



Ecological Technology Design

The ENST concentration in Ecological Technology Design prepares students for integrating natural systems with the built environment to solve environmental problems while achieving economic, ecological and social sustainability. The science and applications of using natural systems, processes and organisms to address environmental issues has evolved during the last few decades to a mature level whereby there are strong employment opportunities for graduates that are cross-educated in ecology and technology.

Science and Math Fundamentals Required (48-50 credits):

- ▲ **ENST 200** Fundamentals of Soil Science (F, Sp; 4)
- ENST 233 Introduction to Environmental Health (F, Sp; 3)
- ENST 360 Ecosystem Ecology (F; 4)
- ◆ **ENST 389** Internship (F, Sp; 3)
- ENST 471 Capstone I (F; 2)
- ENST 472 Capstone II (Sp; 3)
- ▲ **BSCI 170/171** Principles of Biology I (F, Sp, Su; 4)
- ▲ **BSCI 160/161** Principles of Biology II (F, Sp, Su; 4)
- ▲ **CHEM 131&132** Fundamentals of General Chemistry & Lab (F, Sp, Su; 4)
- ▲ **CHEM 231&232** Organic Chemistry I & Lab (F, Sp, Su; 4)
- ▲ **MATH 140** Calculus I (4) -or- **MATH 120** Elementary Calculus I (F, Sp, Su; 3)
- MATH 141** Calculus II (4) -or- **MATH 121** Elementary Calculus II (F, Sp, Su; 3)
- ▲ **PHYS 121** Fundamentals of Physics I (F, Sp, Su; 4)
- ▲ **BIOM 301** Introduction to Biometrics (F, W, Sp, Su; 3)

Depth (9 credits):

- ENST 405** Energy and Environment (Sp; 3)
- ENST 410** Ecosystem Services: An Integrated Analysis (F; 3)
- ENST 481** Ecological Design (S; 3)

Computational Techniques (2 courses-6 credits):

- ENST 281** Computer Aided Design in Ecology (F, 3)
- GEOG 373** Geographic Information Systems (F, W, Sp, Su; 3)

Applications (choose 2 courses-6 credits):

- ENST 415** Renewable Energy (F, 3)
- ENST 443** Industrial Ecology (TBA, 3)
- ENST 452** Wetland Creation and Restoration (Sp, 3)
- GEOG 453** Ecosystem Restoration (F, 3)
- ENST 489Z** Water Management in Urban Environment (F, 3)

Technology and Ecosystem Electives (12 credits):

Example courses listed on reverse side. Courses applied to elective requirements may not be applied to other curriculum requirements.

- ▲ Benchmark to be completed by 30 credits
- ▲ Benchmark to be completed by 60 credits
- ▲ Benchmark to be completed by 90 credits
- ◆ Requires prior approval

Highlighted Courses are ENST CORE
Students must maintain a 2.0 grade point average in major required courses



Technology and Ecosystem Electives (12 credits):

Students will take approximately 6 credits each of Technology and Ecosystem courses as electives to tailor their program to their specific interests (total = 12 credits). Technology electives cannot be double-counted as Ecosystem electives, and vice-versa. This is not an exhaustive list of electives; other technology and ecosystem courses can be substituted with advisor approval. Required electives may not be applied in more than one category, e.g. Elective selections will not also satisfy Computational Techniques or Applications requirements.

Technology Electives (at least 6 credits):

- ARCH 450** Introduction to Urban Planning (3)
- ENST 415** Renewable Energy (3)
- ENST 417** Soil Hydrology and Physics (3)
- ENST 421** Soil Chemistry (4)
- ENST 423** Soil-Water Pollution (3)
- ENST 441** Sustainable Agriculture (3)
- ENST 443** Industrial Ecology (3)
- ENST 453** Watershed Science: Water Balance, Open Channel Flow, and Near Surface Hydrology (3)

- ENST 477** Design for Urban Water and Energy (3)
- ENST 499** Special Topics in Environmental Science and Technology (1-4)
- GEOG 372** Remote Sensing (3)
- GEOG 473** Geographic Information Systems and Spatial Analysis (3)
- GEOL 451** Groundwater (3)
- GEOL 452** Watershed and Wetland Hydrology (3)

Ecosystem Electives (at least 6 credits):

- BSCI 363** The Biology of Conservation and Extinction (3)
- BSCI 460/461** Plant Ecology & Lab (5)
- BSCI 464** Microbial Ecology (3)
- BSCI 467** Freshwater Biology (3)
- ENST 314** Fisheries Sustainability and Management (3)
- ENST 334** Environmental Toxicology (3)
- ENST 373** Natural History of the Chesapeake Bay (3)
- ENST 407** Environmental Plant Physiology (3)
- ENST 422** Soil Microbial Ecology (3)
- ENST 423** Soil-Water Pollution (3)
- ENST 430** Wetland Soils (3)
- ENST 432** Environmental Microbiology (3)
- ENST 450** Wetland Ecology (3)
- ENST 452** Wetland Creation and Restoration (3)
- ENST 453** Watershed Science (3)
- ENST 460** Principles of Wildlife Management (3)
- ENST 461** Urban Wildlife Management (3)
- ENST 462** Field Techniques in Wildlife Management (3)
- ENST 479** Tropical Ecology and Resource Management (1-6)
- ENST 499** Special Topics in Environmental Science and Technology (1-4)
- GEOG 331** Introduction to Human Dimensions of Global Change (3)
- GEOL 453** Ecosystem Restoration (3)
- LARC 450** Environmental Resources (3)
- PLSC 400** Environmental Plant Physiology (3)
- PLSC 471** Forest Ecology (3)