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

1. COURSE

CS300. Specialization Elective (Mandatory)

2. GENERAL INFORMATION

2.1 Course	:	CS300. Specialization Elective
2.2 Cycle	:	10^{th} Cycle.
2.3 Credits	:	0
2.4 Hours	:	2 HT; 4 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	:	120Cr

3. PROFESSORS

Meetings after coordination with the professor

4. INTRODUCTION TO THE COURSE

It groups the current catalog of CS-UNI's specialization electives, together with AI-UNI's own AI-specific courses not yet in CS-UNI's curriculum, split into a Computer Science area and an Artificial Intelligence area. It also lists two candidate courses not yet opened anywhere (CS3E1, CS3E2), proposed after reviewing international curriculum trends (ACM/IEEE/AAAI CS2023 report, 2026 university elective catalogs). Each semester one of these concrete courses is activated under its own code, letting the program incorporate modern electives without changing the base curriculum.

5. GOALS

- Know the current catalog of CS-UNI's specialization electives, as well as AI-UNI's own AI-specific courses that could be incorporated into CS-UNI.
- Explore a flexible specialization-elective slot whose specific content depends on which elective is actually opened each semester.

6. COMPETENCES

AG-C06) Life-long Learning: Recognizes the importance of continuous learning and adaptation to new technologies. (Usage)

AG-C09) Design and Development of Solutions: Designs, implements, and evaluates solutions for complex computing problems. (Usage)

AG-C11) Use of Tools: Applies modern computing tools in problem solving. (Usage)

7. TOPICS

Unit 1: Specialization Elective Catalog (16 hours)	
Competences Expected: AG-C06,AG-C09,AG-C11	
Topics	**Learning Outcomes**
• **AI162** – AI Policy and Governance • **AI261** – Probability and Statistics for AI • **AI262** – Natural Language Processing • **AI265** – Reinforcement Learning • **AI266** – AI for Software Engineering • **AI268** – Computational Vision • **AI362** – AI for edge computing • **AI363** – Autonomous Systems • **AI364** – AI for Cyber Security I • **AI366** – Distributed AI Systems • **AI367** – Topics in Artificial Intelligence • **AI368** – Evolutionary Computing • **AI369** – Robotics • **CB309** – Bioinformatics • **CS281** – Computing in Society • **CS351** – Topics in Computer Graphics • **CS353** – Quantum Computing • **CS391** – Software Engineering III • **CS392** – Tópicos en Ingeniería de Software • **CS393** – Information systems • **CS394** – Software Architecture and DevSecOps for Cloud Software • **CS395** – Software Quality • **CS3E1** – Blockchain and Decentralized Systems • **CS3E2** – Applied LLM Engineering • **CS3P3** – Internet of Things • **ET201** – Entrerpreneurship I • **ET301** – Entrerpreneurship II • **FG106** – Theater • **FG211** – Professional Ethics • **FG350** – Leadership and Performance	• Identify which concrete elective is active this semester under the CS300 slot and its specific learning outcomes [Familiarizarse]
Readings : [CC2020], [CS2023]	

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

[CC2020] ACM/IEEE-CS Joint Task Force. *Computing Curricula 2020*. Tech. rep. ACM Press and IEEE Computer Society Press, Dec. 2020. DOI: 10.1145/3467967. URL: https://dl.acm.org/citation.cfm?id=3467967.

[CS2023] ACM/IEEE-CS/AAAI Joint Task Force. *CS2023: ACM/IEEE-CS/AAAI Computer Science Curricula*. Tech. rep. ACM Press, IEEE Computer Society Press, and AAAI Press, Mar. 2023.