



National University of Engineering (UNI)
School of Computer Science
Syllabus 2027-I

1. COURSE

FG211. Professional Ethics (Mandatory)

2. GENERAL INFORMATION

2.1 Course	: FG211. Professional Ethics
2.2 Semester	: 7 th Semester.
2.3 Credits	: 2
2.4 Hours	: 1 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 Prerequisites	: 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

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

AG-C04) Communication: Communicates effectively in complex computing activities. (Usage)

7. TOPICS

Unit 1: Ethical Foundations in AI (10 hours)	
Competences Expected: AG-C02, AG-C04	
Topics	Learning Outcomes
• Comparison: ACM vs IEEE ethics codes for AI. • Algorithmic transparency and fairness principles.	• Explain differences between ethical frameworks [Familiarizarse]. • Evaluate compliance in real cases [Evaluar].
Readings : [ACM-Ethics2018], [IEEE-Ethics2020]	

Unit 2: Privacy and Regulations (14 hours)	
Competences Expected: AG-C02,AG-C04	
Topics	Learning Outcomes
• GDPR applied to ML: right to explanation. • Ethical auditing of datasets (e.g., ImageNet).	• Implement GDPR checklists for models [Usar]. • Identify violations in case studies [Evaluar].
Readings : [GDPR2018], [AI-Ethics2021]	

Unit 3: Bias and Fairness (18 hours)	
Competences Expected: AG-C02,AG-C04	
Topics	Learning Outcomes
• Fairness metrics (demographic parity, equality of opportunity). • Tools: IBM Fairness 360, Google What-If.	• Measure biases in models using Python [Usar]. • Propose mitigation strategies [Evaluar].
Readings : [ACM-Cases2020], [Mehrabi2021]	

Unit 4: Accountability in Autonomous Systems (18 hours)	
Competences Expected: AG-C02,AG-C04	
Topics	Learning Outcomes
• Legal attribution in AI failures (e.g., self-driving cars). • ISO standards for trustworthy AI.	• Draft liability clauses [Evaluar]. • Analyze legal conflicts [Familiarizarse].
Readings : [Bostrom2014], [IEEE-Cases2019]	

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

Theory Sessions:

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

Lab Sessions:

In order to verify their competences, several activities including active learning and roleplay will be developed during lab sessions.

Oral Presentations:

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

Reading:

Throughout the course different readings are provided, which are evaluated. The average of the notes in the readings is considered as the mark of a qualified practice. The use of our virtual campus allows each student to access the course information, and interact outside the classroom with the teacher and with the other students.

The final grade NF depends on the following grades:

- PE : Partial Exam.
- FE : Final Exam.
- P : Permanent Evaluation (Average of practical work and graded assignments).

The final grade NF is calculated as follows:

$$NF = \frac{PE + FE + P}{3}$$

10. BASIC BIBLIOGRAPHY