PROJECT I
ENCT 413

Credit: 2 **Year: IV** **Part: I**

Course Objectives

The objective of this course is to execute the first phase of the B.E. major project by enabling students to formulate and define a relevant engineering problem and pursue it through either a research-oriented or product-oriented or internship-based approach in the field of computer engineering. This course emphasizes the development of skills in problem identification, literature review, system or research design, and project planning, thereby preparing students for effective implementation and evaluation in the subsequent phase.

General Procedures

Under the supervision of the assigned supervisor, students shall be organized into the groups of maximum three members. Each group shall select their track for conducting their major project work. The track may be either research track or product track or internship track.

Projected Theme

The project topic may be an extension of the minor project completed in the sixth semester or a newly proposed topic within the field of computer engineering, including but not limited to areas such as artificial intelligence and machine learning, image processing and computer vision, networks and cyber security, natural language processing, embedded systems, big data technologies, internet of things, web or mobile application development, but not limited to these if the theme aligns with the course. Students may conduct field visits or collect real-world datasets where appropriate if required. Continuous guidance, monitoring and feedback will be provided by the supervisor/mentor throughout the duration of the course to ensure effective project development and learning outcomes.

Project I shall be carried as per the following order:

1 Group Formation

2 Project Selection and Planning

- 2.1 Selection of major project topic based on theory/practical subject studied or as per the research or industry needs.
- 2.2 Problem identification and scope definition
- 2.3 Approval of project by the department and prospective mentor in case of internship based track

3 Literature Review

- 3.1 Basic literature review and background study

3.2 Study of relevant theories
3.3 Study of existing systems

4 Concept note submission

4.1 Submission of concept note to the department in the second week after the commencement of seventh semester
4.2 Approval of the concept note by the department

5 Proposal Report Submission and Presentation

5.1 Preparation of brief project proposal including objective and methodology
5.2 Selection of software tools, technologies, and resources (programming languages, frameworks, databases, etc)
5.3 Proposal report submission, presentation in department approved format within 3 weeks after the commencement of seventh semester
5.4 Approval of project proposal by the department

6 Initial Project Development Phase

6.1 Data collection or experimental/product set up
6.2 Analysis and design
6.3 Methodology development
6.4 Application of programming skills, algorithms and engineering tools
6.5 Proof of concept and preliminary works

7 Progress Report Submission and Presentation

7.1 Submission of the project I final progress report two weeks prior to the end of the semester
7.2 Final Presentation

Evaluation

The total marks allocated for Project I is 50. The overall internal evaluation of the Project I will be done on the following basis:

Details	Weightage	Marks
Proposal Report and Defense	10%	5
Initial Project Development Works	50%	25
Documentation (Final report)	20%	10
Final Presentation	20%	10

Additional Guidelines

1. Every group must maintain the log sheet of meeting with the supervisor.
2. Proper version control and teamwork practices shall be followed during project development.

3. The reports for proposal and progress defense must follow standard formatting guidelines and IEEE referencing style.
4. The report structure of a research based and product based project shall be different.
5. The product based project shall follow standard SDLC pipeline.
6. The similarity index of final report shall not exceed 25%.
7. Students are encouraged to use modern tools and technologies.

Formatting Guidelines

For documentation, existing department approved formatting guidelines can be used. In general, following formatting guidelines can be met:

1. Document layout: standard A4 paper
2. Font style and size: font typeface: Times New Roman font, for chapter title: 16 pt (Bold), section headings: 14 pt (Bold), sub headings: 13 pt (Bold), body text: 12 pt (Normal), figure/table captions: 10 pt (bold and italic)
3. Line spacing and paragraph format: line spacing: 1.5 lines, paragraph spacing: 6 pt after and before, text alignment: justified
4. Margins: Left: 1.5 inch, right: 1 inch, top: 1 inch, bottom: 1 inch
5. Page numbering: roman numerals (i, ii, iii, etc) for preliminary pages, Arabic numerals (1, 2, 3, etc) for main chapters. Page numbers should be placed in bottom center with font size 11.
6. Headings and Numbering: Chapters numbering format: Chapter 1: Introduction, Section numbering (1.1, 1.2, 1.3 etc)
7. Figures and tables: figure and tables must be numbered sequentially in the chapter. For example: ***Figure 3.1. Research Design, Table 5.3 Performance Comparison.*** *Figure 3.1* means first figure of chapter 3. Table 5.3 means third table of chapter 5. The figure caption must be placed below figure in center alignment, and table caption must be placed before table in center alignment.
8. Equations: center-aligned, numbered sequentially (3.1), (3.2), etc, variables must be clearly defined after equation
9. Citation and referencing: Follow IEEE style citation and referencing.
10. Binding and printing: final submission should be tape bounded hard copy; the printing should be black color on white paper
11. Language: Formal English language with third person passive voice