Department of Information Technology
BABU BANARASI DAS
Institute of Technology & Management,Lucknow
Recognized by AICTE, Govt.of India & Affiliated to Dr. A.P.J Abdul Kalam Technical University,Lucknow,AKTU College Code=054

[MINI PROJECT LAB MANUAL]

[BCS-554]

B. TECH, 3rdYear, Semester-V

Dr. A.P.J. Abdul Kalam Tech. University
Uttar Pradesh

Department of Information Technology

Prepared By:
Mrs. Soumya Saxena
Assistant Professor

Approved By

(Head of Department)

INDEX

S. No	Description
1.	Vision & Mission of the Institute
2.	Vision & Mission of the Department
3.	Program Outcomes
4.	Program Educational Objectives& Program Specific Outcomes
5.	Course Evaluation Scheme
6.	Course Objectives
7.	Course Outcomes
8.	Content
9.	Teaching Methods and Assignments
10.	Evaluation and Grading
11.	Attendance Policy & Absent Policy
12.	Milestones for Mini-Project
13.	Topical Calendar

1. **Vision & Mission of the Institute**

Vision of the Institute

"To become a leading institute of providing professionally competent and socially responsive technocrats with high moral values."

Mission of the Institute

M1. "To create an eco-system for the dissemination of technical knowledge, to achieve academic excellence."

M2. "To develop technocrats with creative skills and leadership qualities, to solve local and global challenges."

M3. "To impart human values and ethics in students, to make them socially and eco-friendly responsible."

2. **Vision& Mission of the Department**

Vision Of the Department:

"To transform the students to be skilled IT professionals, Innovative leaders, and environmentally receptive citizens."

Mission Of the Department:

M1. "To develop and deliver quality academic programs in emerging & innovative fields of engineering to empower the students to meet industry standards."

M2. "To build students community with ethical standards to undertake R&D in thrust areas of national and international needs."

M3. "To inculcate professional behavior, positive attitude, and communication skills."

3. Program Outcomes

PO's an Engineering Graduate of the Department of Computer Science and Engineering Program will be able to demonstrate:

PO1: Engineering Knowledge: Apply the knowledge of mathematics, including discrete mathematics, probability, statistics and fundamentals of various engineering disciplines like computer science and engineering, electronic engineering and Electrical engineering in the core information technologies.

PO2: Problem Analysis: Analyze a problem and identify the computing requirements appropriate to its solution.

PO3: Design/Development of Solutions: Design and implement hardware and software systems, components, process or program to meet the desired needs within reasonable economic, environmental, social, political, ethical, health and safety, manufacturability, and sustainability constraints.

PO4: Conduct Investigations of Complex Problems: Reassess literature and indulge in research to use research-based knowledge and methods to design and conduct new experiments, as well as to organize, analyze and interpret data to produce draw valid Conclusions and recommendations.

PO5: Modern tool usage: Use appropriate techniques, resources, and modern engineering and IT tools necessary for computer engineering practice.

PO6: The Engineer & Society: Show the understanding of local and global impact of computing on individuals, organizations and society.

PO7: Environment & Sustainability: Integrate IT-based solutions in environmental contexts and demonstrate the knowledge of need for sustainable development.

PO8: Ethics: Demonstrate the knowledge of professional and ethical responsibilities along with the norms of the engineering practice.

PO9: Individual & Teamwork: Demonstrate leadership and an ability to work as a member with responsibility to function on multi-disciplinary teams to accomplish a common goal.

PO10: Communication: Demonstrate effectively communicate skills in both oral and written form with a range of audiences.

PO11: Project Management & Finance: Apply the knowledge and understanding of engineering and management principles to design, planned budget and propose IT project for an identified need within a specific scope.

PO12: Life-Long Learning: Developed confidence to acquire new knowledge in the computing discipline and to engage in life-long learning.

4. Program Educational Objectives & Program Specific Outcomes

Program Educational Objectives

PEO1: Students must be able to apply software engineering principles to analyze complex computing problems and identify their solutions.

PEO2: Students must be able to analyze, design, and implement the latest technology-driven projects.

PEO3: Students must be able to work in a collaborative environment and understand the ethical, social, and economic impact of their work.

Program Specific Outcomes

PSO1: Able to design and implement the data structures and algorithms to deliver quality software products**.**

PSO2: Able to apply Artificial Intelligence and Machine Learning concepts to solve society-related needs.

