COLLEGE OF ENGINEERING AND APPLIED SCIENCE (COEN)

Courses

COEN 1100 (3) Computer Tools for Creative Problem Solving
Introduces students to computing tools used to solve real world math and science problems. Students will utilize a spreadsheet environment and a common programming language to solve a variety of intriguing problems. This purely online course is intended primarily for those with very little computing skills. 

Recommended: Prereqs: one year of high school algebra and one year of geometry.
Grading Basis: Letter Grade

COEN 1236 (1) Precalculus Work Group
Develops and enhances problem solving skills for students enrolled in APPM 1235. Course is conducted in a collaborative learning environment with students working in groups under the guide of a facilitator.

Requisites: Requires enrollment in corequisite course of APPM 1235.
Grading Basis: Pass/Fail

COEN 1350 (1) Calculus 1 Work Group
Provides problem-solving assistance to students enrolled in APPM 1350. Student groups work in collaborative learning environment. Student participation is essential.

Repeatable: Repeatable for up to 2.00 total credit hours.
Requisites: Requires enrollment in corequisite course of APPM 1350 or APPM 1345.
Grading Basis: Pass/Fail

COEN 1360 (1) Calculus 2 Work Group
Provides problem solving assistance for students enrolled in APPM 1360. Conducted in a collaborative learning environment. Student work groups solve calculus problems with assistance of facilitator.

Requisites: Requires enrollment in corequisite course of APPM 1360.
Grading Basis: Pass/Fail

COEN 1400 (3) Project Design
Teams of first-year students solve real engineering design problems. Curriculum focuses on an iterative design process, teamwork, analysis, and technical writing.

Requisites: Restricted to students with 0-75 units completed and restricted to Pre-Engineering (PREE) students only.

COEN 1500 (1) Introduction to Engineering
Provides an introduction to the engineering profession, including an examination of current discipline specializations and a focus on career paths for those trained in engineering. Provides sufficient knowledge of the engineering disciplines necessary to make an informed major choice.

Requisites: Restricted to students with 0-56 (Freshmen or Sophomore) College of Engineering or Pre-Engineering Arts and Sciences majors only.

COEN 1510 (1) Self Management and Leadership Principles 1
Prepares first-year students for personal and academic success in their transition to college. Focuses on academic success strategies, time and stress management, study skills, S.M.A.R.T. goal setting and developing self-awareness. Students identify their strengths and participate in peer-to-peer interaction to foster collaboration and community. Students will also explore leadership capabilities, professional development, and insights into career interests. Speakers provide students with unique insights into academic and engineering experiences.

Requisites: Restricted to Engineering Goldshirt (PENG) students only.

COEN 1520 (1) Self Management and Leadership Principles 2
Continuation of COEN 1510. Self-management and student development is reiterated. Includes time and stress management, study skills and S.M.A.R.T. goal setting. Leadership skills are explored through group projects. Students complete professional development activities and assignments geared toward preparing students for engineering internships and research opportunities.

Requisites: Requires prerequisite course of COEN 1510 (minimum grade C-). Restricted to Engineering Goldshirt (PENG) students only.

COEN 1550 (1) YOU'RE@CU: Undergraduate Career Seminar
Exposes first or second year undergraduate students to engineering research careers through a partner program (YOU'RE@CU), panel discussions with researchers in academics and industry, and exposure to research labs. Restricted to YOU'RE@CU participants. Department consent required.

Grading Basis: Pass/Fail

COEN 1830 (1) Special Topics: Engineering First-Year Symposium
Explores topics of interest in transitioning to the College of Engineering and succeeding in STEM majors.

Requisites: Restricted to freshmen College of Engineering and Pre-Engineering majors only.

COEN 2350 (1) Calculus 3 Work Group
Provides problem solving assistance to students enrolled in APPM 2350. Conducted in a collaborative learning environment. Student work groups solve calculus problems with the assistance of a facilitator.

Requisites: Requires enrollment in corequisite course of APPM 2350.
Grading Basis: Pass/Fail

COEN 2500 (1) Industry 101: Technical Career and Professional Development
Connects students to the world of technical work, helping them gain an understanding of themselves and develop a unique, professional identity. Knowledge will be gained about how to research various industries and how to make an informed decision about career paths. Structured lessons will be incorporated that will cover resumes, interview preparation, communication skills, proper professional etiquette and employer expectations, self-exploration and connections with industries.

Grading Basis: Letter Grade

COEN 2830 (1-3) Special Topics
Explores topics of interest in engineering. Content varies by instructor and semester.

Repeatable: Repeatable for up to 9.00 total credit hours. Allows multiple enrollment in term.

Requisites: Restricted to College of Engineering (ENGRU) undergraduates only.
COEN 2850 (1-3) Independent Study
Provides opportunities for independent study at the lower-division undergraduate level. Subject and/or project agreed upon by the student and the instructor to fit the needs of the student.
**Repeatable:** Repeatable for up to 6.00 total credit hours.
**Requisites:** Restricted to College of Engineering (ENGRU) undergraduates only.

