

School of Engineering and Engineering Technology

**Bachelor of Science  
Civil Engineering (BSCE)**

2020-21

APPROVED ELECTIVES LIST

**APPLICABLE DEGREES IN THE DEPARTMENT OF CIVIL AND ENVIRONMENTAL ENGINEERING**

- Bachelor of Science in Civil Engineering (BSCE)
  - BSCE - Structural Engineering Focus
  - BSCE - Water Resources Engineering Focus
- BSCE - Environmental Engineering

**GENERAL EDUCATION / THEOLOGY AND VOCATION ELECTIVES**

**Biblical Engagement Electives**

Any BIBL course numbered 2000-level or above

**Civic Engagement Electives**

Any HIST, INTL, POLS, ECON, or CRIJ 2313 Criminal Law; CRIJ 3213 Justice and Human Rights; CRIJ 3263 Constitutional Criminal Procedure; CRIJ 4233 International Human Trafficking; CRIJ 4263 International Criminal Law

**Ingenuity Electives**

Cross-Cultural (CCLT 3203 only); Fine Arts (HUMA); Literature (All ENGL 2000-level or above courses **except** ENGL 2011, ENGL 2603, ENGL 3213, ENGL 3223, ENGL 3403, ENGL 3413, ENGL 3923, ENGL 4023, and ENGL 4931); Philosophy (PHIL); Music (MUSC); and Foreign Language (must have two semesters in one foreign language)

**Theological Engagement Electives**

2000-level or above BIBL; CCLT 3103 Cultural Anthropology; CCLT 3203 Religions of the World; CCLT 4103 Biblical & Strategic Paradigms for Mission; CMIN 3303 Evangelism and Discipleship; CMIN 3403 Ministry of Teaching; THEO 3103 Christian Doctrine; THEO 3133 The History of Christian Thought; THEO 3203 Christian Apologetics; THEO 4941-4993 Special Topics classes that engage Theology and specific disciplines.

**MATH AND SCIENCE ELECTIVES**

Discipline specific engineering elective credits may require advisor approval.

**<sup>(2)</sup> Science Electives**

4-hr Lab Science required. Course must include lab, even if transferred. Courses must be chosen from the following:

BIOL 1113/1111 General Biology I & Lab	*ENVT 1113/1111 Intro to Environmental Science & Lab
BIOL 3204 General Microbiology	*GEOL 1114 General Geology I
CHEM 1123/1121 General Chemistry II & Lab	PHYS 2023/2021 University Physics II & Lab
CHEM 2113/2111 Organic Chemistry I & Lab	

\*Environmental Engineering students must select one science elective from these earth science courses.

**<sup>(3)</sup> Math or Science Electives**

3-hr math or science course required. Science courses do not need to include a lab, unless it is a corequisite for the course. Acceptable science courses do not include lower-level versions of basic sciences intended for non-science majors. Math courses must be calculus-level or higher; MATH 3903 History of Math is not accepted. Recommended math courses include:

MATH 2303 Linear Algebra	MATH 3803 Financial Mathematics
MATH 3453 Statistical Methods	MATH 4403 Numerical Analysis
MATH 3603 Mathematical Modeling	MATH 4523 Statistical Quality Control

## **ENGINEERING ELECTIVES**

### **CEE Skills Electives**

CEGR 2713 Introduction to GIS	<i>(spring only, even years)</i>
CEGR 2813 Introduction to Surveying	<i>(spring only, odd years)</i>
CEGR 3513 Civil Engineering Design Software	<i>(spring only)</i>

### **CEE Engineering Science Electives**

CEGR 3011/3522 CEE Junior Research I & II	<i>(consecutive spring and fall)</i>
EVGR 3613 Air Pollution and Solid Waste*	<i>(spring only, even years)</i>
CEGR 3313 Structural Analysis**	<i>(fall only)</i>
CEGR 3813 Transportation Engineering	<i>(spring only, odd years)</i>
CEGR 3823 Construction Engineering	<i>(spring only, even years)</i>
CEGR 4713 Groundwater Hydrology	<i>(spring only, odd years)</i>
MEGR 2023 Dynamics	
MEGR 3713 Thermodynamics	
EEGR 2053 Electric Circuits	
MJET 2023/2021 Materials Joining Fundamentals & Lab (with extra credit hour)	<i>(spring only)</i>
Any additional CEE Design elective (with extra credit hour)	
Any additional advisor-approved, non-redundant 3000+ Engineering Course	

### **CEE Design Electives**

CEGR 4224 Hydraulic Design*	<i>(fall only)</i>
CEGR 4324 Reinforced Concrete Design	<i>(fall only)</i>
EVGR 4634 Water and Wastewater Design*	<i>(spring only, odd years)</i>
CEGR 4744 Surface Water Hydrology*	<i>(spring only, even years)</i>
CEGR 4834 Structural Steel Design	<i>(spring only, odd years)</i>
CEGR 4944 Structural Loading and Wood Design	<i>(spring only, even years)</i>

### **Optional Focus Areas**

Students may earn (1) a BSCE with no concentration or focus area, (2) a BSCE with a focus area, or (3) a BSCE with a concentration in Environmental Engineering. For option (2), students may choose to pursue one or more of the below focus areas:

#### Structural Engineering Focus

Required CEE Design Electives:

- CEGR 4324 Reinforced Concrete Design
- CEGR 4834 Structural Steel Design
- CEGR 4944 Structural Loading and Wood Design

#### Water Resources Engineering Focus

Required CEE Design Electives:

- CEGR 4224 Hydraulic Design
- EVGR 4634 Water and Wastewater Design
- CEGR 4744 Surface Water Hydrology

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\* Courses are not electives for students in the Environmental Engineering concentration

\*\* Course is only an elective for students in the Environmental Engineering concentration