

# Master of Engineering (ME) or Master of Science (MS) Degree in Civil Engineering with Concentration in Structural Engineering

Engineering School of Sustainable Infrastructure & Environment (ESSIE)

Department of Civil & Coastal Engineering (CCE)

## Introduction

Within the structural engineering area of specialization, employers almost exclusively seek out our graduates with masters degrees. These employers have high expectations regarding the skills and capabilities that our structural engineering masters students bring with them into industry. Consequently, we offer a **concentration in structural engineering** within the Department of Civil & Coastal Engineering. This feature adds value to the Master's degree by recognizing the rigorous academic requirements that our students are required to achieve. In addition, it alerts prospective employers that the students they are considering will be able to meet their expectations for training and competence in the field. The following requirements, in addition to the minimum requirements imposed by the UF Graduate School, must be met for a student to receive a concentration in Structural Engineering.

## Course Requirements and Structures Concentration Program Plan of Study (SC-PPS)

Master's students specializing in Structural Engineering are expected to satisfy the following minimum coursework requirements and procedures. Upon admission, a structural engineering faculty member will be assigned as your advisor. Regardless of whether you are pursuing a Thesis or Non-Thesis Master's degree, you must complete the coursework requirements portion of the Structures Concentration Program Plan of Study (SC-PPS), which is posted on the ESSIE website. To register for your first semester of graduate school, select courses in consultation with your advisor. However, before registering for your second semester, you will need have a SC-PPS approved by your advisor, as indicated by your advisor's signature. The use of transfer credits (if any) toward your degree program must be included on the SC-PPS and approved by your advisor. After your initial SC-PPS has been approved, you must contact your advisor for review and approval of any subsequent changes that you wish to make. Whenever your SC-PPS (initial or revised) has been approved, your advisor will send you (via email) a copy and will copy gradforms@essie.ufl.edu for processing. Your advising hold will then be removed, allowing you to register.

**All courses in the executed SC-PPS must be completed with the minimum grades noted below for the student to be considered eligible for graduation with a Concentration in Structural Engineering.** Additional requirements may be imposed by the Department of Civil & Coastal Engineering or the University of Florida Graduate School, therefore, the student should consult the Civil & Coastal Engineering *Graduate Student Handbook* for additional information.

## Non-thesis Master's degree

Non-thesis students seeking a Master of Science degree must satisfy the final exam requirements by submitting a completed design or analysis term-project that earned a grade of B or better from one of the Group A or B courses listed in the coursework requirements. Projects from outside the structures curriculum will not be considered. Projects are to be submitted to the student's advisor for approval and must be comprehensive in nature. Per the UF Graduate Catalog, non-thesis students seeking a Master of Engineering are not required to complete the final examination.

## Thesis Master's degree-seeking students:

Thesis students seeking a Master's degree are required to have a supervisory committee. That committee must consist of a minimum of two members, a chair (usually the advisor) and at least one additional member. The full committee should be formed by mid-term of the second semester. If a minor is designated, the committee must include one member as the representative for the proposed minor.

## Grades & Graduation

In addition to the Department of Civil & Coastal Engineering and the University of Florida Graduate School scholastic standards, students with a concentration in Structural Engineering must earn a grade of B or better in all four required Group A courses (CES 6106, CES 6706, CES 5607, and CES 6108). A student failing to earn the minimum required grade in any of the Group A courses may submit to their advisor a petition detailing the circumstances that led to the inadequate group A grade(s), and request the opportunity to repeat such courses in an effort to meet the requirements for the Structures Concentration. If the advisor determines that the student's request warrants consideration, the advisor will ask the Structures faculty to consider the request and finalize a decision. Note that Group A courses are only offered once per academic year. Alternatively, a student failing to earn the minimum required grade in any of the Group A courses, but otherwise satisfying all other requirements, is eligible to receive a MS or ME degree *without* a concentration in Structural engineering. Note however that to do so, the student must remove the Structures Concentration from their GIMS record by mid-term of their graduating semester.

Per University of Florida Graduate School policy, students must have an overall GPA of 3.00 (truncated for the courses listed in their executed SC-PPS) to be eligible for graduation with a concentration in Structural Engineering. Also, if a student seeking the Structures Concentration is registered for any Group A courses during the graduating semester, and a grade of B or better is not earned, the student **will not graduate** during that term. To be eligible to graduate, the student will have to either repeat the course in a future term (if approved by petition to the faculty), or have the Structures Concentration designation removed from their GIMS record, and (in a future term) register for one additional course.

### Coursework Requirements

#### MS or ME with Thesis

Minimum 30 total semester hours; min. 24 hours coursework permitted; min. 27 hours coursework recommended; max. 6 hours Masters Research (CGN6971) may be counted toward degree requirements; min 3 hours Masters Research (CGN6971) required; written master's thesis; oral defense. Enrollment of 3 credit hours (Fall/Spring) or 2 credit hours (Summer) of Masters Research (CGN 6971) is required during the final/graduating semester.

#### MS or ME with Coursework Only

Minimum 30 total semester hours of coursework; (only available to students who have not accepted a Research Assistantship from the Department of Civil and Coastal Engineering). Students must take all four (4) Group A courses below, and at least four (4) Group B courses. Remaining courses required to reach 30 credit hours can be selected from Group B or Group C.

