

CIVIL AND ENVIRONMENTAL ENGINEERING, DOCTOR OF PHILOSOPHY (PH.D.)

ENCE899	Doctoral Dissertation Research
Total Credits	42

The requirements for the Ph.D. degree are also the same as those of the Graduate School. The student will work closely with an adviser to develop an approved program of study suited to his or her individual needs. Before admission to candidacy, the student must pass a qualifying examination, which is normally taken after the coursework is at least 75 percent completed. There is no language requirement for the Ph.D.

Advance to Candidacy: Doctoral students are required to complete 36 credits beyond the Bachelor's degree, which would include the credits earned in the completion of a Master's degree. A qualifying examination is required in order to advance to candidacy.

Post-Candidacy: A doctoral student who passes the qualifying exam is admitted to candidacy will automatically be registered for 6 credits of ENCE899. A minimum of 12 credits must be taken in ENCE899.

Course	Title	Credits
Specialization Requirements (select one)		30
1. Environmental		
ENCE650	Process Dynamics in Environmental Systems	
ENCE651	Chemistry of Natural Waters	
ENCE652	Microbiological Principles of Environmental Engineering	
2. Civil Systems		
ENSE621	Systems Engineering Concepts and Processes: A Model-Based Approach	
	or ENSE622 System Trade-off Analysis, Modeling, and Simulation	
ENCE603	Bayesian Data Analytics for Engineering	
	or ENCE677 OR Models for Transportation Systems Analysis	
ENCE688	Advanced Topics in Civil Engineering (ENCE688A Sensing and Systems Control)	
3. Geotechnical		
All courses approved by advisor		
4. Project Management		
ENCE661	Project Cost Accounting and Finance	
ENCE662	Introduction to Project Management	
ENCE664	Legal Aspects of Engineering Design and Construction	
ENCE665	Management of Project Teams	
ENCE627	Project Risk Management	
5. Structures		
All courses approved by advisor		
6. Transportation		
All courses approved by advisor		
7. Water Resources		
ENCE431	Hydrologic Engineering	
ENCE630	Environmental and Water Resource Systems I	
Dissertation Research Requirements		12