2015-2016 Civil Engineering Upper Division Offerings and Technical Elective Information

Subject to change

GROUP OPTION requirement: Select 2 courses from 4 of the 5 areas below → 8 courses total

30 unit minimum – excess units used toward ECI Elective requirement

MAJOR DESIGN EXPERIENCE requirement: At least 2 courses from Group Options and/or ECI Elective must be from the following list:

ECI 127, ECI 136, ECI 145, ECI 148B, ECI 150, ECI 162, ECI 173

SENIOR STANDING REQUIRED (135+ units) TO ENROLL IN MAJOR DESIGN COURSES

ENVIRONMENT: No changes from 14-15

ECI 148A* = Water Quality Management 4 W CHE 2B w/ C- or better
ECI 149 = Air Pollution D 4 F MAT 21D & 22B; CHE 2B & ENG 103 both w/ C- or better

and one or more of the following courses:
ECI 140 = Env. Analysis of Aquaeous Sys. 3 F CHE 2B
ECI 143 = Green Engr. Des. & Sustainability D 4 F Upper division standing; (may change to ECI 148A & ENG 106)

ECI 148B = Water Qual. Mgmt. Sys. Design 4 S ENG 103, ECI 148A both w/ C- or better
ECI 150 = Air Pollution Cont. Sys. Design D 4 W ENG 103, 105 and 106; ECI 149

GEOTECHNICAL: No changes from 14-15

ECI 171*-171L = Soil Mechanics & Lab 4/1 F S ENG 103 (MBTC); ENG 104 w/ C- or better; 171L concurrently

and one or more of the following courses:

ECI 173 = Foundation Design 4 W ECI 171

ECI 175 = Geotechnical Earthquake Engineering 4 W ECI 171 w/ C- or better
ECI 179 = Pavement Engineering L 4 F ENG 104 w/ C- or better -ECI 179 may only count in one group-

STRUCTURES:

ECI 130 = Structural Analysis 4 F S ENG 104 w/ C- or better; MAT 22A

and one or more of the following courses:
ECI 131 = Matrix Structural Analysis L 4 S ENG 104 w/ C- or better; ENG 6
ECI 132 = Struct. Design: Metallic Elem. 4 W ECI 130
ECI 135 = Struct Design: Concrete Elem. L 4 W ECI 130; Restricted to Civil Eng majors

ECI 136 = Building Design 4 S Upper division standing in Engineering; ENG 106 recom

ECI 137 = Construction Prin. & Proj. Mgmt. L 4 S ECI 130 or 131; ECI 132 or 135
ECI 138 = Earthquake Loads on Structures D 4 S ECI 130 or 131
ECI 139 = Advanced Structural Mechanics 4 not offered 15-16 ENG 104 w/ C- or better

TRANSPORTATION:

ECI 161* = Transportation System Operations D 4 F ENG 6 (or equiv.); MAT 21C & PHY 9A w/ C- or better

or ECI 162 = Transport Land Use Sustain. Design D 4 S ECI 161 or 163 w/ C- or better in either

or ECI 179 = Pavement Engineering L 4 F ENG 104 w/ C- or better -ECI 179 may only count in one group-

and one or more of the preceding or following courses:
ECI 163* = Energy/Env. Aspects of Trans. 4 not offered 15-16 ENG 106 or ECN 1A offered Fall '16
ECI 165 = Transportation Policy 3 F

WATER RESOURCES:

ECI 141*-141L = Engineering Hydraulics & Lab 3/1 F W ENG 103 w/ C- or better

and one or more of the following courses:
ECI 142 = Engineering Hydrology 4 not offered 15-16 ECI 141 (MBTC)
ECI 144 = Groundwater Systems Design 4 F ECI 141

ECI 145 = Hydraulic Structure Design L/D 4 S ECI 141 w/ C- or better

ECI 146 = Water Resources Simulation D 4 W ENG 103
ECI 155 = Water Resources Engrg. Planning 4 W ENG 106 or ECN 1A, ECI 114

SUSTAINABILITY AND ENERGY electives (NOT required for graduation; units can be applied to ECI elective requirement)

ECI 123 = Urban Systems & Sustainability 4 S Upper division standing
ECI 125 = Building Energy Performance 4 S Upper division standing in Engineering
ECI 126 = Green Planning L 4 not offered 15-16 PHY 9C; upper division standing; consent of instructor via application

ECI 127 = Green Design L 4 not offered 15-16 ECI 126 (126 & 127 taken as a sequence)

MATHEMATICAL ANALYSIS requirement: select ONE of the following four courses (4 units required)

ECI 115 = Computer Methods in Civil Eng L 4 S ENG 6 or ECS 30, MAT 22B
ECI 153 = Deterministic Optimization & Design L 4 F MAT 21C, 22A, programming course
MAT 118A = Partial Diff. Eqns:Elementary Methods 4 F MAT 21D, 22A, 22B (extensive problem solving)

Statistics 108 = Appl. Stat. Methods:Regression Analy D 4 F W S Statistics 13, 32, 102 or ECI 114; Pass 1 STA majors only

(MBTC) = Course may be taken concurrently  L = Course has a Lab  D = Course has a Discussion  = Course open to Engineering students ONLY

Offerings & prerequisites are subject to change

revised 3/24/2015