

School of Engineering

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Degrees Offered & Accreditation

The School of Engineering offers four-year programs leading to

Bachelor of Science in Engineering (B.S.E.) degrees (134-credits) in

Chemical Engineering*

Civil Engineering*

Computer Science & Engineering*

Computer Engineering

Electrical Engineering*

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 Administration)

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 is also 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 next evaluation. The BS program in Computer Science will be submitted for CSAB accreditation at the next evaluation.

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. degree in Engineering 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.

The School of Engineering also offers Minors in Biomedical Engineering, in Environmental Engineering, and in Metallurgy & Materials Engineering

Admission Requirements. See *Admission to the University*. All students admitted to the School of Engineering are required to take a placement examination in mathematics prior to registration for their first semester. Students who make unsatisfactory grades in these examinations may be required to take additional preparatory work that may not be counted toward graduation.

Admission to Junior Year. Students should select their major by 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, physics, chemistry, and engineering applicable toward the degree. For Management & Engineering for Manufacturing majors, the cumulative grade point average requirement also includes Management & Engineering for Manufacturing courses. Students need the approval of the Director of Advising to change majors.

School Academic Requirements.

All majors are required to complete:

- A *Plan of Study* form submitted in the first semester of their junior year
- University General Education requirements (see *Appendix*)
- MATH 115Q and 116Q (or MATH 112Q, 113Q, and 114Q), ENGR 100, and CSE 123C
- PHIL 104
- The University writing (W) course requirement must be met 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)

MATH 210Q and 211Q

PHYS 151Q and 152Q

CE 211

- 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 *Appendix*). 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 110 and below; MATH 112, and 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.

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 Chemical Engineering

Chemical Engineering majors are required to complete the following:

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

Professional Requirements (12 credits)

Elective courses (5 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 212, 222P or 262P, 234 or 260, 236, 240P, 254, 263, 271, 280W, 281, 287, 291, and 297

EE 220 and ME 233

ENGR 166

Professional Requirements courses (18 credits)

Elective courses (9 credits)

CE 291 must be taken twice before CE 280W. Professional Requirements include *one* course each from *two* of these four technical areas:

Environmental and Water Resources Engineering - CE 260, 262, 265, 266, 267, 268 and 279

Geotechnical Engineering - CE 241 and 242

Structural Engineering - CE 222, 234, 237, 238, and 239

Transportation Engineering - CE 251, 256, 274, 275 and 276

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

(jointly offered by the Departments of Computer Science & Engineering and Electrical & Systems Engineering)

Computer Engineering majors are required to complete the following:

CSE 124C, 207, 208W, 221, 233, 243, 254, and 258

EE 201, 202, 204, 209W, and 242

Cross-listed courses CSE/EE 252, 257, 290, and 291

MATH 227Q

STAT 224Q

Professional Requirements courses (12 credits)

Design Laboratory courses (6 credits)

Elective courses (3 credits)

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

Bachelor of Science in Computer Science

Computer Science majors are required to complete the following:

CSE 124C, 201, 230, 233, 254, 258 and 259

MATH 227Q, and *either* 210Q *or* 211Q

One of MATH 231Q, STAT 220Q, 224Q, or 230Q

One two-semester laboratory course sequence from *either* chemistry [CHEM 127Q - 128Q, 129Q - 130Q, or 137Q - 138Q] *or* physics [PHYS 131Q - 132Q, 141Q - 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

One course from each of the three following groups:

Computer Applications – CSE 255, 275, or 282

Computer Architecture – CSE 228, 240 or 245

Computer Languages – CSE 237 or 244

Two courses from CSE 261, 262, 263, 265, 268, and 269

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 Guide to Course Selection*.

