

INTEGRATED DESIGN ENGINEERING *Architectural Emphasis – FALL 2025*

Example

COURSE NUMBER (Cr.)
Course Name
(PR: Pre-Requisites)
(CR: Co-Requisites)
Fall or Spring Only Course

APPM 1350 (4)
Calculus 1 For Engineers

PHYS 1110 (4)
General Physics 1
(CR: APPM 1350)

GEEN 1400 (3)
Engineering Projects

COEN 1500 (1)
First-Year Seminar

**Humanities &
Social Science (2)**

APPM 1360 (4)
Calculus 2 For Engineers
(PR: APPM 1350)

PHYS 1120 (4)
General Physics 2
(PR: PHYS 1110)

PHYS 1140 (1)
Experimental Physics
(CR: PHYS 1120)

AREN 1027 (3)
Engineering Drawing

**Writing
Requirement(3)**

APPM 2350 (4)
Calculus 3 For Engineers
(PR: APPM 1360)

CSCI 1200 (3)
Intro to Computational
Thinking
Fall Only

GEEN 2851 (3)
Statics & Structures
(PR: APPM 1360, PHYS 1110)
Fall Only

AREN 2050 (3)
Building Materials and
Systems
Fall Only

**Humanities &
Social Science (3)**

APPM 2360 (4)
Linear Algebra &
Differential Equations
(PR: APPM 1360)

CHEN 1201 (4)
General Chemistry for
Engineers 1
(PR: 1 yr. HS Chemistry or CHEM
1021, HS Algebra)

GEEN 2400 (3)
Engineering Projects for
the Community
(PR: GEEN 1400)

CVEN 3161 (3)
Mechanics of Materials I
(PR: GEEN 2851, CR: APPM
2360)

**Humanities &
Social Science (3)**

**Concentration
Course (3)**

Free Elective (3)

GEEN 3400 (3)
Invention & Innovation
(PR 57 credits)

GEEN 3852 (3)
Thermodynamics
(PR: PHYS 1110)
Fall Only

**Focus Area Course
1 (3)**
See Page 2 for options

**Humanities &
Social Science (3)**
Upper Division

**Concentration
Course (3)**

Free Elective (3)

GEEN 3010 (3)
Circuits for Engineers
(PR: PHYS 1140)
(CR: APPM 2360)
Spring Only

**Emphasis Elective
1 (3)**
See Page 2 for options

**Focus Area Course
2 (3)**
See Page 2 for options

**Math or Science
Elective (1)**
See Page 2 for Options

**Concentration
Course (3)**

Free Elective (3)

Free Elective (3)

AREN 4318 (5)
AREN Design 1
See page 2 for requisites
Fall Only

**Humanities &
Social Science (3)**
Upper Division

**Concentration
Course (3)**

Free Elective (3)

GEEN 3853(4)
Data Analysis for Engineers
(PR: APPM 2360, Computing, PHYS
1140)
(CR: GEEN 3010, Writing, 3024)
Spring Only

**Emphasis Elective
2 (3)**
See Page 2 for options

AREN 4319 (2)
AREN Design 2
(PR: AREN 4318, AREN 4080)
Spring Only

Integrated Design Engineering Curriculum

Architectural Engineering Emphasis

Standard Course Substitutions

- **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
- **AREN 1027: NONE** (CVEN 1027 or GEEN 1017 would need to be petitioned if completed)
- **CHEN 1201:** CHEM 1113, CHEN 1211, MCEN 1024, ASEN 1022
- **CSCI 1200:** ASEN 1320, CSCI 1320, CSCI 1300, CHEN 1310, ECEN 1310, MCEN 1030
- **CVEN 3161:** MCEN 2063
- **GEEN 1400:** ASEN 1400, ASEN 1403, ECEN 1400
- **GEEN 2851:** CVEN 2121, MCEN 2023, ASEN 2071/2001/2401
- **GEEN 3010:** ECEN 3010
- **GEEN 3852:** AREN 2110, MCEN 3012, ASEN 2702/2002/2402, ECEN 3012
- **GEEN 3853:** CVEN 3227, MCEN 3047

Focus Area Courses (choose one focus area and complete the options listed):

CONSTRUCTION: must complete two courses

- CVEN 3246: Introduction to Construction
- AREN 4506: Pre-construction Estimating and Scheduling (PR: CVEN 3246)

LIGHTING/ELECTRICAL SYSTEMS: must complete two courses

- AREN 3540: Illumination I (PR: Computing and Calculus 3; spring only)
- One of the following:
 - AREN 4550: Illumination II (PR: AREN 3540; fall only)
 - AREN 4570: Building Electrical Systems Design I (PR: GEEN 3010; fall only)

MECHANICAL SYSTEMS: must complete three courses (and 3 less free elective credits)

- AREN 2120: Fluid Mechanics and Heat Transfer (PR: Thermodynamics, CR: Calculus 3 and APPM 2360; spring only)
- AREN 3010: Energy Efficient Buildings (PR: AREN 2120; fall only)
- AREN 4110: HVAC System Design (spring only)

STRUCTURAL SYSTEMS: must complete two courses

- CVEN 3525: Structural Analysis (PR: CVEN 3161)
- CVEN 4545: Steel Design (PR: CVEN 3525; spring only)
- CVEN 4555: Reinforced Concrete Design (PR: CVEN 3525; fall only)

AREN 4318 Pre/Co-Requisites:

- **Construction:** PR: CVEN 3246 and AREN 4506, GEEN 2400, GEEN 3400, AREN Elective 1
- **Electrical/Lighting:** PR: AREN 3540 and AREN 4550 or AREN 4570, GEEN 2400, GEEN 3400, AREN Elective 1
- **Mechanical:** PR: AREN 2120, AREN 3010, **and** AREN 4110, GEEN 2400, GEEN 3400, AREN Elective 1
- **Structures:** PR: CVEN 3525 and CVEN 4545 or CVEN 4555, GEEN 2400, GEEN 3400, AREN Elective 1

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

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.

Emphasis Electives:

Elective 1 options (Pre-Requisite for AREN 4318)

- CVEN 3246: Introduction to Construction
- AREN 3540: Illumination I (PR: Computing and Calculus 3; spring only)
- AREN 3010: Energy Efficient Buildings (PR: AREN 2120; fall only)
- CVEN 3525: Structural Analysis (PR: CVEN 3161)
- AREN 3080: Arch. Design Studio 1 (PR: AREN 1027)

Elective 2 (can be taken at any time)

- CVEN 3246: Introduction to Construction
- AREN 3540: Illumination I (PR: Computing and Calculus 3; spring only)
- AREN 3010: Energy Efficient Buildings (PR: AREN 2120; fall only)
- CVEN 3525: Structural Analysis (PR: CVEN 3161)
- AREN 3080: Arch. Design Studio 1 (PR: AREN 1027)

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.

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](#)