INTEGRATED DESIGN ENGINEERING *Civil Emphasis* – *FALL 2024*

	Example					
1	**COURSE NUMBER (Cr.)** Course Name (PR: Pre-Requisites) (CR: Co-Requisites) (Fall or Spring Only Course)	**CSCI 1200 (3)** Intro to Computational Thinking Fall Only	**APPM 1350 (4)** Calculus 1 For Engineers	**CHEN 1201 (4)** General Chemistry for Engineers 1 (PR: 1 yr. HS Chemistry or CHEM 1021, HS Algebra)	**CHEM 1114 (1)** Lab in General Chemistry 1 (CR: CHEN 1201)	**Humanities & Social Science (3)**
2	**GEEN 1400 (3)** Engineering Projects	**AREN 1027 (3)** Engineering Drawing	**APPM 1360 (4)** Calculus 2 For Engineers (PR: APPM 1350)	**PHYS 1110 (4)** General Physics 1 (CR: APPM 1350)		**Writing Requirement(3)**
3	**GEEN 2851 (3)** Statics & Structures (PR: APPM 1360, PHYS 1110) Fall Only	**GEEN 3852 (3)** Thermodynamics (PR: PHYS 1110) Fall Only	**APPM 2350 (4)** Calculus 3 For Engineers (PR: APPM 1360)	**PHYS 1120 (4)** General Physics 2 (PR: PHYS 1110) (CR: APPM 1360)	**PHYS 1140 (1)** Experimental Physics (CR: PHYS 1120)	
4		**GEEN 2400 (3)** Engineering Projects for the Community (PR: GEEN 1400)	**APPM 2360 (4)** Linear Algebra & Differential Equations (PR: APPM 1360)	**CVEN 3313 (3)** Theoretical Fluid Mechanics (PR: GEEN 2851) (Spring Only)	**CVEN 3161(3)** Mechanics of Materials I (PR: GEEN 2851, CR: APPM 2360)	**Humanities & Social Science (3)**
5	**Concentration Course (3)**	**GEEN 3010 (3)** Circuits for Engineers (PR: PHYS 1140) (CR: APPM 2360) Fall Only	**GEEN 3400 (3)** Invention & Innovation (RPR: GEEN 1400)	**CVEN 3323 or CVEN 3708 (3)** Hydraulic Eng/Geotechincal (PR: CVEN 3313/CVEN 3161)	**Emphasis Elective 1 (3)** See page 2 for options	**Humanities & Social Science (3)**
6	**Concentration Course (3)**	**Free Elective (3)**	**GEEN 3853(4)** Data Analysis for Engineers (PR: APPM 2360, Computing, PHYS 1140) (CR: GEEN 3010, Writing) Spring Only	**Focus Area Course 1 (3)** See page 2 for options	**Emphasis Elective 2 (3)** See page 2 for options	
7	**Concentration Course (3)**	**Free Elective (3)**	**Free Elective (3)**	**Focus Area Course 1 (3)** See page 2 for options		**Humanities & Social Science (3)** Upper Division
8	**Concentration Course (3)**	**Free Elective (3)**	**Free Elective (3)**	**CVEN 4899 (4)** Civil Engineering Senior Project Design See page 2 for requisites Spring Only		**Humanities & Social Science (3)** Upper Division

Effective: Fall 2024

Integrated Design Engineering Curriculum

Civil Engineering Emphasis

Standard Course Substitutions

- **AREN 1027:** CVEN 1027
- **APPM 1350**: APPM 1345, MATH 1300
- **APPM 1360:** MATH 2300
- **APPM 2350:** MATH 2400
- **APPM 2360:** MATH 2130 and MATH 3430, MATH 2135 and MATH 3430
- **CHEM 1114:** CHEM 1221
- **CHEN 1201:** CHEM 1113, CHEN 1211, MCEN 1024, ASEN 1022
- **CSCI 1200**: ASEN 1320 ,CSCI 1300, CSCI 1320, CHEN 1310, ECEN 1310, MCEN 1030
- **GEEN 1400:** ASEN 1400, ASEN 1403, ECEN 1400
- **GEEN 2851:** CVEN 2121, MCEN 2023, ASEN 2701/2001/2401
- **GEEN 3010:** ECEN 3010
- **GEEN 3852:** AREN 2110, CHEN 3320, MCEN 3012, EVEN 3012, ASEN 2702/2002/2402
- **GEEN 3853:** CVEN 3227, MCEN 3047
- **CVEN 3161:** MCEN 2063
- **CVEN 3313:** AREN 2120, CHEN 3200, MCEN 3021

