

INFRASTRUCTURE ENGINEERING & MANAGEMENT

The infrastructure systems curriculum focuses on the design of Civil Engineering systems used to transport people, goods, water, waste disposal, energy, and information. This broad-based program is specifically delineated for designers involved with multi-disciplined Civil Engineering projects with urban emphasis. The design of infrastructure systems includes deterioration, assessment, renewal, maintenance, effectiveness, and sustainability elements as related to continuous urban development. Each student's program of study must be developed before completing twelve (12) graduate credit hours. Students pursuing a M.E. degree must meet with their supervising committee to fully establish their program of study. Core and elective course requirements for a master's degree in the infrastructure engineering area are given below.

MASTER OF ENGINEERING DEGREE

Twenty-four (24) hours of course work must be in Civil Engineering.

Core Courses: Twelve (12) semester hours are required from the Core Courses list.

Elective Courses: Twenty one (21) semester hours of elective course work must be taken from Civil Engineering Elective Courses listed below [i.e., one (1) three (3) hour course from each of the following CE areas - environmental, geotechnical, structures, transportation, and water resources.] Three (3) additional semester hours of electives must be taken from the department or selected courses outside the department. Three (3) semester hours of elective course work must be taken as a research tool or supporting courses to the program of work, such as the CIRP courses listed under Elective Courses below. The Elective Courses listed below are highly recommended for this option, but are not all-inclusive. Course selection must result in a cohesive program that supports the degree plan and must receive the approval of the student's supervising committee.

Project Course: Each student must complete a three (3) hour project on Infrastructure Design Engineering (CE5395 Master Project).

Final Exam: Enrollment in CE 5193, Master's Comprehensive Examination is required in the semester of graduation.

FINAL DEGREE REQUIREMENTS vary depending upon a student's background and experience. Student's supervising committee establishes individual's final degree requirements.

CORE COURSES

- CE 5344 Construction Methods:
Field Operations
- CE 5345 Infrastructure Evaluation,
Maintenance and
Renewal
- CE 5388 Pipeline Construction &
Trenchless Technology
- CE 5389 Infrastructure Asset
Management &
Sustainability

PROJECT COURSE

- CE 5395 Master's Project Course:
Project/Site Development

CE ELECTIVE COURSES - TRANSPORTATION

- CE 5332 Highway Design
- CE 5333 Traffic Engineering Operations
- CE 5335 Airport Engineering
- CE 5338 System Evaluation
- CE 6306 Public Transit Planning
and Operation

CE ELECTIVE COURSES -

WATER RESOURCES

- CE 5346 Open Channel Flow
- CE 5354 Water Resources Planning
- CE 5356 Surface Water Quality Modeling

CE ELECTIVE COURSES -

CONSTRUCTION

- CE 5377 Construction Project
Management & Job Costing

CE ELECTIVE COURSES -

GEOTECHNICAL

- CE 5336 Pavement Design
- CE 5361 Design and Construction of
Asphalt Concrete
- CE 5363 Rigid Pavements
- CE 5364 Foundation Analysis
and Design
- CE 5367 Design of Earth Structures
- CE 5372 Geosynthetics
- CE 5375 Geotechnical Aspects of
Landfills
- CE 6311 Advanced Foundations
- CE 6312 In Situ Testing

CE ELECTIVE COURSES -

STRUCTURES & APPLIED MECHANICS

- CE 5302 Plain Concrete
- CE 5305 Fiber Reinforced Composite Design
- CE 5307 Structural Timber Design
- CE 5308 Structural Masonry
Design
- CE 5311 Advanced Steel Design I
- CE 5312 Advanced Concrete Design I
- CE 5315 Advanced Mechanics of Materials

CE ELECTIVE COURSES -

ENVIRONMENTAL

- CE 5326 Water and Wastewater
Treatment Facilities Design
- CE 5328 Fundamentals of Air Pollution

ELECTIVE COURSES -

CITY & REGIONAL PLANNING

- CIRP 5340 Land Suitability Analysis
- CIRP 5356 GIS Systems
- CIRP 5357 Intermediate GIS Systems

Planned Schedule of Class Offerings* <i>(summer class offerings subject to change due to budget constraints)</i>	2010 - 2011		2011 - 2012		2012 - 2013		2013 - 2014		2014 - 2015			
	F	S	S	F	S	S	F	S	S	F	S	S
CE 5344 Construction Methods: Field Operations (CE 4332)												
CE 5345 Infra. Evaluation, Maintenance & Renewal (CE 4302)												
CE 5388 Pipeline Construction & Trenchless Technology (CE 4305)												
CE 5389 Infrastructure Asset Mgt. & Sustainability (CE 4306)												

The Department may change the courses offered without notice. Summer Schedule, usually available by April 1, lists available summer courses. **C** – On Campus Only, **D** – Campus & Distance Learning Course, **Course number in parenthesis ()** indicates dual course offered composite with this course.