

**Course Title: Project II (2 Cr.)**  
**Course Code: CAPJ356**  
**Year/Semester: III/VI**  
**Class Load: 4 Hrs. / Week (Practical: 4 Hrs.)**

### Course Description

To develop small scale project based on the application development platforms and tools (JAVA, visual c++, PHP , Python or plate form of any current trend. This course provides practical skill based knowledge.

### Course objectives

The objectives of this course are to provide project management skills (developing, implementing, managing collaboration) and to learn working as a team. The student will also learn about formulating project documentation.

### Course Contents

<b>Unit 1: Project Ideas and proposal guidance</b>	<b>4</b>
1.1 Project concept and Scope	
1.2 Proposal writing techniques	
<b>Unit 2: Application Development</b>	<b>8</b>
2.1 Object oriented programming	
2.2 Frameworks and APIs	
2.3 Programming design patterns	
2.4 Data collection for project	
2.5 Application of GPUS	
<b>Unit 3: Project management, team work and collaboration</b>	<b>8</b>
3.1 Project management techniques	
3.1.1 Develop project management plan	
3.1.2 Project implementation, monitor and control	
3.2 Collaborative development environment	
3.2.1 Communications planning process	
3.2.2 Organizing and conducting effective meeting,	
<b>Unit 4: Project Guidance</b>	<b>5</b>
<b>Unit 5: Project work</b>	<b>30</b>



## Unit 6: Project documentation guidance

5

- 4.1 documentation format
- 4.2 Table writing format
- 4.3 Figure writing format
- 4.4 Writing equation
- 4.5 References and citation techniques
- 4.6 Abstract writing

### Reference Books:

1. The Project Manager's Guide to Software Engineering's Best Practices, M. C. Christensen and R.H. Thayer, IEEE computer Society
2. Angelika H. Hofmann, " Scientific Writing and Communication: Papers, Proposals, and Presentations Oxford University Press; 3 edition (November 17, 2016)



# Tribhuvan University

Faculty of Humanities and Social Sciences

## Bachelor of Computer Application (BCA)

**Course Title: Project II**

**Course Code: CAPJ356**

**Credit Hours: 2 Cr.**

**Year/Sem.: III/VI**

**Class Load: 4 Hrs./Week (Practical: 4Hrs)**

**FM: 100/ PM: 40**

**Course Description:** This is fully practical course and expects the practical implementation of the concept learnt by students during first three years of their study. However, it should not be limited to the boundary of syllabus. So, the students can go beyond this and make their project work more realistic and technically sophisticated.

**Course Objectives:** The general objectives of this project work are to make student able in implementing concepts learnt by sixth semester so that they will be able to develop applications of their own choice. The specific objectives are to make students able to:

- Lead a software project development
- Use CASE tools
- Implement algorithms to solve problems
- Write programs and improve programming skill
- Write test cases for software testing and improve QA skill
- Improve problem solving skill
- Improve report writing skill
- Improve presentation skill

### **Thematic Details:**

**Nature of Project:** This is an academic project focused on development of computer applications. Although the students can work in group of at most two members (justifying the individual effort in project), students are encouraged to develop project individually. Students should be encouraged to develop web based, mobile based or desktop based applications using the language technologies of their expertise and comfort. Students can develop the applications using database operations and sophisticated algorithms. The students can rely on the appropriate language technologies that they have learnt till sixth semester, however it is not limited. Students should use appropriate CASE tools. Students may work on projects like Web applications, Information systems, E-Commerce Portals, Game applications etc. While implementing the project, students should be encouraged to write their own modules rather than relying on APIs or Plugins (except in some unavoidable circumstances). The application/system developed should contains reporting and other related advanced features (Decision making, Business Intelligence, based on algorithms or any appropriate statistical tools) in addition to CRUD operations. It should be bit more sophisticated than the project done in fourth semester. Significant amount of literatures/papers has to be reviewed and included in the report.

### **Phases of the Project:**

The following are the three phases which should have to go through:

1. **Proposal submission and defense:** Students must submit and present project proposal within 20 days from their first class of the sixth semester.
2. **Mid-Term defense:** Students must submit progress report and defend midterm progress of their project work in the 12<sup>th</sup> week of the sixth semester.

3. **Final submission and defense:** Students must submit and orally defend the project work during last week of the sixth semester, before final board examination. Students must have to submit the project final report to their respective department before 10 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 will be followed by the demonstration session, where students have to illustrate/simulate the project. A viva-voce will be conducted by evaluation committee.

**Focus of the Study:** Each student should have equal participation in every phase of the project. The students should focus on the following different software development phases during the development of their project work:

1. Problem Identification
2. System Analysis
  - a. Feasibility study
  - b. System Requirement specification (SRS)
3. System Design
  - a. Architecture Design
  - b. Interface Design
  - c. Database/Procedure/Algorithm Design
4. Implementation and Testing

**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:**

- a. Term wise marks distribution:

**First Stage (Proposal Defense)** of 10% of total marks based on project proposal and presentation.

**Second Stage** of 70% of total marks based on:

- **Work done** 50% (System analysis and design, implementation, understanding of methods used in project, ability to identify problems, amount of work performed)
- **Documentation** 20% (Report organization, writing style, completeness of report, readability, organization and analysis of data and results)

**Third Stage (Viva-voce)** of 20% of total marks based on presentation, project demonstration and viva-voce. Each student must 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 (first stage of evaluation) will be evaluated by the research committee formed by HoD/Coordinator as a part of proposal defense. The 70 marks (second stage of evaluation) will be evaluated by the supervisor and internal examiner as a part of midterm defense and final defense. Out of 70 marks, the supervisor will evaluate for 50 marks and internal examiner will evaluate for 20 marks. The remaining 20 marks (third stage of evaluation) will be evaluated by the external examiner from the university.