5. Course Evaluation Scheme

S. No	Subject Code	Subject Name	Periods			Evaluation Scheme				Total	Credit
			L	T	P	Sessional Assessment			PE		
						CT	TA	PS			
1.	BCS 554	Mini Project or Internship Assessment	-	-	2	-	-	100	-	100	2

6. Course Objectives

- To help students develop openness to new ideas in computer science, develop the ability to draw reasonable inferences from observations and learn to formulate and solve new computer science problems using analytical and problem-solving skills.
- To help students develop the ability to synthesize and integrate information and ideas, develop the ability to think creatively, develop the ability to think holistically and develop the ability to distinguish between facts and opinion.
- To help students acquire the necessary competences to build a real-life software system by completing different software life cycle phases (like, specification, architecture, design, implementation, validation, documentation, etc.).
- To help students develop the ability to work individually and as part of a team, develop a commitment to accurate work, develop management skills, improve speaking and writing skills, improve the ability to follow directions, instructions and plans, and improve the ability to organize and use time effectively.
- To help students develop a commitment to personal achievement, the ability to work skillfully, informed understanding of the role of science and technology, a lifelong love of learning, and cultivates a sense of responsibility for one's own behavior and improves self-esteem/self-confidence.

7. Course Outcomes & CO-PO-PSO Mapping

Course Outcomes

(BCS554) PROJECT		
Course Outcomes (CO)		**Bloom's Knowledge Level (KL)**
BCS554.1	Students are able to work effectively in teams to accomplish a common goal**.**	L2
BCS554.2	Students are able to develop the ability to communicate effectively.	L3
BCS554.3	Students acquire the knowledge to undertake technical, research tasks and ethical responsibilities to develop a small-scale software.	L4
BCS554.4	Students are able to develop their presentation and documentation skills in formal manner.	L3
BCS554.5	Students develop the ability of self-learning and apply it in life- long learning.	L6

CO-PO-PSO Mapping

Course Outcomes	PO1	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
CO1								3					
CO2									3				
CO3	3	2	2	3	1	1	2					3	3
CO4								2	2	2			2
CO5											3		2
AVERAGE	**3**	**2**	**2**	**3**	**1**	**1**	**2**	**2.5**	**2.5**	**2**	**3**	**3**	**2.3**

The extent of mapping is as follows: 1 for low, 2 for moderate, 3 for high &"-" for No correlation between CO & PO.

8. Content

- This course consists of the development of a realistic application, representative of a typical real-life software system, under semi-professional working conditions. The students are expected to propose, analyze, design, develop, test and implement a software system. The student will deliver oral presentations, progress reports, and a final report.
- Depending on the topic of the project and the chosen software development methodology, which may vary from one year to another, the following themes may be addressed to some extent: Software development methodologies, static (products) and dynamic aspects (processes); Requirement analysis (goals, use cases), software architectures, architectural styles and patterns, model-driven engineering (MDE); Programming techniques, software development environments, refactoring.
- Software validation through unit tests, integration tests, functional and structural tests, and code reviews.
- Project management, planning, resource estimation, reporting.
- Version management by using a version management tool.
- Examples of kinds of systems to be developed are distributed systems, client/server systems, web-based systems, secure systems, mobile systems, adaptable systems, optimizations of existing systems or data-intensive systems, etc.
- Besides completing a mini project, the students are required to complete subject related Lab Assignments given by respective course teachers. The individual teachers who are teaching the courses with lab component will be responsible for giving assignments, monitoring and evaluating their respective assignments.

9. Teaching Methods and Assignments

- This lab class will meet two hours per week for 120 minutes each meeting. -- some labs may be used for reviewing concepts and tools that are useful for the mini project, but

- Most lab class time will be used for guided discussion and development, student presentations, and some team meetings. Generally, students will be taking up mini projects individually. However, in situations when they are working in teams, the individual responsibilities should be planned and documented throughout the phases of the project.

- Students are expected to choose an appropriate project topic in consultation with the teacher/instructor and do a short meeting that "pitches" the idea to the teacher/instructor and the class. While there is some flexibility in project selection, students should keep in mind the "capstone" nature of this class. Students must develop projects that demonstrate that they have a working knowledge of basic and advanced concepts in computer science and also demonstrate a reasonable knowledge of recent developments in computer science. Each project should include non-trivial software development that has been approved by the teacher/instructor.

- With an approved project, students will proceed through a standard sequence of software development stages, beginning with a requirements analysis and specification, and concluding with a final evaluation. A complete detail of the all-project stages is given in the milestones section as well as summarized in "TOPICAL CALENDAR" section. At the end of each stage, each individual/team must produce a written report giving stage-specific documentation and describing the work performed, problems encountered, and decisions made.