COEN 3051 (2) Leadership Seminar 1: Launching the Leadership Experience
Practicing needs assessment, decision-making and planning skills, students take this seminar to prepare for their Leadership Experience (required for completion of the Engineering Leadership Certificate). Students work in collaboration with each other, their Engineering Leadership Program mentors and campus/community organizations and leaders to lay the foundation for and launch their individually unique Leadership Experiences.
**Requisites:** Requires a prerequisite course of COEN 2050 (minimum grade D-). Restricted to Engineering Leadership Program (PENL) students only.
**Grading Basis:** Letter Grade

COEN 3052 (2) Leadership Seminar 2: Leadership Experience
Tackling a leadership experience of their own design, students undertake a key component of the Engineering Leadership Program experience and a requirement for the completion of the Engineering Leadership Certificate. Guides students through a process of planning, executing and evaluating their leadership experience and progress toward personalized leadership development goals. Coursework involves working with a mentor, collaborating with peers and conducting research.
**Requisites:** Requires a prerequisite course of COEN 2050 (minimum grade D-). Restricted to Engineering Leadership Program (PENL) students only.
**Grading Basis:** Letter Grade

COEN 3053 (2) Leadership Seminar 3: ELP Synthesis and Final ePortfolio
Progressing through this course, students complete the ePortfolio that demonstrates fulfillment of the requirements of the Engineering Leadership Certificate, reflecting upon synthesizing and discerning practical applications of the leadership experiences tackled throughout their time at CU.
**Requisites:** Restricted to Engineering Leadership Program (PENL) students only.
**Grading Basis:** Letter Grade

COEN 3210 (3) Climate Change and Engineering
Explores the fundamentals of climate change science, but from an engineering perspective. After learning the fundamentals, the relationship between climate change and different engineering disciplines will be discussed. Topics covered include geoengineering, renewable energy, sustainable engineering, coastal engineering, building design, etc. Career options and entrepreneurial opportunities will also be discussed.
**Requisites:** Requires prerequisite courses of PHYS 1110 and APPM 1350 (minimum grade D-).
**Grading Basis:** Letter Grade

COEN 3930 (3-6) Engineering Internship/Co-op
Students enrolled in this course participate in a pre-approved internship or cooperative education program with an employer that allows them to explore the relationship between theory and practice and demonstrate evidence of significant learning (e.g., academic assignments and employer/sponsor evaluations). Pass/Fail only. Up to 3 credits may apply towards BS degree program's Free Electives (even if student has multiple enrollments in this course and/or COEN 4950). Students should contact the CEAS Extracurricular Programs Manager for more information. Minimum 2.75 cumulative GPA is required.
**Repeatable:** Repeatable for up to 24.00 total credit hours.
**Requisites:** Restricted to College of Engineering (ENGRU) undergraduates only.
**Grading Basis:** Pass/Fail

COEN 4000 (1-3) Global Intensive Studies
Provides a hands-on exploration of a particular engineering/applied science subject area in an overseas setting. Serves as a complement to an existing engineering or applied science course taught at CU. Topic areas will vary.
**Repeatable:** Repeatable for up to 6.00 total credit hours.

COEN 4830 (1-3) Special Topics
Explores topics of interest in engineering. Content varies by instructor and semester.
**Repeatable:** Repeatable for up to 9.00 total credit hours. Allows multiple enrollment in term.
**Requisites:** Restricted to College of Engineering (ENGRU) undergraduates only.

COEN 4850 (1-3) Independent Study
Provides opportunities for independent study at the upper-division undergraduate level. Subject and/or project agreed upon by the student and the instructor to fit the needs of the student.
**Repeatable:** Repeatable for up to 6.00 total credit hours.
**Requisites:** Restricted to College of Engineering (ENGRU) undergraduates only.

COEN 4950 (1-6) Global Engineering Internship
Students enrolled in this course participate in a pre-approved global internship with an employer that allows them to explore the relationship between theory and practice and demonstrate evidence of significant learning (e.g., academic assignments and employer/sponsor evaluations). Pass/Fail only. Up to 3 credits may apply towards BS degree program's Free Electives (even if student has multiple enrollments in this course and/or COEN 3930). Students may also earn COEN 4950 credit for international internship facilitated through CU-approved providers that contract with CU's Education Abroad Office. These placements must be pre-approved by the student's department/program to be eligible for credit. Students should contact the CEAS International Programs Director for more information. Minimum 2.75 cumulative GPA required.
**Repeatable:** Repeatable for up to 24.00 total credit hours.
**Requisites:** Restricted to College of Engineering (ENGRU) undergraduates only.

COEN 5000 (1-3) Global Intensive Studies
Provides a hands-on exploration of a particular engineering/applied science subject area in an overseas setting. Serves as a complement to an existing engineering or applied science course taught at CU. Topic areas will vary.
**Repeatable:** Repeatable for up to 6.00 total credit hours.
COEN 5830 (1-6) Special Topics
Explores topics of interest in engineering. Content varies by instructor and semester. May be repeated for up to 9 total credit hours.
Repeatable: Repeatable for up to 9.00 total credit hours. Allows multiple enrollment in term.
Requisites: Restricted to College of Engineering graduate students only.
Grading Basis: Letter Grade