Bachelor of Science in Engineering in Computer Science and Engineering

Computer Science & Engineering majors are required to complete the following:

CSE 124C, 207, 208W, 221, 228, 230, 240, 241, 244, 254, 258, and 259

Two CSE design laboratory courses

MATH 227Q

One of MATH 231, STAT 220Q, 224Q, *or* 230Q

EE 201, 202, and 209W

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 Electrical Engineering

Electrical Engineering majors are required to complete the following:

CSE 207, and 208W

EE 201, 202, 204, 205, 209W, 232, 240, 241, 245, 261, and 262W

CSE/EE 290 and 291

ENGR 166 or CSE 124C

STAT 224Q

Professional Requirements courses (12 credits)

Design Laboratory courses (6 credits)

Elective courses (7-8 credits)

Further details and course sequences are given in the *Electrical Engineering Guide to Course Selection*.

Bachelor of Science in Engineering in Environmental Engineering

Environmental Engineering majors are required to complete the following:

CE 211, 251, and 263 (*or* ENVE 263)

ANSC 226

CHEG 211, 212, 223, 224, and 285

EEB 244W

ENGR 166

ENVE 110, 260 (*or* CHEG 281), 262, 265 *or* 267, 270, 279, 290, 291, and 299

MCB 229

Professional Requirements courses (9 credits)

Professional Requirements include at least *one* course each to strengthen *three* of the following eight focus areas: Atmospheric Systems & Air Pollution Control, Environmental & Occupational Health, Environmental Chemistry, Environmental Systems Modeling, Hazardous Waste Management, Solid Waste Management, Water Supply & Resources, and Wastewater Management. The following course may be used to meet the Professional Requirements:

AERS 234, and 235

EEB 238, and 247

MCB 203, 235, and 240

CHEG 247, 251, 280, and 283

CHEM 141, 232Q, 263Q - 264Q, 270W

CE 265

GEOG 205, 206, 215, 237, and 286

GEOL 206, 234C, and 245

IMGT 210

MARN 244, and 280W

ME 239

NRME 204, 210, 236Q, 237, 239, 240, 260Q, and 263

PHARM 150

SOCI 259W

PLSC 259C

The Professional Requirements are specified in the *Environmental Engineering Guide to Course Selection*.

Bachelor of Science in Management and Engineering for Manufacturing

(jointly offered by the School of Business Administration and the School of Engineering)

Management & Engineering for Manufacturing majors are required to complete the following:

ACCT 210

ANTH 100 *or* GEOG 160

BLAW 271

CE 212, and 287

ECON 113

EE 220

FNCE 201

HIST 101

ME 221, 222, 227, 233, and 260W

MEM 151, 210, 211, 215W, 221, 225, and 231

MGMT 201, and 290

MKTG 201

MMAT 201

OPIM 203C, and 252

STAT 110V

Technical Electives courses (6 credits)

The Technical Electives course must be 200-level or higher listed in the departments listed in the School of Business Administration and the School of Engineering as specified in the *Management & Engineering for Manufacturing Guide to Course Selection*. Students are encouraged to seek faculty-supervised manufacturing summer internships prior to their junior and senior years. Such internships may be shown on the student records by registering for MEM 296 – Manufacturing Internship, with instructor and advisor approval.

Bachelor of Science in Engineering in Mechanical Engineering

Mechanical Engineering majors are required to complete the following:

CE 212, and 287
EE 220
ENGR 166
ME 205, 220, 227, 233, 234, 242, 250, 253, 255, 260W, 262, 271P, 272P,
and 273P
MMAT 201, and 202
ME Requirement [6 credits]
Professional Requirements (6 credits)
Electives [4 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 & Material Engineering majors are required to complete the following:

CE 212, and 287
MMAT 243, 244, 255, 256, 265, 266, 267, 276, 277, 283, 284, 285W, 286W,
287, and 288
ME 233 or CHEM 263Q
ENGR 166
EE 220
CHEG 256
Professional Elective courses (9 credits from EE 246, ME 217, and 228, and
MMAT 206, 207, 217, 219, 229, 232, 234, 236, and 238)
Technical Elective courses (6 credits from BIOL 107; CHEM 243, 244, 263Q,
and 264Q; MCB 203; ME 218, 253, and 255; MATH 214Q, 215Q, 227Q,
and 231Q; PHYS 216Q, and 262Q; and STAT 220Q, 221Q, and 224Q)
Elective courses (2 credits)

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

School of Engineering Website

<http://www.eng2.uconn.edu/>