- One week before the completion of each stage, there will be a presentation from each project that previews the progress and results in that phase, for in-class discussion and suggestions for refinement in the following week. For these intermediate stage presentations, team members will rotate through as "presenter" for the team, and each student must make at least two intermediate-stage presentations (for a 3-person team this means that there will have to be multiple presentations on the same stage).

- In the case of a group project, each member of the group must present the entire project, highlighting their individual contributions toward the project's success, and a short summary of each individual's contributions should be included in the final report as well.

10. Evaluation and Grading

Third Year Mini Project
Rubrics (2025-26)

Rubrics			Marks (100)
A1. Problem selected and problem statement formulation (10)		A. Synopsis Presentation	10
A2.Clarity of Idea for proposed solution & Synopsis Report (10)			10
A3. Presentation Skill & Synopsis Report (10)	PPT(10)		10
	Report(10)		10
Total Marks (40)			40
B1. High level Modules design (Data Flow diagram , block diagram, architecture etc) (10)		B. Review 1 Presentation	10
C1.Modules integration Coding (20)		C. Review 2 Presentation	20
C2. Final Mini Project report (30)			30

11. Attendance Policy and Absent Policy

Attendance is vital for this class, since discussions, regular oral presentations and progress reports will have a strong impact on the ability to complete the project.

Rule 1 If any student is absent during the 1st /2nd Evaluation the Mini Project Coordinator Schedule, the next Date for the Evaluation.

Rule 2 If any student is absent during the **Next Date of 1st Evaluation / Next Date of 2nd Evaluation,** then Mini Project Guide communicates with the Mini Project coordinator & **also deduct the 20% of Marks.**

Rule 3 If any student is absent during both **Evaluation,** then Mini Project coordinator scheduled the Last Date for Remaining Students of 1st /2nd Evaluation & **also deduct the 40% of Marks.**

Rule 4 **If any student is absent during the whole Evaluation Process, then Mini Project coordinator Mark student as Absent.**

12. Milestones for Mini-Project

i. **Deciding and registering the topic/title of the mini project:** All the students are required to decide the topic/title for real life software project, which they want to design, develop and implement. In finalizing the proposed work topic, they may take help from concerned teachers/instructor in the lab. Decided topic/title needs to be teacher/instructor in the lab. approved by the concerned

Parallel Activity: Keep preparing the brief summary (synopsis/proposal) of the proposed work.

ii. **Submission of brief summary (synopsis/proposal) of the proposed work:** Once the project topic/title is decided and approved, all students are required to submit and present a brief summary of the proposed work (synopsis/proposal), clearly specifying the client's requirements for which the application software is being developed and the main features of the proposed software. After incorporating the suggestions of the

teachers/instructor, if any, the final version of the summary of the proposed work (synopsis/proposal) should be submitted to concerned teacher in the lab.

iii. **System Analysis and Design Phase (Submission of SRS document):** All students are required to study and analyze the present system (or existing manual system or proposed system), and all the findings. While doing so, they may actively be involved with teachers /instructors for discussion.

Parallel Activity: In the meantime, you may learn and practice the tools necessary to develop the proposed software, and finalize the detailed database design, including populated tables. Also, students should start the coding in parallel with their presentation of SRS document.

iv. **System Development (Coding/Testing):** Start the development of the system as per the design specifications. Coding should be well documented. Technical Report specifying the brief technical specifications and documenting the working of each major modules/methods should be submitted.

v. **Deployment/Implementation:** Deploy/Implement the developed system as per the specified requirements. Better you prepare an installation copy for your software along with installation manual.

vi. **Demonstration/Presentation:** Demonstrate the working of system to the audience (teacher, instructor students), specifying the design and main features of the developed system.

vii. **Final Report Submission:** The final project report along with a display poster, and an oral presentation should be submitted as per standard project report format template. Hardcopy as well as softcopy of the all the reports (like SRS Document, Technical report, Final Project report) should be submitted to the concerned teacher/instructor in the lab.

13. Topical Calendar

Week	Milestone	Parallel Activity
Week 1 -2	• Deciding & Registering Mini-Project Topic/Title • Finalize Topic with Instructor Approval & Start Synopsis	Brainstorm topics, consult instructors, outline objectives, prepare a brief summary, gather initial research
Week 3	Submission of Synopsis (Proposal)	Incorporate instructor feedback, refine project details
Week 4-5	System Analysis & Design Phase	Analyze existing systems, finalize design architecture, Define database schemas (if applicable)
Week 6	• Parallel Learning • Tool Practice for Development	Practice required programming tools & techniques
Week 7-10	• Start Coding & Implementation of Core Modules • Testing Phase	Begin development, maintain documentation, refine coding, debug modules, conduct initial tests
Week 11	Deployment/Implementation & Testing Finalization	Deploy system, resolve issues, ensure functionality
Week 12	Final Presentation & Demonstration	Test presentation, review project details
Week 13	Final Report Submission	Submit all reports & finalize documentation

