

402047(Project Stage-I) & 402053(Project Stage-II)
Project Work Book
(Guidelines and Log)

Fourth Year Mechanical Engineering

Academic Year: 2022-2023

Group/Project ID:

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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, Nashik,
(NAAC accredited & affiliated to Savitribai Phule Pune University, Pune)

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's permission.
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 of year.
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 each member.

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 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
Project coordinator	Mr. G. D. Katala Assistant Professor, Matoshri College of Engineering and Research Centre, Nashik
Technical Committee Members	1. Dr. J. H. Bhangale 2. Dr. N. C. Ghuge 3. Dr. D. D. Palande
Date	01/08/2022
Version No	3.0

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.

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About Project Work

A 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 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.

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:

- To provide an opportunity of designing and building complete system or subsystems based on areas where the student likes to acquire specialized skills.
- To obtain hands-on experience in converting a small novel idea / technique into a working model / prototype involving multi-disciplinary skills.
- To embed the skill in a group of students to work independently on a topic/ problem/ experimentation selected by them and encourage them to think independently on their own to bring out the conclusion under the given circumstances of the curriculum period in the budget provided with the guidance of the faculty.
- To encourage creative thinking processes to help them to get confidence by planning and carrying out the work plan of the project and to successfully complete the same, through observations, discussions and decision making process.
- To get visibility in industry to Project and Project group

Outcomes:

- CO1. Implement systems approach.
- CO2. To conceptualize a novel idea / technique into a product.
- CO3. To think in terms of a multi-disciplinary environment.
- CO4. To take on the challenges of teamwork, and document all aspects of design work.
- CO5. To understand the management techniques of implementing a project.

b. Guidelines for Selection of Project Work:

Project is team work that has to be completed within specific time. It is really very difficult to choose a project.

General guidelines:

- Project should be related to the fields of Mechanical Engineering are as follows:
 - Design Engineering
 - Manufacturing/ Production Engineering
 - Thermal Engineering
 - CAD/CAM
 - Material Science
 - Robotics
 - Industrial Engineering
- Project may be sponsored by industry or In-house.
- Validation by suitable software.

C. Guidelines for Project Evaluation:

Project work is to be evaluated by both internal as well as External examiners jointly by considering following points.

- Project title and scope of the project
- Literature Review
- Practical use of project and future scope
- Team work
- Individual Contribution to complete project
- Review Presentation of the project
- Report of the project
- Participation in various contests
- Research paper publications

2. University Syllabus

402047: Project (Stage I)					
Teaching Scheme		Credits		Examination Scheme	
Practical	4 Hrs./Week	Practical	2	Term Work	50 Marks
				Oral	50 Marks
Prerequisites: Project Based Learning, Internship/Mini Project, Laboratory works, Audit Courses					

Contents

Project work in the seventh semester is an integral part of the TW work. The project work shall be based on the knowledge acquired by the student during the graduation and preferably it should meet and contribute towards the needs of the society.

Project work shall be based on any of the following:

1. Fabrication of product/ testing setup of an experimentation unit/ apparatus/ small equipment, in a group.
2. Experimental verification of principles used in Mechanical Engineering Applications.
3. Projects having valid database, data flow, algorithm, and output reports, preferably software
4. Study projects are strictly allowed.

Review Committee:

The Head of the department/Project coordinator shall constitute a review committee for project work for project group; project guide would be one member of that committee by default. There shall be at least two reviews in semester-I and semester-II by the review committee. The students or project group shall make presentation on the progress made by them before the committee. The record of the remarks/suggestions of the review committee should be properly maintained and should be made available at the time of examination.

Each student/group is required to give presentation as part of review for 10 to 15 minutes followed by a detailed discussion.

Semester - I

Review 1: Finalization of scope – the objectives and scope of the project should be finalized in second week of their academic semester. Should finalize the industry or other equipment for executing the project, test environment/tools.

Review 2: Finalization of SRS – High level design, planning with CPM/PERT chart etc in the sixth week of their academic semester.

