FIU
DEPARTMENT OF CIVIL & ENVIRONMENTAL ENGINEERING
FLORIDA INTERNATIONAL UNIVERSITY
CIVIL ENGINEERING
UNDERGRADUATE COURSE SEQUENCE

Rev. 06/25

Row 1:
- MAC 2281/2311 Calculus I for Eng. (4)
- CHM 1045 General Chemistry I (3)
- CHM 1045L General Chemistry I Lab (1)
- SLS 1501 Freshman Experience (1)
- ENC 1101 Writing & Rhetoric I (3)
- Humanities: Group One (3)

Row 2:
- MAC 2282/2312 Calculus II for Eng. (4)
- PHY 2048 Physics with Calculus (4)
- PHY 2048L General Physics Lab I (1)
- EGN 1110C Engineering Drawing (3)
- ENC 1102 Writing & Rhetoric II (3)
- CGN 2161 CE Career Orientation (1)

Row 3:
- MAC 2283/2313 Calculus III for Eng. (4)
- EGN 3311 Statics (3)
- PHY 2049 Physics with Calculus II (4)
- CGN 2420 Computer Tools for CE (3)
- SPC 2608 Public Speaking (3)
- SUR 2101C Surveying (3)

Row 4:
- MAP 2302 Differential Equations (3)
- CGN 3300 Dynamics for CE (3) 1*
- GLY1010 (3) & GLY 1010L (1) or 2*
- Social Science: Group Two (3)
- Social Science Group 1, Suggested: AMH 2020, or POS 2041, or AMH 2010 (3)

Row 5:
- EGM 3520 Mechanics of Materials (3)
- EGM 3520L Materials Testing Lab (1)
- CWR 3201 Fluid Mechanics (3)
- CWR 3201L Fluids Lab (1)
- STA 3033 Prob. & Statistics (3) **or** ESI 3215 Eval. of Eng. Data (3)
- EGS 2030 Ethics & Legal Issues (1)

Row 6:
- CES 3100 Structural Analysis (3)
- EGN 3613 Engineering Economy (3)
- CWR 3540 Water Resources (3)
- ENV 3001 (GL) Environmental Engineering (3)
- ENV 3001L Environmental Lab I (1)
- TTE 4201 Transportation & Traffic (3)

Row 7:
- CE **Design Elective** (3)
- CEG 4011 Geotechnical Engineering I (3)
- CEG 4011L Soil Testing Lab (1)
- CE Elective (3)
- Humanities: Group Two (3)
- General Elective (4) **or** CGN 4949 CE Internship

Row 8:
- CE Elective (3)
- CCE 4031 Project Planning For CE (3)
- CE Elective (3)
- CGN 4802 CE Senior Design Project (3)
- CE **Design Elective** (3)
- CGN 4980 CE Seminar (1) To pass FE Exam

Legend ◄┈┈► = Coreqs

Structural Engineering Electives*:

CES 3580	Hurricane Engineering and Global Sustainability **(GL) (Fall only)**
CES 4702	**Concrete Design**
CES 4711	Intro to Prestressed Concrete Structures
CES 4605	**Steel Design**
CGN 4011	Comp. Techniques & Visualization for CE
CGN 4510	Sustainable Building Engineering

Geotechnical Engineering Electives*:

CEG 4012	**Geotechnical Engineering II**
CGN 4011	Comp. Techniques & Visualization for CE
CEG 4126	**Fundamentals of Pavement Design**

Construction Engineering Electives*:

CCE 4001	Heavy Construction
CES 3580	Hurricane Engineering and Global Sustainability **(GL) (Fall only)**
CGN 4930	Spec. Topics: Construction Engineering Management

Transportation Electives*

CEG 4126	**Fundamentals of Pavement Design**
CGN 4321	GIS Applications in Civil and Env. Eng.
TTE 4102	Urban Transportation Planning
TTE 4202	Traffic Engineering
TTE 4203	Highway Capacity Analysis
TTE 4804	**Geometric Design of Highways**

*If 3 electives are taken in 1 area, you receive a certificate. Courses in red indicate **DESIGN ELECTIVES** & 2 are required in different areas.

