

## ENGINEERING (ENGR)

### Courses

**ENGR 1010. First-Year Design Experience. 0-3 Credits.**

Introduction to the engineering profession and the engineering design process. Hands-on experiences that emphasize interdisciplinary teamwork, seeking and defining problems, and developing, fabricating and/or testing solutions. Data analysis and technical communications.

**ENGR 1020. Graphical Communication. 0 or 2 Credits.**

Project-based course. Principles of computer-aided drafting/design; production of engineering drawings including: orthographic, auxiliary, section, pictorials and dimensioning, graphics and charts; applications in specific engineering disciplines.

**ENGR 1100. Diversity Issues: Math/Sci/Egr. 3 Credits.**

Diversity in CEMS: under-representation, environmental justice, gender/race participation, ethical considerations, urban planning, equal opportunity, Title IX. Landscape of race/gender in STEM. Catamount Core: D1.

**ENGR 1500. First Year Engineering Seminar. 0 or 1 Credits.**

This first year experience seminar course exposes students to curricular options and career paths in engineering. Also introduces basic principles of engineering design through project-based laboratories. Students interact with faculty, professionals and peers in their fields.

**ENGR 1990. Special Topics. 1-18 Credits.**

See Schedule of Courses for specific titles.

**ENGR 1991. Internship. 1-3 Credits.**

On-site supervised work experience combined with a structured academic learning plan directed by a faculty member or a faculty-staff team in which a faculty member is the instructor of record, for which academic credit is awarded. Offered at department discretion.

**ENGR 1993. Independent Study. 1-18 Credits.**

A course which is tailored to fit the interests of a specific student, which occurs outside the traditional classroom/laboratory setting under the supervision of a faculty member, for which credit is awarded. Offered at department discretion.

**ENGR 2010. Engineering Communications. 3 Credits.**

Traditional technical and scientific writing forms, including outlines, summaries, abstracts, technical descriptions, research reports/papers and proposals; written and oral technical communication with technical and nontechnical audience; electronic professional portfolio. Prerequisites: ENGL 1001; Engineering major.

**ENGR 2120. Building Information Modeling. 1-3 Credits.**

Building Information Modeling (BIM) is a digital representation integrating the design tools used by building disciplines under a single parametric computer model. Buildings, facilities and infrastructure are modeled with special attention to mechanical, plumbing, electrical and structural systems. Prerequisite: ENGR 1020 or Instructor permission.

**ENGR 2140. Advanced 3D Drafting. 3 Credits.**

Creation of geometric solid representations of physical objects using three dimensional CAD. Introduces parametric design; analysis tools; assembly simulation; dimension methods & standards; tolerances & geometric tolerancing. Further addresses the design for manufacturing of machined parts; sheet metal; mold design. Prerequisite: ENGR 1020 or Instructor permission.

**ENGR 2150. Infrastructure & Terrain Model. 1 Credit.**

Three dimensional modeling of civil infrastructure using appropriate software to automate a wide range of land surveying and civil engineering tasks such as the land surveying input, parcels, surfaces, alignments, corridors, grading, pipe networks, and earthwork. Prerequisite: ENGR 1020.

**ENGR 2160. Virtual Instrument Engineering. 1-3 Credits.**

Introduces logical and electrical circuit modeling using computer-based virtualization tools in a graphical format. Includes circuit simulation; scripting, interfacing; signal processing; control of instruments and data acquisition. Prerequisite: CS 1210, or Instructor permission. Cross-listed with: EE 2820.

**ENGR 2990. Special Topics. 1-18 Credits.**

See Schedule of Courses for specific titles.

**ENGR 2991. Internship. 1-18 Credits.**

On-site supervised work experience combined with a structured academic learning plan directed by a faculty member or a faculty-staff team in which a faculty member is the instructor of record, for which academic credit is awarded. Offered at department discretion.

**ENGR 2993. Independent Study. 1-18 Credits.**

A course which is tailored to fit the interests of a specific student, which occurs outside the traditional classroom/laboratory setting under the supervision of a faculty member, for which credit is awarded. Offered at department discretion.

**ENGR 2994. Teaching Assistantship. 1-3 Credits.**

Undergraduate student service as a teaching assistant, usually in an introductory-level course in the discipline, for which credit is awarded. Offered at department discretion.

**ENGR 2995. Undergraduate Research. 1-18 Credits.**

Undergraduate student work on individual or small team research projects under the supervision of a faculty member, for which credit is awarded. Offered at department discretion.

**ENGR 3990. Special Topics. 1-18 Credits.**

See Schedule of Courses for specific titles.

**ENGR 3991. Internship. 1-18 Credits.**

On-site supervised work experience combined with a structured academic learning plan directed by a faculty member or a faculty-staff team in which a faculty member is the instructor of record, for which academic credit is awarded. Offered at department discretion.

**ENGR 3993. Independent Study. 1-18 Credits.**

A course which is tailored to fit the interests of a specific student, which occurs outside the traditional classroom/laboratory setting under the supervision of a faculty member, for which credit is awarded. Offered at department discretion.

**ENGR 3994. Teaching Assistantship. 1-3 Credits.**

Undergraduate student service as a teaching assistant, usually in an introductory-level course in the discipline, for which credit is awarded. Offered at department discretion.

**ENGR 3995. Undergraduate Research. 1-18 Credits.**

Undergraduate student work on individual or small team research projects under the supervision of a faculty member, for which credit is awarded. Offered at department discretion.

**ENGR 4990. Special Topics. 1-18 Credits.**

See Schedule of Courses for specific titles.