Semester – II

Review 3: Modeling and testing document.

Review 4: Final Project Demonstration, Project Report and proper Result analysis

Guidelines for Students and Faculty:

Project Review Committee:

1. This committee will be responsible for evaluating the timely progress of the projects and communicating the progress report to the students.
2. As far as possible Students should finalize the same project title taken for Project Based Seminar (PBS).
3. Review committee should conduct “Feasibility Review” in first week after commencement of the term. Review committee should finalize the scope of the project.
4. If change in project topic is unavoidable then the students should complete the process of project approval by submitting synopsis along with the review of important papers. This new project topic should be approved by review committee.

Term Work:

1. The term work will consist of a report prepared by the student on the project allotted to them.
2. They should use appropriate tools for the preparation of the report like project planning, UML diagram, testing tools, referencing tools etc.

Report Structure

Contents

- List of Abbreviations
 - List of Figures
 - List of Graphs
 - List of Tables
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

Evaluation Guidelines:

A panel of examiner will evaluate the viability of project / project scope. The panel will also verify that all the suggestions/comments in the review document are taken care and accordingly allot the term work marks. Oral examination in the form of presentation will be based on the project work completed by the candidates. Preliminary report must also be presented during the oral examination.

Savitibai Phule Pune University
(Refer SPPU website for recent syllabus)

402053: Project (Stage II)					
Teaching Scheme		Credits		Examination Scheme	
Practical	12 Hrs./Week	Practical	6	Term Work	100 Marks
				Oral	50 Marks
Prerequisites: Project Based Learning, Internship/Mini Project, Project (Stage I)					
Course Objectives:					
<ol style="list-style-type: none"> 1. To provide an opportunity of designing and building complete system or subsystems based on areas where the student likes to acquire specialized skills. 2. To obtain hands-on experience in converting a small novel idea / technique into a working model / prototype involving multi-disciplinary skills. 3. To embed the skill in a group of students to work independently on a topic/ problem/ experimentation selected by them and encourage them to think independently on their own to bring out the conclusion under the given circumstances of the curriculum period in the budget provided with the guidance of the faculty. 4. To encourage creative thinking processes to help them to get confidence by planning and carrying out the work plan of the project and to successfully complete the same, through observations, discussions and decision making process. 5. To get visibility in industry to Project and Project group 					
Course Outcomes:					
<p>On completion of the course the learner will be able to;</p> <p>CO1. Implement systems approach.</p> <p>CO2. To conceptualize a novel idea / technique into a product.</p> <p>CO3. To think in terms of a multi-disciplinary environment.</p> <p>CO4. To take on the challenges of teamwork, and document all aspects of design work.</p> <p>CO5. To understand the management techniques of implementing a project.</p>					
Course Contents					
Extended part of Project Stage I					
Guidelines for Project Execution					
1. Refer Project stage I guidelines.					
Term Work Evaluation					
<ol style="list-style-type: none"> 1. In Project Stage II, two reviews are to be taken for total 80 marks (40 marks each) 2. Review III shall be based on the approximate end of fabrication / design validation etc. in front of an expert panel from the department. 					

3. Circular regarding malpractices in project work from DTE, Mumbai

III. Circular regarding malpractices in project work from DTE, Pune



तंत्र शिक्षण विभागीय कार्यालय, पुणे

४१२-ई, शिवाजीनगर, पुणे- ४११ ०१६.

फोन / फॅक्स २५६५६२३४ Email : jdtepu@pn3.vsnl.net.in. Web:repune.org.in

जा.क्र.विकापु/विधि/प्रोजेक्ट/२००९/ ३३६९
प्रति,

दिनांक : १९ MAR 2009

प्राचार्य,
शासकीय / शासकीय अनुदानित आणि
दिना अनुदानित पदवी अभियांत्रिकी महाविद्यालये

