

# ECE 7080 (Approved): Ethics and Professionalism

## Course Description

Professionalism standards, ethical dilemmas, codes of ethics, moral frameworks, engineering as social experimentation, safety and risk, workplace rights and responsibilities, professional communications, research integrity, environmental ethics, global issues. Case study based approach.

**Transcript Abbreviation:** Ethics

**Grading Plan:** Satisfactory/Unsatisfactory

**Course Deliveries:** Classroom

**Course Levels:** Graduate

**Student Ranks:** Masters, Doctoral

**Course Offerings:** Spring

**Flex Scheduled Course:** Never

**Course Frequency:** Every Year

**Course Length:** 14 Week

**Credits:** 1.0

**Repeatable:** No

**Time Distribution:** 1.0 hr Lec

**Expected out-of-class hours per week:** 2.0

**Graded Component:** Lecture

**Credit by Examination:** No

**Admission Condition:** No

**Off Campus:** Never

**Campus Locations:** Columbus

**Prerequisites and Co-requisites:** Prereq: Grad standing in ECE.

**Exclusions:**

**Cross-Listings:**

**Course Rationale:** Existing course.

**The course is required for this unit's degrees, majors, and/or minors:** Yes

**The course is a GEC:** No

**The course is an elective (for this or other units) or is a service course for other units:** No

**Subject/CIP Code:** 14.1001

**Subsidy Level:** Doctoral Course

## Programs

| Abbreviation | Description            |
|--------------|------------------------|
| CpE          | Computer Engineering   |
| EE           | Electrical Engineering |

## Course Goals

To use a case study based approach to study professionalism, ethics, and research integrity in engineering

## Course Topics

| Topic   | Lec | Rec | Lab | Cli | IS | Sem | FE | Wor |
|---|-----|-----|-----|-----|----|-----|----|-----|
| Engineering as a profession, Professional expectations of graduate students and strategies for success                    | 1.0 |     |     |     |    |     |    |     |
| Ethical decision-making strategies, Critique codes of ethics  | 1.0 |     |     |     |    |     |    |     |
| Moral frameworks, connections to engineering, Personal commitments and professional life (e.g., engineering volunteerism) | 1.0 |     |     |     |    |     |    |     |
| Engineering as Social Experimentation   | 1.0 |     |     |     |    |     |    |     |
| Safety and Risk   | 1.0 |     |     |     |    |     |    |     |
| Case Studies for the Design Process   | 1.0 |     |     |     |    |     |    |     |
| Engineer's Responsibilities and Rights  | 1.0 |     |     |     |    |     |    |     |
| Case studies on professional behavior/policies on the job (e.g., on gender issues)  | 1.0 |     |     |     |    |     |    |     |
| Academic misconduct (students and instructors)  | 1.0 |     |     |     |    |     |    |     |
| Research Integrity  | 1.0 |     |     |     |    |     |    |     |
| Professional Communications   | 1.0 |     |     |     |    |     |    |     |
| Environmental Ethics  | 1.0 |     |     |     |    |     |    |     |
| Global Issues   | 1.0 |     |     |     |    |     |    |     |
| Cautious Optimism and Moral Leadership  | 1.0 |     |     |     |    |     |    |     |

## Representative Assignments

|   |
|---|
| 5 homework assignments, typically analyzing ethics cases  |
| Final project, done via a team of 2-4 persons, on a major ethical dilemma or policy development |

## Grades

| Aspect        | Percent |
|---------------|---------|
| 5 homeworks   | 70%     |
| Final project | 30%     |

## Representative Textbooks and Other Course Materials

| Title  | Author                      |
|--|-----------------------------|
| <i>Ethics in Engineering, 4th Ed., McGraw-Hill, NY, 2005</i> | Martin M.W., Schinzinger R. |

## ABET-EAC Criterion 3 Outcomes

| Course Contribution | College Outcome   |
|---------------------|---|
|                     | 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. |

| <b>Course Contribution</b> |   | <b>College Outcome</b>   |
|----------------------------|---|--|
|                            | 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. |

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