ARE YOU INTERESTED IN SOLVING ENVIRONMENTAL PROBLEMS USING NOVEL AND SUSTAINABLE ECOSYSTEM-SCALE APPROACHES?

ECOLOGICAL ENGINEERING SCIENCE

CEES 5363 3 CREDIT HOURS  SPRING 2011

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Ecological engineering is the design of sustainable ecosystems that integrate human society with its natural environment for the benefit of both. Ecologically engineered systems require less fossil fuel input, produce less pollution and represent cost-effective alternatives to traditional energy- and resource-intensive technologies.

This graduate class will provide an in-depth examination of this discipline through critical analyses of current literature, field trips, student-led discussions and a real-world team project. Special emphasis will be placed on contaminated land and water restoration.

Topics include:

- Ecosystem creation and restoration principles
- Role of self-organization
- Energy signatures and flow
- Ecological design components
- Lake, reservoir, stream, river, wetland and riparian restoration
- Treatment wetlands
- Passive treatment systems
- Disturbed land reclamation
- Soil bioengineering
- Bioremediation
- Phytoremediation
- Industrial ecology
- Related topics

Prerequisites include Senior or Graduate standing and a course in Biology/Ecology or Engineering, or permission of instructor.