Out of 100 marks, the 80 marks will be considered as internal assessment while the 20 marks will be considered as external assessment. Individual student in the project should get passed in each of the internal and external assessments separately. Any student failing to pass each of the assessments will be counted as fail.

- b. Evaluation committee
  - Project Supervisor
  - HoD/Coordinator
  - Internal Examiner (Regular Faculty)
  - External Examiner
- c. Focus of the evaluation
  - Presentation skills
  - Viva/Question answer
  - Project demonstration
  - Project work
  - Level of Work completed

### **Report Contents:**

#### **1. 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

#### **2. Prescribed content flow for the project report**

1. Cover and Title page
2. Certificate
3. Abstract
4. Acknowledgement
5. Table of contents
6. List of abbreviations, list of figures, list of tables
7. Main report (details below)
8. Appendices (screen shots, source code, supervisors visit log sheet)
9. References
10. Bibliography (if any)

### 3. Prescribed chapters in the main report

#### Chapter 1: Introduction

- 1.1 Introduction
- 1.2 Problem Statement
- 1.3 Objectives
- 1.4 Scope and Limitation
- 1.5 Development Methodology
- 1.6 Report Organization

#### Chapter 2: Background Study and Literature Review

- 2.1 Background Study (Description of fundamental theories, general concepts and terminologies related to the project)
- 2.2 Literature Review (Review of the similar projects, theories done by other researchers)

#### Chapter 3: System Analysis and Design

##### 3.1 System Analysis (Structured Approach/Object Oriented Approach)

- 3.1.1 Requirement Analysis
  - i. Functional requirements (illustrate using Use-case diagram/Use-case description)
  - ii. Non-functional requirements
- 3.1.2 Feasibility Analysis (Technical, operational, economic)

##### System Modelling (Structured Approach/Object Oriented Approach)

Structured Approach	Object Oriented Approach
3.1.3 Data modelling: ER Diagram	3.1.3 Object Modelling: Object & Class Diagram
3.1.4 Process Modelling: DFD	3.1.4 Dynamic Modelling: State & Sequence diagram
	3.1.5 Process modelling: Activity Diagram

##### 3.2 System Design (Structured Approach/Object Oriented Approach)

Structured Approach	Object Oriented Approach
3.2.1 Architectural design	3.2.1 Refinement of Classes and Object
3.2.2 Database Schema design	3.2.2 Component diagram
3.2.3 Interface design (UI/UX)	3.2.3 Deployment diagram
3.2.4 Physical DFD	

##### 3.3 Algorithm details (if used)

#### Chapter 4: Implementation and Testing

- 4.1 Implementation
  - 4.1.1 Tools used (CASE tools, programming languages, database platforms)
  - 4.1.2 Implementation details of modules (description of procedures/ functions/ classes/ methods)
- 4.2 Testing
  - 4.2.1 Test cases for Unit Testing
  - 4.2.2 Test cases for System Testing

#### Chapter 5: Conclusion and Future Recommendations

- 5.1 Conclusion
- 5.2 Lesson learnt/Outcome

## 5.3 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 that are cited in the document. The books, articles, and other 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 accordingly. The IEEE referencing standard can be found in the web at [www.ieee.org](http://www.ieee.org).

### **Report Format Standards**

#### **1. Page Number**

The pages from certificate page to the list of tables/figures 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.

#### **2. 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.

#### **3. Paragraph Style**

All paragraphs must be justified and having spacing of 1.5.

#### **4. 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.

#### **5. Section Headings**

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

#### **6. Figures and Tables**

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

### **Final Report Binding and Submission:**

Number of Copies: 3 (College Library, Self, and 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.

(A typical Specimen of Cover Page & Title Page)



**Tribhuvan University**  
**Faculty of Humanities and Social Sciences**

**TITLE OF PROJECT REPORT**

**A PROJECT REPORT**

**Submitted to**  
**Department of Computer Application**  
**Name of the College**

*In partial fulfillment of the requirements for the Bachelors in Computer Application*

Submitted by  
Names and Roll of the Candidates  
Month and Year

Under the Supervision of  
**Supervisor Name**



(A typical Specimen of Certificate)



**Tribhuvan University**  
**Faculty of Humanities and Social Sciences**  
**College Name**

**Supervisor's Recommendation**

I hereby recommend that this project prepared under my supervision by NAME OF THE STUDENT entitled “**TITLE OF THE PROJECT**.....” in partial fulfillment of the requirements for the degree of Bachelor of Computer Application is recommended for the final evaluation.

<<Signature of the Supervisor>>

**SIGNATURE**

<<Name>>

**SUPERVISOR**

<<Academic Designation>>

<<Department>>

<<Full address of the Dept. & College>>

(A typical specimen of Approval)



**Tribhuvan University**  
**Faculty of Humanities and Social Sciences**  
**College Name**

**LETTER OF APPROVAL**

This is to certify that this project prepared by NAME OF THE STUDENT entitled “**TITLE OF THE PROJECT** .....

<b>SIGNATURE of Supervisor</b>  Name and Academic designation  Department name and full address of the College	<b>SIGNATURE of HOD/Coordinator</b>  Name and Academic designation  Department name and full address of the College
<b>SIGNATURE of Internal Examiner</b>  <b>Internal Examiner</b>	<b>SIGNATURE of Internal Examiner</b>  <b>External Examiner</b>