Evaluation Sheet

Department of Information Technology
BABU BANARASI DAS
Institute of Technology & Management,Lucknow

BBDITM

Recognized by AICTE, Govt.of India & Affiliated to Dr. A.P.J Abdul Kalam Technical University,Lucknow,AKTU College Code=054

S.No.	Roll Number	Name of Student	Report	Synopsis Presentation					Review 1	Review 2		Total Marks1(100)
				A1. Problem selected and problem statement formulation (10)	A2. Clarity of Idea for proposed solution (10)	A3. Presentation Skill & Synopsis Report		Total (40)	Technical Knowledge Ge Development up to design phase High level Modules design (Data flow diagram, block diagram, architecture etc.) (10)	C. Project Implementation (Modules Integration Coding) (20)	D. Report (Final Mini Project report) (30)	
						PPT (10)	Report (10)					
1												
2												
3												
4												
5												
6												
7												
8												
9												
10												
11												
12												
13												
14												
15												
16												
17												
18												
19												
20												
21												
22												
23												
24												
25												
26												
27												
28												
29												
30												
31												
32												
33												
34												
35												
36												
37												

38												
39												
40												
41												
42												
43												
44												
45												
46												

Front Page

Topic Name

Mini Project Report

Submitted in partial fulfillment of the Requirements for the Outcome Based Educational Paradigm

in

INFORMATION TECHNOLOGY

B. Tech–Third Year Students

Academic Year (2025-26)

Submitted by

Student1 (Roll No.)
Student2 (Roll No.)
Student3 (Roll No.)
Student4 (Roll No.)

Under the guidance of

Mrs.SoumyaSaxena
(Assistant Professor)

At

BABU BANARASI DAS INSTITUTE OF TECHNOLOGY & MANAGEMENT
(Recognized by AICTE, Govt. of India & Affiliated to Dr. A.P.J. Abdul Kalam Technical University, Lucknow)
AKTU College Code - 054

December 2025

General Instruction

Mini-Project

GUIDELINES FOR REPORT WRITING

General Instructions

- The topic of the Internship Assessment must be technical, research oriented and latest.
- Internship Assessment Report should ordinarily be around 20-25 pages.

Main Components of a Report

- **Cover page**

  As per the given format.
- **Abstract**

  Abstract should be a narration of Problem Definition, Methodology used in third person's language not exceeding 250 words.
- **Acknowledgement and Declaration**

  As per the given format.
- **Certificate**

  As per the given format.
- **List of Symbols, Abbreviations and Nomenclature (separate pages)**
- **Table of contents/Index page**

  The table of contents should list all material following it. The abstract, acknowledgement, list of symbols, abbreviations and nomenclature will be included in table of contents but the page numbers in lower case Roman letters are to be accounted for them. Pages starting with Introduction (Immediate after the Table of contents) should be consecutively numbered using Arabic Numerals.
- **Main Text**

  This includes various sections for Seminar Report.
- **References**

Main Text

- This includes various sections for Seminar Report. For example,
  - **Introduction**

    This section contains an introduction to the topic, statement of the problem, motivation and organization of other sections.
  - **System Specifications**

This section includes Hardware and Software Specification.

- **Implementation/Simulation** details

  This section describes the simulation tool, simulation/implementation scenarios, parameters used. This section also includes results after implementation/simulation of work or another section may be added giving discussion of results, with graphs, etc.

- **Conclusion**

  Every report must include this section to conclude the work and suggests for further work. Actual work done of referred research paper/contribution of the work should be clearly stated.

- **Result**

  Students should write the final result.

- **Future Implications**

  Possible advances in the work or technology can be discussed in this section.

- **References**

  All references discussed should be justified, checked and added that have been used in the report.

Typing Instructions for Report

- **Specification for Fonts**
- **Font Face: Times new Roman**
- **Font Size:** As per following preview
  - **Headings (Size 14 Bold)**
  - **Sub-Heading (Size 12 Bold and Italic)**
  - **Contents (Size 12 Normal)**
- **Line spacing: 1.5**
- **Text Alignment: Both left and right justified**
- Page Dimensions: Standard A4 size (297mm x 210mm)
- Margins:
  - **Top margin: 0.75”**
  - **Bottom margin: 0.75”**
  - **Left margin: 1”**
  - **Right margin: 0.75”**
- Footer: **Page number should be bottom centered.**
- Sections should be numbered as for example, **1. Introduction** etc.
- Subsections should be numbered as for example, ***3.1 Simulation Tool*** etc.

