**DETAILED COURSE DESCRIPTION**

**COURSE:** ERE 133 – Introduction to Engineering Design

3 Credit Hours – Spring Semester

2 Hours Lecture and 3 Hours of Group Instruction Per Week

Prerequisite(s): none

**SCOPE:**

1. *Level of Instruction:*
   1. ERE 133 is a Required Course for BS Environmental Resources Engineering (ERE) students.
2. *Relation to curriculum or to other ESF or Syracuse University courses:*
   1. This course provides a foundation for the student by providing tools and knowledge that will be reinforced throughout the engineering curriculum, especially in ERE courses.
   2. Syracuse University offers a similar course to Syracuse University freshman engineering students – ECS 101 Introduction to ECS – which is restricted to SU students.

**STUDENT LEARNING OUTCOMES:**

After completing this course the student should be able to:

1. Use an engineering design approach to design a product, process, or system that meets desired needs within given constraints and performance criteria.
2. Communicate effectively using oral, written and graphic processes consistent with the needs and tools of the profession, including word processing, spreadsheet analysis, oral presentations, computation and engineering graphics.
3. Function as part of a team of peers to solve an engineering problem.
4. Describe the professional and ethical responsibilities of an engineer.

**MAJOR CONCEPTS OR METHODOLOGIES:**

To achieve the stated objectives, students will engage in individual and team-oriented activities such as lecture, discussion, observation, computation, reading and writing. Instructor will be resident faculty with engineering expertise, and will be supported by guest lectures by professional engineers, self-paced tutorials to teach engineering graphics skills, reading from relevant professional journals and textbook, small team-based design projects and ethics case studies. Major concepts include:

1. engineering profession and its role in contemporary society
2. engineering analysis and design processes
3. use of engineering tools, such as software designed for word processing (e.g., MS Word), spreadsheet analysis (MS Excel), presentations (MS Powerpoint), computation (MathCAD), and graphics (AutoCAD)
4. written, graphic and oral communication skills, including design memoranda, reports, plans and specifications, oral presentations, project logbook and orthographic and isometric drawings
5. teamwork, functional roles, assessment and feedback
6. professional development, licensing and engineering ethics

**CATALOG DESCRIPTION (Please provide using the precise format to be included in the ESF catalog, please do not exceed 50 words)**

ERE 133. Introduction to Engineering Design (3)

Two hours of lecture and three hours of group discussion per week. An introduction to the engineering profession, including design, communication, ethical and professional behavior, teamwork and data analysis. Learning is reinforced through study, conduct and critique of design exercises related to environmental resources engineering. Spring.

Prerequisite(s): none

**COURSE HISTORY:**

This course replaces ERE 225 Engineering Graphics (1) and FEG 300 Introduction to Engineering Design (1) that were previously required courses for Environmental Resources Engineering students in the sophomore and junior years, respectively. ERE 225 and FEG 300 will not be offered after Fall 2007. This course was offered initially in Spring 2008 as ERE 296 Special Topics Introduction to Engineering. This course will be offered to freshman engineering students, giving them the exposure to the engineering profession and tools for success within the curriculum in their first year.

Last approved: April 14, 2008; Revised: April 15, 2008; Version: 5.5.2008

Revised course prefix from FEG 133 to ERE 133, and updated program and/or department name from Environmental Resources and Forest Engineering to Environmental Resources Engineering: September 28, 2010