**National University of Engineering (UNI)**
School of Computer Science
Syllabus 2024-II

## 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 introduces the ethical principles and professional responsibilities in computing, based on the ACM Code of Ethics and international standards. Students will analyze real-world cases, evaluate ethical dilemmas, and apply decision-making frameworks in technological contexts, considering social impact, privacy, security, and sustainability.

## 5. GOALS

- Analyze fundamental ethical principles in computing according to ACM/IEEE.
- Critically evaluate ethical dilemmas in technology development.
- Apply the ACM Code of Ethics to real-world case studies.

## 6. COMPETENCES

**3)** Communicate effectively in a variety of professional contexts.. (Familiarity)

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

**5)** Function effectively as a member or leader of a team engaged in activities appropriate to the program's discipline. (Usage)

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

**AG-C03)** Individual and Teamwork: Performs effectively as an individual and as a member or leader in diverse teams. (Usage)

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

## 7. TOPICS

| Unit 1: Fundamentals of Computing Ethics (8 hours) | |
|---|---|
| **Competences Expected: 4,AG-C02** | |
| **Topics** | **Learning Outcomes** |
| • Introduction to professional ethics and morality.<br>• ACM and IEEE Code of Ethics.<br>• Legal and social responsibilities of computing professionals. | • Explain the principles of the ACM Code of Ethics [Familiarizarse].<br>• Discuss professional responsibilities in technological contexts [Usar].<br>• Analyze ethical conflicts in hypothetical cases [Evaluar]. |
| **Readings :** [**ACM-Ethics2018**], [**IEEE-Ethics2020**] | |

| Unit 2: Privacy, Security, and Digital Rights (10 hours) | |
|---|---|
| **Competences Expected: 4,AG-C02** | |
| **Topics** | **Learning Outcomes** |
| • Data privacy regulations (GDPR, Data Protection Laws).<br>• Cybersecurity and ethical hacking.<br>• Intellectual property rights and open-source software. | • Compare global privacy regulations [Usar].<br>• Evaluate ethical implications of cybersecurity vulnerabilities [Evaluar].<br>• Debate software licensing and open access [Usar]. |
| **Readings :** [**GDPR2018**], [**ACM-Code2018**] | |

| Unit 3: Ethics in AI and Algorithms (10 hours) | |
|---|---|
| **Competences Expected: 5,AG-C03** | |
| **Topics** | **Learning Outcomes** |
| • Algorithmic bias and discrimination.<br>• Transparency and accountability in autonomous systems.<br>• Social impact of automation. | • Identify biases in datasets and algorithms [Usar].<br>• Propose solutions for ethical AI systems [Evaluar].<br>• Debate the impact of automation on employment [Usar]. |
| **Readings :** [**AI-Ethics2021**], [**Bostrom2014**] | |

| Unit 4: Case Studies and Workshops (20 hours) | |
|---|---|
| **Competences Expected: 3,AG-C04** | |
| **Topics** | **Learning Outcomes** |
| • Analysis of historical cases (e.g., Cambridge Analytica, data breaches).<br>• Role-playing: ethical decision-making in teams.<br>• Workshop on writing ethical reports. | • Resolve complex cases using the ACM ethical framework [Evaluar].<br>• Collaborate in teams to propose ethical solutions [Usar].<br>• Draft professional reports on ethical dilemmas [Evaluar]. |
| **Readings :** [**ACM-Cases2020**], [**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

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

## 10. BASIC BIBLIOGRAPHY