Focus Area Courses (choose 2 within 1 focus):

- **Construction:**
  - CVEN 3256 Construction Equip/Methods (PR: CVEN 3246)
  - AREN 4506 Pre-construction Estimating and Scheduling (PR: CVEN 3246)
- **Environmental:**
  - CVEN 3424 Water & Wastewater Treatment (PR: CVEN 3414) (Spring Only)
  - One of the following:
    - CVEN 4474 Haz & Industrial Waste Management
    - CVEN 3434 Introduction to Applied Ecology (PR: CHEN 1201,CHEM 1114)
    - CVEN 4404 Water Chemistry (PR: CHEN 1201,CHEM 1114)
    - CVEN 4484 Intro to Environmental Microbiology (PR: CHEN 1201,CHEM 1114)
- **Geotechnical:**
  - CVEN 3718 Geotechnical Engineering 2
  - CVEN 4728 Foundation Engineering (Spring Only)
- **Structures:**
  - CVEN 4545 Steel Design (PR: CVEN 3525) (Spring Only)
  - CVEN 4555 Reinforced Concrete Design (PR: CVEN 3525) (Fall Only)
- **Water Resources:**
  - CVEN 4333 Engineering Hydrology (PR: CVEN 3313, CR: CVEN 3227)
  - CVEN 4353 Groundwater Engineering (PR: CVEN 3313) (Fall Only)

Math or Science Electives

- Must reach at least 30 total math & science credits.
- This is a list of CU Boulder courses that have been approved to satisfy this requirement.
- Visit the IDE Advising webpage for more information.

Humanities & Social Science Electives/Writing Requirements

- Visit the college's Humanities, Social Sciences, and Writing Requirements webpage for options.

FE Exam

Completion of the FE Exam is required of all IDE students to graduate.

Concentration

IDE majors are required to officially declare a Concentration by the end of their second year at the latest. Students who transfer into the IDE major after their second year must declare a Concentration by the end of their first semester in IDE. Students who have not declared a Concentration before those deadlines will receive a hold on their registration until they declare. Students can initiate the declaration process by emailing or meeting with an IDE Academic Advisor.

Emphasis Electives (choose 2):

- **CVEN 3246:** Introduction to Construction
- **CVEN 3323:** Hydraulic Engineering (PR: CVEN 3313) (Fall Only)
- **CVEN 3414:** Fundamentals of Environmental Engineering (PR: CHEN 1201, APPM 1360)
- **CVEN 3525:** Structural Analysis (PR: CVEN 3161)
- **CVEN 3708:** Geotechnical Engineering 1 (PR: CVEN 3161)

CVEN 4899 Pre/Co-Requisite Information

- **Construction:** PR: CVEN 3256 and AREN 4506
- **Environmental:** PR: CVEN 3424; CR: CVEN 4474 or CVEN 3434 or CVEN 4404 or CVEN 4484
- **Geotechnical:** PR: CVEN 3718; CR : CVEN 4728
- **Structures:** PR: CVEN 4555; CR: CVEN 4545
- **Water Resources:** CR: CVEN 4333 and CVEN 4353

Grade Requirements

The minimum passing grade for a course that is a prerequisite or corequisite for another required course is a C-. If a grade of D+ or lower is received in a course which is a prerequisite to another, the student may not register for the subsequent course until the first grade has been raised to a C- or higher. If a grade of D+ or lower is received in a course which is a corequisite to another, the course must be repeated until a grade of C- or higher is achieved.

The minimum passing grade for all required engineering core, disciplinary emphasis, and concentration courses is a C-. The minimum passing grade for a course that is not specifically a prerequisite or corequisite for another required course is D-, if not otherwise noted above.

In addition, students need to have a cumulative and major GPA of at least 2.000 in order to graduate from the College of Engineering. **Pass/Fail** is only permitted for up to 6 Free Elective credits.

Updated: January 2024

Helpful Links

- IDE Emphasis Areas
- IDE Concentrations
- IDE Core Courses
- IDE Projects
- FE Exam

- H&SS Requirements
- CEAS Forms (including Petition, Incomplete Grade, and Independent Study)
- Study Abroad