Civil Engineering Advising Packet

Engineering School of Sustainable Infrastructure & Environment

Updated May 2025

Updated: May. 2025

Civil Engineering Curriculum Catalog Year 2025-2026128 Hours

*****This list applies only to those whose first semester was using Catalog Year 2025-2026. *****

A BSCE degree requires 61 credits of lower division and engineering fundamentals, 52 credits of required civil engineering coursework, and 15 credits of advanced electives, for a total of 128 credits.

Lower Division and Engineering Fundamentals 61 credits)

Semester 1

MAC 2311	(4)	***Calculus I***
CHM 2045	(3)	***Chemistry I***
CHM 2045L	(1)	Chemistry Lab
IDS 2935	(3)	**Quest Course**
ENC 1101	(3)	Expository and Argumentative Writing
CGN 2002	(1)	Intro to Civil Engineering

Semester 2

MAC 2312	(4)	***Calculus II*** (MAC 2311)
PHY 2048	(3)	***Physics with Calculus I*** (MAC 2311)
PHY 2048L	(1)	Physics I Lab
ENC 2256	(3)	**Prof. Comm. for Eng.** (ENC 1101)
Quest 2	(3)	**Quest 2 Course (Phys or Bio Sci.)**

Semester 3

MAC 2313	(4)	***Calculus III*** (MAC 2312)
PHY 2049	(3)	***Physics with Calculus II*** (PHY 2048)
HUM	(3)	**Humanities – State Core**
SOC	(3)	**Social Science – (International)**

Semester 4

MAP 2302	(3)	***Differential Equations*** (MAC 2312)
EGM 2511	(3)	**Statics** (PHY 2048, Co: MAC 2313)
STA 3032	(3)	Engineering Statistics (MAC 2311) (Can substitute STA2023)
SOC	(3)	**Social Science – State Core**
EIN 3354	(3)	Engineering Economy (MAC2312)

Semester 5

EGM 3400	(2)	**Dynamics** (EGM 2511)
EGM 3520	(3)	**Mechanics of Materials** (EGM 2511)

- All courses in **bold print** require a grade of C or better
- Courses in ***bold italics*** are 7 Critical Tracking classes - must average a 2.5 GPA based on best of two attempts (including withdrawals)
- Underlined courses must be completed with a C grade or higher in two attempts (including withdrawals). Any requests for a third attempt at these courses must be submitted via a departmental petition.
- Course pre- (or co-) requisites are listed in SMALL TYPE after each course

Additional Basic Science or Quest 2 (as appropriate)

Additional Basic Science—Students select one course from:

BSC2005, BSC2010, BSC2862, GEO2242, GEO3520, GLY2030C, GLY2038, OCE1001, SWS2007, WIS2552

(Or equivalent course subject to advisor approval)

Or a Quest 2 with a Physical or Biological Science Designation

Required Civil Engineering Courses (52 credits)

General (17 credits):

COP 2273	(3)	Computer Prog. for Eng. (Python)
CGN 3421	(3)	Computer Methods in CE (COP2273)
EEL 3003	(3)	Elements of Electrical Engineering
CGN 2328	(3)	Technical Drawing (AutoCAD) (≥2EG)
CGN 3501C	(4)	CE Materials (Co: EGM 3520)

Additional Spatial Information/Technology Course (3 credits)

Choose One:

SUR 3103C*	(3)	Geomatics (F); or
URP 4273	(3)	Survey of Planning Info. Systems (F)
SWS 4720C	(3)	GIS in Soil & Water Science (F, S)
GIS 3072C*	(3)	Geographic Information Systems (F)
GIS 3042	(3)	Foundations of Geo. Info Systems (Su)
ARC 4310C*	(3)	Building Information Modeling (S)
ARC 4511*	(3)	Structural Modeling (F)

**Please let us know on your Advanced Registration Appointment worksheet.*

Primary Tier Courses – Core Areas (20 credits):

CGN 4160	**(4)**	**Civil Engineering Practice** (EGM 2511, **co** CGN 2328)
CEG 4011	**(4)**	**Soil Mechanics** (EGM 3520)
CWR 3201	**(4)**	**Hydrodynamics** (EGM 2511, MAP 2302)
CES 3102	**(4)**	**Structural Analysis** (EGM 3520)
TTE 4004C	**(4)**	**Transportation Engineering** (≥Third Year)

