School of Engineering

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Degrees Offered and Accreditation


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)

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 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 BSE in Computer Science & Engineering and the BS in Computer Science are also accredited by the Computer Science Accreditation Board (CSAB).

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. Students need the approval of the Director of Advising to change majors.

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 placement examination in mathematics and a calculus readiness examination 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 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, physics, chemistry, and engineering applicable toward the degree. For Management & Engineering for Manufacturing majors, the cumulative grade point average requirement also includes Management and Engineering for Manufacturing courses.

Scholarships. More than $650,000 in scholarships and awards is available annually to students in the School of Engineering.

Faculty Advisors. Faculty advisors are assigned to students entering the School of Engineering according to a student’s major. Advisors assist students in their course selections, counsel them in meeting their educational and career goals, and advise them in non-academic issues.

School Academic Requirements.

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

Foreign Language

All students must (1) have passed the third year level in high school in a single foreign language or (2) complete one year (two semesters) of a single foreign language at the college level.

Expository Writing

ENGL 110 or ENGL 111

Culture and Modern Society

HIST 100 or HIST 101

Philosophical or Ethical Analysis

PHIL 104

Additionally, all majors are required to complete:

- University General Education requirements (see Academic Requirements)
- A Plan of Study form submitted prior to entering the junior year
- MATH 115Q and 116Q (or MATH 112Q, 113Q, and 114Q), ENGR 100 and CSE 123C
- 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)
  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:
  ANTH 106 (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 127Q through 138Q) 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 210, 221, 251, 252, 261W, 271W, 290, 291
CHEM 243
ECE 201
ENGR 166
MATH 210Q, 211Q
MMAT 201 or 243
PNB 264
STAT 220Q
Professional Requirements (15 credits)
Elective Courses (5 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)
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 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
CSE 124C, 207, 208W, 230, 243, 254, 258
ECE 201, 202, 204, 209W, 215, 242, 249, 252, 290, 291
MATH 210Q, 211Q, and 227Q
STAT 224Q
Professional Requirements courses (9 credits)
Design Laboratory courses (6 credits including ECE 266 or CSE 268)
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, 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 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.
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 Guide to Course Selection.

Bachelor of Science in Engineering in Computer Science and Engineering
Computer Science & Engineering majors are required to complete the following:
CE 211
CSE 124C, 207, 208W, 221, 228, 230, 237, 243, 244, 254, 258, and 259
Two CSE design laboratory courses
MATH 210Q, 211Q, and 227Q
One of MATH 231, STAT 220Q, 224Q, or 230Q
ECE 201, 202, and 209W
Professional Requirements courses (9 credits)
Elective courses (9 credits)
Further details and course sequences are given in the Computer Science & Engineering Guide to Course Selection.

Bachelor of Science in Electrical Engineering
Electrical Engineering majors are required to complete the following:
CE 211
CSE 207, and 208W
ECE 201, 202, 204, 205, 209W, 232, 240, 241, 245, 261, and 262W
CSE/ECE 290 and 291
ENGR 166 or CSE 124C
MATH 210Q and 211Q
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 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
ENGR 295 (4 credits)
MATH 210Q, 211Q, and 227Q
Electrical Engineering - ECE 201, 202, 204, 209W, 228, 229, 232, 241, 245, and 261; CSE 207 and 208W; MATH 227Q; PHYS 271Q; STAT 224, Elective courses (2 credits).
Bachelor of Science in Engineering  

in Mechanical Engineering

Mechanical Engineering majors are required to complete the following:

CE 211 and 287; STAT 224; ME Elective Courses (6 credits); PHYS Elective courses (3 credits); Elective Courses (6 credits).

Bachelor of Science in Engineering  

in Metallurgy and Materials Engineering

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

ENGR 166
CHEG 256
MATH 210Q and 211Q
ECE 220

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:
BIOI 107; CHEM 243, 244, and 264Q; MCB 203; ME 218, 253, and 255; MATH 214Q, 215Q, 227Q, and 231Q; PHYS 216Q and 262Q; STAT 220Q, 221Q, and 224Q

Elective courses - 2 credits

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