partial Writing (P) courses are required.
- All majors, except BS in Computer Science majors, are required to complete
  - CHEM 127Q (or CHEM 129Q)
  - PHYS 151Q and 152Q
- All majors, except BS in Computer Science and BS in Management & Engineering for Manufacturing majors, are required to complete
  - CHEM 128Q (or 130Q)
- All majors, except BS in Computer Science and BS in Management & Engineering for Manufacturing majors, are required to complete at least two courses in one of the departments listed in the General Education Groups 4 through 7. See the “Academic Regulations” section of this Catalog. At least one of these courses must be at the 200 level. Examples of course selections that meet this requirement are:
  - ANTH106 (Group 7) & ANTH 226 (Group 5)
  - ENGL 210 (Group 4) & ENGL 218 (Group 5)
  - PHIL 104 (Group 6) & PHIL 263 (Group 5)
  - HIST 101 (Group 5) & HIST 281 (Group 5)

Credit Restrictions. The following courses may not be counted for credit toward graduation in the School of Engineering: MATH courses numbered 112 and below; MATH 118; PHYS 101 and 103; CSE 101; STAT 100; and courses labeled “independent study” or “variable topics” (e.g. course numbered 298 or 299) taken in departments outside the School of Engineering. No course taken on a Pass/Fail basis may be counted for credit toward graduation or may be used to meet any course requirements of the School of Engineering. Only eight credits of chemistry (CHEM courses 124Q through 130Q) and only eight credits of physics (PHYS courses 121Q through 152Q) may be applied toward the degree.

Major Requirements and Normal Sequences. In addition to the University General Education requirements and the School requirements listed above, the requirements for the specific majors are listed in the following pages. Full details, normal course sequences, and accreditation requirements can be found in the respective Guide to Course Selection for each major.

Bachelor of Science in Engineering in Biomedical Engineering

Biomedical Engineering majors are required to complete the following:
- CE 211
- BME 211, 221, 251, 252, 261W, 271W, 290, 291
- CHEM 243
- ECE 210W
- ENGR 166
- MATH 210Q, 211Q
- MMAT 201 or 243
- PNB 264
- STAT 220Q

Professional Requirements (15 credits)
- Elective Courses (4 credits)

The professional requirements and electives are specified in the Biomedical Engineering Guide to Course Selection.
Bachelor of Science in Engineering in Chemical Engineering

Chemical Engineering majors are required to complete the following:

- CE 211
- CHEG 203, 211, 212, 223, 224, 237W, 239W, 243, 247, and 251
- CHEG Electives (6 credits minimum)
- CHEM 240, 243, 244, 256, 263Q, and 264Q*
- ENGR 166
- MATH 210Q and 211Q

Professional Requirements (12 credits)

*Students may select CHEM 232Q, MCB 203, MCB 204 or MCB 229 as a replacement for CHEM 264Q.

Selection of Professional Requirements courses must include engineering design work as detailed in the Chemical Engineering Guide to Course Selection. At least three credits of Professional Requirements must be outside of Chemical Engineering.

Bachelor of Science in Engineering in Civil Engineering

Civil Engineering majors are required to complete the following:

- CE 201, 211, 212, 222P or 262P, 234 or 260, 236, 240P, 254, 263, 271, 280W, 287, 291, and 297
- ECE 220 and ME 233
- ENGR 166 (section offered by the CE Department recommended)
- MATH 210Q and 211Q

Professional Requirements courses (18 credits)

Elective courses (9 credits)

CE 291 must be taken twice before CE 280W.

To satisfy professional requirements, students must take at least one course each from four of the following different technical areas:

- Construction Management Engineering - CE 202
- Environmental/Sanitary Engineering - CE 260, 279 (CE 260 may be used only to fill the professional requirements by students who have taken CE 234)
- Geotechnical Engineering - CE 241, 242
- Hydraulic/Water Resources Engineering - CE 265, 267
- Structural Engineering - CE 238, 239
- Surveying Geodetic - CE 276
- Transportation Engineering - CE 255

Courses taken from the above list but not used to fulfill the four technical area requirements may be used to satisfy remaining professional requirements. In addition, the following courses may also be considered for remaining professional requirements: CE 237, 268, 266, CE 222P or 262P (if both taken), CE 234 or 260 (if both taken.)

The Professional Requirements must satisfy engineering design credit and other distribution requirements as specified in the Civil Engineering Guide to Course Selection.

Bachelor of Science in Engineering in Computer Engineering

Offered jointly by the Departments of Computer Science & Engineering and Electrical & Computer Engineering

Computer Engineering majors are required to complete the following:

- CE 211
- ECE 202, 204, 205, 209W, 232, 240, 241, 245, 261, and 262W
- CSE/ECE 290 and 291
- ECE 210W
- ENGR 166 or CSE 124C
- MATH 210Q and 211Q
- STAT 224Q

Professional Requirements courses (12 credits)

Design Laboratory courses (6 credits)

Further details and course sequences are given in the Computer Science & Engineering Guide to Course Selection.