Secondary Tier Courses – Additional Depth (12 Credits)

Choose 4 Courses from Below:

CEG 4012	(3)	Geotechnical Engineering (CEG 4011)
CWR 4202	(3)	Hydraulics (CWR 3201)
CES 4702	(3)	Reinforced Concrete (CGN 3501C, CES 3102)
CGN 4304	(3)	Machine Learning Applications in CE (S)
CGN4404	(3)	Applied Data Science in CE (F) (CGN3421)
TTE4106	(3)	Urban Transportation Planning (S)
TTE4300	(3)	Transportation Systems (F) (TTE4004C)

Advanced Courses (15 credits)

- All advanced courses are 3 credits, and all students must take 15 credits of these courses (5 courses).
- *YOU **CANNOT DOUBLE-COUNT** CIVIL ENGINEERING-SPECIFIC COURSEWORK FOR OTHER CIVIL ENGINEERING REQUIREMENTS.*
- Classes are classified into 4 parts: Capstone Course, Design Course, In-Departmental Electives, and Out-of-Department Electives.
- Most advanced courses will only be offered once a year (F=Fall; S=Spring)

Choose 1 Capstone Design Course from (taken in the final semester):

CGN 4806 Water-Transportation Design (F, S) (TTE 4004C)
CGN 4910 Structures-Geotechnical-Construction Design (F, S) (CES 4702)

Choose 3 In-Departmental Electives (at least one must be a designated design class*):

	CCE 4811	Construction Engineering Design (S) (CGN4160 and EIN3354)
*	CEG 4104	Retaining Wall/Embankment Design (S) (CEG 4012)
*	CEG 4111	Foundation Engineering Design (F) (CEG 4012)
*	CES 4605	Analysis and Design in Steel (F) (CES 3102, CGN 3501C)
*	CGN 4304	Machine Learning Applications in CE (S) (CGN3421)
	CGN 4404	Applied Data Science in Civil and Environmental Engineering (F) (CGN 3421 or ENV 3040C)
	CGN 4503	Pavement Design (CGN3501C)
	CGN 4905	Design and Construction in Timber (F) (CES 3102)
*	CGN 4905	Freeway Operations and Simulation (S) (TTE 4004C)
	CGN 4905	Concrete Mixture Design (S) (CGN3501C)
*	CGN 4905	Seepage in Soils (F) (CEG4011)
	CGN 4905	Ground Modification Design (F) (CEG4011)
	CGN 4905	Construction Project Management (S) (CGN4160)
	CGN 4905	Construction Modeling & Simulation (F)
	CGN 4905	Construction Planning & Scheduling (F)
	CGN 4905	Advanced Traffic Simulation (F)
	CGN 4905	Transportation Data Analytics (F) (TTE 4004C, CGN3421)
	CGN 4905	Sustainable Transportation and Public Transit (F) (TTE 4004C)
	CGN 4600	Public Works Engineering (F,S)
	CWR 4306	Urban Stormwater Design (F) (CWR 4202)
*	CWR 4542	Water Resources Engineering (S) (CWR 4202)
*	TTE 4106	Urban Transportation Planning (F) (TTE 4004C)
	TTE 4201	Traffic Engineering (F) (TTE 4004C)
*	TTE 4300	Transportation Systems Analysis (F) (TTE 4004C)
	TTE 4824	Transportation Facility Design (S) (TTE 4004C)
	SUR 4463	Subdivision Design (S)
*	EGS 4625	Fundamentals of Engineering Project Management (F, Su, Sp)
	BCN4423C	Temporary Structures (F, S) (May not be offered; Check Schedule of Courses)

Choose One Advanced Out-of-Department Elective class from the Following Area:

- Environmental Engineering, Geology, Urban and Regional Planning
- Construction Management, Architecture, Soil and Water Science
- Mechanical Engineering or Geography. (see complete list of courses on blue sheet)

All students are required to take the *Fundamentals of Engineering (FE) Examination* before graduation.

