



THE OHIO STATE UNIVERSITY
COLLEGE OF ENGINEERING

Humanitarian Engineering

ECE 5050

Credit Hours:

3.00

Course Levels:

Undergraduate (1000-5000 level)

Graduate (5000-8000 level)

Course Components:

Lecture

Course Description:

Poverty and underdevelopment. Goal of social justice. Development strategies. Engineering for the poor, weak, and developing communities. Humanitarianism in the university and engineering enterprise.

Prerequisites and Co-requisites:

Prereq: 1182 or 1282; or Grad standing; or permission of instructor.

Course Goals / Objectives:

- Students will be competent in knowing how to solve problems of poverty and underdevelopment with a goal for social justice
 - Students will master the identification and characterization of engineering strategies and technology for development
 - Students will be competent in applying their skills to community development and humanitarianism in the university and engineering enterprise
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Course Topics:

- Introduction to challenges
 - Social justice is the goal of engineering development
 - Religious and Secular Perspectives on Social Justice
 - Social Justice: Political Philosophy and Economics Perspectives
 - Social Justice: Economics and Engineering Ethics Perspectives
 - Development Strategies
 - Development Strategies and Implications for Engineering
 - Engineering for the Poor, Weak, and Developing Communities
 - Extreme Design Constraints and Appropriate Technology
 - Environment and Sustainable Design
 - Design Implementation and the Single Field Test
 - Scaling Up
 - Universities and Humanitarian Engineering
 - Humanitarianism Via the Engineering Enterprise
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Designation:

Required

Elective