National University of Engineering (UNI)
School of Computer Science
Syllabus 2026-I

1. COURSE

FG211-ACM. Professional Ethics (Mandatory)

2. GENERAL INFORMATION

2.1 Course	:	FG211-ACM. Professional Ethics
2.2 Semester	:	7^{th} Semester
2.3 Credits	:	3
2.4 Horas	:	2 HT; 2 HP;
2.5 Duration of the period	:	16 weeks
2.6 Type of course	:	Mandatory
2.7 Learning modality	:	Face to face
2.8 Prerrequisites	:	None

3. PROFESSORS

Meetings after coordination with the professor

4. INTRODUCTION TO THE COURSE

This course adapts professional ethical principles to Artificial Intelligence, integrating ACM/IEEE codes with AI-specific challenges. Combines regulatory frameworks (GDPR) with current societal impact cases.

5. GOALS

- Apply ACM/IEEE ethics codes to AI problems.
- Analyze compliance with regulations (GDPR) in autonomous systems.
- Design ethical protocols for AI projects.

6. COMPETENCES

4) Recognize professional responsabilities and make informed judgments in computing practice based on legal and ethical principles. (Assessment)

AG-C02) Ethics: Applies ethical principles and commits to professional ethics and standards of computing practice. (Assessment)

7. TOPICS

Unit 1: Ethical Foundations in AI (10 hours)	
Competences Expected: 4,AG-C02	
Topics	**Learning Outcomes**
• Comparison: ACM vs IEEE ethics codes for AI. • Algorithmic transparency and fairness principles.	• Explain differences between ethical frameworks [Familiarizarse (*Familiarity*)]. • Evaluate compliance in real cases [Evaluar (*Assessment*)].
Readings : [ACM18], [IEE20]	

Unit 2: Privacy and Regulations (14 hours)	
Competences Expected: 4,AG-C02	
Topics	**Learning Outcomes**
• GDPR applied to ML: right to explanation. • Ethical auditing of datasets (e.g., ImageNet).	• Implement GDPR checklists for models [Usar (*Usage*)]. • Identify violations in case studies [Evaluar (*Assessment*)].
Readings : [VB18], [Mül21]	

Unit 3: Bias and Fairness (18 hours)	
Competences Expected: 4,AG-C02	
Topics	**Learning Outcomes**
• Fairness metrics (demographic parity, equality of opportunity). • Tools: IBM Fairness 360, Google What-If.	• Measure biases in models using Python [Usar (*Usage*)]. • Propose mitigation strategies [Evaluar (*Assessment*)].
Readings : [For20], [Meh+21]	

Unit 4: Accountability in Autonomous Systems (18 hours)	
Competences Expected: 4,AG-C02	
Topics	**Learning Outcomes**
• Legal attribution in AI failures (e.g., self-driving cars). • ISO standards for trustworthy AI.	• Draft liability clauses [Evaluar (*Assessment*)]. • Analyze legal conflicts [Familiarizarse (*Familiarity*)].
Readings : [Bos14], [Com19]	

8. WORKPLAN

8.1 Methodology

Individual and team participation is encouraged to present their ideas, motivating them with additional points in the different stages of the course evaluation.

8.2 Theory Sessions

The theory sessions are held in master classes with activities including active learning and roleplay to allow students to internalize the concepts.

8.3 Practical Sessions

The practical sessions are held in class where a series of exercises and/or practical concepts are developed through problem solving, problem solving, specific exercises and/or in application contexts.

9. EVALUATION SYSTEM

********* EVALUATION MISSING ********

10. BASIC BIBLIOGRAPHY

[Bos14] Nick Bostrom. *Superintelligence: Paths, Dangers, Strategies*. Oxford University Press, 2014.

[ACM18] ACM. *ACM Code of Ethics and Professional Conduct*. Tech. rep. 2018. URL: `https://www.acm.org/code-of-ethics`.

[VB18] Paul Voigt and Axel von dem Bussche. *The EU General Data Protection Regulation (GDPR): A Practical Guide*. Springer, 2018.

[Com19] IEEE Ethics Committee. *Ethical Dilemmas in Engineering*. Tech. rep. 2019. URL: `https://www.ieee.org/ethics`.

[For20] ACM Ethics Task Force. *Case Studies in Computing and Society*. Tech. rep. 2020. URL: https://ethics.acm.org/case-studies/.

[IEE20] IEEE. *IEEE Code of Ethics*. Tech. rep. 2020. URL: https://www.ieee.org/about/corporate/governance/p7-8.html.

[Meh+21] Ninareh Mehrabi et al. "A Survey on Bias and Fairness in Machine Learning". In: *ACM Computing Surveys* 54.6 (2021). DOI: 10.1145/3457607.

[Mül21] Vincent C. Müller. *Ethics of Artificial Intelligence and Robotics*. Cambridge University Press, 2021.