

# Civil Engineering and Construction Management

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## Mission

The Master of Science in Civil Engineering degree program, with a strong emphasis on design, is intended for practicing civil engineers, as well as those who wish to pursue doctoral studies. Programs of study include structural engineering, geotechnical engineering, and construction management.

## Objectives

The objectives of the program are:

1. to provide knowledge of advanced topics related to the structural engineering and geotechnical engineering and construction management areas of civil engineering
2. to provide a practice-based knowledge founded on application of advanced techniques in analysis and design

## Admission Requirements

Applicants possessing a baccalaureate degree in Civil Engineering from a program accredited by the Engineering Accreditation Commission of ABET, Inc., or from a recognized foreign institution, and also have the minimum grade point of 3.00 on a 4.0 scale will normally be ordinarily to the graduate program.

Applicants with baccalaureate degrees in other engineering disciplines, having a minimum grade point average of 3.00, will normally be admitted to the program upon completion of specific prerequisite courses assigned by the Graduate Program Director with a grade point average of 3.00 and no grade lower than C.

These prerequisite courses will not satisfy any requirement for the Master of Science in Civil Engineering degree. Generally, students must complete all prerequisite courses before they are permitted to register for graduate courses. Exceptions require the recommendation of the Graduate Program Director and the approval of the Dean of Engineering.

## Civil Engineering Degree Requirements

A student must complete a minimum of thirty credits hours of graduate course work. Specific requirements follow:

## Structural Engineering

CIVG 777	Advanced Structural Analysis I	3
CIVG 778	Advanced Structural Analysis II	3
CIVG 779	Design Steel Structures	3
CIVG 789	Advanced Geotechnical Applications: Foundations	3
CIVG 797	Advanced Soil Mechanics	3
CIVG 784	Reinforced Concrete Structure I	3
CIVG 785	Reinforced Concrete Structure II	3

One course from:

ENGG 612	Finite Element Methods	3
ENGG 614	Engineering Mathematics	3
CIVG 796	Elastic and Inelastic Stability of Structures	3
CIVG 799	Theory of Plates and Shells	3

Two approved departmental and Graduate Core electives or a thesis.

## Geotechnical Engineering

CIVG 777	Advanced Structural Analysis I	
CIVG 778	Advanced Structural Analysis II	
CIVG 786	Ground Improvement	
CIVG 789	Advanced Geotechnical Applications: Foundations	
CIVG 791	Advanced Geotechnical Applications: Earth-Retaining Structures	
CIVG 792	Slope Stability	
CIVG 797	Advanced Soil Mechanics	

One course from:

CIVG 784	Reinforced Concrete Structure I	
CIVG 785	Reinforced Concrete Structure II	

Two approved departmental and Graduate Core electives or a thesis.

## Construction Management Degree Requirements

**The program requires** 33 credit hours and may be completed entirely by taking all courses in Construction Management courses, or by taking a minimum of seven courses in Construction Management and the other courses in approved engineering electives. All coursework is approved in consultation with the Graduate Program Director.

### Admission to the program requires:

a) A baccalaureate degree in an engineering, science or business field from an accredited institution of higher education plus work experience in construction and construction management

- b) Grade Point Average of at least 3.00/4.00 for the junior and senior year courses
- c) Complete official transcripts for all undergraduate and any graduate coursework
- d) Two letters of recommendation
- e) A brief resume showing education and experience.

Approval of any transfer credits will be made by the Program Director prior to enrolling in the program. *Up to 6 graduate credits can be transferred toward a Master's degree.*

Required English proficiency exam scores for international applicants include TOEFL 80 (internet based test), IELTS with a minimum of 6.5 on the 9.0 scale, TOEIC (Test of English for International Communication) scores with minimum score of 690, or Duolingo English Test scores of 110 or higher.

Minimum of six approved courses in construction from the list shown below:

COMG 602	Introduction to Construction Management	3
COMG 605	Construction Planning and Scheduling	3
COMG 606	Building System Design	3
COMG 608	Construction Quality and Safety	3
COMG 609	Engineering Risk and Decision Analysis	3
COMG 610	Construction Law	3
COMG 611	Environmental Impact Assessment for Construction Projects	3
COMG 612	Marketing and Finance of Engineering Projects	3
COMG 614	Contracts and Specifications	3
COMG 615	Project Controls	3
COMG 616	Construction Estimation	3
COMG 617	Fire Protection Piping System Design	3
COMG 618	Safety and Environmental Issues in Construction for Engineers	3
COMG 619	Temporary Works in Heavy Construction	3
COMG 620	Construction Project Delivery	3
COMG 621	Managing Civil Infrastructure System	3
COMG 622	Construction Accounting and Finance for Development	3
COMG 623	Capstone Construction Management	3
COMG 624	Leadership in Civil Engineering	3
COMG 625	Special Topic: Construction Management	3

Four or less courses in structural and geotechnical engineering

With the approval of the Graduate Program Director, a student may take a maximum of three courses offered in other School of Engineering graduate programs. Electives may also be selected from the Graduate Core courses with the advice and approval of the Graduate Program Director.