विषय : अभियांत्रिकी विद्यार्थ्यांना प्रोजेक्ट विकणाऱ्यावर कार्यवाही करणेबाबत

- संदर्भ : १) शिक्षण संचालनालय, (उच्च शिक्षण) महाराष्ट्र राज्य, पुणे यांचे पत्र क्र. युएनआय/अभियांत्रिकी प्रोजेक्ट/विशि(६)/२००९/१०९७३ दि. ३०.०९.२००९
२) शासनपत्र क्र युएसजी-२००८/(२४६/०८)विशि-४ दि. १९.१२.२००८
३) मा.संचालक, तंत्र शिक्षण संचालनालय, महाराष्ट्र राज्य, मुंबई यांचे पत्र क्र.२/एनजीसी/प्रोजेक्ट/२००९/४६५-अ दिनांक १३-०३-२००९

उपरोक्त विषयासंदर्भात आपणांस कळविण्यात येते की, अभियांत्रिकी विद्यार्थ्यांना विकत घेतलेले प्रोजेक्ट स्वीकारण्यात येऊ नये, असे प्रोजेक्ट स्वीकारणाऱ्या संस्थावर कार्यवाही करण्यात यावी तसेच अभियांत्रिकी महाविद्यालयातील विद्यार्थ्यांना प्रोजेक्ट विकणाऱ्यावर कार्यवाही करण्यात येईल असे शासनाने बरील संदर्भीय पत्र क्र २ अन्वये कुलराक्षिप्त, सर्व विद्यापीठांना कळविण्यात आले आहे. तरी याबाबत अभियांत्रिकी महाविद्यालयातील विद्यार्थ्यांनी विकत घेतलेले प्रोजेक्ट स्वीकारण्यात येणार नाहीत तसेच अभियांत्रिकी महाविद्यालयातील शिक्षकांनी कोणत्याही विद्यार्थ्यांस प्रोजेक्ट विकू नयेत. जर असे आढळल्यास संबंधित शिक्षकांवर योग्य ती कार्यवाही करण्यात येईल. याची संबंधित संस्थांनी नोंद घ्यावी. तसेच आपल्या संस्थेमध्ये शिक्षकांनी विद्यार्थ्यांस प्रोजेक्ट विकले असतील, अशा शिक्षकांची नावे तसेच त्या विद्यार्थ्यांना प्रोजेक्ट विकण्यात आला आहे अशा विद्यार्थ्यांची नावे व तपशील या कार्यालयास स्विकृत सादर करावा

(गो. पं. चौधरी)

प्र. सहाय्यांचालक,

तंत्र शिक्षण विभागीय कार्यालय, पुणे

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 2022-2023

The Project entitled-

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.

Group Members Full Name

Exam Seat Number

Sign

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 4 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 Project Work

Semester I

Sr. No.	Activity Scheduled	Date
1.	Registration of Project groups	01 August 2022
2.	Submission of Project Synopsis	10 August 2021
3.	Project presentations	Second week of September
4.	Finalization of projects & allotment of guide	Second week of September
5.	Submission of final synopsis	Third week of September
6.	1 st presentation about progress of project work	Fourth week of September
7.	2 nd presentation about progress of project work	Fourth week of October
8.	Submission of partial project report	First week of November
9.	Project work Examination	As per Unipune Notification

Semester II

Sr. No.	Activity Scheduled	Date
1.	3rd presentation about progress of project work	Last week of Feb
2.	4th presentation about progress of project work	Last week of March
3.	Submission of final project report and Project Work book to the project Coordinator	First week of April
4.	Project Examination	As per Unipune Notification

8. Project Review (Semester I)

The group members are expected to present their work undertaken during the semester. Journey of development has to be rationally presented with thorough literature survey.

8.1 Project Review-I: Problem Statement, Motivation, objectives and Literature Review

Student is expected to deliver presentation covering Problem Statement, Motivation, objectives and Literature Review.