- Paragraphs and sentences should be short.
- Start of a paragraph should not be intended, rather, give one line space between two paragraphs.
- A sub heading at the bottom of a page must have at least two full lines below it or else it should be carried over to the next page.
- The last word of any page should not be split using a hyphen.
- **Figures/Tables**
    - All figures and tables should be numbered and must have titles.
    - Figures and titles of figures should be centered.
    - Titles of figures must be below the figures and titles of tables must be above the table.
    - Figure numbers should be specific for each section, e.g., Figure 1.2, and Table numbers should be as Table 2, etc.
- **References**
    - References should be in IEEE format, i.e.,
        - Author name(s), title of paper/book, or if journal, its name, volume, issues, page number, publisher, year of publication
    - Book titles must be in capitals
    - Reference numbers should be marked liberally inside the text of the report-
        - e.g.…as given in [3]
    - References should either be in chronological order or in the order in which they appear in the text.

Miscellaneous

- Always prepare a draft report first and print it out.
- Read it yourself first and correct any typographical or grammatical errors.
- **One copy** of final report must be submitted as a **spiraled report** to the coordinator prior to presentation.
- Plagiarized reports will not be accepted and evaluated.

Mini Project Synopsis Format

SAMPLE

BABU BANARASI DAS INSTITUTE OF TECHNOLOGY & MANAGEMENT
(Recognized by AICTE, Govt. of India & Affiliated to Dr. A.P.J. Abdul Kalam Technical University, Lucknow)
AKTU College Code - 054

Department of Information Technology

FORMAT INSTRUCTIONS FOR THIRD YEAR MINI PROJECT SYNOPSIS

SESSION: 2025-26

Title page – As per annexure

TABLE OF CONTENTS

ABSTRACT

1. INTRODUCTION OF MINI PROJECT WORK-

   [This may include the general introduction of the mini project, general background, previous work done in this area (Source of Project Idea – Literature Survey for arriving on the topic (MyLoft , SIH etc can be used for developing the idea).]

2. PROBLEM DEFINITION –

   This should consist of Project objective and Proposed Methodology.

   (a) Project Objective (This should highlight the aims and objectives clearly indicating the scope of the project, the ideas and the approach of proposed work.)

   (b) Proposed Methodology (This discusses the proposed path of implementation of the project. A **complete block diagram** should be given followed by description of each block.)

3. THEORY

   Theory (This head should describe the related technology involved in the project, mathematical concepts used, description of the algorithms, salient features of the proposed design etc.). Please ensure that 'Theory' should not be used as Chapter Heading. Heading should be given as appropriate with respect to topic/content described.

1. FEASIBILITY STUDY REPORT

   - ***Software/Hardware Requirements and Specifications*** (This may include the basic requirements and specifications for the hardware/software setup, depending upon whether the project is a Hardware model/Software model or both).

   - ***Applications/Advantages/ Limitations along with Proposed Cost*** (This should cover the various merits and demerits of the project. The advantages should be elaborated as Applications, while limitations serve to be a source for future improvements).

2. PROJECT TEAM & MEMBER'S ROLE IN PROJECT WORK

3. PROJECT DEVELOPMENT SCHEDULE (Vth Sem)- GANTT CHART

Note: General Typing Instructions-

Font Type: Time New Roman,

Font Size:

- Main Text- 12
- subheading -14
- Heading- 16
- Figure/Table captions -10

General Page Layout:

i. The margins of every page of the report should be as follows Top : - 1" Bottom : - 1" Right: - 1" Left: - 1.5"
ii. To ensure that the margins are correct: Header: - 0.5" Footer: - 0.5"
iii. All the data/text should fit within the above specified margin requirements (including tables, figures, graphs etc.). Full paper points of diagrams/image should confirm to the sure margins as specified above.
iv. Right Header Project Title (In Italicized Font)
v. Left Footer Name of Department, College. [Eg.: IT DEPARTMENT, BBDITM, Lucknow]
vi. Right Footer Page Number

MINI PROJECT SYNOPSIS

On

TITLE OF PROJECT

Submitted in

Department of Information Technology
IT- Second Year (2024-25)

Submitted by

Group No.:

STUDENT NAMEs (University Roll Number)

Under the guidance of
Ms. Soumya Saxena
Assistant Professor

At

BABU BANARASI DAS INSTITUTE OF TECHNOLOGY & MANAGEMENT
(Recognized by AICTE, Govt. of India & Affiliated to Dr. A.P.J. Abdul Kalam Technical University, Lucknow)
AKTU College Code - 054