

Master of Science Engineering Science (MSES) with Concentration in Civil Engineering

Total Minimum Hours: 30

These degrees are for students without an undergraduate engineering degree who wish to pursue a Master's degree in CEE. This program consists of a minimum of 24 credit hours of coursework and 6 credit hours of thesis:

Degree Program Requirements:

The programs consist of a minimum of 24 credit hours of coursework and 6 credit hours of thesis.

Pre-requisites:

Students will be required to complete undergraduate engineering pre-requisite courses required for specific courses or as determined by their major professor.

Core Requirements (24 hours):

- A maximum of 9 credits taken outside the CEE department may be applied to meet the degree requirements.
- A maximum of 6 credits of 4000 level courses may be applied to meet the degree requirements.
- A maximum of 6 credits of independent study may be applied to meet the degree requirements.

Concentration requirements:

Students may select from the following concentrations.

Environmental Engineering (ENV)

ENV 6002 Physical Chemical Principles

EES 6107 Biological Principles of Environmental Engineering

ENV 6666 Aquatic Chemistry

One of the following:

CGN 6933 Green Engineering for Sustainability

CGN 6933 Green Infrastructure for Sustainable Communities

ENV 6510 Sustainable Development Engineering

12 additional credits of coursework based on approval of graduate committee.

Geotechnical Engineering (GTL)

CEG 5115 Foundation Engineering

CES 6118 Applied Finite Elements

6 additional credits of coursework in Materials Engineering and Science or related areas.

Materials Engineering and Science (MTL)

At least 2 courses (6 credits) from the following list

CGN 6933 Advanced Construction Materials

CGN 6720 Electrochemical Diagnostic Techniques

CGN 6933 Structural Life Protection

EMA 5326 Corrosion Control

EMA 6510 Characterization of Materials

6 additional credits of coursework in Materials Engineering and Science or related area

Structural Engineering (STR)

1 course (3 credits) from the following list of design courses:

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

1 course (3 credits) from the following list of analysis courses:

CES: 6118 Applied Finite Elements
CGN 6933 Advanced Structural Analysis
CGN 6933 Advanced Structural Mechanics
CES 5209 Structural Dynamics

6 additional credits of coursework in Structural Engineering or related areas.

Transportation Engineering (TPT)

TTE 5205 Traffic Systems Engineering
TTE 5501 Transportation Planning and Economics
TTE 6507 Travel Demand Modeling

3 additional credits of coursework in Transportation Engineering or related areas.

Water Resources (WRS)

4 courses (12 credits) from the following list:

CWR 6235 Free Surface Flow
CWR 6239 Waves and Beach Protection
CWR 6305 Urban Hydrology
CWR 6534 Coastal and Estuary Modeling
CWR 6535 Hydrologic Models
CWR 6538 Advanced Hydrologic Models
CWR 6820 Coastal Waves and Structures
CGN 6933 Vadose Zone Hydrology
CGN 6933 Groundwater Hydraulics
CGN 6933 Advanced Computational Fluid Mechanics
GLY 6836 Numerical Modeling of Hydrogeologic Systems
GLY 6827C Advanced Hydrogeology

The department supports MSES concentration areas in Geotechnical Engineering (GTL), Materials Engineering and Structural Science (MTL), Structural Engineering (STR), Transportation Engineering (TPT) and Water Resources (WRS). Students work with a Major Professor and thesis committee to map out their graduate programs.

Courses

See <http://www.ugs.usf.edu/sab/sabs.cfm>

MASTER OF SCIENCE IN ENGINEERING SCIENCE (MSES)
ENVIRONMENTAL (ENV)

Curriculum Program of Study Form (updated 02.14)

Name:		Term / Year Admitted into Program	
USF ID #			
Address:			
Phone:			
Email:			
Advisor:			

30 Total Credits of Coursework:

Course Title	Number	Credits	Semester	Outside CEE?	Grade
Required Core Courses:					
Physical Chemical Principles in Environmental Engineering	ENV 6002	3			
Biological Principles	EES 6107	3			
Aquatic Chemistry	ENV 6666	3			
At least one of the following:					
Green Engineering for Sustainability	CGN 6933	3			
Green Infrastructure for Sustainable Communities	CGN 6933	3			
Sustainable Development Engineering	ENV 6510	3			
Additional 12 Credits Based on Approval from Thesis Committee:					
Thesis:					
Thesis: Masters	CGN 6971				
Additional courses, if any:					
				Total Credits Outside CEE	
				Total Credits at 4000 Level	
				Total Credits Independent Study	
				Total Credits (30 required)	

