



Department of Civil, Architectural, and Environmental Engineering
 1251 Memorial Drive
 McArthur Engineering Building, Rm 325
 Coral Gables, FL 33146

CIVIL ENGINEERING (CEN) DESIGN ELECTIVES

Effective: AY 2018/19 to present

Fall Semester			Spring Semester		
Course	Credits	Title	Course	Credits	Title
CAE 521	3	Advanced Design of Steel Structures	CAE 520	3	Advanced Design of Concrete Structures
CAE 530	3	Water-Resources Engineering II	CAE 570	3	Advanced Foundation Engineering

Note: Students must take two design electives. One design elective must either CAE 530 or CAE 570, and the other design elective must be either CAE 520 or CAE 521.

CIVIL ENGINEERING (CEN): BASIC SCIENCE ELECTIVES

Effective: AY 2010/11 to present

Course	Credits	Title
BIL 150	4	General Biology (Lab not required by CAE)
BIL 160	4	Evolution and Biodiversity (Lab not required by CAE; BIL 150 is a prerequisite)
ECS 111	3	Introduction to Earth's Ecosystem
GSC 110	3	The Earth System (Note: This course includes a Lab)
ATM 102*	3	Introduction to Weather and Climate
ATM 103*	3	Survey of Modern Meteorology
MSC 301	3	Introduction to Physical Oceanography

*Before Spring 2015, these courses were: MSC 102, MSC 103

CIVIL ENGINEERING (CEN) TECHNICAL ELECTIVES

Effective: AY 2019/20 to present

Course	Credits	Title
CAE 345	3	Environmental Laboratory and Analysis
CAE 361	3	Building Information Modeling I
CAE 380	3	Electrical and Illumination Systems for Buildings
CAE 381	3	Building Mechanical Systems I: HVAC Fundamentals
CAE 450	3	Transportation Engineering II
CAE 460	3	Construction Management
CAE 480	3	Plumbing and Life Safety for Buildings
CAE 481	3	Building Mechanical Systems II: HVAC Systems
CAE 510	3	Structural Mechanics
CAE 511	3	Advanced Structural Analysis
CAE 520*	3	Advanced Design of Concrete Structures
CAE 521*	3	Advanced Design of Steel Structures
CAE 522	3	Design of Prestressed Concrete Structures
CAE 523	3	Design of Masonry Structures
CAE 525	3	Timber Structural Systems
CAE 530	3	Water-Resources Engineering II*
CAE 531	3	Surface-Water Hydrology
CAE 532	3	Ground-Water Hydrology
CAE 533	3	Water-Quality Control in Natural Systems
CAE 540	3	Environmental Chemistry
CAE 541	3	Engineering Systems for Disease Control and Bioremediation
CAE 542	3	Solid and Hazardous Waste Engineering
CAE 543	3	Air Pollution Control Engineering
CAE 553	3	Transportation Systems Planning and Demand Modeling
CAE 560	3	Sustainable Construction
CAE 570	3	Advanced Foundation Engineering*
CAE 580	3	Hospital and Health Care Facilities Design
CAE 581	3	Energy Efficient Building Design
CAE 590	1-3	Special Topics

*This course can be used as a Technical Elective if not used as a Design Elective

Notes:

1. All requisites (including pre- and co-) must be satisfied for each course.
2. CAE 561 was offered prior to Fall 2020, and can also be used as a CEN Technical Elective

ENVIRONMENTAL ENGINEERING (ENV) COURSES

Effective: AY 2011/12 to present

Course	Credits	Title
CAE 533	3	Water-Quality Control in Natural Systems
CAE 540	3	Environmental Chemistry
CAE 542	3	Solid and Hazardous Waste Engineering

Note: All the above courses are required. See rotation for semester offering.

ENVIRONMENTAL ENGINEERING (ENV): BIOLOGY ELECTIVES

Effective: AY 2010/11 to present

Course	Credits	Title
BIL 150	4	General Biology (Lab not required by CAE)
BIL 160	4	Evolution and Biodiversity (Lab not required by CAE, BIL 150 is a prerequisite)

TECHNICAL ELECTIVES – ALL CAE DEGREE PROGRAMS

Effective: AY 2011/12 to AY 2015/16

The requirement for the elective course called "Technical Elective" (as opposed to the "CEN Technical Elective") can be fulfilled by taking any regular engineering course offered in the College of Engineering (CoE) at the 200 level or above. Alternatively, the Technical Elective may be selected from the following list:

Course	Credits	Title
ARC 517	3	Construction Documents
AMP 402	3	Introduction to Ocean Engineering
AMP 509	3	Coastal Physics and Engineering
AMP 531	3	Ocean Measurements
AMP 535	3	Introduction Underwater Acoustics

Effective: AY 2016/17 to present

The requirement for the elective course called "Technical Elective" (as opposed to the "CEN Technical Elective") can be fulfilled by taking any regular engineering course offered in the College of Engineering (CoE) at the 200 level or above. There are no Technical Electives outside of the College of Engineering.

Effective: AY 2019/20 to present

CAE 395 (Undergraduate Research-3 credits) can be counted as a Technical Elective towards graduation. Appropriate documentation and approval needs to be generated by the supervising CAE faculty member.

SENIOR DESIGN PROJECT I– ALL CAE PROGRAMS

Effective: AY 2016/17 to present

Each student enrolled in Senior Design Project I (CAE 403) has primary responsibility for at least one discipline. Below are the pre- and co-requisite requirements by discipline. In addition to satisfying the pre-requisites and co-requisites shown below, students must also have Senior Standing and obtain the permission of the instructor.

Discipline	Pre-requisite(s)	Pre- or Co-requisite(s)
Architectural Design	ARC 292 and ARC 293	CAE 361
Civil / Stormwater Management / Water Supply/Sewerage/Site Design/Paving and Grading/Transportation	CAE 430 and CAE 450	CAE 530
Environmental /Water Treatment/Wastewater Treatment/Water-Quality Control	CAE 340 and CAE 440	None
Structural	CAE 320 and CAE 321	At least one additional course in structural engineering design, and CAE 470
Mechanical, Electrical, and Plumbing (MEP)	CAE 380 and CAE 381	CAE 480 and CAE 481

GENERAL CURRICULUM NOTES

1. Effective AY 2019/20: IEN 311 (Applied Probability and Statistics) can be substituted by MTH 224 (Introduction to Probability and Statistics).