This exam is administered by the National Council of Examiners for Engineering and Surveying (NCEES): https://ncees.org/engineering/fe/

Example Advanced Courses for a Structures Emphasis:
CES 4605 Analysis and Design in Steel (F) (CES 3102, CGN 501C)
CGN 4905 Design and Construction in Timber (F) (CES 3102)
CGN 4905 Prestressed Concrete (S) (CES 4702)
CEG 4104 Retaining Wall/Embank (S)
CEG 4111 Foundation Engineering Design (F)
CGN 4910 Structures-Geotech-Construction Design (F, S) (CES 4702)

Updated 03/01/2024

Civil Engineering Curriculum
Advanced Elective Courses

Choices for Out-of-Department Elective Courses

Engineering (General):

EGS 4038	Engineering Leadership

Environmental Engineering Sciences:

ENV 4300	Solid Waste Containment Design
ENV 4411	Stormwater Control Systems
ENV 4432	Potable Water Design
ENV 4532	Wastewater System Design

Geology:

GLY 2030C	Environmental and Engineering Geology
GLY 3882C	Hydrology and Human Affairs
GLY 4155C	Geology of Florida
GLY 4700	Geomorphology
GLY 4734	Coastal Morphology and Processes

Architecture:

ARC 4310C	Building Information Modeling
ARC 4511	Structural Modeling

Construction Management:

BCN 1582	International Sustainable Development
BCN 3240C	Equipment and Methods for Heavy/Highway Construction
BCN 4723	Design-Build Delivery Methods
BCN 4880	Management of Heavy/Highway Construction

Urban and Regional Planning:

URP 4000	Preview of Urban and Regional Planning
URP 4273	Survey of Planning Information Systems (GIS)

Soil and Water Science:

SWS 4244	Wetlands
SWS 4245	Water Resource Sustainability
SWS 4720C	GIS in Soil and Water Science

Mechanical Engineering:

EML 3005	Mechanical Design
EML 4312	Control of Mechanical Engineering Systems

Geography:

GEO 2242	Extreme Weather
GEO 3250	Climatology
MET 3503	Weather and Forecasting

Updated 03/01/2024

Combined Bachelors and Masters Degree "4-1 Program" for Civil Engineering
Acceptable Course Substitutions for 4-1 Credit

If interested in pursuing the combined degree program, please schedule a meeting with your academic advisor to discuss program requirements and course options. You can find a list of master's program requirements, including required coursework for each specialization area, here: https://www.essie.ufl.edu/resources/academic-advising/.

The list below is a sample of possible combined degree program courses. It is your responsibility to consult with your academic advisor and the webpage above for confirmation of master's program specialization course requirements. Other course substitutions may be possible – check with graduate faculty in area of interest.

Undergraduate Course	Graduate Course Substitution
Construction	
CEG 4111 Foundation Design*	CEG 5115 Foundation Design* (F)+
CEG 4104 Retaining Wall Design*	CEG 6515 Earth Retaining Walls* (S)+
CGN 4503 Pavement Design*	CGN 6905 Pavement Design* (F)
EGS 4625 Fund. of Eng. Project Mgmt.*	EGS 6626 Fund. Of Eng. Project Mgmt.* (F,S)
BCN 3240C Equip/Meth Highway Const.*	BCN 5784 Equip/Meth Heavy Const.* (S)
BCN 4723 Design-Build Delivery Methods*	BCN 5729 Design-Build Delivery Meth.* (F)
Geotechnical	
CEG 4111 Foundation Design*	CEG 5115 Foundation Design* (F)+
CEG 4104 Retaining Wall Design*	CEG 6515 Earth Retaining Walls* (S)+
CGN 4503 Pavement Design*	CGN 6905 Pavement Design* (F,S)
CGN 4905 Ground Modification Design*	CGN 6905 Ground Modification Design* (F)
CGN 4905 Seepage in Soils*	CGN 6905 Seepage in Soils (F)
Hydrology and Water Resources	
CWR 4306 Urban Stormwater Design*	CGN 6905 Advanced Urban Stormwater *(F)+
CWR 4542 Water Resources Engineering*	CGN 6905 Adv. Water Resources Eng.*(S)+
	ENV 6441 Water Resources Planning & Mgmt.
CE Elective	EES 6051 Adv. Env. Planning & Design (F)
CE Elective	CWR 5235 Open Channel Hydraulics (F)
Structures	
CE Elective	CES 6106 Advanced Structural Analysis (F)
CE Elective	CES 5607 Behavior of Steel Structures (S)
CE Elective	CES 6585 Wind Engineering (S)
Design Elective	CES 5325 Design of Highway Bridges (F)
CGN 4905 Prestressed Concrete*	CES 5715 Prestressed Concrete* (S)
CGN 4905 Design and Const. in Timber*	CES 5801 Design and Const. in Timber* (F)
Transportation	
TTE 4106 Urban Transp. Planning*	TTE 5006 Adv. Urban Transport Plan.* (F)
TTE 4300 Transp. Systems Analysis*	TTE 5305 Adv. Transp. Systems* (F)
TTE 4201 Traffic Engineering*	TTE 5256 Traffic Engineering* (S)+
TTE 4824 Transportation Facility Design*	TTE 5805 Geo. Design Transp. Facilities* (S)
CGN 4905 Freeway Operations & Simulation*	TTE 6205 Freeway Operat. & Simulation* (S)
CGN 4503 Pavement Design*	CGN 6905 Pavement Design* (F)
CE Elective	CGN 5606 Public Works Management (F)+
CE Elective	CGN 5605 Public Works Planning (S)+

