

Engineering Ethics – ENGR 306, Section 01

Abilene Christian University

Credit Hours: 1

Semester and Year: Spring 2015

Pre-requisites/co-requisite: ENGL 111

Class Meeting Times and Location

This class meets Thursdays in Bennett 119 5:30 pm to 6:20 pm.

The final exam is scheduled for 6:30 to 8:15 am on Tuesday, May 5, 2015.

Required Text

The required text for this course is *Engineering Ethics*, by Charles B. Fleddermann, Prentice hall, 2012, ISBN 978032145213.

Catalog Description

The purpose of this course is to provide engineering students with the fundamentals of professional ethics. This course will provide students with a set of tools and concepts that are directly applicable to the personal and professional decisions that may be encountered as practicing engineers. Prerequisites: ENGL 111. Credit hours: 1.

Intended Audience

This is a required course for Engineering majors and intended to be completed during their Junior or Senior year. Non-majors interested in engineering ethics and professional practice may also enroll in the course.

Contact Information

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Office Hours: M (10:00 -11:00 am) T (1:30-2:30 pm) W (10:00 – 11:00 am and 1:30 – 3:30) and Friday (1:30 – 3:30 pm). Additional office hours can be arranged as needed.

TEACHING PHILOSOPHY

Engineering is a well-respected profession. The public entrusts engineers to be honest, competent, and ethical. Many codes of ethics for these fields indicate that the commitment to protecting the health, safety, and welfare of the public is of paramount importance. These values are in harmony with Christian principles and ideals. Christian engineers should be honest (Matthew 5:37), work hard to ensure competency (Colossians 3:23), and put the public's interest ahead of his or her own (Luke 6:31). In light of these principles, this course will be taught such that you will gain an appreciation for the professional nature of engineering. It will be taught so as to give you every opportunity to begin to develop competency in these fields. This will require homework, quizzes, test, and group discussion. The

instructor especially encourages the discussion of topics that would bear on integrating faith and professional responsibilities (cheating on licensure exams, weapons design and manufacture, environmental laws and employment opportunities in developing nations, etc.)

Learning Objectives

The activities of the course support the assessment of the following ABET Outcomes:

ABET Learning Objectives	Course Competencies	Measurement
3(f) an understanding of professional and ethical responsibility	Analyze personal and professional ethical decisions involved in real world engineering projects	Homework, quizzes, project and exam (ABET Rubric)
	Ability to justify their personal and professional decisions	Homework, quizzes, project and exam (ABET Rubric)
	Understand and appreciate the National Society of Professional Engineers Code of Ethics and Texas Engineering Professional Conduct and Ethics rules	Homework, quizzes, project and exam (ABET Rubric)
3(g1) an ability to communicate effectively (Written Communications)	Create professional written responses and reports constructed from technical publications and sources	Homework and Project (ABET Rubric)

ACADEMIC INTEGRITY POLICY

Academic integrity is defined as academic work completed as assigned for each class by the individual or group responsible for the work. Violations of academic integrity and other forms of cheating involve the intention to deceive, mislead, or misrepresent and therefore, are a form of lying. Such actions are contrary to behavioral norms that flow from the nature of God. Academic misconduct includes, but is not limited to, the following: 1) Failure to give credit to sources used in a work in an attempt to present the work as one's own, 2) Submission of papers or projects obtained from another source (e.g., research service or club paper file) as one's own, and 3) Falsifying information orally or in writing. Academic misconduct may result in, but is not limited to, a zero on the assignment and/or an F in the course. Additionally, the department chair, Dean of the College of Arts and Sciences, and the Dean of Student Life will be notified. See the full university policy, including how to appeal a decision, by following this link: <http://www.acu.edu/campusoffices/studentlife/judicialDocuments/AcademicIntegrityPolicy.pdf>.

ATTENDANCE

Attendance is expected at all class sessions. It is also expected that you arrive promptly. If you are absent or tardy it will negatively affect your homework and quiz grades.