Sr. No	Question	Date	Remark/Grade	Sign of Guide
1.	Is the project's view point is understood?			
2.	Is the project goal statement is in alignment with the sponsoring organization's business goal and mission?			
3.	Who is the project's end user?			
4.	What is the projected cost of producing a product?			
5.	Is project achievable in specified (Time, Cost Budget)?			
6.	Are the requirements within the scope of the project?			
7.	Is the scope properly defined?			
8.	Does the problem statement clearly define scope of the project?			
9.	Do the project requirements fit into available design methodology?			
10.	Whether the milestones are stated completely and project timeline is given?			
11.	Whether risks like technical risks, Operational risks, schedule risks, business risks are identified correctly or not?			
12.	Whether Risk prioritization is done properly or not and any back up plan is there or not?			
Remark and Suggestions:				

Name and Sign of Reviewers:

1. _____

2. _____

8.2 Project Review-II: Design

Student is expected to deliver presentation covering Design

Sr. No.	Question	Date	Remark/Grade	Sign of guide
1.	Are requirement reflected in the final model/ industry?			
2.	Does the design support both project (product) and project goals			
3.	Does the design address all the issues form the requirement of industry/end user?			
Remark and Suggestions:				

Name and Sign of Reviewers:

1. _____
2. _____

9. Internal Evaluation Sheet (SEMESTER I)

Project Stage I

First Presentation evaluation sheet

Group No	Sr. No	Name of Student	Company Profile	Title	Name of Guide					Total (25)
						Topic Selection	Presentation Skill	Question Answer	Understanding	
						05	05	05	10	

(Name, Sign with date) Expert 1.

Expert 2.

Project Stage I

Second Presentation evaluation sheet

Group No	Sr.No	Name of Student	Company Profile	Title	Name of Guide				Total (25)
						Presentation Skill	Question Answer	Understanding	
						10	05	10	

(Name, Sign with date) Expert 1.

Expert 2.

10. Project Review: (Semester II)

The group members are expected to present their work undertaken during the semester. Journey of development has to be rationally presented.

Project Review-III: Validation and Testing

Student is expected to deliver presentation covering Validation and Testing

Sr. No.	Question	Date	Remark/Grade	Sign of Guide
1.	Have you done testing?			
2.	Have you validated the requirements, design as per standard?			
3.	Does your model comply with basic usability norms?			
4.	Have you tested the model in real time environment?			
5.	After integration of all components whether total performance of model/system is checked or not?			
6.	Whether all work is documented or not?			
Remark and Suggestions:				

Name and Sign of Reviewers:

1. _____
2. _____

Project Review-IV: Report Writing

Student is expected to deliver presentation covering Report Writing

Sr. No.	Question	Date	Remark/Grade	Sign of Guide
1.	Is the report written as per the prescribed format?			
2.	Is the report timely prepared?			
3.	Is the report properly organized, spelled, grammatically correct?			
4.	Is the report plagiarism free?			
5.	Is the report precise and written to the point?			
6.	Is the report contains complete results and comparative graphs?			
7.	Are all figures and tables properly numbered and labeled?			
8.	Are all figures and tables properly cited?			
9.	Weather references are properly cited?			
Remark and Suggestions:				

Name and Sign of Reviewers:

1. _____

2. _____

11. Internal Evaluation Sheet (Semester II):

Project Stage II

Third Presentation evaluation sheet

Group No	Sr. No.	Name of Student	Company Profile	Title	Name of Guide	Marking scheme				
						Presentation Skill	Question Answer	Understanding	Individual contribution	Total (100)
						<ul style="list-style-type: none"> • Team Presentation • Individual Presentation 	<ul style="list-style-type: none"> • Team • Individual 	<ul style="list-style-type: none"> • Team • Individual 	<ul style="list-style-type: none"> • Design • Prototype • CAD/Simulation work • Testing and analysis 	
25	25	25	25							

Expert Name with Sign: 1.

2

Project Stage II

Fourth Presentation evaluation sheet

Group No	Sr. No.	Name of Student	Company Profile	Title	Name of Guide	Marking scheme				
						Presentation Skill	Question Answer	Understanding	Individual contribution	Total (100)
						<ul style="list-style-type: none"> • Team Presentation • Individual Presentation 	<ul style="list-style-type: none"> • Team • Individual 	<ul style="list-style-type: none"> • Team • Individual 	<ul style="list-style-type: none"> • Design • Prototype • CAD/Simulation work • Testing and analysis 	
25	25	25	25							

Expert Name with Sign: 1.

