

CE / CHE / ECE / ME 400: The Compleat Engineer
Fall or Spring Semester

Type (check one):	Required: <input checked="" type="checkbox"/> Elective: <input type="checkbox"/> (before 2006)
2005-2006 Catalog Data:	CE 400. The Compleat Engineer. Same as ChE 400, ECE 400, ME 400. This course deals with a wide array of issues facing the practicing engineer. Topics include: engineering ethics; regulatory issues; health, safety, and environmental factors; reliability, maintainability, producibility, sustainability; and the context of engineering in the enterprise, in society, and as part of the global economy. Prerequisite: Permission of the department. <i>One semester, three credits</i>
Prerequisites:	Permission of Department
Co-Requisites:	None
Textbook:	C.E.Harris, M.S. Pritchard, and M.J. Rabins, <i>Engineering Ethics</i> , 2 nd Ed, Wadsworth, 2000; and M. Modarres, <i>Reliability and Risk Analysis</i> , Marcel Dekker, 1993.
Other Required Materials:	None
Other References:	None
Instructor:	Dr. Bernard B. Beard, Associate Professor of Mechanical Engineering, and Dr. Eric B. Welch, Associate Professor of Electrical and Computer Engineering
Course Objectives:	<ol style="list-style-type: none">1. Introduce students to engineering ethics and professionalism2. Familiarize students with design concerns such as environmental impacts, health, safety, regulatory issues, social/political factors, etc.3. Introduce concepts of reliability, maintainability, and producibility4. Develop appreciation for role of engineering in a global economy
Prerequisites by Topics:	<ol style="list-style-type: none">1. Design experience
Topics:	<ol style="list-style-type: none">1. Ethics and Professionalism2. Regulatory issues3. Health, safety, and environmental considerations4. Reliability, maintainability, producibility, sustainability5. Quality6. Human factors engineering7. The context of engineering in the enterprise and in society8. Engineering in the global economy9. Current events and their interactions with the engineering profession
Class Schedule:	Three 50-minute sessions per week

Prepared by: Dr. Bernard B. Beard

Date: 1/12/2005

Professional Component:

Category (check one)	<input type="checkbox"/> Math/Basic Science <input checked="" type="checkbox"/> Engineering <input type="checkbox"/> General Education <input type="checkbox"/> Other
Design (check one)	<input checked="" type="checkbox"/> Significant <input type="checkbox"/> Some <input type="checkbox"/> None
Realistic Constraints (check all that apply)	<input checked="" type="checkbox"/> Economic <input checked="" type="checkbox"/> Environmental <input checked="" type="checkbox"/> Sustainability <input checked="" type="checkbox"/> Manufacturability <input checked="" type="checkbox"/> Ethical <input checked="" type="checkbox"/> Health & Safety <input checked="" type="checkbox"/> Social <input checked="" type="checkbox"/> Political

Relationship to Program Outcomes:

Check all that apply:

- (a) an ability to apply knowledge of mathematics, science, and engineering
- (b) an ability to design and conduct experiments, as well as to analyze and interpret data
- (c) an ability to design a system, component, or process to meet desired needs
- (d) an ability to function on multi-disciplinary teams
- (e) an ability to identify, formulate, and solve engineering problems
- (f) an understanding of professional and ethical responsibility
- (g) an ability to communicate effectively
- (h) the broad education necessary to understand the impact of engineering solutions in a global and societal context
- (i) a recognition of the need for and an ability to engage in life-long learning
- (j) a knowledge of contemporary issues
- (k) an ability to use the techniques, skills, and modern engineering tools necessary for engineering practice