Graduate Curriculum Approval Form
Changes to Graduate Majors

Degree Program CIP Code	14.0801
Degree *(i.e. M.A., Ph.D., etc.)*:	MCE
Name of Major *(e.g. Biology)*	Civil Engineering
Name of affected Concentration(s) *(e.g. Botany)*	Structures, Geotechnical, Water Resources, Materials, Transportation
Proposed Effective Term *(e.g Fall 2017)*	Fall 2018
Faculty Contact	Sarina Ergas
Email	sergas@usf.edu

APPROVALS	Name	Signature	Action	Date
Dept. Chair	Manjriker Gunaratne		☒ Approve ☐ Not approved ☐ Comments attached	01/19/18
School Committee Chair (if applicable)			☐ Approve ☐ Not approved ☐ Comments attached	
College Committee Chair			☐ Approve ☐ Not approved ☐ Comments attached	
College Dean/ Associate Dean	Sanjukta Bhanja	Sanjukta Bhanja	☒ Approve ☐ Not approved ☐ Comments attached	1/24/18
Concurrence ☐ N/A ☐ Needed	Dept: Chair:		☐ Concurs ☐ Doesn't concur ☐ Comments attached	
Grad Council	☐ Approve ☐ Not approved ☐ Tabled ☐ Comments	Graduate Studies	☐ Approve ☐ Disapprove	

Summary of Changes -- Select all that apply:

Admissions Section:

☐ Change Priority Admission Deadlines
- ☐ Fall: _____
- ☐ Spring: _____
- ☐ Summer: _____
- ☐ To "fall admissions only"

☐ From Regular to Direct Receipt Admissions

☐ From Direct Receipt to Regular Admission

☒ Admission Requirements

Curriculum Requirements

☐ Current Curriculum Requirements
- ☐ Core
- ☐ Add New Concentration, Specialization, or Track*
- ☐ Delete Concentration, Specialization, or Track
- ☐ Thesis/Dissertation
- ☐ Comprehensive/Qualifying Exam

☒ Other: __Revert to 2017-18 catalog for changes in core that were not approved last year

**Requires submission to APAC for comment/clearance*

Why are these changes necessary?

a) We were told that prior requested changes in our core were not approved because they are not aligned with BOG requirements so we therefore did not implement these changes in the curriculum. We were surprised to see that the 2017-18 catalog reflected the changes. We therefore request that we revert to the old catalog while we have a wider discussion of the core for CE.

b) We were advised to change the word "concentration" to "specialization" and then told that it didn't make any difference in terms of BOG requirements. We therefore would prefer to revert to "concentrations" since it helps with tracking our students.

c) Change from fundamentals of engineering (FE) certification to either FE or professional engineering (PE) certification as an admission requirement. Many of our applicants have been working as practicing engineers for > 4 years and have achieved PE licensure.

d) Minor changes in course names and numbers.

Attach the current Catalog Copy, with the requested revisions shown using Track Changes. Catalog copy is not required for changes to the Admission Deadline. All other changes require Catalog Copy. To obtain the most current catalog, email cdh@usf.edu.

Once College has approved, scan and email this Approval Form, and the revised Catalog Copy in Word to Graduate Studies by the deadline posted online http://www.grad.usf.edu/graduate-council.php . For questions, contact cdh@usf.edu

CIVIL ENGINEERING

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

DEGREE INFORMATION

Priority Admission Application Deadlines:

Fall:	February 15
Spring:	October 15
Summer:	February 15

International applicant deadlines:
http://www.grad.usf.edu/majors

Minimum Total Hours:	30
Level:	Masters
CIP Code:	14.0801
Dept. Code:	EGX
Major/College Codes:	ECE EN
Approved:	1983

CONTACT INFORMATION

College:	Engineering
Department:	Civil and Environmental Engineering
Contact Information:	www.grad.usf.edu

MAJOR 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 majors are prepared for careers with public agencies or private industry and 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 degrees 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.

ADMISSION INFORMATION

Must meet University requirements (see Graduate Admissions) as well as requirements for admission to the major, listed below.

- 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.

CURRICULUM 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. major. 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 major.

Total Minimum Hours **30 hours**
Core Courses – 3 hours
Coursework – 21 hours
Thesis – 6 hours

The minimum coursework requirement is 30 graduate level credit hours for students with an undergraduate engineering degree. For students pursuing a ~~specialization~~concentration area (as detailed below), the 30 credit hours will include at least 15 credit hours of ~~specialization~~concentration course requirements, with remaining credit hours to consist of core coursework and technical electives as approved by the Department. For students pursuing no ~~specialization~~concentration area, the 30 credit hours will consist wholly of core coursework and 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 Director for more information.

~~Common Core Courses – 3 hours minimum~~
~~CGN 6933 2 Selected Topics in Civil and Environmental Engineering: Professional Practice for Civil Engineers~~

~~And at least one of the following:~~
~~CGN 6933 1 Selected Topics: Grad Structures/Materials Seminar~~
~~ENV 6935 1 Environmental/Water Resources Seminar~~
~~TTE 6930 1 Grad Transportation Seminar~~

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~~Specialization~~ Concentration Requirements - 15 hours

The Department supports M.C.E. ~~specialization~~concentration areas in Geotechnical Engineering (GTL), Materials Engineering and Science (MTL), Structures Engineering (STR), Transportation Engineering (TPT), and Water Resources (WRS). Students may select from one of these Specializations, or may select no ~~specialization~~concentration.

Geotechnical Engineering

CEG 5115	3	Foundation Engineering
CES 6118	3	Applied Finite Elements
	9	Additional credit hours of graduate level coursework in Geotechnical engineering or closely related areas.

Materials Engineering and Science

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

CGN 6933	3	Selected Topics: Advanced Construction Materials
CGN 6720	3	Electrochemical Diagnostic Techniques
CGN 6933	3	Selected Topics: Structural Life Prediction
EMA 5326	3	Corrosion Control
EMA 6510	3	Characterization of Materials
	9	Additional credit hours of graduate level coursework in Materials Engineering and Science or closely related areas.

Structures Engineering

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~~CES 6230	3	~~Selected Topics:~~ Advanced Structural Mechanics
~~CGN 6933~~CES 6144	3	~~Selected Topics:~~ Advanced Structural Analysis
CES 5209	3	Structural Dynamics
	9	Additional credit hours of graduate level coursework in Structures Engineering or closely related areas.

Transportation Engineering

TTE 5205	3	Traffic Systems Engineering
TTE 5501	3	Transportation Planning and Economics
TTE 6507	3	Travel Demand Modeling or CGN 6933 Selected Topics in Civil and Environmental Engineering: Statistical and Econometric Methods
	6	Additional credit hours of graduate level coursework in Transportation Engineering or closely related areas.

Water Resources 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~~CWR 6105	~~1-3~~3	Vadose Zone Hydrology
CGN 6933	~~1-3~~3	Selected Topics: Groundwater Hydraulics
CGN 6933	~~1-3~~3	Selected Topics: Advanced Computational Fluid Mechanics
CWR 6820	3	Coastal Waves and Structures
CWR 6538	3	Advanced Hydrologic Model
CGN 6933	3	Selected Topics: Advanced Numerical Methods
CGN 6933	3	Selected Topics: Global Water Sustainability
CGN 6933	3	Selected Topics: Ecological Engineering
	3	Additional graduate 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 graduate level 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