 Advisor: Print or Type Name, Signature, and Date

 Graduate Program Coordinator: Signature and Date

MASTER OF SCIENCE IN ENGINEERING SCIENCE(MSES)
GEOTECHNICAL ENGINEERING (GTL)
Curriculum Program of Study Form (updated 02/14)

Name:		Term/Year Admitted into Program:	
USF ID #			
Address:			
Phone:			
Email:			
Advisor:			
<input type="checkbox"/> Concentration in Engineering for Development*			
*Requirements: <input type="checkbox"/> Sus Dev Eng <input type="checkbox"/> Applied Anthropology <input type="checkbox"/> Global Public Health <input type="checkbox"/> Peace Corps Services			

30 Total Credits of Coursework:

Course Title	Number	Credits	Semester	Outside CEE?	Grade
Required Core Courses:					
Foundation Engineering	CEG 5115	3			
Applied Finite Elements	CES 6118	3			
6 additional credits of coursework in Geotechnical or related areas:					
		3			
		3			
12 credits of electives:					
Thesis (minimum 6 credits required):					
Thesis: Masters	CGN 6971				
			Total Credits Outside CEE		
			Total Credits at 4000 Level		
			Total Credits Independent Study		
			Total Credits (30 required)		

- ≤ 3 courses outside CEE
- ≤ 6 credits of 4000 level
- ≤ 6 credits independent study
- 6 credits of thesis

 Advisor: Print or Type Name, Signature, and Date

 Graduate Program Coordinator: Signature and Date

MASTER OF SCIENCE IN ENGINEERING SCIENCE (MSES)

MATERIALS ENGINEERING (MTL)

Curriculum Program of Study Form (updated 02/14)

Name:		Term/Year Admitted into Program:	
USF ID #			
Address:			
Phone:			
Email:			
Advisor:			
<input type="checkbox"/> Concentration in Engineering for Development* *Requirements: <input type="checkbox"/> Sus Dev Eng <input type="checkbox"/> Applied Anthropology <input type="checkbox"/> Global Public Health <input type="checkbox"/> Peace Corps Services			

30 Total Credits of Coursework:

Course Title	Number	Credits	Semester	Outside CEE?	Grade
At least two of the following:					
Advanced Construction Materials	CGN 6933	3			
Electrochemical Diagnostic Techniques	CGN 6720	3			
Structural Life Prediction	CGN 6933	3			
Corrosion Control	EMA 5326	3			
Characterization of Materials	EMA 6510	3			
9 Additional credits in Materials Engineering or related areas:					
		3			
		3			
		3			
9 credits of electives:					
		3			
		3			
		3			
Thesis (minimum 6 credits required):					
Thesis: Masters	CGN 6971				
			Total Credits Outside CEE		
			Total Credits at 4000 Level		
			Total Credits Independent Study		
			Total Credits (30 required)		

- ≤ 3 courses outside CEE
- ≤ 6 credits of 4000 level
- ≤ 6 credits independent study
- 6 credits of thesis

 Advisor: Print or Type Name, Signature, and Date

 Graduate Program Coordinator: Signature and Date

MASTER OF SCIENCE IN ENGINEERING SCIENCE (MSES)

STRUCTURAL ENGINEERING (STR)

Curriculum Program of Study Form (updated 02/14)

Name:		Term/Year Admitted into Program:	
USF ID #			
Address:			
Phone:			
Email:			
Advisor:			
<input type="checkbox"/> Concentration in Engineering for Development* *Requirements: <input type="checkbox"/> Sus Dev Eng <input type="checkbox"/> Applied Anthropology <input type="checkbox"/> Global Public Health <input type="checkbox"/> Peace Corps Services			

30 Total Credits of Coursework:

Course Title	Number	Credits	Semester	Outside CEE?	Grade
At least one of the following (design course):					
Advanced Concrete Design	CES 6706	3			
Design of Masonry Structures	CES 6835	3			
Prestressed Concrete	CES 5715C	3			
At least one of the following (analysis course):					
Applied Finite Elements	CES 6118	3			
Advanced Structural Analysis	CGN 6933	3			
Advanced Structural Mechanics	CGN 6933	3			
Advanced Mechanics of Materials	CES 5105C	3			
Structural Dynamics	CES 5209	3			
6 additional credits of coursework in Structural Engineering or related areas:					
12 credits of electives:					
		3			
		3			
		3			
		3			
Thesis (minimum 6 credits required):					
Thesis: Masters	CGN 6971				