GRADING POLICY

Homework – (10 assignments, 25 points each)

One set of homework will be assigned on Thursday each week and will be due at the beginning of class the following Thursday. Late Homework will not be graded.

Quizzes – (5 quizzes, 20 points each)

Quizzes will be given at the beginning of class. Thus it is important that you be in class and on time to complete the quiz in the allotted time period.

Project – (1 Project, 100 points)

A portion of your final grade will be based upon a research project examining the professional engineering ethics and codes of a past or ongoing public engineering project. Students may select their own engineering project to research with instructor's approval.

Exams – (2 Exams, 100 points each)

Exams will consist of a combination of essay, multiple choice, and vocabulary questions. All exams will be closed book and notes.

Final Exam – (1 Exam, 100 points)

The final exam is comprehensive and will be essay and multiple choice.

Calculation of Final Course Grade-

Homework	250 points
Quizzes	100 points
Exams	200 points
Project	100 points
<u>Final Exam</u>	<u>100 points</u>
Total	750 points

90% and above	A
80% - 89%	B
70% - 79%	C
60% - 69%	D
59% and below	F

ADA COMPLIANCE STATEMENT

“Abilene Christian University is dedicated to removing barriers and opening access for students with disabilities in compliance with ADA and Section 504 of the Rehabilitation Act. The Alpha Scholars Program facilitates disability accommodations in cooperation with instructors. In order to receive accommodations, you must be registered with Alpha Scholars Program, and you must complete a specific request for each class in which you need accommodations. If you have a documented disability and wish to discuss academic accommodations, please call our office directly at 325-674-2667.”

THE MISSION OF ACU:

To educate students for Christian service and leadership throughout the world.

THE MISSION OF THE COLLEGE OF ARTS AND SCIENCES:

To educate students for worldwide Christian service and leadership through programs of study and other learning experiences that blend a liberal arts education with professional and career education

THE MISSION OF THE ENGINEERING AND PHYSICS DEPARTMENT:

The ACU engineering program strongly supports the university's mission of educating students for Christian service and leadership throughout the world. In support of this mission, ACU engineering graduates will attain:

a deep and broad understanding of engineering principles and practices as evidenced by professional employment, continued professional development, and graduate study in engineering or other professional fields.

an extensive knowledge of the innovative design processes unique to engineering professionals as demonstrated by using critical thinking skills to contribute to the scientific and technical literature, patents and intellectual property, professional societies, and creative designs.

a thorough understanding of Christian service and leadership as shown in their commitments to professionalism, ethics, and service and leadership within the engineering profession, the church, and society.

COURSE SCHEDULE

Date	Week	Chapters	Topics and Events
1/15/2015	1		Introduction to Engineering Ethics and Pre-Test
1/22/2015	2	1	Engineering Ethics and the Law
1/26/2015	3	2	Engineering Code of the Ethics and the Engineers' Creed Homework 1 Due
2/5/2015	4	3	Ethical Theories and Non-Western Ethics Homework 2 Due
2/12/2015	5	4	Ethical Problems Solving Techniques Homework 3 Due
2/19/2015	6		Exam 1
2/26/2015	7	5	Risk, Safety, and Accidents – Ethical Implications Homework 4 Due
3/5/2015	8	6	Professional Rights and Responsibilities and Whistle Blowing Homework 5 Due
3/12/2015	9	7	Environmental, Computer, and Research Ethics Homework 6 Due
3/19/2015	10		Texas Professional Engineering Code of Ethics Homework 7 Due
3/26/2015	11		Texas Professional Engineering Code of Ethics Homework 8 Due
4/2/2015	12		Exam 2
4/9/2015	13	8	Doing the Right Thing Homework 9 Due
4/23/2015	14		Faith and the Profession Guest Lecturer – Alan Hewitt, P.E. – Lauren Engineering and Constructors, Abilene, TX Homework 10 Due
4/30/2015	15		Faith and the Profession Written Project Due
5/6/2015	16		Final Exam 6:30-8:15 pm

Instructor reserves the right to modify the course schedule as necessary