**Civil Engineering program**

**Master of Civil Engineering (M.C.E.) Degree**

**DEGREE INFORMATION**

**Program Admission Deadlines:**

**Fall:** February 15

**Spring:**  October 15

**Summer:**  February 15

**Minimum Total Hours:** 30

**Program Level:** Master’s

**CIP Code:** 14.0801

**Dept. Code:** EGX

**Program (Major/College):** ECE EN

**Approved:** 1983

**Concentrations:**

Geotechnical Engineering (GTL)

Materials Engineering and Science (MTL)

Structures Engineering (STR)

Transportation Engineering (TPT)

Water Resources (WRS)

**CONTACT INFORMATION**

**College:** Engineering

**Department:** Civil and Environmental Engineering

**Contact Information:** [www.grad.usf.edu](http://www.grad.usf.edu/)

**PROGRAM INFORMATION**

The field of Civil Engineering has long been known for its breadth and ability to adapt to the new technological needs of society. The traditional areas of public works, such as highways, bridges, water supply, building design, and wastewater treatment, remain very important. In addition, the modern area of managing the environment has been included in the Civil Engineering domain. Graduates of the program are prepared for careers with public agencies or private industry and with firms involved in planning, design, research and development, or regulation.

The Department has a high bay structures laboratory, which includes an MTS 250 kip testing machine. There are also well-equipped environmental, soils, pavement, and hydraulics laboratories. These laboratories include equipment such as an ion chromatograph, atomic absorption spectrometer, environmental chamber, constant rate of stress consolidometer, triaxial units, and Superpave testing equipment.

The M.C.E. degree provides a student with the opportunity to earn the advanced degree by coursework only. This degree is recommended for part-time students who find it difficult to do thesis research because of their work commitment, or for those who wish to complete degree requirements quickly. Many of the department's graduate courses are offered online or on weekday evenings, which permits working students the opportunity to seek a graduate degree.

**Accreditation:**

Accredited by the Commission on Colleges of the Southern Association of College and Schools.

**ADMISSION INFORMATION**

Must meet University requirements (see Graduate Admissions) as well as requirements listed below.

**Program Admission Requirements**

* + Undergraduate GPA ≥ 3.0 preferred.
  + GRE with preferred minimum scores of V 145 (25th percentile), Q 155 (60th percentile), AW 3.0 (15th percentile); or valid fundamentals of engineering (FE) certificate. Verification of FE certification should be obtained from the professional engineering (PE) board where the FE certification was obtained. See the CEE department website for more information: <http://www2.eng.usf.edu/cee/graduate/apply.htm>.
  + TOEFL (International applicants only) 79 (550 paper based exam) or IELTS 6.5 (IELTS).
* Two (2) Letters of Reference provided at the time of application.
  + Statement of Purpose provided at the time of application
  + Resume provided at the time of application.

**DEGREE PROGRAM REQUIREMENTS**

The minimum coursework requirement is 30 credit hours for students with an undergraduate engineering degree. Students without an engineering bachelor’s degree will be required to complete undergraduate engineering pre-requisite courses as determined by the Department.

**Pre-requisites – 12 hours**

All students must complete the following pre-requisites or equivalent courses:

EGN 3311 3 Statics

EGN 3343 3 Thermodynamics I

EGN 3353 3 Basic Fluid Mechanics

EGN 3615 3 Engineering Economics

Most entering students will have taken these courses (or equivalent versions) prior to admission to the M.C.E. program. Students who have not taken these courses prior to beginning the M.C.E. degree program are encouraged to do so as quickly as possible, as these may be pre-requisites for a number of graduate-level courses in the program.

**Total Minimum Hours 30 hours**

The minimum coursework requirement is 30 credit hours for students with an undergraduate engineering degree.  For students pursuing a Concentration area (as detailed below), the 30 credit hours will include at least 15 credit hours of Concentration Requirements, with remaining credit hours to consist of technical electives as approved by the Department.  For students pursuing no Concentration area, the 30 credit hours will consist wholly of technical electives as approved by the Department, but with a minimum of 18 credit hours taken within the Department of Civil and Environmental Engineering.  Students without an engineering bachelor’s degree will be required to complete undergraduate engineering pre-requisite courses as determined by the Department.  Please contact the Graduate Program Director for more information.

**Concentration Requirements - 15 hours**

...es,Students may select from one of these Concentrations, or may select no concentration.

**Geotechnical Engineering (GTL)**

CEG 5115 3 Foundation Engineering

CES 6118 3 Applied Finite Elements

9 Additional credit hours of coursework in Geotechnical engineering or closely related areas.

**Materials Engineering and Science (MTL)**

At least 2 courses (6 credit hours) from the following list:

CGN 6933 3 Advanced Construction Materials

CGN 6720 3 Electrochemical Diagnostic Techniques

CGN 6933 3 Structural Life Prediction

EMA 5326 3 Corrosion Control

EMA 6510 3 Characterization of Materials

9 Additional credit hours of coursework in Materials Engineering and Science or closely related areas.

**Structures Engineering (STR)**

At least 1 course (3 credit hours) from the following list of design courses:

CES 6706 3 Advanced Concrete

CES 6835 3 Design of Masonry Structures

CES 5715C 3 Pre-stressed Concrete

At least 1 course (3 credit hours) from the following list of analysis courses:

CES 6118 3 Applied Finite element

CGN 6933 3 Advanced Structural Analysis

CGN 6933 3 Advanced Structural Mechanics

CES 5209 3 Structural Dynamics

9 Additional credit hours of coursework in Structures Engineering or closely related areas.

**Transportation Engineering (TPT)**

TTE 5205 3 Traffic Systems Engineering

TTE 5501 3 Transportation Planning and Economics

TTE 6507 3 Travel Demand Modeling

6 Additional credit hours of coursework in Transportation Engineering or closely related areas.

**Water Resources (WRS)**

4 courses (12 credit hours) from the following list:

CWR 6235 3 Free Surface Flow

CWR 6239 3 Waves and Beach Protection

CWR 6305 3 Urban Hydrology

CWR 6534 3 Coastal and Estuary Modeling

CWR 6535 3 Hydrologic Models

CGN 6933 1-4 Vadose Zone Hydrology

CGN 6933 1-4 Groundwater Hydraulics

CGN 6933 1-4 Advanced Computational Fluid Mechanics

GLY 6836 3 Numerical Modeling of Hydrogeologic Systems

GLY 6827C 4 Advanced Hydrogeology

CWR 6820 3 Coastal Waves and Structures

CWR 6538 3 Advanced Hydrologic Model

3 Additional credit hours in Water Resources engineering or closely related areas.

**Portfolio / Comprehensive Exam**

Portfolio and oral interview are used in lieu of a comprehensive exam. The purpose of the portfolio and interview is for students to demonstrate that they have achieved a minimum level of proficiency in stipulated competencies. Specifically, by the time they graduate, students will demonstrate

* an ability to plan, compose, and integrate verbal, written, virtual, and graphical communication of a project to technical and non-technical audiences, and
* an ability to formulate and solve complex problems in Civil Engineering using relevant data and techniques.

Additional details regarding portfolio requirements will be provided to students by the Department.

**Other requirements**

* A maximum of 12 credits taken outside the CEE department may be applied to meet the degree requirements.
* A maximum of 6 credits of independent study may be applied to meet the degree requirements.

**COURSES**

See [http://ugs.usf.edu/course-inventory](http://www.ugs.usf.edu/sab/sabs.cfm)