2.

12. Contest Participation Details

A. Participation in project Competition / Contest

Sr. No.	Name and Place of Project Competition and Exhibition	Date	Certificates Prizes won (if any)
1.			
2.			
3.			
4.			

Attach attested copy of certificate(s)

B. Paper Publication/Presentation/IPR

Sr.No.	Name of Organizer	Date	Certificates/Prizes won (if any)
1.			
2.			
3.			
4.			

Submit Research paper published/certificates hardcopy separately with this Log book.

13. Rubrics

A. Idea Inception

Grade (Grade Point)	Excellent (10-9)	Very Good (6-8)	Fair (3-5)	Poor (1-2)
Parameter				
Problem Definition and Scope of the Project				
Literature Survey				
Mechanical Engineering Approach				
Requirement Analysis				

B. Implementation

Grade(Grade Point)	Excellent (10-9)	Very Good (6-8)	Fair (3-5)	Poor (1-2)
Parameter				
Implementation of concept/ Design				
Optimization considerations(time, Resources, Costing				
Thorough Testing				

C. Documents

Grade(Grade Point)	Excellent (10-9)	Very Good (6-8)	Fair (3-5)	Poor (1-2)
Parameter				
Synopsis				
Project Report				
Quick references				
Work Book				

D. Demonstration

Grade(Grade Point)	Excellent (10-9)	Very Good (6-8)	Fair (3-5)	Poor (1-2)
Parameter				
Project Presentation and Demonstration				
Understanding individual capacity & involvement in the project				
Team Work (Distribution of work, intra-team communication and togetherness)				
Outcomes / Usability				

E. Contest Participation/Awards, Publication and IPR

Grade(Grade Point)	Excellent (10-9)	Very Good (6-8)	Fair (3-5)	Poor (1-2)
Parameter				
Participation in Various contests				
Appreciation and Awards				
Publication				
Copyright				
Patent				
Commercial value/Product conversion of Work				

Annexure i: Project Report Formatting Guidelines

Project stage I

INSTRUCTIONS FOR PROJECT REPORT WRITING (Project Stage I)

It is important that the procedures listed below be carefully followed by all the students of B.E. (Mechanical Engineering).

1. Prepare **Three Spiral Bound Copies** of your manuscript.
2. Limit your Project Stage I to 25– 30 pages (preferably)
3. The *footer must include* the following:
Institute Name, B.E. (Mechanical) Times New Roman 10 pt. and centrally aligned.
4. Page number as second line of footer, Times New Roman 10 pt. centrally aligned.
5. Print the manuscript using
 - a) Letter quality computer printing.
 - b) The main part of manuscript should be Times New Roman 12 pt. with alignment - justified
 - c) Use 1.5 line spacing.
 - d) Entire report shall be of 5- 7 chapters
6. Use the paper size 8.5'' × 11'' or A4 (210 × 197 mm). Please follow the margins given below.

Margin Location	Paper 8.5'' × 11''	Paper A4 (210 × 197 mm)
Top	1''	25.4 mm
Left	1.5''	37 mm
Bottom	1.25''	32 mm
Right	1''	25.4 mm

7. All paragraphs will be *1.5 lines spaced with a one blank line between each paragraph*. Each paragraph will begin with *without any indentation*.
8. *Section titles* should be bold with *14 pt.* typed in all capital letters and should be left aligned.
9. *Sub-Section headings* should be aligning at the left with *12 pt.* bold and Title Case (the first letter of each word is to be capitalized).
10. Illustrations (charts, drawings, photographs, figures) are to be in the text. Use only illustrations really pertinent to the text. Illustrations must be sharp, clear, black and white. Illustrations downloaded from internet are not acceptable.
 - a) Illustrations should not be more than two per page. One could be ideal
 - b) Figure No. and Title at bottom with 12 pt.
 - c) Table No. and Title at top with 12 pt.
 - d) Legends below the title in 10 pt.
 - e) Leave proper margin in all sides
 - f) Illustrations as far as possible should not be photo copied.

