

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

2024-25

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

Humanities & Fine Arts Electives (Formerly Ingenuity Electives)

Cross-Cultural (CCLT 3203 only); Fine Arts (HUMA); Literature (All ENGL 2000-level or above courses **except** ENGL 2603, ENGL 3213, ENGL 3223, ENGL 3931, ENGL 4923, and ENGL 4933); Philosophy (PHIL); Music (MUSC); Foreign Language.

Theological Engagement Electives

2000-level or above BIBL; CCLT 3103 Cultural Anthropology; CCLT 3203 Religions of the World; CCLT 4103 Biblical and Strategic Paradigms for Mission; CMIN 3303 Evangelism and Discipleship; CMIN 3403 Ministry of Teaching; THEO 3063 Christian Ethics; THEO 3103 Christian Doctrine; THEO 3133 The History of Christian Thought; THEO 3203 Christian Apologetics; THEO 49X3 Special Topics classes that engage Theology and specific disciplines

MATH AND SCIENCE ELECTIVES

Discipline specific engineering elective credits may require advisor approval.

⁽²⁾ 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

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

⁽³⁾ 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 2003 Discrete Mathematics

MATH 3803 Financial Mathematics

MATH 2303 Linear Algebra

MATH 4403 Numerical Analysis

MATH 3453 Statistical Methods

MATH 4523 Statistical Quality Control

MATH 3603 Mathematical Modeling

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	
ENGR 2053 Intro to Electric Circuits	
EEGR 2053 Electric Circuits	
MJET 2023/2021 Materials Joining Fundamentals & Lab (with extra credit hour)	
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

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

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