



AMERICAN INTERNATIONAL UNIVERSITY- BANGLADESH (AIUB)

Faculty of Engineering
Department of Electrical and Electronic Engineering
Undergraduate Program



PART A

1. Course No/Course Code	EEE 2215
2. Course Title	Engineering Ethics and Environmental Protection
3. Course Type	Core Course
4. Year/Level/Semester/Term	2 nd year (1 st Semester)
5. Academic Session	Spring 2024-25
6. Course Teachers	Prof. Dr. Mohammad Tawhidul Alam, Dr. Mohammad Hasan Imam, Dr. Md. Kamrul Hassan, Dr. M. Tanseer Ali, Dr. Md. Kabiruzzaman, Dr. Gour Chand Mazumder, Dr. Amirul Islam, Mr. Md. Ashiquzzaman, Mr. Kazi Firoz Ahmed, Mr. Bishwajit Banik Pathik, Mr. Abu Hena Md. Shatil, Mr. Niloy Goswami, Engr. Hamidul Hoque
7. Pre-requisite (If any)	N/A
8. Credit Value	1 credit hour
9. Contact Hours	2 hours of theory per week
10. Total Marks	100
11. Mission of EEE Department	<ul style="list-style-type: none">• Educate young leaders for academia, industry, entrepreneurship, and public and private organization through theory and practical knowledge to solve engineering problems individually and in teams.• Create knowledge through innovative research and collaboration with multiple disciplines and societies.• Serve the communities at national, regional, and global levels with ethical and professional responsibilities.
12. Vision of EEE Department	To become a front runner in preparing Electrical and Electronics Engineering graduates to be nationally and globally competitive and thereby contribute value for the knowledge-based economy and welfare of the people of the world.
13. Rationale of the Course (Course Description)	This is a core course of the Electrical and Electronic Engineering, Computer Engineering and Computer Science Engineering program that presents the issues in engineering ethics and the protection of the environment. The aim of the course is to enhance the basic skills of ethical concepts, the basic theory of professional ethics, professional codes of ethics, moral reasoning, and environmental protection.
14. Course Content	<p>Technology has a pervasive and profound effect on the contemporary world, and engineers play a central role in all aspects of technological development. To hold paramount the safety, health, and welfare of the public, engineers must be morally committed and equipped to grapple with the ethical dilemmas they confront. This course will introduce the issues in engineering ethics. It places those issues within a philosophical framework and seeks to exhibit their social importance and intellectual challenge.</p> <p>The goal of this course is to:</p> <ul style="list-style-type: none">• Explain basic ethical concepts, the basic theory of professional ethics, professional codes of ethics and moral reasoning.• Explain ethical issues to uphold paramount the safety, health, and welfare of the public.

- Illustrate different case studies for resolving various ethical dilemmas and making proper decisions.
- Make oriented students for research and development.
- Make improvement of communication skills by arranging presentation sessions.

15. Course Outcomes (CO)/Course Learning Outcomes (CLOs):

By the end of this course, students should be able to –

COs/ CLOs Number	COs/CLOs Statements	K	P	A	Assessed Program Outcome Indicator	BNQF Indicator	Teaching - Learning Strategy	Assessment Strategy
1	Evaluate the impact of professional engineering work in the solution of complex engineering problems/Ethical Dilemmas in societal and environmental contexts by giving judgments based on Code of Ethics.	K7	P1 , P2 , P6		P.g.1.C5	PS.2		Report on Case Study Analysis (Midterm)
2	Demonstrates language flexibility and effective knowledge of Engineering Code of Ethics to fulfil individual responsibilities in resolving Moral Dilemmas.			A1, A4	P.j.4.A3	SS.3		OBE Presentation (Mid Term)
3	Apply professional codes of ethics and standards for analysing public safety and the impacts of engineering activity on economic, social, cultural and environmental sustainability.	K7			P.h.1.C3	PS.2		OBE Case Study + Quiz (Final Term)
4	Understand and evaluate the sustainability and impact of professional engineering work in the solution of complex engineering problems in societal and environmental contexts by designing ethical guidelines.	K7			P.g.2.A4	PS.2		OBE Presentation (Final term)

16. Mapping with Course Learning Outcomes (CLOs) with Program Learning Outcomes (PLOs)

CLOs	PLO 1	PLO 2	PLO 3	PLO 4	PLO 5	PLO 6	PLO 7	PLO 8	PLO 9	PLO 10	PLO 11	PLO 12
1							PS.2					
2										SS.3		
3							PS.2					
4								PS.2				