11. Photographs if any should be of glossy prints
12. Please use SI system of units only.
13. Please number the pages on the front side, centrally below the footer
14. References should be either in order as they appear in the thesis or in alphabetical order by last name of first author
15. Symbols and notations if any should be included in nomenclature section only
16. Following will be the order of report
 - 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. Contents
 - v. List of Figures
 - vi. List of Tables
 - vii. Nomenclature
 - viii. 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 center. 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)
 - 1.1 Problem statement (TNR – 12)
 - 1.2 Objectives
 - 1.3 Scope
 - 1.4 Methodology
 - 1.5 Organization of Dissertation
2. Literature Review (12-16 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) (8 - 12 pages)
4. Experimental Validation - This chapter shall be based on your own experimental work

(2 - 3 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)

17. All section headings and subheadings should be numbered. For sections use numbers 1, 2, 3, and for subheadings 1.1, 1.2, etc and section subheadings 2.1.1, 2.1.2, etc.
18. References should be given in the body of the text and well spread. No verbatim copy or excessive text from only one or two references. If figures and tables are taken from any reference then indicate source / citation of it. Please follow the following procedure for references

Reference Books :

Collier, G. J. and Thome, J. R., Convective boiling and condensation, 3rd ed., Oxford University Press, UK, 1996, pp. 110 – 112.

Papers from Journal or Transactions :

Jung, D. S. and Rademacher, R., Transport properties and surface tension of pure and mixed refrigerants, *ASHRAE Trans*, 1991, 97 (1), pp. 90 – 98.

Bansal, P. K., Rupasinghe, A. S. and Jain, A. S., An empirical correction for sizing capillary tubes, *Int. Journal of Refrigeration*, 1996, 19 (8), pp.497 – 505.

Papers from Conference Proceedings :

Colbourne, D. and Ritter, T. J., *Quantitative assessment of flammable refrigerants in room air conditioners*, Proc. of the Sixteenth International Compressor Engineering Conference and Ninth International Refrigeration and Air Conditioning Conference, Purdue University, West Lafayette, Indiana, USA, 2002, pp. 34 – 40.

Reports, Handbooks etc. :

United Nations Environmental Programme, Report of the Refrigeration, Air Conditioning and Heat Pumps, Technical Option Committee, 2002, Assessment - 2002.

ASHRAE Handbook: Refrigeration, 1994 (Chapter 44)

Patent :

Patent no, Country (in parenthesis), date of application, title, year.

Internet :

www.(Site) [Give full length URL] *accessed on date*

Project stage II

Course Contents

INSTRUCTIONS FOR PROJECT REPORT WRITING

It is important that the procedures listed below be carefully followed by all the students of B.E. (Mechanical Engineering).

1. Prepare *Three Hard Bound Copies* of your manuscript.
2. Limit your Dissertation report to 80– 120 pages (preferably)
3. The *footer must include* the following:
 - Institute Name, B.E. (Mechanical) Times New Roman 10 pt. and centrally aligned.
4. Page number as second line of footer, Times New Roman 10 pt. centrally aligned.
5. Print the manuscript using
 - a) Letter quality computer printing.
 - b) The main part of manuscript should be Times New Roman 12 pt. with alignment - justified.
 - c) Use 1.5 line spacing.
 - d) Entire report shall be of 5- 7 chapters
6. Use the paper size 8.5'' × 11'' or A4 (210 × 197 mm). Please follow the margins given below.

