MASTERS OF ENGINEERING IN CIVIL ENGINEERING  
Focus: Water Resources Engineering

The ME Degree in Water Resources Engineering prepares graduates for careers in consulting engineering firms and public agencies responsible for developing and managing water and related natural resources and associated constructed infrastructure. Water resources engineers deal with municipal, industrial, and agricultural water supply, water aspects of land development and electric energy production, storm water drainage, flood mitigation, navigation, water quality management, and protection/restoration of environmental resources. The ME Degree Program combines fundamental principles and methods of hydrology, hydraulics, and water systems planning, design, and analysis with a broad spectrum of related engineering, scientific, and managerial disciplines.

The ME Degree Program in Civil Engineering with a specialization in Water Resources Engineering conforms to the general ME degree requirements of the Department and University, including a minimum of 30 credit hours. The 30 credits may consist entirely of coursework or may include up to three credits of CVEN 684 Professional Internship or CVEN 685 Directed Studies. Full-time students can complete the program in a year. Students working as teaching assistants or employed by engineering firms normally require one or more additional semesters to graduate. Students with bachelor degrees in non-engineering fields must meet additional undergraduate course requirements.

Each student develops an individualized degree plan with the advice and approval of a faculty advisory committee consisting of the student's principal advisor and two other members. At least 15 credits of the coursework are selected from the following core water resources engineering courses:

- CVEN 627 Engineering Surface Water Hydrology (offered each Spring semester)
- CVEN 628 Advanced Hydraulic Engineering (offered each Fall semester)
- CVEN 658 Civil Engineering Applications of GIS (offered each Fall semester)
- CVEN 664 Water Resources Engineering Planning and Management (Fall semester)
- CVEN 665 Water Resources Systems Engineering (offered each Spring semester)
- CVEN 673 Transport Phenomena in Porous Media (offered in alternate years)
- CVEN 674 Groundwater Engineering (offered each Spring semester)
- CVEN 675 Stochastic Hydrology (offered in alternate years)
- CVEN 684 Professional Internship
- CVEN 685 Directed Studies (individual student project any semester)
- CVEN 681 Environmental and Water Resources Engineering Seminar (Fall semester)
- CVEN 463/689 Engineering Hydrology (offered each Fall semester)
- CVEN 458/689 Hydraulic Engineering (offered each Spring semester)
- CVEN 455/689 Urban Stormwater Management (offered each Spring semester)

CVEN 684 and CVEN 685 are variable-credit activities accomplished by individual students. CVEN 681 is a one-credit required seminar. Each of the other courses listed above are 3 credit hours.

The remainder of the ME Degree Program is comprised of courses from various other auxiliary areas reflecting the individual student's interests and career goals. Additional courses recommended for consideration include the following.
Infrastructure Engineering
CVEN 624 Infrastructure Engineering and Management

Fluid Mechanics
CVEN 679 Theory of Fluid Mechanics Models
CVEN 688 Computational Fluid Dynamics

Environmental Engineering
CVEN 601 Environmental Eng. Processes III
CVEN 619 Environmental Engineering Processes I
CVEN 620 Environmental Engineering Processes II
CVEN 603 Environmental Eng. Management
CVEN 604 Eng. Analysis of Treatment Systems
CVEN 605 Environmental Measurements
CVEN 606 Environmental Engineering Design I
CVEN 609 Environmental Control of Oil and
CVEN 610 Environmental Risk Assessment

Construction Engineering
CVEN 641 Construction Engineering Systems

Geotechnical Engineering
CVEN 647 Numerical Methods in Geotechnical Eng.
CVEN 649 Physical and Engineering Properties of Soil

Ocean Engineering
OCEN 603 Environmental Management
OCEN 671 Ocean Wave Mechanics
OCEN 672 Coastal Engineering
OCEN 674 Ports and Harbors
OCEN 678 Fluid Dynamics for Ocean & Env. Eng.
OCEN 682 Coastal Sediment Processes
OCEN 683 Estuary Hydrodynamics
OCEN 688 Marine Dredging

Agricultural Economics
AGEC 604 Natural Resource Economics

Atmospheric Sciences
ATMO 600 Fundamentals of Atmos. Dynamics
ATMO 621 Atmospheric Science
ATMO 629 Climate Change
ATMO 631 Climate Modeling
ATMO 655 Satellite Data in Meteorology

Business
ACCT 640 Accounting Concepts and Procedures I
FINC 635 Financial Mgt. for Non-Business Majs.
MGMT 639 Negotiations
MGMT 640 Managing for Creativity and Innovation
MGMT 643 Foundations of Managerial Law
MGMT 655 Survey of Management
MGMT 678 International Management

Biological and Agricultural Engineering
BAEN 669 Water Quality Engineering
BAEN 672 Small Watershed Hydrology
BAEN 673 Modeling Small Watersheds

Forestry Science
FRSC 651 Geographic Information Systems
FRSC 652 Adv. Topics in GIS

Geology
GEOL 610 Field Methods in Hydrogeology
GEOL 621 Contaminant Hydrogeology
GEOL 625 Applied Ground Water Modeling
GEOL 631 Engineering Geomorphology

Geography
GEOG 626 Fluvial Geomorphology
GEOG 646 Periglacial Geomorphology

Industrial Engineering
INEN 622 Linear Programming
INEN 623 Nonlinear and Dynamic Programming
INEN 625 Simulation Methods and Applications
INEN 629 Engineering Optimization

Law
RENR 662 Environmental Law and Policy

Rangeland Ecology and Management
RELM 640 Wetland Delineation
RELM 623 Ecohydrology

Statistics
STAT 601 Statistical Analysis
STAT 602 Stat. Methods of Regression Analysis
STAT 626 Methods in Time Series Analysis

Urban and Regional Planning
PLAN 623 Develop. Plan. in 3rd World Countries
PLAN 650 Disaster Response Planning