

**ENGINEERING FOR DEVELOPING COMMUNITIES (EDC) CURRICULUM
FOR MS STUDENTS IN ENVIRONMENTAL ENGINEERING
(2/04 version)**

Mission:

Educate globally responsible students who can offer sustainable and appropriate technology solutions to the endemic environmental problems faced by developing communities at the local, national and global levels.

Undergraduate Required Background Courses for non-Civil Engineers

- 1) Calculus sequence through differential equations (2 yr)
- 2) Chemistry (1 yr)
- 3) Physics (1 yr)
- 4) Analytical mechanics (1 sem)
- 5) Fluid mechanics (1 sem)
- 6) Environmental engineering fundamentals (1 sem)
- 7) Introduction to construction methods (1 sem)

Required Courses (7) †,‡

- 1) CVEN 5834 Environmental Engineering Processes
- 2) CVEN 5404 Environmental Engineering Chemistry **or**
CVEN 5484 Environmental Microbiology
- 3) One of: CVEN 5524 Water Treatment, CVEN 5534 Wastewater Treatment or
CVEN 5474 Hazardous Waste Management
- 4) CVEN 5434 Environmental Engineering Design
- 5) Introduction to Public Health (4000/5000) - **new**
- 6) Appropriate Treatment Technology (4000/5000) - **new**
- 7) Sustainability course
 - a) CVEN 5838: Sustainability and Built Environment
 - b) CVEN 5830: Sustainable Building Design
 - c) GEOG 5762: Sustainable Development: Theory and Classic Issues
 - d) Other on faculty approval

†) Upon advisor approval, students who have successfully taken undergraduate courses, which have coverage similar to the above courses, will be allowed to take electives in lieu of the required course.

‡) Students with a **strong** environmental engineering background that can show strength in the areas covered by the Environmental Engineering Processes course and who have taken a water and wastewater treatment course may, upon faculty approval, be allowed to take electives in lieu of 1) 5834 Environmental Engineering Processes, and 3) CVEN 5524 Water Treatment, CVEN 5534 Wastewater Treatment or CVEN 5474 Hazardous Waste Management.

Elective Courses (1 to 3 minimum)

- 1) Thesis plan I – 1 elective minimum
- 2) Non thesis plan II
 - a. Plan IIA (course work only) – 3 electives minimum
course work only MS option should be reserved for students who have significant past field experience
 - b. Plan IIB (course work and project) – 1 elective minimum plus a project
The project will be a two-semester service project that can be one semester planning and second semester in-field service.

Potential Electives

Up to half the coursework can be outside CVEN/AREN (per dept. rules)

Up to 6 hrs can be 4000-level courses outside the department.

CVEN 5XXX Independent Projects (**new**)

CVEN 5393 Water Resources Development and Management - fall

CVEN 5484 Environmental Microbiology - fall

CVEN 5524 Drinking Water Treatment - spring

CVEN 5534 Wastewater Treatment - spring

CVEN 5474 Hazardous Waste Management - spring

CVEN 5838 Sustainability and Building - spring

CVEN 5323 Applied Stream Ecology - fall

GEOG 5762 Sustainable Development: Theory and Classic Issues - spring

GEOG 5772 Sustainable Development: Institutions and Policy

GEOG 5782 Sustainable Development: Critique - fall

Others???

ECON 4535 Natural Resource Economics;

ECON 4545 Environmental Economics

ECON 6535 Resources and Environment

EPOB 4030/5030 Limnology

EPOB 4160/GEOL 4160 Introduction to Biogeochemistry

EPOB 4180 Ecological Perspectives on Global Change

ENVS 5810 Climate, Water Resources, and Environmental Sustainability

GEOL 4716 Environmental Field Geochemistry

New Courses

Appropriate Treatment Technology (4000/5000), 3 or 4 credits, summer or fall
applied ecology (Diane)

water quality, supply and treatment (Scott)

wastewater quality and treatment (Mark/JoAnn)

solid/hazardous waste management (Angie)

Introduction to Public Health (4000/5000), 3 credits, fall
(Instructor not confirmed)

CVEN 5xxx Independent Projects

2 semesters with one in the field (local, national or international)