Environmental Engineering Electives*:

ENV 4005L	Environmental Lab II
ENV 4024	Bioremediation Engineering
ENV 4101	Fundamentals of Air Pollution Engineering
ENV 4351	Solid and Hazardous Waste Management
ENV 4401	Water Supply Engineering
ENV 4513	Chemistry for Environmental Engineers
ENV 4551	**Wastewater Treatment Engineering**
ENV 4560	Reactor Design
EGN 4070	Eng. for Global Sustainability and Env. Protection **(GL) (Spring only)**
ENV 4330	Hazardous Waste Assessment & Remediation

Water Engineering Electives*:

CRW 4204	**Hydraulic Engineering**
CWR 4530	Modeling Appl. In Water Resources Eng.
CWR 4602C	Ecohydrological Engineering
ENV 4401	Water Supply Engineering

***Some electives are repeated, since they satisfy more than 1 area.**

2* *Students may substitute GLY1010 and GLY1010L with any UCC Natural Science course with lab, except for those in physics and chemistry.*

1* *Students may substitute CGN3300 with EGN3321 when CGN3300 is not offered.*

(GL) indicates Global Learning course. Students are required to take 2 GL courses, and at least 1 must be discipline specific.

GL Foundations _____	GRW-1 _____	FLENT/FLEX _____	Civics Literacy course _____	Credits taken: _____
GL Discipline _____	GRW-2 _____	Summer Req. _____	Civics Literacy Exam _____	Credits remaining: _____

PREQUISITES/COREQUISTES
All courses must be passed with a C or better.

MAC 2311/MAC 2281 Calculus I (4)
Prerequisite: MAC 1147 or MAC 1140 & MAC 1114 or appropriate score on placement exams

MAC 2312/MAC 2282 Calculus II (4)
Prerequisite: MAC 2311 or MAC 2281

MAC 2313/ MAC 2283 Multivariable Calculus (4)
Prerequisite: MAC 2312 or MAC 2282

MAP 2302 (3)
Prerequisite: MAC 2312 or MAC 2282

PHY 2048 Physics with Calculus I (4)
Prerequisite: MAC 2311 or MAC 2281
Corequisite: PHY 2048L (MAC2311 or equivalent)

PHY 2048L Physics with Calculus I Lab (1)
Corequisite: PHY 2048

PHY 2049 Physics with Calculus II (4)
Prerequisite: PHY 2048 & MAC 2312 or MAC 2282

CHM 1045 General Chemistry I (3)
Prerequisites: MAC1105 or MAC1114 or MAC1140 or MAC1147 or any calculus course; or CHM1025 or adequate placement test score
Corequisite: CHM 1045L

CHM 1045L General Chemistry I Lab (1)
Corequisite: CHM 1045

CGN 2420 Computer Tools (3)
Prerequisite: MAC 2312 or MAC 2282, PHY 2048
Corequisite: EGN 1110C

EGN 1110C Engineering Drawing (3)
No Prerequisite

EGS 2030 Ethics & Legal Issues (1)
No Prerequisite
Corequisite: CGN 2161

EGN 3311 Statics (3)
Prerequisite: MAC 2312 or MAC 2282 & PHY 2048
Corequisite: MAC 2313 or MAC 2283

CGN3300 - Dynamics for Civil Engineering Systems
Prerequisite: EGN 3311 (Statics)

EGN 3321 Dynamics (3)
Prerequisite: EGN 3311

EGM 3520 Mechanics of Materials (3)
Prerequisite: CGN 2420, MAC 2283 or MAC 2313, & EGN 3311
Corequisite: EGM 3520L, MAP 2302,

EGM 3520L Mechanics of Materials Lab (1)
Prerequisite: CGN 2420 and EGN 3311 and (MAC 2313 or MAC 2283)
Corequisite: EGM3520 and MAP 2302

SUR 2101C Surveying (3)
No Prerequisite

ENV 3001 Environmental Engineering (3)
Prerequisites: CHM1045, CHM1045L, and MAC2312 or MAC 2282 Corequisite: ENV3001L

Environmental Engineering Lab (1)
Prerequisites: CHM 1045, CHM 1045L, CGN2420, and MAC 2312 or MAC 2282 Corequisite: ENV3001.