#### A. Students must take all of the following 'core' courses:

CES 6106 Advanced Structural Analysis (Fall)  
CES 6706 Advanced Reinforced Concrete (Fall)  
CES 5607 Behavior of Steel Structures (Spring)  
CES 6108 Structural Dynamics (Spring)

#### B. Students must take at least four (4) of the following courses:

CES 5010 Probabilistic and Stochastic Methods in Civil Engineering (Fall)  
CES 5116 Finite Elements in Civil Engineering (Fall)  
CES 5325 Design of Highway Bridges (Fall)  
CES 5715 Prestressed Concrete (Spring)  
CES 5801 Design and Construction in Timber (Fall)  
CES 6117 Advanced Finite Element Analysis (Spring, years vary) [Pre-req: CES 5116]  
CES 6585 Wind Engineering (Spring)  
CES 6588 Protective Structures (Spring) [Co-req: CES 6108]  
CGN 6905 Advanced Bridge Design (Spring) [Pre-req: CES 5325]  
CGN 6905 Performance-Based Design of Structures (Spring) [Co-req: CES 6108]  
CEG 5115 Foundation Design (Fall)  
CEG 6117 Advanced Deep Foundation Design (Spring) [Pre-req: undergrad Geotech. Eng.]  
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CES 6590 Impact Engineering (Varies) [Pre-req: CES 6108]  
CES 6591 Applied Protective Structures (Varies) [Pre-req: CES 6588]  
CES 6592 Retrofit of Protective Structures (Varies) [Pre-req: CES 6588]  
CES 6593 Advanced Protective Structures (Varies) [Pre-req: CES 6588]

#### C.

ARC 6512 Structural Modeling (Fall)  
CEG 6515 Earth Retaining Systems and Slope Stability (Spring)  
CGN 6505 Properties, Design and Control of Concrete (Spring)  
CES 6165 Concrete Structural Rehabilitation  
CGN 6905 Construction Modeling and Simulation (Fall)  
CGN 6504 Concrete Durability (Varies)  
EGN 5215 Machine learning applications in Civil Engineering (Varies)  
CGN 6425 Applied data science in Civil & Environmental Engineering (Varies)

### Summer internships

It is common for students in the Structures Graduate program to do a summer engineering internship without registering for any classes during the internship period. However, for some students it may be necessary to remain registered at UF during the internship period. In this latter case, a student may register for a **maximum** of 2 credit hours of *EGN 5949 Engineering Internship*. No exceptions to this maximum credit hour limit will be granted during the summer, and no internship registration will be permitted during the Fall or Spring semesters. The internship must directly relate to the field of structural engineering. **Prior** to registering for EGN 5949 the student must submit the employer's internship offer letter, that includes the beginning and ending date of the offer, to the Structures Graduate Advisor (SGA) for review and permission must be granted in writing by the SGA and the ESSIE Graduate Academic Coordinator. Registration for EGN 5949 will require that the student submit biweekly written progress reports throughout the duration of the internship. In addition, prior to the last day of summer class, a written Employee Evaluation must be submitted by the internship supervisor directly to the Structures Graduate Advisor. EGN 5949 grades assigned by UF are S/U (satisfactory/unsatisfactory). To receive a satisfactory (S) grade, the biweekly progress reports and the end-of-internship Employee Evaluation must all be submitted on time. Failure to complete the full duration of the internship per the dates specified in the offer letter will result in a grade of unsatisfactory (U). Furthermore, no changes will be permitted to the terms of the internship once the offer letter has been reviewed by the SGA and approval has been granted to enroll in EGN 5949 (unless additional discussion is requested during the drop/add registration period and the SGA approves the change).

Master's Program Plan of Study  
Civil Engineering with Concentration in Structural Engineering

Date: \_\_\_\_\_  
First Term: \_\_\_\_\_

Student Name:

Last)

(First)

(MI)

UF-ID #: \_\_\_\_\_

UF E-Mail: \_\_\_\_\_@ufl.edu

Select appropriate degree:

- Master of Engineering
- Master of Science

Select option:

- Non-thesis 30 Credit Hrs. only --
- Thesis -- (Committee needed)

*No committee needed, except if a minor is elected, then a minor representative must be submitted. Please designate that a minor has been selected under department name with a (\*).*

Members of Committee:

(if required)

Name of Member  
(typed or PRINTED clearly)

Initialed by  
Member

Department  
of Member

Chair:

Co-Chair:  
(optional)

Member:

Member:

CCE Certificate(s): If you will be receiving a CCE certificate, which one(s)?

- Critical Infrastructure Protection Certificate
- Other certificate(s) - (list below):

Plan of Study:

\_\_\_\_\_

	Course Number and Title	Source:					# of Credits	Type Choose	
		UF Grad Course as Undergrad	UF-4/1	UF-Non-degree or Post-bac	Transfer	UF		Year	Term
Group A	CES 6106 Advanced Structural Analysis	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	3		
	CES 6706 Advanced Reinforced Concrete	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	3		
	CES 5607 Behavior of Steel Structures	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	3		
	CES 6108 Structural Dynamics	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	3		
Group B		<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>			
		<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>			
		<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>			
		<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>			
Other (Type in Course)		<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>			
		<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>			
		<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>			
		<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>			
		<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>			
		<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>			
		<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>			
		<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>			

\*Suggested courses and terms are contingent upon availability.

TOTAL Credit Hours: \_\_\_\_\_

Advisor/Chair's Signature \_\_\_\_\_

Date \_\_\_\_\_

Student Signature \_\_\_\_\_

Date \_\_\_\_\_