



TEXAS TECH UNIVERSITY
Murdough Center for
Engineering Professionalism

Three Levels of Professional Development Hours in Engineering Ethics via Distance Learning¹

14th Edition © September 2009

BASIC STUDIES IN ENGINEERING ETHICS

Consists of ENGR ETHICS I and Results in 30 Professional Development Hours (PDH)

A study of three ethical theories and their applications
to engineering Codes of Ethics

INTERMEDIATE STUDIES IN ENGINEERING ETHICS

Consists of ENGR ETHICS I & II and Results in 60 Professional Development Hours (PDH)

A study of viewpoints on ethics, ethics case studies,
and codes of ethics applied to actual cases

ADVANCED STUDIES IN ENGINEERING ETHICS

Consists of ENGR ETHICS I, II, & III and Results in 90 Professional Development Hours (PDH)

Independent study and research into topics related to ethical responsibilities
of engineers to their clients, the profession, and society

Based on the 372-page NIEE Engineering Ethics Book

Engineering Ethics Concepts, Viewpoints, Cases and Codes, 2nd Edition, © 2008²

Edited by Jimmy H. Smith, PhD, PE, Patricia M. Harper, and Richard A. Burgess, M.A.

**Developed and Offered by the
Murdough Center for Engineering Professionalism
National Institute for Engineering Ethics and
Whitacre College of Engineering, Texas Tech University, Lubbock, Texas**



TEXAS TECH UNIVERSITY
National Institute for Engineering Ethics

¹ See Page 8 for Enrollment Information and Enrollment Form.

² This recently published book contains articles on three fundamental ethical theories, numerous viewpoints by engineers, nine (9) engineering codes of ethics, and one-hundred and thirty-seven (137) applied ethics cases.

A Brief Background on Texas Tech's Engineering Ethics Courses by Distance Learning

Texas Tech University's 2009 *distance learning courses* in engineering ethics, formerly known as *correspondence courses*, have been updated and revised in content and format. The original courses were created by the Murdough Center for Engineering Professionalism in the early 1990s with encouragement and financial support from the Texas Board of Professional Engineers (TBPE) and the National Council of Examiners for Engineering and Surveying (NCEES).

During the early years, the courses were taken by several staff and board members of engineering licensing boards to determine their applicability to and appropriateness for licensed engineers in their jurisdictions who had shown a need for various levels of reminders about the importance of ethics in engineering practice.

Since 1990, over 3,000 individuals from all 50 states have enrolled in our distance learning courses in ethics, approximately 35% have been licensed engineers and 65% have been students at universities taking an academic-credit version of these courses.

New Courses in Engineering Ethics

New courses, ENGR ETHICS I, II, and III, launched in September 2008, were distinctly different and significantly improved over previous versions. Beginning in September 2009, we offer the following three levels of study in engineering ethics, each containing the proper elements of ENGR ETHICS I, II, and III, which may still be taken individually if desired.³

BASIC STUDIES IN ENGINEERING ETHICS: A study of three ethical theories; application to cases and engineering Codes of Ethics.

Consists of ENGR ETHICS I and Results in 30 Professional Development Hours (PDH)

INTERMEDIATE STUDIES IN ENGINEERING ETHICS: A study of three ethical theories; application to cases and codes PLUS a comprehensive study of several viewpoints on ethics from engineers, numerous ethics case studies, codes of ethics, and theories and viewpoints applied to actual cases.

Consists of ENGR ETHICS I & II and Results in 60 Professional Development Hours (PDH)

ADVANCED STUDIES IN ENGINEERING ETHICS: A study of three ethical theories; application to cases and codes PLUS a comprehensive study of several viewpoints on ethics from engineers, numerous ethics case studies, codes of ethics, and theories and viewpoints applied to actual cases. PLUS comprehensive independent study and research into topics related to ethical responsibilities of engineers to their clients, the profession, and society.

Consists of ENGR ETHICS I, II, & III and Results in 90 Professional Development Hours (PDH)

The remainder of this document contains:

- ❖ A summary of the Table of Contents for the 2nd Edition of *Engineering Ethics Concepts, Viewpoints, Cases and Codes* is shown on the following page to give the engineer an insight into the types of topics he/she may study upon enrolling.
- ❖ Subsequent pages outline specific Requirements for ENGR ETHICS I, II, and III.
- ❖ The last page contains an enrollment form and enrollment fees for these courses.

³ Note: all of our engineering ethics courses except PDH 2, 3, and 5 use the same text book.