* These courses are "dual-listed": parallel undergraduate and graduate sections are dual-taught in the same lecture room.

+ These courses are also offered online through the EDGE program.

Fall/Spring Schedule

Period	Time	Monday	Tuesday	Wednesday	Thursday	Friday
1	7:25 - 8:15					
2	8:30 - 9:20					
3	9:35 - 10:25					
4	10:40 - 11:30					
5	11:45 - 12:35					
6	12:50 - 1:40					
7	1:55 - 2:45					
8	3:00 - 3:50					
9	4:05 - 4:55					
10	5:10 - 6:00					
11	6:15 - 7:05					
E1	7:20 – 8:10					
E2	8:20 – 9:10					
E3	9:20 – 10:10					

Summer Schedule

Period	Time	Monday	Tuesday	Wednesday	Thursday	Friday
1	8:00 – 9:15					
2	9:30 – 10:45					
3	11:00 – 12:15					
4	12:30 – 1:45					
5	2:00 – 3:15					
6	3:30 – 4:45					
7	5:00 – 6:15					
E1	7:00 – 8:15					
E2	8:30 – 9:45					

Undergraduate Civil Engineering

Policy Statement: Maximum Course Attempts

The Department of Civil & Coastal Engineering requires students to complete certain core courses as part of the Bachelor of Science in Civil Engineering degree program. These core courses serve as prerequisite courses for upper division civil engineering course work and are critical courses in the educational preparation of civil engineers.

Students must complete the following core courses with a C grade or higher. A maximum of two attempts will be granted by the department for these courses. Withdrawals and course drops count as course attempts.

If a student does not complete a core course listed below in two attempts, they must change majors out of civil engineering.

Engineering Fundamentals

EGM 2511	Engineering Mechanics: Statics
EGM 3400	Elements of Dynamics
EGM 3520	Mechanics of Materials

Primary Tier Courses—Core Areas

CGN 4160	Civil Engineering Practice
CEG 4011	Soil Mechanics
CWR 3201	Hydrodynamics
CES 3102	Mechanics of Engineering Structures
TTE 4004C	Transportation Engineering

Any request for a third attempt at one of the above courses must be submitted via a departmental petition after meeting with an academic advisor. Third attempt petitions must provide a student personal statement and include a documentable extenuating circumstance. Student personal statements must include student name and UFID, request for a third attempt at a specific course, complete explanation of extenuating circumstance, and explanation of measures in place for continued success if a third attempt is granted. Supporting documentation must be provided along with the student personal statement.

Generally, a third attempt request must meet the threshold of an approved Dean of Students Medical petition. Students should be aware that the DSO medical petition process takes time to complete, undergo review, and receive a decision. Students will not be approved to continue to take civil engineering major course work if a third attempt petition is not approved.

Approved:

10/10/2022

Robert Thieke, PhD Date
Undergraduate Coordinator

Kirk Hatfield 10/10/2022

Kirk Hatfield, PhD Date
School Director