PART B

17. Course plan:

By the end of this course, students should be able to –

Time Frame (Week)	Topics	Teaching Learning Strategy	Assessment Strategy	Corresponding COs /CLOs	Assessment Tools
Week 1	Objective of Engineering Ethics course; Ethics and Professionalism: What Is Engineering Ethics? Why Study Engineering Ethics? What are Professional Responsibilities?	Lecture Tutorial	Assignment/ Case study/Prese ntation	1	Case study
Week 2	Moral Reasoning: Moral Choices and Ethical Dilemmas; Steps in Resolving Ethical Dilemmas; Right-Wrong or Better-Worse? Moral Decision Making as Design; Ethical Cycle;	Lecture Tutorial		1	
Week 3	Codes of Ethics: Importance of Codes; Abuse of Codes; Limitations of Codes; Ethical Relativism; Justification of Codes; Discussion Questions; NSPE, IEEE, ASCE, ASME, ACM etc.	Lecture Tutorial		3	OBE presentation
Week 4	Social and Environmental Ethics:	Lecture Tutorial		4	

	Environmental Moral Frameworks; Human-Centered Ethics; Sentient-Centered Ethics; Biocentric Ethics; Ecocentric Ethics; Code of Ethics and Sustainable Development;				Case study
Week 5	Corporate Social Responsibility; Social Sustainability; Engineering within Ecological Constraints; Corporations: Environmental Leadership; Government Initiatives: SDG;	Lecture Tutorial		4	Case study
Week 6	Engineering as social Experimentation: Engineers as Responsible Technology Design Process; Industrial Standards; Challenges. Moralizing Technology, Moral autonomy, Accountability	Lecture Tutorial		5	Case study
Week 7	OBE Presentation	Lecture Tutorial		4	OBE Presentation Rubric
	MID-TERM WEEK WEEK 8				
Week 9	Commitment to Safety: Safety and Risk: The Concept of Safety; Risks; Acceptability of Risk; Assessing and Reducing Risk; Uncertainties in Design; Risk-Benefit Analyses; Personal Risk versus Public Risk; Examples of Improved Safety; Summary of Research paper.	Lecture Tutorial	Assignment/ Case study/Presentation	3	OBE Case study & Final term quiz
Week 10	Workplace Responsibilities and Rights: Confidentiality and Conflicts of Interest;	Lecture Tutorial		4	OBE Presentation

	Confidentiality and Changing Jobs; Confidentiality and Management Policies; Confidentiality: Justification; Teamwork and Rights; Distribution of Responsibility, Loyalty and Collegiality; Managers and Engineers; Professional Rights; Employee Rights;				
Week 11	Computer Ethics: Honesty and Research Integrity; Truthfulness; Trustworthiness. Copyright Laws: Software Licenses; Public Domain License; Freeware License; Shareware License; All Rights Reserved License; Software Piracy; Computer Crime; Computer Security; Protecting Research Subjects; Survey;	Lecture Tutorial		3	OBE Case study & Final term quiz
Week 12	Truth and Truthfulness: Honesty; Integrity; Reliability; code of ethics	Lecture Tutorial		3	OBE Case study & Final term quiz
Week 13	Whistleblowing: Moral Guidelines; Protecting Whistle-Blowers; Common Sense Procedures; Beyond Whistleblowing;	Lecture Tutorial		3	OBE Case study & Final term quiz
Week 14	Final Presentation	Lecture Tutorial		4	OBE Presentation Rubric

Week 15	Final-term Quiz	Lecture Tutorial		3	Quiz
Week 16	FINAL-TERM EXAM WEEK				

* The faculty reserves the right to change, amend, add or delete any of the contents.