Total Credits Outside CEE	
Total Credits at 4000 Level	
Total Credits Independent Study	
Total Credits (30 required)	

- ≤ 3 courses outside CEE
- ≤ 6 credits of 4000 level
- ≤ 6 credits independent study
- 6 credits of thesis

Advisor: Print or Type Name, Signature, and Date

Graduate Program Coordinator: Signature and Date

**MASTER OF SCIENCE IN ENGINEERING SCIENCE (MSES)
TRANSPORTATION ENGINEERING (TPT)
Curriculum Program of Study Form (updated 02/14)**

Name:		Term/Year Admitted into Program:	
USF ID #			
Address:			
Phone:			
Email:			
Advisor:			

Concentration in Engineering for Development*
 *Requirements: Sus Dev Eng Applied Anthropology Global Public Health Peace Corps Services

30 Total Credits of Coursework:

Course Title	Number	Credits	Semester	Outside CEE?	Grade
Required Core Courses:					
Traffic Systems Engineering	TTE 5205	3			
Transportation Planning and Economics	TTE 5501	3			
Travel Demand Modeling	TTE 6507	3			
6 additional credits of coursework in Transportation Engineering or related areas:					
9 credits of electives:					
Thesis (minimum 6 credits required):					
Thesis: Masters	CGN 6971				

- ≤ 3 courses outside CEE
- ≤ 6 credits of 4000 level
- ≤ 6 credits independent study
- 6 credits of thesis

Total Credits Outside CEE	
Total Credits at 4000 Level	
Total Credits Independent Study	
Total Credits (30 required)	

 Advisor: Print or Type Name, Signature, and Date

 Graduate Program Coordinator: Signature and Date

**MASTER OF SCIENCE IN ENGINEERING SCIENCE (MSES)
WATER RESOURCES ENGINEERING (WRS)
Curriculum Program of Study Form (updated 02/14)**

Name:		Term/Year Admitted into Program:	
USF ID #			
Address:			
Phone:			
Email:			
Advisor:			
<input type="checkbox"/> Concentration in Engineering for Development*			
*Requirements: <input type="checkbox"/> Sus Dev Eng <input type="checkbox"/> Applied Anthropology <input type="checkbox"/> Global Public Health <input type="checkbox"/> Peace Corps Services			

30 Total Credits of Coursework:

Course Title	Number	Credits	Semester	Outside CEE?	Grade								
A minimum of 4 courses (12 credits) from the following:													
Free Surface Flow	CWR 6235	3											
Waves and Beach Protection	CWR 6239	3											
Urban Hydrology	CWR 6305	3											
Coastal and Estuary Modeling	CWR 6534	3											
Hydrologic Models	CWR 6535	3											
Advanced Hydrologic Models	CWR 6538	3											
Coastal Waves and Structures	CWR 6820	3											
Vadose Zone Hydraulics	CWR 6933	3											
Groundwater Hydraulics	CGN 6933	3											
Advanced Computational Fluid Mechanics	CGN 6933	3											
Numerical Modeling of Hydrogeologic Systems	GLY 6836	3											
Advanced Hydrogeology	GLY 6827C	3											
3 additional credits of coursework in Water Resource Engineering or related areas:													
		3											
9 credits of electives:													
Thesis (minimum 6 credits required):													
Thesis: Masters	CGN	6971											
<ul style="list-style-type: none"> • ≤ 3 courses outside CEE • ≤ 6 credits of 4000 level • ≤ 6 credits independent study • 6 credits of thesis 													
<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td>Total Credits Outside CEE</td> <td></td> </tr> <tr> <td>Total Credits at 4000 Level</td> <td></td> </tr> <tr> <td>Total Credits Independent Study</td> <td></td> </tr> <tr> <td>Total Credits (30 required)</td> <td></td> </tr> </table>						Total Credits Outside CEE		Total Credits at 4000 Level		Total Credits Independent Study		Total Credits (30 required)	
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Advisor: Print or Type Name, Signature, and Date

Graduate Program Coordinator: Signature and Date