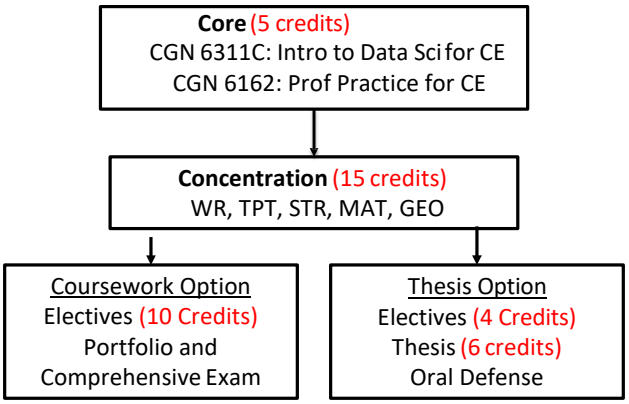
MSCE Course Registration Guide and Program of Study Forms

In the CEE department at USF, graduate students are expected to know their program requirements and register themselves for classes using Oasis. The staff class search feature will help you to search for open classes (https://usfweb.usf.edu/DSS/StaffScheduleSearch). When using this tool, be sure to enter the correct Term, Department, Level (e.g., graduate/undergraduate), and Status (open). The following graphic shows the structure of the MSCE program for Thesis and Non-Thesis (coursework only) students:



Core Courses (5 credits) - These courses are required for every MSCE student who entered the program Fall 2019 or later. Students who entered the program prior to fall 2019 may take these classes or 5 additional credits of elective courses. Note that Intro to Data Science is normally taught both fall and spring and Professional Practice is normally taught in the spring.

- CGN 6311C Introduction to Data Science for Civil Engineers (3 credits)
- CGN 6162 Professional Practice of Civil Engineering (2 credits)

Concentration Requirements (15 credits) - Concentrations are offered in Structural, Geotechnical, Transportation, Materials, Engineering for International Development and Water Resources Engineering. Requirements for each concentration are shown on the next page. Each concentration allows for some credits of coursework in the area of concentration or closely related areas that you are free to select on your own. Note that it is possible to select two concentrations (e.g., Water Resources and Engineering for International Development) but this will take careful planning. It is also possible to graduate with a MSCE degree with no concentration.

Electives (4 credits Thesis Option/10 credits Non-thesis) - Electives are grad level classes that you are free to select based on your interests and career goals. You may select additional courses in your concentration area, CEE courses outside your concentration area (e.g., Transportation students can take Water Resources classes) or classes in another department (e.g., GIS, Engineering Management, Geosciences, Public Health).

Independent Study (up to 6 credits) - Up to 6 credits of Independent Study (IS) may be taken to meet concentration or elective requirements. IS credits may be used for the following: 1) students sit in on an undergraduate course and receive graduate credit by doing additional work, 2) a student or group of students can study a topic under the direction of a faculty member, 3) students may work on a project with a faculty member and write a report (this is similar to a thesis but normally not as extensive). Students must write a proposal and submit a registration form to sign up for IS credits.

Thesis (6 credits Thesis Option Students only) - A MS thesis allows students to make a contribution to the field of study by carrying out research, presenting and defending their work in a public forum and publishing a thesis. The research is guided by a 3- member committee that is led by a major professor or

two co-major professors. It is the student's responsibility to find their major professor(s) within the first semester of the graduate program. Although the thesis is only 6 credits, typically the level of effort required is much greater than the work required for 6 credits of coursework. A thesis typically take 1.5 to 2 years to complete and there are very strict format requirements for the final publication. Note that students must submit a proposal and registration form to sign up for thesis credits. Students may take thesis credits at any time but 2 credits of thesis must be taken during the semester of graduation.

Comprehensive Exam - All non-thesis MSCE students must submit a portfolio to at least two Graduate Committee members in the student's area of study for review. The portfolio consists of the following components: 1) A writing sample, 2) A report showing the solution of a complex engineering problem, 3) an oral presentation on the complex problem submitted in item #2, 4) an oral comprehensive exam where you will be asked to answer questions about the problem addressed, methodology used and to defend your findings and conclusions. More details on the comprehensive exam can be found here.

Concentration Requirements (15 credit hours minimum)

Engineering for International Development

Students must engage in full-time global training and service as part of the concentration (e.g., in the U.S. Peace Corps, with a non-governmental organization, UNESCO-IHE, or equivalent). This work must be incorporated into the student's thesis. Students may register for CST 6990 for 0 credit hours while in their country of service. Note that this concentration is available to thesis option students only.

- ENV 6510 Sustainable Development Engineering Credit Hours: 3

A minimum of 1 course from the following applied anthropology courses: (3 Credit Hours)

- ANG 6766 Research Methods in Applied Anthropology
- ANG 6730 Socio Cultural Aspects of HIV/AIDS
- ANG 6469 Selected Topics in Medical Anthropology: Health, Illness and Culture

A minimum of one course from the following global public health courses: (3 Credit Hours)

- PHC 6764 Global Health Principles and Contemporary Issues
- PHC 6761 Global Health Assessment Strategies

3 additional graduate level credit hours of coursework in international development engineering or closely related areas.

Geotechnical Engineering

- CEG 5115 Foundation Engineering
- CES 6118 Applied Finite Elements

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

Materials Engineering

At least 2 courses from the following list:

- CGN 6933 Special Topics in CEE: Advanced Concrete Construction Materials
- CGN 6720 Electrochemical Diagnostic Techniques
- EMA 5326 Corrosion Control
- EMA 6510 Characterization of Materials

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

Structural Engineering

- CES 6144 Advanced Structural Analysis

At least 1 course from the following list of design courses:

- CES 6706 Advanced Concrete Design
- CES 6835 Design of Masonry Structures
- CES 5715C Prestressed Concrete

At least 1 course from the following list of analysis courses:

- CES 6118 Applied Finite Elements
- CES 6230 Advanced Structural Mechanics
- CES 5209 Structural Dynamics

6 additional credit hours of coursework in Structures Engineering or closely related areas.

Transportation

- TTE 5205 Traffic Systems Engineering
- TTE 5501 Transportation Planning and Economics
- TTE 6930 Graduate Transportation Seminar (1 credit class required for students who entered the program after Fall 2021)
- TTE 6507 Travel Demand Modeling or TTE 6307 Statistical and Econometric Methods I

5 additional credit hours of coursework in Transportation Engineering or closely related areas.

Water Resources

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

- CWR 6239 Waves and Beach Protection
- CWR 6305 Urban Hydrology
- CWR 6534 Coastal and Estuary Modeling
- CWR 6535 Hydrologic Models
- CWR 6105 Vadose Zone Hydrology
- CWR 6625 Ecological Engineering
- CWR 6122 Groundwater Engineering
- CWR 6820 Coastal Waves and Structures
- CWR 6538 Advanced Hydrologic Models
- CGN 6933 Special Topics in CEE: Advanced Computational Fluid Mechanics
- CGN 6933 Special Topics in CEE: Advanced Numerical Methods
- CGN 6933 Special Topics in CEE: Water Resources Sustainability

3 Additional Credit Hours in Water Resources Engineering or closely related areas.

MSCE Program of Study Form - Non-thesis option

Name:					
UID:					
MSCE Admission Term:					
Email:					
Address:					
Phone:					
Area of Concentration:	EFD ☐ Geotechnical ☐ Materials ☐ No concentration ☐		Structural ☐ Transportation ☐ Water Resources ☐		
Course Title	**Course Number**	**Credits**	**Semester Taken**	**Outside CEE?**	**Grade**
Core Coursework 5 credits					
Intro to Data Science for CE	CGN 6311C	3			
Professional Practice of CE	CGN 6162	2			
Concentration Requirements 15 credits (see requirements for STR, GEO, WR, TPT, MAT above)					
Electives 10 credits (grad level classes you may select based on your interests and career goals):					
Total credits outside CEE (≤12)					
Total credits of Independent study (≤6)					
Total credits (≥30)					

Notes for the GPD:

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Graduate Program Director signature Date

Updated August 14, 2023

MSCE Program of Study Form - Thesis Option

Name:					
UID:					
MSCE Admission Term:					
Email:					
Address:					
Phone:					
Major Professor(s):					
Area of Concentration:	EFD ☐ Geotechnical ☐ Materials ☐		Structural ☐ Transportation ☐ Water Resources ☐		
Course Title	**Course Number**	**Credits**	**Semester Taken**	**Outside CEE?**	**Grade**
Core Coursework 5 credits					
Intro to Data Science for CE	CGN 6311C	3			
Professional Practice of CE	CGN 6162	2			
Concentration Requirements 15 credits (see requirements for STR, GEO, WR, TPT, MAT above)					
Electives 4 credits (grad level classes you may select based on your interests and career goals):					
Thesis (a minimum of 6 credits are required, with 2 credits taken in the semester of graduation)					
MS Thesis	CGN 6971			NA	NA
Total credits outside CEE (≤12)					
Total credits of Independent study (≤6)					
Total credits (≥30)					

Notes for the GPD:

Major Professor signature Date Grad Prog Director signt. Date

Updated August 14, 2023