Textbook for Engineering Ethics Courses

Engineering Ethics Concepts, Viewpoints, Cases and Codes
2nd Edition © 2008, Edited by Smith, Harper, and Burgess

SUMMARY OF THE TABLE OF CONTENTS

ENGR ETHICS I: Principles, Concepts, and Codes

Principles of Ethics for Engineers

(4 articles: Intuition, Utilitarianism, Respect for Persons, and Virtue Ethics)

Engineering Ethics: Applications and Responsibilities (8 articles)

Engineering Ethics: Codes of Ethics (9 Codes of Ethics)

ENGR ETHICS II: Viewpoints, Cases, and Application of Codes

Viewpoints by Individual Engineers, Ethicists & Organizations (15 articles)

Major Case Studies Available on DVD (2 cases)

Cases on Critical Thinking, Honesty, and Responsibility (13 cases)

NSPE Board of Ethical Review (BER) Cases – Fully Developed Cases (5 cases)

Facts and Questions from NSPE BER Cases for 2001-2007 (83 Cases)

Applied Ethics in Professional Practice Cases (30 Cases)

ENGR ETHICS III – Research in Engineering Ethics

Independent study and research into topics related to ethical responsibilities of engineers to clients, the profession, and society.

Appendices

Appendix A: References Related To Engineering Ethics

Appendix B: Murdough Center for Engineering Professionalism

Appendix C: National Institute for Engineering Ethics
2008-2009 NIEE Executive Board Members

Appendix D: NIEE Products and Services

ENGR ETHICS I, II, and III

Goal and Objectives

The **goal** is to promote Understanding, Communication, Insight, and Problem Solving Abilities related to ethics in the engineering profession.

Understanding: a clear understanding of professional ethics when practicing engineering

Communication: an increased ability to effectively communicate ethical concerns and potential conflicts

Insight:

- ❖ an ability to recognize ethical dilemmas
- ❖ a familiarity with various codes of ethical conduct
- ❖ an appreciation for the frequency that ethical dilemmas are encountered in professional engineering work experiences
- ❖ a better understanding of one's own values, and

Problem Solving: an awareness of ethical problem solving methods including getting the facts, listing options, testing those options, making a decision, and acting

Overall Objectives and Learning Outcomes

The overall objectives of this course are to develop the ability to:

1. Communicate willingly and effectively with others on ethical issues.
2. Differentiate among personal ethics, legally required ethics and ethics based on the engineer's responsibility to protect the public's health, safety and welfare.
3. Recognize and resolve ethical problems by learning about ethics resources available for guidance, considering numerous case studies, understanding the ethical component of the problems by discussion of case studies, and analyzing situations presented by case studies.
4. Formulate solutions to ethical problems by recognizing the consequences of actions taken; apply different perspectives on ethical problem solving such as duties, consequences; distinguish between rules and relationships; analyze what is expected, know what's right, and doing what's right; and comprehend, compare, evaluate and act on these solutions.

To accomplish these objectives, enrollees will:

1. Review basic knowledge and fundamental definitions of professionalism and ethics.
2. Develop an understanding of ethics as it relates to the profession by reviewing codes of ethics and other guidelines for decision-making.
3. Apply the concepts of ethics codes and other guidelines to simple actions of living and working, complex actions in the workplace, and to numerous case studies of actual and illustrative work situations.
4. Relate consequences resulting from both simple and complex actions to their immediate supervisor, the employees they supervise, and the public.
5. Analyze case study examples and situations in order to distinguish between choosing between right and wrong, and choosing among competing goods.
6. Develop skills to formulate, analyze, and compare solutions to ethical dilemmas encountered in the workplace and relationships with others.
7. Learn to evaluate the value and effect of the various solutions by obtaining all the facts, listing and testing the options, making a decision and knowing when and how to take action... *and having the willingness and courage to do so.*

SUMMARY OF REQUIREMENTS FOR ENGR ETHICS I⁴

30 Professional Development Hours (PDH)

A study of three ethical theories and their applications to engineering codes of ethics

SUMMARY OF ASSIGNMENTS:

1. **Assignment 1: Study of *Intuitions***..... 12%
 - a. Read the Article on *Intuition*.
 - b. Develop your thoughts about the reliability of *Intuitions*.
 - c. Participate in an on-line Discussion Forum comparing your thoughts to others.
2. **Assignment 2: Study of *Utilitarianism***..... 12%
 - a. Read the Article on *Utilitarianism*.
 - b. Develop your thoughts about the strengths and weaknesses of *Utilitarianism*.
 - c. Participate in an on-line Discussion Forum comparing your thoughts to others.
3. **Assignment 3: Study of *Respect for Persons***..... 12%
 - a. Read the Article on *Respect for Persons*.
 - b. Develop your thoughts about the strengths and weaknesses of *Respect for Persons*.
 - c. Participate in an on-line Discussion Forum comparing your thoughts to others.
4. **Assignment 4: Study of *Virtue Ethics*** 12%
 - a. Read the Article on *Virtue Ethics*.
 - b. Develop your thoughts about the strengths and weaknesses of *Virtue Ethics*.
 - c. Participate in an on-line Discussion Forum comparing your thoughts to others.
5. **Assignment 5: Application of an Ethical Theory to a Code of Ethics** 12%
 - a. Review the NCEES “Obligation to Society” or the NSPE “Fundamental Canons” in the book.
 - b. Select any one of the three ethical theories and consider how this theory compares to the various elements of the code you have chosen to review (i.e. What are the similarities and differences in the code elements and the theory?).
 - c. Submit a report of approximately 500 words outlining your views and your reasons.
6. **Assignment 6: Position Paper (~ 1,200 words)** 20%
 - a. This assignment is to develop a written position paper on “Engineering Ethics and its Impact on Society” of approximately 1,200 words.
 - b. Develop your personal position on this subject and justify your position.
 - c. Discuss the strengths of your position and why you think it is best suited to guide engineering decisions.
7. **Assignment 7: Obtaining Guidance from Licensing Board Rules** 20%
 - a. You will be provided a set of ethics scenarios and a sample set of licensing board rules. You will be asked to determine where in the board rules you would obtain guidance on how to resolve the issue(s) in the scenarios.

