

INTEGRATED DESIGN ENGINEERING *Civil Emphasis – FALL 2023*

Example

1

COURSE NUMBER (Cr.)

Course Name
(PR: Pre-Requisites)
(CR: Co-Requisites)
(Fall or Spring Only Course)

GEEN 1400 (3)
Engineering Projects

APPM 1350 (4)
Calculus 1 For Engineers

CHEN 1201 (4)
Gen 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

AREN 1027 (3)
Engineering Drawing

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

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

CSCI 1200 (3)
Intro to Computational
Thinking

**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)**

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**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/Geotechnical
(PR: CVEN 3313/CVEN 3161)

CVEN Elective 1 (3)
See page 2 for options

**Humanities &
Social Science (3)**

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**Concentration
Course (3)**

Free Elective (3)

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

CVEN Focus 1 (3)
See page 2 for options

CVEN Elective 2 (3)
See page 2 for options

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**Concentration
Course (3)**

**Free Elective or
Concentration
Course (3)**

Free Elective (3)

CVEN Focus 2 (3)
See page 2 for options

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

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**Concentration
Course (3)**

**Free Elective or
Concentration
Course (3)**

Free Elective (2)

CVEN 4899 (4)
Civil Engineering Senior
Project Design
See page 2 for requisites
Spring Only

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

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
- **CHEM 1201:** CHEM 1113, CHEN 1211, MCEN 1024, ASEN 1022
 - 30 total science credits are required. If alternate courses are taken, additional science credits are required to reach 30.
- **CSCI 1200:** ASEN 1320, CSCI 1300, CSCI 1320, CHEN 1310, ECEN 1310
- **GEEN 1400:** ASEN 1400, ASEN 1403, ECEN 1400
- **GEEN 2851:** CVEN 2121, MCEN 2023, ASEN 2701/2001
- **GEEN 3010:** ECEN 3010
- **GEEN 3852:** AREN 2110, CHEN 3320, MCEN 3012, ASEN 2702/2002, EVEN 3012
- **GEEN 3853:** CVEN 3227, MCEN 3047
- **CVEN 3161:** MCEN 2063
- **CVEN 3313:** AREN 2120, CHEN 3200, MCEN 3021, ASEN 2001

CVEN Focus Area Courses

- **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
 - CVEN 4555 Reinforced Concrete Design
- **Water Resources:**
 - CVEN 4333 Engineering Hydrology
 - CVEN 4353 Groundwater Engineering (Fall Only)

Grade Requirements

The minimum passing grade for a prerequisite or co-requisite course within the Civil Engineering Emphasis is a **C-**. This requirement includes courses completed in another program or department (APPM, PHYS, etc.). The minimum grade for all Concentration courses is also a **C-**. The minimum passing grade for standalone classes is a **D-**. 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.

Humanities & Social Science Electives/Writing Requirements

Visit the college's [Humanities, Social Sciences, and Writing Requirements](#) webpage for options.

CVEN Electives

- **CVEN 3246:** Introduction to Construction
- **CVEN 3323:** Hydraulic Engineering (PR: CVEN 3313)
- **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