

CIVIL AND ENVIRONMENTAL ENGINEERING, POST- BACCALAUREATE CERTIFICATE (P.B.C.)

12 credits required

All Graduate Certificate in Engineering Programs consist of 4 courses/12 credits. All students are expected to complete a preliminary course plan for their intended degree program. Degree planning worksheets can be found here: <https://advancedengineering.umd.edu/degree-planning-sheets> (<https://advancedengineering.umd.edu/degree-planning-sheets/>)

Students must complete 12 credits in one of the certificate track options.

Environmental and Water Resources

Course	Title	Credits
ENCE630	Environmental and Water Resource Systems I	3
Select three additional approved courses		9
ENCE688	Advanced Topics in Civil Engineering (ENCE688C)	
ENCE688	Advanced Topics in Civil Engineering (ENCE688O)	
ENCE688	Advanced Topics in Civil Engineering (ENCE688B)	
ENCE688	Advanced Topics in Civil Engineering (ENCE688T)	
ENCE688	Advanced Topics in Civil Engineering (ENCE688Y)	
Total Credits		12

Geotechnical

Course	Title	Credits
ENCE640	Advanced Soil Mechanics	3
ENCE741	Earth Retaining Structures	3
Select two additional approved courses		6
ENCE641	Advanced Foundations Systems	
ENCE688	Advanced Topics in Civil Engineering (ENCE688P)	
ENCE688	Advanced Topics in Civil Engineering (ENCE688T)	
ENCE743	Soil Dynamics and Earthquake Engineering	
Total Credits		12

Structural

Course	Title	Credits
ENCE611	Finite Element Methods	3
ENCE710	Steel Structures I	3
ENCE713	Concrete Structures I	3
Select one additional approved course		3
ENCE610	Fundamentals of Structural Analysis	
ENCE613	Structural Dynamics	
Total Credits		12

Transportation

Course	Title	Credits
Select four of the following:		12
ENCE674	Urban Transit Planning and Rail Transportation Engineering	
ENCE675	Airport Planning and Design	
ENCE677	OR Models for Transportation Systems Analysis	
ENCE681	Freight Transportation Analysis	
ENCE688	Advanced Topics in Civil Engineering	
Total Credits		12