



Course Outline

ETE 7810 - NCETE Research Seminar (1 Credit)

Instructor:	Dr. Kurt Becker	Office:	IS 112
Telephone:	(435) 797-2076	Office Hours:	M,W 9:00-11:00
EMAIL:	kbecker@cc.usu.edu	Meeting Time:	Tuesdays 12:00-2:00

Fall 2007

Engineers and Engineering Design Course Outline

Objectives:

- 1) Develop an understanding of engineers, their education, and the profession
- 2) Become familiar with design objectives and design methods
- 3) Provide a basis for linking K12 education activities to the engineering profession

Lecture/Discussion Topics

- 1) Engineers
 - a. Disciplines, fields and careers
 - b. Career progression
- 2) Education of an engineer
 - a. Curricular instruction
 - i. Areas of study
 - ii. Filling the student pipeline
 - iii. Accreditation
 - b. Experiential learning, from novice to expert
 - i. Professional Registration
- 3) Entrepreneurial engineers vs corporate engineers

- 4) Design
 - a. Workable design versus optimal design
 - b. Modern design
 - i. New design methods and tools
 - ii. New materials, sensors, actuators and processors
 - c. Product design
 - i. Consumer products; want vs need driven
 - d. Project design
 - i. Design of manufacturing processes, buildings, etc
 - e. Design tools
 - i. Analysis tools
 - ii. Solid modeling
 - iii. Rapid prototyping
 - f. Optimal design
 - i. COPA
 - ii. Solar house design example
 - g. Intellectual property; patents and corporate secrets
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Course Meeting Dates:

- Thursday, August 30th (Newell)
- Thursday, September 13th (Newell)
- Thursday, September 27th (Newell)
- Thursday, October 11th (Newell)
- Thursday, October 25th (UGA)
- Thursday, November 8th (UMN)
- Thursday, November 22nd - No Class Thanksgiving Break
- Thursday, November 29th (USU)
- Thursday, December 6th (USU)