Project II Guidelines – 2024

BCA, Sixth Semester

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

Compiled by
Research & Extension Committee
United College
Kumaripati, Lalitpur, Nepal

December 2024

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Outlines

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THEORETICAL PART

Course description

To develop small scale project based on the application development platforms and tools (JAVA, visual e++, 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.

Unit contents

1. Project Ideas and proposal guidance **4 hrs**

1.1 Project concept and Scope
1.2 Proposal writing techniques

2. Application development **8 hrs**

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

3. Project management, team work and collaboration **8 hrs**

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

4. Project guidance **5 hrs**

5. Project work **30 hrs**

6. Project documentation guidance **5 hrs**

6.1 Documentation format
6.2 Table writing format
6.3 Figure writing format
6.4 Writing equation

6.5 References and citation techniques
6.6 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)

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PRACTICAL PART

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 kill
- Improve presentation skill

Thematic details

Nature of internship

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 internship

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

Phase-1	**Proposal submission and defense**	Students must submit and present project proposal within 20 days from their first class of the sixth semester.
Phase-2	**Mid-term**	Students must submit progress report and defend mid-term progress of their project work in the 12th week of the seventh semester.
Phase-3	**Final submission**	▪ 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.

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

Term wise mark distribution:

1	**Proposal defense**	Proposal defense of 10% of total marks based on project proposal and its presentation. ▪ The 10 marks of the proposal defense will be evaluated by the research committee formed by HOD/ Coordinator/ Supervisor as a part of proposal defense.
2	**Midterm**	Midterm of 70% of total marks based: ▪ 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) ➢ 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.
3	**Final defense**	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 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.

Examination scheme			
Internal assessment		**External assessment**	**Total**
Proposal defense	Midterm defense	Final defense	**100 marks**
5	**75**	**20**	

Evaluation committee

- Project supervisor
- HOD/Coordinator
- Internal examiner (Regular faculty)
- External examiner

Focus of the evaluation

- Presentation skills
- Viva/Question answer
- Project demonstration
- Project work
- Level of work completed

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

Final report submission

- Number of copies: 3 (College library + Self + Dean office)
- Cover page: Golden embracing with black binding
- A final approved signed copy of the report should be submitted to the Dean Office, Exam Section, FOHSS.

Technical guidelines

S/N	Particular	Descriptions			
1	**Chapter heading**	Font: Times New Roman		Size: 16	Align: Center
2	**Sub-heading**	Font: Times New Roman		Size: 14	Align: Left
3	**Body part**	Font: Times New Roman		Size: 12	Align: Justification
4	**Margin**	Left: 1.25	Right: 1	Top: 1	Bottom:1
5	**Spacing:**	1.5			
6	**Alignment**	Justification			
7	**Page number**	Font: Roman numeral for preliminary Arabic number for main body		Size: 12	Align: Lower center of the page
8	**Figures and tables**	Position of figures and tables should be aligned center. The figure should be centered below the figure and table should be centered above the table. All the captions should be bold face with 12 font size.			

Outlines of internship proposal

1. Title page
2. Table of contents

3. Introduction
4. Problem statement
5. Objectives
6. 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
        i. Methodology of the proposed system
        ii. Flowchart
        iii. Working mechanism of proposed system
        iv. Description of algorithm
7. Gantt chart (Showing the project timeline)
8. Expected outcome
9. References

Outlines of internship report

A. Preliminary section

1. Cover page
2. Title page
3. Declaration
4. Abstract
5. Acknowledgement
6. Table of contents
7. List of tables
8. List of figures
9. List of abbreviations

B. 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

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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, and economic)

System modelling (Structured approach/Object oriented approach)

Structured approach	Object oriented approach
3.1.3 Data modeling: ER Diagram	3.1.3 Object modelling: Object and class diagram
3.1.4 Process modelling: DFD	3.1.4 Dynamic modelling: State and sequence diagram
	3.1.5 Process modelling: Activity diagram

3.2 System design

Structured approach	Object oriented approach
3.1.5 Architectural design	3.2.1 Refinement of classes and object
3.1.6 Database scheme design	3.2.2 Component diagram
3.1.7 Interface design (UI/UX)	3.2.3 Deployment diagram
3.1.8 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

References

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Annex 1: Cover page

Tribhuvan University

Faculty of Humanities and Social Sciences

……TITLE OF PROJECT REPORT……..

A PROJECT REPORT

Submitted to

Department of Computer Application

United College,

Kumaripati, Lalitpur

In partial fulfillment of the requirement for the Bachelors of Computer Application

Submitted by

<Full Name>

Exam Roll No.:……..

TU Regd. No:……

Month, Year

Under the Supervision of

<Supervisor Name>

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Annex 2: Title page

Tribhuvan University

Faculty of Humanities and Social Sciences

TITLE OF PROJECT REPORT

A PROJECT REPORT

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Annex – 3: Student's self-declaration

Declaration

I hereby declare that the project II titled "<title of project>" submitted by me to the Faculty of Humanities and Social Sciences, in partial fulfillment of the requirements for the Bachelor of Computer Applications (BCA) degree, is an authentic record of my own work carried out under the supervision of <Supervisor's Name>. This report has not been submitted previously, either in part or in full, for the award of a degree or any other similar academic qualification in any other institution or university. I affirm that all the information, data, and findings presented in this report are true to the best of my knowledge and belief.

<Name of student>

Date:

United College

Annex – 4: Supervisor's recommendation

Tribhuvan University

Faculty of Humanities and Social Sciences

United College

Supervisor's Recommendation

I hereby recommend that this Project II prepared under my supervision by <name of student> entitled <Title of project> in the partial fulfillment of the requirements for the degree of Bachelor of Computer Application (BCA) is recommended for the final evaluation.

……

<Name of Supervisor>

Supervisor

United College

Kumaripati, Lalitpur

United College

Annex – 5: Letter of approval

Tribhuvan University

Faculty of Humanities and Social Sciences

United College

LETTER OF APPROVAL

This is to certify that this Project II prepared by <name of the student> entitled "<Title of Project >" in partial fulfillment of the requirements for the degree of Bachelor in Computer Application has been evaluated. In our opinion it is satisfactory in the scope and quality as a project for the required degree.

…… <Name of supervisor> Supervisor United college	…… <Name of HOD> Graduate Program director United college
…… <Name of internal examiner> Internal Examiner	…… <Name of external examiner> External Examiner

Closing note:

While preparing the project report, students must work closely with their concerned supervisor, who is responsible for guiding them throughout the process. Supervisor should ensure that the report follows the prescribed guidelines regarding structure, content, and formatting. Adherence to this guideline is crucial for maintaining the quality and consistency of the report, ensuring it aligns with academic and institutional requirements. This collaborative approach helps students present their work effectively and meet the expected academic standards.

Dr. Binod Lingden
Research Coordinator
United College
Kumaripati, Lalitpur