Course Title: Project III (6 Cr.)
Course Code: CACS452
Year/Semester: IV/VIII
Class Load: Hrs./Week (Practical: 12 Hrs.)

Course Description: This final year project is a practical course where students are expected to implement the concepts learnt during four years of their study so as to build a system. The course includes realization of project management, software development, and programming skills.
Course Objectives: The objective of this course is to make students able to design and develop software applications by following appropriate development methodology.

Course Details:
Nature of Project:

Students should develop a complete functioning system. The system should not be limited to the basic CRUD operations only. Being a final year project, students are highly recommended to implement appropriate algorithms relevant to the project. The project should include precise system analysis, design, implementation and result analysis. The students can work in group of at most two members. The students can choose appropriate language technologies that they have learnt till eighth semester; however it is not limited. While implementing the project, students should be able to write their own program modules rather than relying on predefined APIs or Plugins except in some unavoidable circumstances.

Phases of Project:

The following are the phases of project work:

4. **Proposal Submission:** Students must submit and present project proposal after 3rd week of start of the eighth semester.

5. **Mid-Term:** Students must submit progress report and defend midterm progress of their project work in the 12th week of the eighth semester.

6. **Final Submission:** Students must submit and orally defend the project work during last week of the eight semester but before final board examination. Students must have to submit the project final report to their respective department before at least ten days of final defense date. The report should be submitted in standard format as prescribed. The hard/soft copy of report should be made available to the external expert before a week of presentation date. The final presentation should be followed by the demonstration session, where students have to demonstrate the project. A viva voice will be conducted by evaluation committee.

Provision of Supervision:

There should be a regular faculty of the campus/college assigned as a supervisor. The role of supervisor is to guide the students throughout the project and provide constructive suggestions. A supervisor can supervise at most four groups of the project in a class section. The supervisor should rigorously supervise, monitor and feedback the project groups under supervision.

Evaluation Scheme:

4. **Proposal Defense** of 10% of total marks based on project proposal and its presentation.

5. **Midterm** of 70% of total marks based on;
   a. **Work Done 60%**
      i. System Analysis and Design
      ii. Implementation
      iii. Understanding of methods used in project
      iv. Ability to work with others
      v. Ability to identify problems
      vi. Amount of work performed
   b. **Documentation 10%**
      i. Report Organization
      ii. Writing Style
      iii. Completeness of Report
      iv. Readability
      v. Organization and analysis of data and results

6. **Final Defense** of 20% of total marks based on presentation and project demonstration and viva-voice. Each group member should present about the project followed by the demonstration of project developed. The project should be ready to run for the demo session.

The **10 marks of the proposal defense** will be evaluated by the research committee formed by HOD/Coordinator as a part of proposal defense. The **70 marks of the midterm** will be evaluated by the supervisor and internal examiner as a part of midterm defense. Out of the 70 marks, the supervisor will evaluate for 60 marks and internal examiner will evaluate for 10 marks. The remaining **20 marks of final defense** will be evaluated by the external examiner from the university.

Out of 100 marks, the 80 marks (Proposal + Midterm Evaluation) will be considered as internal assessment while the 20 marks (Final Defense) will be considered as external assessment. Each student in the project should get passed in each of the internal and external assessments individually. Any student failing to pass each of the assessments will be considered as fail.

The evaluation committee and evaluation criteria should be as follow;

c. **Evaluation committee**
   - Project Supervisor
   - HOD/Coordinator
   - Internal Examiner (Regular Faculty)
   - External Examiner

d. **Focus of the evaluation**
   - Presentation Skills
   - Project Demonstration
   - Project Report
   - Viva/Question Answer
   - Level of Work and Understanding

- Teamwork and Contribution

Report Contents:

4. Prescribed content flow for the project proposal

1. Introduction
2. Problem Statement
3. Objectives
4. Methodology
   a. Requirement Identification
      i. Study of Existing System
      ii. Literature Review
      iii. Requirement Analysis
   b. Feasibility Study
      i. Technical
      ii. Operational
      iii. Economic
   c. High Level Design of System (Methodology of the proposed system/ Flow Chart/ Working Mechanism of Proposed System / Description of Algorithms)
5. Gantt Chart (showing the project timeline)
6. Expected Outcome
7. References