PART C

18. Assessment and Evaluation

1. Assessment Strategy:

	CO/CLO 1 (marks)	CO/CLO 2 (marks)	CO/CLO 3 (marks)	CO/CLO 4 (marks)	Marks for Grading
Assignment (Mid)	40				
OBE Presentation (Mid)		40			
Quiz (Final)			20		
Case Study (Final)			30		
OBE Presentation (Final)				30	

2. Table of Specification (TOS)

Final Exam

					Level of Bloom's Taxonomy																		
Topics	CO No.	No. of Days	No. of Items	No. of COs	Remember			Understand			Apply			Analyze			Evaluate			Create			POI
					Item No.	Test Type	Marks	Item No.	Test Type	Marks	Item No.	Test Type	Marks	Item No.	Test Type	Marks	Item No.	Test Type	Marks	Item No.	Test Type	Marks	
Workplace safety, Sustainability (Lecture 5-8)	CO3	2	1									CS	20										P.h.1.C3
Total		2	1										20										

Test Type Legend: *AS:* Assignment; *BQ:* Broad question; *CS:* Case Study; *SQ:* Short question; *D:* Derivation; *ES:* Essay; *EX:* Exercise; *GE:* Group Exercise; *ID:* Identification; *MC:* Multiple Choice; *MT:* Matching Type; *OB:* Observation; *PS:* Problem Solving; *SA:* Short Answer; *TF:* True or False; *VV:* Viva Voce; *Q:* Quiz **Other please specify:**

3. Marks Distribution:

The evaluation system will be strictly followed as per the grading policy. The following grading system will be strictly followed in this class.

Assessment Type	Marking system For Theory Classes	Midterm	Final term
Continuous	Attendance	20%	20%
Continuous	Presentation (OBE)	40%	30%
Continuous	Case study Analysis Report	40%	30%
Continuous	Quiz		20%
	Total	100%	100%
Final Grade/ Grand Total			
Grand Total	Midterm:	40%	
	Final Term:	60%	

4. Grading Policy

Letter	Grade Point	Numerical %
A+	4.00	90-100
A	3.75	85-<90
B+	3.50	80-<85
B	3.25	75-<80
C+	3.00	70-<75
C	2.75	65-<70
D+	2.50	60-<65
D	2.25	50-<60
F	0.00	<50(Failed)

5. Makeup Procedure:

Students who fail to maintain the requirements and deadlines needed to contact faculty with reasoning. Continuous assessments will be taken with an agreement with the student and faculty. For the makeup of Summative assessments students need to apply for SET – B.

PART D

19. Learning Materials

Formal lectures will provide the theoretical base for the subject as well as covering its practical application. A set of lecture notes, tutorial examples, with subsequent discussion and explanation, together with suggested reading will support and direct the students in their own personal study.

Maximum topics will be covered from the textbook. For the rest of the topics, reference books will be followed. Some Class notes will be uploaded on the web. White board will be used for most of the time.

For some cases, multimedia projector will be used for the convenience of the students.

Students must study up to the last lecture before coming to the class and it is suggested that they should go through the relevant chapter before coming to the class. Just being present in the class is not enough- students must participate in classroom discussions.

Few assignments will be given to the students based on that class to test their class performance.

1. Recommended Readings (Textbook);

[1] Martin, Mike & Schinzinger, Ronald: Ethics in Engineering, 4th ed., McGraw-Hill.

2. Supplementary Readings (Reference Book);

- [1] Charles E., Jr., Charles E Harris; Michael S. Pritchard; Michael J. Rabins; Ray James; Elaine Englehardt, "Engineering Ethics" 5th Edition.
- [2] Caroline Whitbeck, "Ethics in Engineering Practice and Research" 1st edition.
- [3] Russell Foote; James G. Speight, "Ethics in Science and Engineering", 1st edition.
- [4] Roland Schinzinger, Mike Martin; Mike W. Martin, "Introduction to Engineering Ethics", 1st edition.
- [5] Charles B. Fleddermann, "Engineering Ethics", 1st edition.
- [6] Dr Raymond E. Spier, Raymond E. Spier, "Science and Technology Ethics", 1st edition.
- [7] S. Gunn Alastair, P. Aarne Vesilind, "Environmental Ethics for Engineers", 1st edition.
- [8] P. Aarne Vesilind, Alastair S. Gunn, "Engineering, Ethics, and the Environment" 1st edition.
- [9] Christopher Dowrick, Lucy Frith, "General Practice and Ethics", 1st edition.
- [10] William Frey & Jose Cruz-Cruz, "Professional Ethics in Engineering", 1st edition.

PART E

Verification: EEE 2215: Engineering Ethics and Environmental Protection		
Prepared by: Dr. Md. Kabiruzzaman (Course Co-ordinator) Date: 08/03/2025	Checked and certified by: Head (UG), Department of EEE, Faculty of Engineering Date:	Approved by: Dean, Faculty of Engineering Date:
	Moderated by: Date:	Moderated by: Date: