Mini Project Work Book

Third Year Mechanical Engineering

Academic Year: 20 – 20

Group/Project ID:

Team Members:

1. ----------
2. ----------
3. ----------
4. ----------

Project Title : ----------

Project Guide: ----------

Area of Project: ----------

Department of Mechanical Engineering
Matoshri Education Society's
Matoshri College of Engineering and Research Centre,
Eklahare, Nashik.

General Instructions

1. Students should enter the correct information in the workbook.

2. Get all entries verified by respective project guide. No changes are to be made without project guide'spermission.

3. Students should report to their respective guides as per the schedule and its log is to be maintained in the workbook.

4. Follow all deadlines and submit all documents strictly as per prescribed formats.

5. The workbook should be produced at the time of all discussions, presentations and examinations.

6. The work book must be submitted to project coordinator/ guide/ department / College after successful examination at the end ofyear.

7. All documents and reports are to be prepared in MS Word but consequently applicable to final project report.

8. Submit hard as well as soft copy. Maintain one copy with eachmember.

This booklet is supportive document to rules and a regulation provided by affiliated university curriculum providing recommendations, guidelines and is record of all related activities associated with project. This booklet is provided with the genuine intent to bring uniformity and to systematize the project work and to keep the audit of the work undergone by team members.

Work Book Development Project

Project Institution	Department of Mechanical Engineering Matoshri College of Engineering and Research Centre, Nashik
Concept and Design	Prof. Dr. J. H. Bhangale Head of Department (Mechanical Engineering) Matoshri College of Engineering and Research Centre, Nashik
Mini Project coordinator	Mr. Yogesh K. Mogal Assistant Professor, Matoshri College of Engineering and ResearchCentre, Nashik
Technical Committee Members	1. Dr. N. C. Ghuge 2. Dr. D. D. Palande

Savitribai Phule Pune University, Pune
Mechanical Engineering

Program Educational Objectives

PEO1. To prepare graduates having strong fundamentals of basic sciences and domain knowledge of Mechanical engineering to provide technical solutions for engineering problems.

PEO2. To prepare the committed and motivated graduate with research attitude, lifelong learning, investigative approach, and multidisciplinary thinking.

PEO3. To prepare the graduate to work as a committed professional with strong professional ethics, sound managerial and communication skills who can work effectively as an individual or in team.

PEO4. To prepare graduates with an academic environment to become expert in Mechanical Engineering to analyze, synthesize, design and create new product/system.

PEO5. To motivate the students for continuous improvement in area of interest including education as well as industry.

Program Outcomes

P1: Ability to apply Knowledge of mathematics, sciences, engineering fundamentals and domain knowledge to solve complex Mechanical engineering problems.

P2: Ability to identify, analyze and formulate the complex Mechanical engineering problems with research attitude.

P3: Ability to design and develop the Mechanical system or process considering societal, environmental, cultural and public health issues leading to effective solutions.

P4: Ability to develop an investigative approach to provide valid conclusions based on experimental results or statistical information

P5: Ability to Create, select and apply appropriate techniques, resources, and modern engineering and IT tools

P6: Ability to understand the legal, societal issues and its consequent responsibilities relevant to professional engineering practices.

P7: Ability to understand the impact of the professional engineering solutions in societal and environmental contexts and develop eco-friendly sustainable solutions.

P8: Ability to understand professional ethics and responsibilities as a Mechanical Engineer.

P9: Ability to work effectively as individual and in a team as a member or leader

P10: Ability to accomplish effective communication viz written, verbal and presentation at various fronts

P11: Ability to apply the principles of Mechanical Engineering and management for development of multidisciplinary projects, its finance and management as individual or team

P12: Ability to develop lifelong learning attitude.

Table of Content

1. About Mini-Project Work

A Mini-project is an individual or collaborative enterprise, possibly involving research or design, which is carefully planned, usually by a project team, to achieve a particular aim.

A Mini-project is a research assignment - given to a student - which generally requires a larger amount of effort and more independent work than that involved in a normal essay assignment. It requires students to undertake their own fact-finding and analysis, either from library/internet research or from gathering data empirically. The written report that comes from the project is usually in the form of a dissertation, which will contain sections on the project's inception, analysis, findings and conclusions.

Mini- Project Work is a learning experience which aims to provide students with the opportunity to synthesize knowledge from various areas of learning, and critically and creatively apply it to real life situations. This process, which enhances student's knowledge and enables them to acquire skills like collaboration, communication and independent learning, prepares them for lifelong learning and the challenges ahead.

a. Objectives and Outcomes

Objectives:

Students shall UNDERTAKE and EXECUTE a Mini Project through a group of students to :-

1. UNDERSTAND the "Product Development Cycle", through Mini Project.
2. PLAN for various activities of the project and distribute the work amongst team members.
3. LEARN budget planning for the project.
4. INCULCATE mechanical/interdisciplinary implementation skills.
5. DEVELOP students' abilities to transmit technical information clearly and test the same by delivery of Seminar based on the Mini Project.
6. UNDERSTAND the importance of document design by compiling Technical Report on the Mini Project work carried out.

Outcomes:

On completion of the course, learner will be able to :-

CO1. EXPLAIN plan and execute a Mini Project with team.

CO2. IMPLEMENT hardware/software/analytical/numerical techniques, etc.

CO3. DEVELOP a technical report based on the Mini project.

CO4. DELIVER technical seminar based on the Mini Project work carried out.

2. Guidelines for Selection of Mini-Project:

Maximum Group Size: Minimum 2 and maximum 4 students can form a group for the mini project.

Project Type: (The selected mini project must be based on any of the following)

1. Development of a prototype mechanical system/product.

2. Investigate performance of mechanical systems using experimental method

3. Parametric analysis of components/systems/devices using suitable software

4. Investigation of optimum process/material for product development using market survey.

5. Solution for society/industry problems

General guidelines:

- **Project domain may be from the following, but not limited to:**

1. Thermal Systems
2. Robotics Mechanisms/design systems
3. Production/advance manufacturing
4. Materials: Composite/Nano
5. Automation and Control Systems
6. Mechatronic Systems
7. Agriculture system.
8. Smart systems using AI

- **A project report with following contents shall be prepared:**

1. Title
2. Objectives
3. Relevance and significance
4. Methodology
5. Analysis-Simulation/experimentation/survey/testing etc.
6. Result and Discussion
7. Conclusion

3. Report Structure:-

Contents

- Nomenclatures
- List of Figures
- List of Graphs
- List of Tables
- Abstract

1. Introduction and aims/motivation and objectives
2. Literature Survey
3. Problem Statement
4. Project Requirements
5. Analysis and Proposed design of the project
6. Verification Validation
7. Project Plan
8. Conclusion

- Reference
- Appendices

A. Base Paper(s)
B. Plagiarism Report from any open source

The project report contains the details.

I. Cover page and Front page as per the specimen on separate sheet
II. Certificate from the Institute as per the specimen on separate sheet
III. Acknowledgements
IV. List of Figures
V. List of Tables
VI. Nomenclature
VII. Contents

Abstract (A brief abstract of the report not more than 150 words. The heading of abstract i.e. word ―Abstract‖ should be bold, Times New Roman, 12 pt and should be typed at the centre. The contents of abstract should be typed on new line without space between heading and contents. Try to include one or two sentences each on motive, method, key-results and conclusions in Abstract

1 Introduction (2-3 pages) (TNR – 14 Bold)

- Problem statement (TNR – 12)
- Objectives
- Scope
- Methodology
- Organization of Project

2 Literature Review (05-10 pages) Discuss the work done so far by researchers in the domain area and their significant conclusions. No derivations, figures, tables, graphs are expected.

3 This chapter shall be based on your own simulation work (Analytical/ Numerical/FEM/CFD) (05- 10 pages)

4 Experimental Validation - This chapter shall be based on your own experimental work (05-

10 pages)

5 Concluding Remarks and Scope for the Future Work (1-2 pages)

(IF above Chapters 3,4, 5 not completed please mention the plan for the same and time period for completion and detail activity chart).

References

ANNEXURE (if any) (Put all mathematical derivations, Simulation program as Annexure)

a. Tools used
b. Papers published/certificates

Plagiarism Report of paper and project report from any open source tool

One paper should be published in reputed International conference/International journal

4. Undertaking by Students:-

Matoshri College of Engineering and Research Centre, Nashik

UNDERTAKING BY STUDENT

We, the students of B.E. Mechanical hereby assure that we will follow all the rules and regulations related to project activity for the academic year 20 -20

The Project entitled-

_____

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will be fully designed/ developed by us and every part of the *project will be original work and will not be copied/ purchased from any source.*

Name of the student	**Signature**
1._____	_____
2._____	_____
3._____	_____
4._____	_____

5. Instructions Regarding Project Proposal and Finalization:-

1. The project work may involve the designing a model or upgrading an existing mechanical/manufacturing system. The design is to be implemented into a working model.
2. A project report including all necessary documents such as Requirement Analysis, Design specifications, Project Plan, Design Modeling, test plan, results etc.
3. The project will be undertaken preferably by a group of at least 2 students who will jointly work and implement the project. The group will select a project with approval of Project coordinator, team of teachers & the guide.
4. The idea for your project may be a proposal from a member of faculty or some industry expert or your own, or perhaps a combination of the you and faculty.
5. Every group may come up with sponsored project. Sponsorship may not be in terms of money or resources. It might be in terms of just suggesting problem definition and associated guidance.
6. Students may collect the letter required for applying the Institute/Industries for the project sponsorship from project coordinator
7. List of suggested projects, prominent domains and respective staff, whom you may contact for guidance, is displayed on the notice board. Students may contact respective staff along with synopsis for the guidance. Students may contact respective staff for projects suggested by them in the respective areas.
8. Meet Project Coordinator for project title registration. For project title registration, every group must submit synopsis approved by all the staff in the respective area.
9. Synopsis must include project title, group members, sponsor details (if any), detailed problem definition, area, abstract, details of existing similar systems if any, scope of the project and software-hardware requirements. Sponsorship details include name of sponsoring authority, address, name of guide, sponsorship terms & conditions and respective document certifying the same from authorities.
10. A Panel formed by the department will approve the project group and project work title only after presentation in the first week of July. Presentation will cover details mentioned in the synopsis as above. After finalization of the project, the guide will be assigned.

6. Schedule of Mini-Project Work

Sr. No.	Activity Scheduled	Date
1.	Registration of Project groups	Upto 15th January
2.	Submission of Project Synopsis	Upto 25 th January
3.	Finalization of projects & allotment of guide	First week of February
4.	1st presentation about progress of project work	Last week of February
5.	2nd presentation about progress of project work	Last week of March
6.	Submission of final Mini project report and Mini Project Work book to the Mini project Coordinator	First week of April

7. Copy of Proposal / Synopsis as per format

Mini Project Title:-

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Mini Project Guide: - ___________________________________

Synopsis:-

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Reference Paper (Base Paper):-

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Signature of Guide: - ____________________

8. Mini Project Evaluation Report

A. First Presentation Date:

Group No	Sr. No	Name of Students	Topic Selection	Depth of the Knowledge	Presentation & Communication Skill	Punctuality & Timely Completion	Question and Answers	Total
			10	10	10	10	10	50

Expert Name with Sign: 1. 2.

B. Second Presentation Date:

Group No	Sr. No	Name of Students	Presentation & Communication Skill	Question and Answers	Project Report	Total (B)	Total of 1st Presentation (A)	Total (A+B)
			10	10	30	50	50	100

Expert Name with Sign: 1. 2.

Annexure i: Project Report Cover page/ Title page

Savitribai Phule Pune University, Pune

A

MINI PROJECT REPORT ON

"Title of the Project"

SUBMITTED BY

1. Name of the student
2. Name of the student
3. Name of the student
4. Name of the student

UNDER THE GUIDANCE OF

Prof.

Department of Mechanical Engineering
Matoshri College of Engineering and Research Centre, Nashik.
Academic Year: 202 -2

Annexure ii: Project Report Certificate page

Matoshri College of Engineering and Research Centre, Nashik.

Department Of Mechanical Engineering

Academic Year: 202 -202

CERTIFICATE

This is to certify that the project report entitled "**Title of the project**" has successfully completed by the students of Third year Mechanical Engineering.

Name of Students	**PRN No.**
1.	
2.	
3	
4.	

In the Partial Fulfillment of the Requirement of Third year Engineering Course in Mechanical Engineering and submitted to the Mechanical Engineering Department of Matoshri College of Engineering and Research Centre, Nashik, in the Academic Year 202 -2 .

(Mini Project Guide)

Dr. J.H. Bhangale
(Head of Department)

Dr. G.K. Kharate
(Principal)

Annexure iii: Project Registration form

Matoshri Education Society's

Matoshri College of Engineering and Research Center, Eklahare, Nashik.

Mechanical Engineering Department

Date: / / 20

To,

The Head of the Department

Subject: Enrollment of Topic for the Mini Project

1) Title:

_____

_____

2) Name of Industry & Full Address:

_____

_____

_____

3) Details of Industry Guide:

Name:-

Contact no.:-

Designation:-

This topic is not repeated in the past at this institute.

Name of the Student	Roll No:	Signature of the Student.
1.		
2.		
3.		
4.		

	Mr. Y.K. Mogal	Dr. J.H. Bhangale
Internal Guide	**Mini Project Coordinator**	**Head Mech.Dept.**