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

1. COURSE

CS402. Capstone Project I (Mandatory)

2. GENERAL INFORMATION

2.1 Course	:	CS402. Capstone Project I
2.2 Semester	:	8^{th} Semester
2.3 Credits	:	3
2.4 Horas	:	1 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	:	CS401. Research Methodology. (4^{th} Sem)

3. PROFESSORS

Meetings after coordination with the professor

4. INTRODUCTION TO THE COURSE

This course aims to enable students to conduct a state-of-the-art study on a chosen research topic for investigation.

5. GOALS

- For the student to conduct initial research on a specific topic by performing a state-of-the-art study of the chosen subject.
- For the student to demonstrate mastery in the chosen research line topic.
- For the student to select a faculty member who specializes in the chosen research area as an advisor.
- The deliverables for this course are:

  Midterm Progress: Solid bibliography and progress on a Technical Report.

  Final: Technical Report with preliminary comparative experiments demonstrating that the student already knows the existing techniques in their project area and selection of a faculty member who specializes in their project area as project advisor.

6. COMPETENCES

1) Analyze a complex computing problem and apply principles of computing and other relevant disciplines to identify solutions. (Assessment)

AG-C07) Computing Knowledge: Applies appropriate knowledge of mathematics, science, and computing. (Assessment)

2) Design, implement, and evaluate a computing-based solution to meet a given set of computing requirements in the context of the program's discipline. (Assessment)

AG-C09) Solution Design and Development: Designs, implements, and evaluates solutions for complex computing problems. (Assessment)

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)

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

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

6) Apply computer science theory and software development fundamentals to produce computing-based solutions. (Assessment)

AG-C12) Applies computer science theory and software development fundamentals to produce computer-based solutions. (Assessment)

7. TOPICS

Unit 1: State-of-the-Art Survey (60 hours)	
Competences Expected: 1,2,4,5,6,AG-C02,AG-C03,AG-C07,AG-C09,AG-C12	
Topics	**Learning Outcomes**
• Conduct a comprehensive state-of-the-art study on a specific topic in Computer Science. • Writing technical articles in computer science.	• Conduct a bibliographic survey of the state-of-the-art on the chosen topic (this likely means 1 or 2 theoretical framework chapters in addition to the introduction which is Chapter I of the thesis) [Usar] • Write a document in LaTeX in article format (*paper*) with higher quality than in Project I (mastering tables, figures, equations, indexes, bibtex, cross-references, citations, pstricks) [Usar] • Attempt to make presentations using prosper [Usar] • Demonstrate basic experiments [Usar] • Select an advisor who specializes in the research area conducted [Usar]
Readings : [IEE08], [ACM08], [Cit08]	

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

[ACM08] ACM. *Digital Libray*. http://portal.acm.org/dl.cfm. Association for Computing Machinery, 2008.

[Cit08] CiteSeer.IST. *Scientific Literature Digital Libray*. http://citeseer.ist.psu.edu. College of Information Sciences and Technology, Penn State University, 2008.

[IEE08] IEEE-Computer Society. *Digital Libray*. http://www.computer.org/publications/dlib. IEEE-Computer Society, 2008.