Bachelor of Science in Computer Science

Computer Science majors are required to complete the following:

- CSE 124C, 201, 230, 237, 254, 258, 259, and 293
- MATH 227Q, and either MATH 210Q or 211Q

Either STAT 220Q or STAT 230Q

One two-semester laboratory course sequence from either chemistry (CHEM 124Q, 125Q, 126Q or 127Q - 128Q, 129Q - 130Q, or 137Q - 138Q) or physics (MATH 210Q - 211Q, 132Q - 142Q, or 151Q - 152Q)

One additional science course (from BIOL 107Q, 108Q, or 110Q; CHEM 127Q, or 128Q; GEOL 102; PHYS 131Q, 132Q, 141Q, 142Q, 151Q, or 152Q) but not in the same department as the two-semester sequence.

Either CSE 233 or CSE 244

Three courses from CSE 228, 255, 257, 275, 282

One course from CSE 262, 265, 268, and 269

Two other CSE 200-level courses (6 credits)

A minimum of three 3-credit courses at the 200-level in a single related area forming a cohesive body of knowledge outside of Computer Science.

Further details and course sequences are given in the Computer Science & Engineering Guide to Course Selection.

Bachelor of Science in Engineering in Electrical Engineering

Electrical Engineering majors are required to complete the following:

- CE 211
- CSE 124C, 207, 208W, 221, 228, 230, 237, 243, 244, 254, 258, 259, and 293
- One CSE design laboratory course
- MATH 210Q, 211Q, and 227Q
- One of MATH 231, STAT 220Q, 224Q, or 230Q
- ECE 202, and 210W

Professional Requirements courses (9 credits)

Elective courses (10 credits)

Further details and course sequences are given in the Computer Science & Engineering Guide to Course Selection.

Bachelor of Science in Engineering in Engineering Physics

Offered jointly by the Physics Department of the College of Liberal Arts and Sciences and the School of Engineering

Engineering Physics majors can concentrate in either Electrical, Mechanical or Metallurgy and Materials Engineering. Students must satisfy the course requirements of both the College of Liberal Arts and Sciences and the School of Engineering to complete this degree.

Engineering Physics majors are required to complete the following:

- PHYS 230Q, 242Q, 255Q, 257Q, 258Z, 261Q, 285Z
Bachelor of Science in Engineering in Environmental Engineering

Environmental Engineering majors are required to complete the following:

- CE 211
- ANSC 226
- CHEG 211, 212, 223, 224, and 285 (or ENVE 285)
- EEB 234W
- ENGR 166
- ENVE 110, 201 (or CE 201), 260 (or CHEG 281), 262, 265 or 267, 270, 279, 290W, 291W, and 296
- MATH 210Q and 211Q
- MCB 229
- MEM 201, and 290
- MKTG 201
- MGMT 201
- OPIM 252
- STAT 110V
- Technical Electives courses (6 credits)

The Professional Requirements and electives are specified in the Engineering Physics Guide to Course Selection.

Bachelor of Science in Engineering in Mechanical Engineering

Mechanical Engineering majors are required to complete the following:

- CE 211, 212, and 287
- ECE 220
- ENGR 166
- MATH 210Q and 211Q
- MMAT 201 or 243 and 202
- ME Requirement (6 credits)
- Professional Requirements (6 credits)
- Electives (8 credits)

Details on the ME and Professional Requirements are specified in the Mechanical Engineering Guide to Course Selection.

Bachelor of Science in Engineering in Metallurgy and Materials Engineering

Metallurgy and Materials Engineering majors are required to complete the following:

- ENGR 166
- MATH 210Q and 211Q
- CE 211 and 287
- MMAT 234, 236/W, 243, 244, 255, 256, 265, 266, 267, 276, 277, 284, 285, 286, 287P, and 288P
- ME 233 or CHEM 263Q
- ECE 220
- CHEG 256
- Recommended Professional Elective courses - 9 credits from: BME 271; ECE 246; ME 217 and 228; and MMAT 207, 219, 229, 234, 238, and 267
- Technical Elective courses - 6 credits from: BIOL 107; CHEM 243, 244, and 264Q; MCB 203; ME 218, 253, and 255; MATH 214Q, 215Q, 227Q, and 231Q; PHYS 261Q and 262Q; STAT 220Q, 221Q, and 224Q
- Elective courses - 6 credits

Selection of courses is detailed in the Metallurgy and Materials Engineering Guide to Course Selection.