Attachment A: Course Requirements for the 4th Year

Students in the combined BS+MEng program may double count 6 credit hours of graduate courses taken in the senior year. In their senior year, students in the combined program replace BS requirements according to the sub-discipline of the Master’s degree being pursued:

**Structural Engineering students:**

- Replace the Group C requirement and the first Group B requirement from the BS academic map with two 5000-level CES courses.
- Take both CES 4605 Steel Design and CES 4702 Concrete Design; one of these courses will meet the second Group B requirement from the BS academic map.
- Select the two 5000-level courses from the following list
  - CES 5105. Advanced Mechanics of Materials (3).
  - CES 5106. Advanced Structural Analysis (3).
  - CES 5144. Matrix Methods for Structural Analysis (3).
  - CES 5209. Structural Dynamics (3).
  - CES 5325. Bridge Engineering (3).
  - CES 5585. Wind Engineering (3).
  - CES 5606. Advanced Steel Design (3).
  - CES 5706. Advanced Concrete Design (3).
  - CES 5715. Prestressed Concrete (3).
  - CES 5801. Structural Design of Wood Structures (3).

**Geotechnical Engineering Students:**

- Replace the Group C requirement and the first Group B requirement from the BS academic map with two 5000-level CES courses.
- Select the two 5000-level courses from the following list
  - CEG5115. Foundation Engineering
  - CEG 5705. Environmental Geotechnics
  - CEG 5515. Earth Retaining Systems and Slope Design
  - CEG 5127. Highway and Airport Pavement Design
  - OCC 5930. Environmental Modeling
  - CES 5150. Advanced Mechanics of Materials
  - ISC 5236. Applied Groundwater Modeling
  - CWR 5125. Groundwater Hydrology
  - ISC 5226. Numerical Methods in Earth and Environmental Sciences
  - ISC 5935. Uncertainty Analysis & Risk Management in Earth and Environmental Sciences
• **Environmental/Water Resources students:**
  
  Take two 5000-level ENV and/or CWR courses; this will replace either both Group B requirements from the BS academic map, or one Group B requirement and the CWR 4xxx requirement.
  
  Select the two 5000-level courses from the following list
  • CEG 5705. Environmental Geotechnics (3).
  • CWR 5205. Hydraulic Engineering II (3).
  • CWR 5635. Water Resources Planning and Management (3).
  • CWR 5824. Coastal and Estuarine Hydraulics (3).
  • ENV 5028. Remediation Engineering (3).
  • ENV 5030. Applied Environmental Engineering Microbiology (3).
  • ENV 5045. Environmental Systems Analysis (3).
  • ENV 5055. Chemical Fate and Transport in the Environment (3).
  • ENV 5105. Air Pollution Control (3).
  • ENV 5407. Water Reuse Engineering (3).
  • ENV 5419. Applied Environmental Engineering Chemistry (3).
  • ENV 5504. Environmental Engineering Processes and Operations (3).
  • ENV 5565. Design of Water Quality Management Facilities (3).
  • ENV 5615. Environmental Impact Analysis (3).
  • ENV 5617. Environmental Engineering Sustainability (3).

• **Transportation/Construction students:**
  
  Take CCE 4004 Construction Engineering or CCE 4031 Construction Planning and Scheduling to meet the TTE 4xxx/CCE 4xxx requirement from the BS academic map.
  
  Replace the Group C requirement and the first Group B requirement from the BS academic map with two 5000-level TTE and/or CCE courses.
  
  Take TTE 4804 Highway Geometric Design to meet the second Group B requirement from the BS academic map.
  
  Select the two 5000-level courses from the following list
  • CCE 5035. Construction Planning and Scheduling (3). [This course will not count if CCE 4031 is also taken.]
  • CCE 5036. Project Controls in Construction (3).
  • CCE 5212. Sustainable and Green Construction (3).
  • CCE 5510. Computer Applications in Construction (3).
  • CEG 5015. Advanced Soil Mechanics (3).
  • CEG 5115. Foundation Engineering (3).
  • CEG 5127. Highway and Airport Pavement Design (3).
  • CGN 5825. Site Development (3).
  • TTE 5205. Traffic Engineering (3).
  • TTE 5206. Advanced Traffic Flow Analysis (3).
  • TTE 5256. Traffic Operations (3).
  • TTE 5270. Intelligent Transportation Systems (3).
  • TTE 5305. Transportation Systems Analysis (3).
  • TTE 5270. Intelligent Transportation Systems (3).
  • TTE 5501. Transportation Economics (3).