CWR 3201 Fluid Mechanics (3)
Prerequisites: MAC2313 or MAC 2283, MAP2302, and CGN 3300, or EGN3321 or EGM3503 *Corequisite:* CWR3201L

CWR 3201 Fluid Mechanics Lab (1)
Prerequisites: MAP2302 and (CGN2420 or STA3033 or ESI3215) and (EGN3321 or EGM3503 or CGN3300)
Corequisite: CWR3201

CES 3100 Structural Analysis (3)
Prerequisite: EGM 3520, EGM 3520L

EGN 3613 Engineering Economy (3)
No Prerequisite:

STA 3033 Probability & Statistics (3)
Prerequisite: MAC 2312

ESI 3215 Evaluation of Engineering Data (3)
Prerequisite: MAC 2311 or MAC 2281, or instructor permission

CEG 4011 Geotechnical Engineering (3)
Prerequisites: (CWR 3201 and CWR 3201L), and (EGM 3520 and EGM 3520L)

CEG 4011L Geotechnical Engineering Lab (3)
Prerequisites: CWR3201, CWR3201L, EGM3520, EGM3520L. Corequisite: CEG4011.

CES 4702 Reinforced Concrete Design (3)
Prerequisite: CES 3100

CWR 3540 Water Resources (3)
Prerequisites: CWR3201, CWR3201L, (STA3033 or ESI3215)

TTE 4201 Transportation & Traffic (3)
Prerequisites: STA 3033 or ESI 3215, EGN 3321 or CGN 3300, and SUR 2101C

CCE 4031 Project Planning for CE (3)
Prerequisite: CES3100 Corequisite: CEG 4011

CGN 4802 CE Senior Design Project (3)
Prerequisites: CEG 4011, CEG 4011L, TTE4201, CES 3100

CGN 4980 CE Seminar to pass FE Exam (1)
Prerequisites: EGN2030, EGN3613, ENV3001, CES3100, Corequisites: CWR3540, CEG4011, TTE4201

ELECTIVES:

CCE 4001 Heavy Construction (3)
Prerequisite: CEG 4011 and EGN 3613

CEG 4012 Geotechnical Engineering II (4)
Prerequisites: CEG4011, CEG4011L.

CEG 4126 Fundamentals of Pavement Design (3)
Prerequisites: TTE 4201, CEG 4011, CEG 4011L

CES 3580 Hurricane Engineering (3)
Prerequisites: PHY 2048

CES 4605 Steel Design (3)
Prerequisites: CES 3100

CES 4711 Intro to Prestressed Concrete
Prerequisites: CES 4702

CGN 4011 Comp. Tech. & Visualization. for CE
Prerequisites: CGN 2420, CES 3100

CGN 4510 Sustainable Building Engineering (3)
Prerequisites: CWR 3201, CWR 3201L

CGN 4930 Spec. Topics (3)
Prerequisites: Depends on the topic.

CGN 4321 GIS Application in Civil & Env Eng (3)
Prerequisites: TTE 4201 *or* ENV 3001 *or* CWR3540

TTE 4102 Urban Transportation Planning (3)
Prerequisites: TTE 4201

TTE 4202 Traffic Engineering (3)
Prerequisites: TTE 4201

TTE 4203 Highway Capacity Analysis (3)
Prerequisites: TTE 4201

TTE 4804 Geometric Design of Highways (3)
Prerequisites: TTE 4201

CWR 4204 Hydraulic Engineering (3)
Prerequisites: CWR 3201

CWR 4530 Modeling Appl. In Water Res Eng. (3)
Prerequisites: CWR 3201
Corequisite: CWR 3540

EGN 4070 Eng. For Global Sustainability (3)
Prerequisites: ENV 3001 *or* PHY 2049 & CHM1045

ENV 4024 Bioremediation (3)
Prerequisites: ENV 3001, ENV 3001L

ENV 4101 Fundamentals of Air Pollution Eng. (3)
Prerequisites: CWR 3201, CWR 3201L, ENV 3001, ENV 3001L

ENV 4330 Hazardous Waste Assessment (3)
Prerequisites: CHM 1045, CHM 1045L

ENV 4351 Solid & Hazardous Waste Mgmt. (3)
Prerequisites: CHM 1045, CHM 1045L

ENV 4401 Water Supply Engineering (3)
Prerequisites: CWR 3201, CWR 3201L, ENV 3001, ENV 3001L

ENV 4513 Chemistry for Env. Engineers (3)
Prerequisites: CHM 1045, CHM 1045L

ENV 4551 Wastewater Treatment Engineering (3)
Prerequisites: CWR 3201, CWR 3201L, ENV 3001, ENV 3001L

ENV 4560 Reactor Design (3)
Prerequisites: ENV 3001

ENV 4930 Special Topics (3)
Prerequisites: Depends on the topic