⁴ Note: ENGR ETHICS I is a prerequisite or co-requisite to ENGR ETHICS II and ENGR ETHICS III

REQUIREMENTS FOR ENGR ETHICS II⁵

30 Professional Development Hours (PDH)

A study of viewpoints on ethics, ethics case studies, and codes of ethics applied to actual cases

SUMMARY OF ASSIGNMENTS:

A. Viewpoints: Read the assigned article(s) on viewpoints in the text.

1. Submit a 500 word report on each assigned article20%
 - a. Summarize the article(s).
 - b. Explain whether you agree with the viewpoint of the author(s), and why.

B. Case analyses: You will be assigned 11 specific ethics cases from the text.

1. You will be asked to only “read” two of the cases as a way of learning how you might approach and resolve ethical issues for future reference.0%
2. For the remaining nine (9) cases, briefly outline your thoughts on the following:
 - a. What are the moral issues highlighted by the case?
 - b. What are the various options available to a central character?
 - c. What should be or should have been done and WHY?
 - d. Which portion(s) of your discipline’s code of ethics would give you guidance in this situation?
(If your discipline does not have a code of ethics, use the NSPE code)
3. For five (5) of the remaining 9 cases (identified by the instructor) enter the *Discussion Forum*.....40%
 - a. Discuss what should be done or should have been done... and WHY.
 - b. Read, seriously consider, and respond to the position(s) of others in the forum.
 - c. Describe how (or if) your position(s) changed after considering the views of others in the Discussion Forum... and WHY.
4. For the remaining four (4) cases, write a report for each case. (~500 words per report):40%
 - a. List the moral issues highlighted by the case.
 - b. List the various options available to a central character.
 - c. Discuss which portion(s) of your discipline’s code of ethics would provide guidance for the situation.
 - d. Indicate your personal decision about what should be done or should have been done and WHY.

⁵ If taken separately, ENGR ETHICS I is a prerequisite or co-requisite to ENGR ETHICS II

REQUIREMENTS FOR ENGR ETHICS III⁶

30 Professional Development Hours (PDH)

Position Paper Entitled “Engineering Ethics and Its Impact on Society”

SUMMARY OF ASSIGNMENTS:

A. Research Proposal:

- a. Submit an summary of your paper explaining how your chosen topic has an impact on society (~150-200 words) 15%

B. Draft Paper

(non-penalty based evaluation) 0%

Required sections of the paper

- a. Abstract
- b. Body of Paper (should include an Introduction)
- c. Conclusion
- d. Include and utilize at least four credible research references (e.g. not Wikipedia, Answers.com, etc.)

C. Final Paper (~2,000 words)85%

- a. Sections of the Final Paper are same as the Draft Paper above
- b. Carefully consider the instructor’s constructive criticism of the Draft Paper
- c. Address revisions of Draft in view of instructor’s critical feedback

⁶ If taken separately, ENGR ETHICS I is a prerequisite or co-requisite to ENGR ETHICS III



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PDH ENROLLMENT FORM (circle or shade desired course)

2 PDH (\$70)	3 PDH (\$100)	5 PDH (\$160)	BASIC STUDIES IN ENGINEERING ETHICS (\$400)	INTERMEDIATE STUDIES IN ENGINEERING ETHICS (\$700)	ADVANCED STUDIES IN ENGINEERING ETHICS (\$1,000)
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If Taken Separately
(Note: ENGR ETHICS I is a prerequisite to ENGINEERING ETHICS II and III)

ENGR ETHICS I (\$400)	ENGR ETHICS II (\$350)	ENGR ETHICS III (\$350)
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Name: _____
Last First Middle Initial

Internet _____
Non-Internet (+ \$50) _____

Shipping Address: _____
Street City State Zip

Phone: _____ **Email:** _____

Application Date: _____ **Amount:** \$ _____ (See fee amounts above)

If paying by Credit Card - Call 806-742-3525 with the following information.
If you prefer, you may fax the completed form to NIEE at 806-742-0444.

Card type:	MC	VISA	DISC	AMEX
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If paying by check, mail this form and check made payable to "Texas Tech University" to:
National Institute for Engineering Ethics
Box 41023, Texas Tech University
Lubbock, Texas 79409-1023

Email: engineering.ethics@ttu.edu

Web Site: www.niee.org

Refund Policy:

If a refund is requested within 30 days of the date the materials are sent, 70% of the course fee will be refunded; enrollee may keep the book.