

# ENVIRONMENTAL ENGINEERING

## TECHNICAL ELECTIVES

Revised May 2013

**5 total, at least 1 from the MAE Department. Generally all upper division MAE classes count as TEs:**

CENG 120 Chemical Process Dynamics and Control	MAE 142 Dynamics & Control of Aerospace Vehicles
CENG 122 Separation Process	MAE 149 Sensor Networks
CENG 124A/B Chemical Plant and Process Design I/II	MAE 150 Computer-Aided Analysis and Design
CENG 176A/B Chemical Engineering Process Lab I/II	MAE 160 Mechanical Behavior of Materials
MAE 118 Introduction to Energy Systems	MAE 161 Electronic, Magnetic, Photonic Materials
MAE 120 Introduction to Nuclear Energy	MAE 166 Nanomaterials
MAE 130A/B/C: Statics, Dynamics, and Vibrations	MAE 171B Senior Research Project
MAE 131A/B/C: Solid Mechanics, I, II & III	MAE 199 Independent Study for Undergraduates (2 quarter sequence counts as 1 TE)
MAE 133: Finite Element Methods	MAE210A/B/C Fluid Mechanics
MAE 135 Computational Mechanics	MAE 224 A/B Environmental Fluid Mechanics
MAE 140 Linear Circuits	MAE 254 Energy Materials and Applications
MAE 143A/B/C Signals and Systems, Linear Control, Digital Control Systems	MAE 255 Renewable Energy Meteorology

### Non-Departmental Technical Electives

#### **Chemistry**

Chem 100A Analytical Chemistry Laboratory  
Chem 100B Fundamentals of Instrumental Analysis  
Chem 131/132 Physical Chemistry  
Chem 140B/C Organic Chemistry II/III  
Chem 143A Organic Chemistry Laboratory  
Chem 149A Environmental Chemistry  
Chem 149B Environmental Chemistry  
Chem 173 Atmospheric Chemistry

#### **Scripps Institute of Oceanography. All upper division SIO lecture classes count as TEs, e.g.:**

SIO 101 California's Coastal Oceanography  
SIO 102 Introduction to Geochemistry (requires SIO 50)  
SIO 103 Introduction to Geophysics (requires SIO 101)  
SIO 110 Introduction to GIS / GPS  
SIO 111 Ocean Waves and Tides  
SIO 112 Urban Landscapes  
SIO 113 Computations in Earth Sciences.  
SIO 115 Ice and the Climate System  
SIO 117 The Physical Basis of Global Warming  
SIO 135 Satellite Remote Sensing  
SIO 182A/B Applied Geophysics

#### **Environmental Systems**

ESYS 150 Environmental Perils

#### **Structural Engineering**

SE 183 Engineering Geology

#### **Economics (at most 1, Econ 1A and Econ 1B required)**

Econ 131 Economics of the Environment  
Econ 132 Energy Economics  
Econ 135 Urban Economics  
MGT110/111/112: Business  
MGT121A/B: Innovation to Market  
MGT 172 Business Project Management

#### **Urban Studies and Planning (at most 1)**

USP 124 Land Use Planning  
USP 144 Environmental and Preventive Health Issues  
USP 170 Sustainable Planning  
USP 171 Sustainable Development

#### **Teams In Engineering Services -TIES**

ENG100L (1 TE for 2 quarters of ENG100L)

### Recommended Tracks

*Following a track is not required, but will add depth and coherence to your knowledge in your field of interest.*

#### **Renewable Energy:**

MAE 118, 120, ECON 132, MAE 254, MAE 255

#### **Environmental Sensing and Control:**

MAE 140, 143A/B/C, 149, 150, 199

#### **Environmental Chemistry:**

Chem 149A, 173 and choice of 3 out of (CENG 120, 122, 124A/B, 176A/B, SIO 263, Chem 149B, 140B, 100A/B, 143A, EARTH 142)

#### **Earth Science: Atmospheric Science / Ocean Science / Geophysics:**

ERTH/SIO 102, 103, 110, 111, 112, 113, 117, 135, 142, 182A/B, ESYS 150

Questions? Please contact an MAE Undergraduate Adviser, Gerri Johnson, at [gljohnson@ucsd.edu](mailto:gljohnson@ucsd.edu) or Christina Sandoval-Paquette, at [cgsandoval@ucsd.edu](mailto:cgsandoval@ucsd.edu).