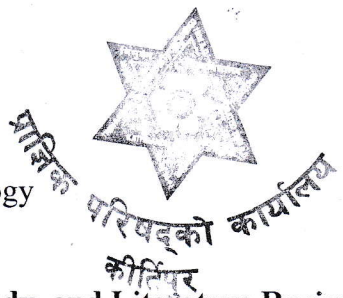
5. Prescribed content flow for the project report

11. Cover & Title Page
12. Certificate Page
    iv. Supervisor Recommendation
    v. Internal and External Examiners' Approval Letter
13. Acknowledgement
14. Abstract Page
15. Table of Contents
16. List of Abbreviations, List of Figures, List of Tables, List of Abbreviations
17. Main Report
18. References
19. Bibliography (if any)
20. Appendices (Screen Shots/ Source Codes)

6. Prescribed chapters in the main report

6. Chapter 1: Introduction

6.1. Introduction
6.2. Problem Statement
6.3. Objectives
6.4. Scope and Limitation
6.5. Development Methodology
6.6. Report Organization



7. Chapter 2: Background Study and Literature Review

7.1. Background Study (Description of fundamental theories, general concepts and terminologies related to the project)
7.2. Literature Review (Review of the similar projects, theories and results by other researchers)

8. Chapter 3: System Analysis and Design
8.1. System Analysis
8.1.1. Requirement Analysis
i. Functional Requirements (Illustrated using use case diagram and use case descriptions)
ii. Non Functional Requirements
8.1.2. Feasibility Analysis
i. Technical
ii. Operational
iii. Economic
iv. Schedule
8.1.3. Object Modelling using Class and Object Diagrams
8.1.4. Dynamic Modelling using State and Sequence Diagrams
8.1.5. Process Modelling using Activity Diagrams
8.2. System Design
8.2.1. Refinement of Class, Object, State, Sequence and Activity diagrams
8.2.2. Component Diagrams
8.2.3. Deployment Diagrams
8.3. Algorithm Details (if any)

9. Chapter 4: Implementation and Testing
9.1. Implementation
9.1.1. Tools Used (CASE tools, Programming languages, Database platforms)
9.1.2. Implementation Details of Modules (Description of classes/procedures/functions/methods/algorithms)
9.2. Testing
9.2.1. Test Cases for Unit Testing
9.2.2. Test Cases for System Testing
9.3. Result Analysis

10. Chapter 5: Conclusion and Future Recommendations
10.1. Conclusion
10.2. Future Recommendations

While writing above chapters students should avoid basic definitions. They should relate and contextualize the above mentioned concepts with their project work.

Citation and Referencing

The listing of references should be listed in the references section. The references contain the list of articles, books, urls, etc. that are cited in the document. The books, articles, and others that are studied during the study but are not cited in the document can be listed in the bibliography section. The citation and referencing standard should be IEEE referencing standard. The text inside the document should be cited in IEEE style. The IEEE referencing standard can be found in the web.

Report Format Standards

G. Page Number

The pages from certificate page to the list of tables/figures/abbreviations/approvals should be numbered in roman starting from i. The pages from chapter 1 onwards should be numbered in numeric starting from 1. The page number should be inserted at bottom, aligned center.

H. Page Size and Margin

- The paper size must be a page size corresponding to A4. The margins must be set as

  Top = 1; Bottom = 1; Right = 1; Left 1.25

I. Paragraph Style

- All paragraphs must be justified and have spacing of 1.5.

J. Text Font of Document

- The contents in the document should be in Times New Roman font
- The font size in the paragraphs of document should be 12

K. Section Headings

- Font size for the headings should be 16 for chapter headings, 14 for section headings, 12 for sub-section headings. All the headings should be bold faced.

L. Figures and Tables

- Position of figures and tables should be aligned center. The figure caption should be centred below the figure and table captions should be centred above the table. All the captions should be of bold face with 12 font size.

Final Report Binding and Submission:

No of Copies: 3 (College Library + Self + Dean Office)

Look and Feel: Golden Embracing with Black Binding

A final approved signed copy of the report should be submitted to the Dean Office, Exam Section, FOHSS.

Teaching Methods:

The major teaching methods that can be followed for this course includes class lectures, laboratory activity, group discussions, presentations, and demonstrations.

Evaluation

Examination Scheme			
Internal Assessment		**External Assessment**	**Total**
Proposal Defence	**Midterm Defence**	**Final Defence**	
10	**70**	**20**	**100**