MASTER OF ENGINEERING, PLAN C, CIVIL AND ENVIRONMENTAL ENGINEERING SPECIALIZATION

Requirements
Effective Spring 2025

Courses selected for the M.E. option are intended to provide depth of study in a particular area of interest. Selection of courses must be approved by the faculty advisor. Some areas of focus have 2-4 required courses. Please reference your area of focus for any required courses. Background courses may be required depending on prior degree. Background courses do not count towards your graduate degree requirements.

Code	Title	Credits
Select 15 credit hours in regular graduate-level Civil and Environmental Engineering courses [1]		15
CIVE 502	Fluid Mechanics	
CIVE 505	Structural Inspection, Management and Repair	
CIVE 506	Wind Effects on Structures	
CIVE 507	Transportation Engineering	
CIVE 508	Bridge Engineering	
CIVE 510	Applied Hydraulic System Design	
CIVE 511	Coastal Engineering	
CIVE 512	Irrigation Systems Design	
CIVE 513	Morphodynamic Modeling	
CIVE 514	Hydraulic Structures/Systems	
CIVE 515	River Mechanics	
CIVE 518	Sprinkler and Trickle Irrigation Systems	
CIVE 519	Irrigation Water Management	
CIVE 520	Physical Hydrology	
CIVE 521	Hydrometry	
CIVE 524/WR 524	Modeling Watershed Hydrology	
CIVE 525	Water Engineering International Development	
CIVE 526	Pollution, Exposure, and the Environment	
CIVE 527	Tools for Food-Energy-Water Systems Analysis	
CIVE 528/GES 528	Assessing the Food, Energy, Water Nexus	
CIVE 529	Environmental Organic Chemistry	
CIVE 530	Environ Engr at the Water-Energy-Health Nexus	
CIVE 531	Groundwater Hydrology	
CIVE 532	Wells and Pumps	
CIVE 533/ BIOM 533	Biomolecular Tools for Engineers	
CIVE 534	Applied and Environmental Molecular Biology	
CIVE 537	Residuals Management	
CIVE 538	Aqueous Chemistry	
CIVE 539	Water and Wastewater Analysis	
CIVE 540/CBE 540	Advanced Biological Wastewater Processing	
CIVE 541	Physical Chemical Water Treatment Processes	
CIVE 542	Water Quality Modeling	
CIVE 543	Instrumental Environmental Analysis	
CIVE 544	Water Resources Planning and Management	
CIVE 546	Water Resource Systems Analysis	
CIVE 547/ STAT 547	Statistics for Environmental Monitoring	
CIVE 549	Drainage and Wetland Engineering	
CIVE 550	Applications in Geotechnical Engineering	
CIVE 551	The Material Point Method	
CIVE 555	Mining Geotechnics	
CIVE 556	Slope Stability, Seepage, and Earth Dams	
CIVE 558	Containment Systems for Waste Disposal	
CIVE 559	Special Topics in Geotechnical Engineering	
CIVE 560	Advanced Mechanics of Materials	
CIVE 561	Advanced Steel Behavior and Design	
CIVE 562	Fundamentals of Vibrations	
CIVE 564	Principles of Structural Load Modeling	
CIVE 565	Finite Element Method	
CIVE 566	Intermediate Structural Analysis	
CIVE 567	Advanced Concrete Design	
CIVE 568	Design of Masonry and Wood Structures	
CIVE 571	Pipeline Engineering and Hydraulics	
CIVE 572	Analysis of Urban Water Systems	
CIVE 573	Urban Stormwater Management	
CIVE 574	Civil Engineering Project Management	
CIVE 575	Sustainable Water and Waste Management	
CIVE 576	Engineering Applications of GIS and GPS	
CIVE 577	GIS in Civil and Environmental Engineering	
CIVE 578	Infrastructure and Utility Management	
CIVE 604	Fluid Turbulence and Modeling	
CIVE 607	Computational Fluid Dynamics	
CIVE 610	Special Topics in Hydraulics	
CIVE 612	Open Channel Flow	
CIVE 613	River Restoration Design	
CIVE 622	Risk Analysis of Water/Environmental Systems	
CIVE 625	Quantitative Eco-Hydrology	
CIVE 626	Integrated Analysis of Coupled Water Issues	
CIVE 631	Computational Methods in Subsurface Systems	
CIVE 638	Groundwater Quality and Contaminant Transport	

CIVE 645	Computer-Aided Water Management and Control	
CIVE 655	Advanced Soil Mechanics	
CIVE 657	Oral Communication in Geo-Engineering	
CIVE 658	Remediation Systems - Subsurface Contamination	
CIVE 659	Advanced Topics in Geoengineering	
CIVE 661	Stochastic Methods in Structural Dynamics	
CIVE 662	Foundations of Solid Mechanics	
CIVE 663	Structural Stability	
CIVE 664	Mechanics of Fatigue and Fracture	
CIVE 665	Wind Engineering	
CIVE 667	Advanced Structural Analysis	
CIVE 668	Structural Reliability--Theory, Application	
CIVE 703	Special Topics in Fluid Mechanics	
CIVE 721	Stochastic Water and Environmental Systems	
CIVE 724	River Basin Morphology	
CIVE 742	Advanced Topics in Environmental Engineering	
CIVE 751	Soil Dynamics	
CIVE 766	Theory of Plates and Shells	
CIVE 767	Structural Dynamics and Earthquake Engineering	
Select 9-15 5XX-7XX regular credits [2]		9-15
Select 0-6 credits of 3XX-4XX regular credits [2]		0-6
Program Total Credits:		**30**

A minimum of 30 credits are required to complete this program.

1 Regular graduate-level Civil and Environmental Engineering courses include courses with a CIVE prefix that are numbered 5XX, 6XX, or 7XX and with the last two digits ranging from -00 through -82 (e.g., CIVE 655).

2 Common course prefixes include CIVE, AREC, BZ, CBE, CHEM, CON, CS, DSCI, ECOL, ECE, ERHS, ESS, GEO, GRAD, MATH, MECH, MIP, NR, PBHL, SOCR, STAA, STAT, SYSE, WR.