



**MASTER OF ENGINEERING: *WATER RESOURCE ENGINEERING***

*Prerequisites*—BS in Civil, Geological, or Environmental Engineering from an ABET-accredited (or equivalent internationally accredited), undergraduate degree program, including an introductory hydrology class and an introductory statistics course OR the following courses: Statics, Calculus I&II, Differential Equations, Chemistry, Calculus-based Physics, Fluid Mechanics, and Statistics. Some of these prerequisite courses may be waived upon attainment of the EIT certificate before graduation.

*Concluding Experience Committee (CEC)*: A committee of at least two individuals will be selected by the faculty advisor to evaluate the student's concluding experience. The CEC shall be comprised of:

1. The faculty advisor (who serves as chair of the committee),
2. One member of the civil and environmental engineering faculty, including research and affiliate faculty members.

The Graduate Coordinator must approve the Concluding Experience Committee.

*Concluding Experience*: Each student must complete one of the following options as a concluding experience. The option chosen shall be at the discretion of the faculty advisor, in consultation with the CEC.

- Option A Masters Project: Students must complete a 3 credit master's project (CEE 898). Each student must submit a proposal to their faculty advisor which explicitly defines the scope of work and deliverables for their project. The proposal must be submitted by the last day of classes of the semester prior to graduation. This proposal must then be approved by the CEC. To complete CEE 898, the CEC reviews, approves, and provides feedback on the deliverables to the faculty advisor who assigns the final grade.
- Option B Oral Exam: The faculty advisor, in consultation with the CEC, develops an oral exam for the student. The CEC is present for the oral exam and provides feedback to the faculty advisor who determines if the student passes the exam. The oral exam does not count towards the number of required credits.
- Option C Written Exam: The faculty advisor, in consultation with the CEC, develops a written exam for the student. The CEC reviews the written exam and provides feedback to the faculty advisor who determines if the student passes the exam. The written exam does not count towards the number of required credits.

*Coursework*—Students must complete 30 credits or more of coursework in at least 8 courses each of 3 credits or more and with a grade of B- or better in each course and an overall GPA of 3.0 or greater: 3 courses in Hydrodynamics category; 2 courses in Quantitative Reasoning/Computer Simulation category; 1 course in Water Quality category; minimum of 2 electives and CEE 898 (Option A) or minimum of 3 electives (Option B or C). A maximum of 4 credits of CEE 895 or 995 are allowed unless otherwise approved by the CEC.

**CURRICULUM WORKSHEET**

Course	Course Number and Description	Credits	Semester	Grade
Hydrodynamics (H)				
Hydrodynamics (H)				
Hydrodynamics (H)				
Quantitative Reasoning/Comp. Sim (QR)				
Quantitative Reasoning/Comp. Sim (QR)				
Water Quality (WQ)				
H/QR/WQ				
Elective				
Elective				
Elective or CEE 898 (Option A)				
TOTAL				



COURSE LISTS FOR MENG DEGREE IN CIVIL ENGINEERING WATER RESOURCES \*

Approved Hydrodynamics Courses	Approved Quantitative Reasoning/Computer Simulation Courses	Approved Water Quality Courses
CHE 913 Adv Fluid Mechanics	ADMN 842 Time Series Analysis	CHE 861 Biochemical Engineering
CEE 851 Open Channel Flow	CHE 854 Graphical, Numerical and FEA in Chemical Eng	CHE 872 Physicochemical Processes for Water and Air Quality Control
CEE 854 Engineering Hydrology	CHEM 932 Statistics and Exp Design	CHE 916 Diffusive Mass Transfer
CEE 855 Design of Water Trans Sys	CIE 834 Project Analysis	CEE 833 Public Infrastructure Asset Mgmt
CEE 857 Coastal Eng and Processes	CEE 850 Ecohydrology	CEE 830 Public Health Eng
CEE 858 Stormwater Mgmt	CIE 886 Intro to Finite Element Anal	CEE 820 Solid and Haz Waste Eng
CEE 859 Stream Restoration	CEE 896 Special Topics	CEE 822 Intro to Marin Poll and Control
CIE 940 Hydrologic Monitoring	CEE 951 Statistical Hydrology	CEE 832 Solid and Haz Waste Design
CEE 954 Adv Groundwater Topics	ESCI 896 Time Series Analysis	CEE 823 Water Chemistry
CEE 955 Advanced Surface Water Hydrology	ESCI 903 Adv Hydrology	CEE 850 Ecohydrology
CEE 959 Advanced Stream Restoration Topics	ESCI 904 Contaminant Hydrology	CEE 824 Env Eng Microbiology
ESCI 810 Groundwater Hydrology	ESCI 907 Geostatistics	CEE 920 Adv Haz Waste and Env Sampling Analysis
ESCI 858 Intro to Physical Oceanography	MATH 835 Statistical Methods for Researchers	CEE 931 Adv Physicochemical Treatment
ESCI 860 Intro to Dynamic Oceanography	MATH 839 Regression Analysis	CEE 934 Adv Bioenvironmental Eng
ME 807 Analytical Fluid Dynamics	MATH 840 Design of Experiments	ESCI 847 Aqueous Geochemistry
ME 909 Viscous Flow	MATH 842 Multivariate Statistics and	ESCI 852 Chemical Oceanography
OE 854 Ocean Waves and Tides	MATH 844 Design of Experiments II	ESCI 855 Analytical Techniques for Sediments
OE 860 Intro Dynamic Oceanography	MATH 845 Foundations of Applied Math	ESCI 895 Advanced Fate and Transport
	MATH 853 Intro to Numerical Methods	MICRO 813 Microbes and the Env
	MATH 855 Prob and Stochastic Processes	MICRO 814 Public Health and Waterborne Diseases
	MATH 931 Mathematical Physics	NR 801 Ecological Values and Ethics
	ME 886 Finite Element Analysis	NR 803 Watershed Water Quality Mgmt
	ME 809 Comp Fluid Dynamics	NR 811 Wetland Ecology and Mgmt
	NR 857 Photo Interpretation and	NR 816 Wetland Delineation
	NR 859 Digital Image Processing for Natural Resources	NR 818 Law of Natural Resources and Env
	NR 860 Geographic Information Systems in Natural Resources	NR 819 Wetlands Mitigation and Restoration
	PHP 903 Biostatistics	NR 821 Ecology of Polluted Waters
		NR 905 Contaminant Fate and Transport in the Subsurface
		PHP 903 Environmental Health

\*Other courses are allowed with written approval by CEC.