1. Course Code

2200

2. Course Title

Engineering Ethics

3. Teacher

BAIG, Maruf

4. Term

Spring 1

5. Course Requirements (Courses / Knowledge prerequisite for this course)

None

6. Course Overview and Objectives

Engineers are part of the society hence need to reflect the ethical standards of the profession itself while working with others which categorically includes resources with technical and non-technical background. This course will enlighten the students regardless of their major with the standards Engineers need to comply in a non-technical manner hence compatible to all disciplines. The course will bring in on the ground ethical issues with an invitation to open discussion within the time frame and deliverables to accomplish.

7. Course Outline

1. Personal Morality Vs Professional Ethics explained with practical examples_Developing Weapons
2. The standard of care is explained with practical case
3. Technology and ethical implications explained_Artificial Intelligence
4. Practical examples of trust worthiness and reliability in profession explained
5. Risk and liability explained with practical examples
6. Engineers role as a manager within the organization explained
7. Environment_What is mentioned in the Code of Ethics shared i.e. IEEE and else
8. Research findings over Global Ethics shared
9. Case Study on Social Sector Ethics discussed
10. Case Study on Business Environment discussed
11. Case Study on Charity Sector discussed
12. Case Study on Engineering context discussed
13. First group presentation over preselected topic shared
14. Second group presentation over preselected topic shared
15. Review of materials covered
16.

8. Textbooks (Required Books for this course)

None

9. Reference Books (optional books for further study)

As needed

10. Course Goals (Attainment Targets)

(1) Students equipped with ethical decision making framework to face ethical challenges

(2) Students enlightened in balancing business exposure, social and individual responsibility

(3) Students are well aware of the wide range of sources explaining ethical course of actions

11. Correspondence relationship between Educational goals and Course goals

Educational goals of the school			Course Goals
High level ICT skills	Basic academic skills		3
	Specialized knowledge and literacy		3
Human skill (Tankyu skill)	Ability to continually improve own strengths		1-3
	Ability to discover and resolve the problem in society	Problem setting	1-3
		Hypothesis planning	1-3
		Hypothesis testing	1-3
		Practice	1-3
	Fundamental Competencies for Working Persons	Ability to step forward	1-3
		Ability to think through	1-3
		Ability to work in a team	1-3
Professional ethics			1-3

12. Evaluation

Goals	Evaluation method & point allocation					
	examination	Quiz	Reports	Presentation	Deliverables	Other
(1)		○		○		
(2)		○		○		
(3)		○				
(4)						
(5)						
(6)						
Allocation		30		70		

13. Evaluation Criteria

Examination	
Quiz	Checks their conceptual clarity with an easy to understand short questions (True/False types). As students level of English Proficiency is wide spread, these quizes assist them to express their understanding with an opportunity to clarify further.

Reports	
Presentation	This course is not purely technical. As long as students understand the concept by reflecting the materials covered they fulfill the core expectation. Variation of students English proficiency is wide spread hence the instructor entirely focuses on their conceptual clarity and sincere effort for better performance.
Deliverables	
Other	

14. Active Learning

Hourly percentage of active learning within the whole class time	70%

1	Active learning such as problem solving assignment using the knowledge and skills acquired in class.	All the time
2	Active learning such as group works and discussions.	All the time
3	Outcome presentations and feedbacks.	
4	Students actively make decisions on how the class should be conducted.	

15. Notes

16. Course plan

(Notice) This plan is tentative and might be changed at the time of delivery

Lesson 1: Professional Ethics Lecture/Discussion, 90 mins

The key message of this lecture will be to enlighten the students that personal morality is different to that of the professional ethics. There will be examples from different professional standards to clarify in an interactive way.

Lesson 2: Responsibility in Engineering	Lecture/Discussion, 90 mins

Responsibility is deeply related to accountability, both for what an engineer does in the present and future and for what an engineer has done in the past.
- Engineering standards
- The standard of care
- Design standards

Lesson 3: Technology and Society	Lecture/Discussion, 90 mins

Engineers should take an essential angle toward technology, appreciating and taking pride in its advantages whereas being awake to the issues it will produce.
- Thinking about technology and society
- The promise and perils of technology
- Influence of computer technology

Lesson 4: Trust and Reliability	Lecture/Discussion, 90 mins

This lesson focuses on issues regarding the importance of trustworthiness in engineers:
honesty, confidentiality, intellectual property, witnessing by experts, public communication,
and conflicts of interest.
- Honesty
- Confidentiality
- Intellectual property

Lesson 5: Risk and Liability in Engineering	Lecture/Discussion, 90 mins

Risk is the product of the probability and magnitude of harm for engineers. They have to guard themselves against unjust legal responsibility for harm to danger while additionally defending the public from risk.
- Different approaches to risk
- Communicating risk and public policy
- Engineer's liability for risk

Lesson 6: Engineers in Organizations	Lecture/Discussion, 90 mins

Engineers and managers have different perspectives, both of which are legitimate, and it's beneficial to distinguish between decisions made by managers and decisions made by engineers.
- Engineers and managers
- Being morally responsible in an organization
- Proper engineering and management decisions

Lesson 7: Engineers and the Environment	Lecture/Discussion, 90 mins

Rules for engineers are increasingly including provisions about the environment, but their implications for many environmental issues are not clear.

- Criteria for a clean environment
- Go beyond the law
- Respect for nature

Lesson 8: Global Issues	Lecture/Discussion, 90 mins

We live in an age when social changes have been taking place more rapidly than at any time in the past.

The scale and range of projects undertaken have greatly increased over those undertaken in previous centuries.

- Globalization
- Cross-cultural issues
- Work in an international society

Lesson 9: Case Study 1	Discussion, 90 mins

Analysis of case examples will be carried out through classroom discussions.

Lesson 10: Case Study 2	Discussion, 90 mins

Analysis of case examples will be carried out through classroom discussions.

Lesson 11: Case Study 3	Discussion, 90 mins

Analysis of case examples will be carried out through classroom discussions.

Lesson 12: Case Study 4	Discussion, 90 mins

Analysis of case examples will be carried out through classroom discussions.

Lesson 13: Group Presentation 1	Presentation, 90 mins

Students will be assigned with specific thematic case study and they will present their arguments as per ethical decision making framework.

Lesson 14: Group Presentation 2	Presentation, 90 mins
Students will be assigned with specific thematic case study and they will present their arguments as per ethical decision making framework.	

Lesson 15: Review	Review 45 mins self assessment 45 mins
Review of the materials covered followed by an ethical self assessment.	