Margin Location	Paper 8.5'' × 11''	Paper A4 (210 × 197 mm)
Top	1''	25.4 mm
Left	1.5''	37 mm
Bottom	1.25''	32 mm
Right	1''	25.4mm

7. All paragraphs will be 1.5 lines spaced with a one blank line between each paragraph. Each paragraph will begin with without any indentation.
8. Section titles should be bold with 14 pt. typed in all capital letters and should be left aligned.
9. Sub-Section headings should be aligning at the left with 12 pt. bold and Title Case (the first letter of each word is to be capitalized).
10. Illustrations (charts, drawings, photographs, figures) are to be in the text. Use only illustrations really pertinent to the text. Illustrations must be sharp, clear, black and white. Illustrations downloaded from internet are not acceptable.
 - a) Illustrations should not be more than two per page. One could be ideal
 - b) Figure No. and Title at bottom with 12 pt.
 - c) Table No. and Title at top with 12 pt.
 - d) Legends below the title in 10 pt.
 - e) Leave proper margin in all sides

- f) Illustrations as far as possible should not be photo copied.
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 1. Introduction (2-3 pages) (TNR – 14 Bold)
 - 1.1 Problem statement (TNR – 12)
 - 1.2 Objectives
 - 1.3 Scope
 - 1.4 Methodology
 - 1.5 Organization of Dissertation
 2. Literature Review (20-30 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) (15- 20 pages)
 4. Experimental Validation - This chapter shall be based on your own experimental work (15-20 pages)
 5. Concluding Remarks and Scope for the Future Work (2-3 pages)

References ANNEXURE (if any) (Put all mathematical derivations, Simulation program as Annexure)
 17. All section headings and subheadings should be numbered. For sections use numbers 1, 2, 3, ... and for subheadings 1.1, 1.2, etc and section subheadings 2.1.1, 2.1.2, etc.
 18. References should be given in the body of the text and well spread. No verbatim copy or excessive text from only one or two references. If figures and tables are taken from any reference then indicate source / citation of it. Please follow the following procedure for references

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Collier, G. J. and Thome, J. R., Convective boiling and condensation, 3rd ed., Oxford

University Press, UK, 1996, pp. 110 – 112.

Papers from Journal or Transactions :

Jung, D. S. and Rademacher, R., Transport properties and surface tension of pure and mixed refrigerants, *ASHRAE Trans*, 1991, 97 (1), pp. 90 – 98.

Bansal, P. K., Rupasinghe, A. S. and Jain, A. S., An empirical correction for sizing capillary tubes, *Int. Journal of Refrigeration*, 1996, 19 (8), pp.497 – 505.

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Colbourne, D. and Ritter, T. J., *Quantitative assessment of flammable refrigerants in room air conditioners*, Proc. of the Sixteenth International Compressor Engineering Conference and Ninth International Refrigeration and Air Conditioning Conference, Purdue University, West Lafayette, Indiana, USA, 2002, pp. 34 – 40.

Reports, Handbooks etc. :

United Nations Environmental Programme, Report of the Refrigeration, Air Conditioning and Heat Pumps, Technical Option Committee, 2002, Assessment - 2002.

ASHRAE Handbook: Refrigeration, 1994 (Chapter 44)

Patent :

Patent no, Country (in parenthesis), date of application, title, year.

Internet :

www.(Site) [Give full length URL] *accessed on date*

Annexure ii: Project Report Cover page/ Title page

A Project Stage-I Report on
(TNR, 16pt, centrally aligned)

Title of the Project Report
(TNR, 27pt, Bold, Centrally Aligned, Title Case)

By
(TNR, 16pt, Centrally Aligned)

Mr. Student's 1 Name
(TNR, 16pt, Centrally Aligned)

Mr. Student's 2 Name
(TNR, 16pt, Centrally Aligned)

Mr. Student's 3 Name
(TNR, 16pt, Centrally Aligned)

Mr. Student's 4 Name
(TNR, 16pt, Centrally Aligned)

Guide
Guide's Name
(TNR, 16pt, Centrally Aligned)

Institute Logo

Department of Mechanical Engineering
Name of the Institute
[2018-19]
(TNR, 22pt, Title Case Centrally Aligned)

Name of the Institute

Institute Logo

C E R T I F I C A T E

This is to certify that *Mr. (Name of the Student)*, has successfully completed the Project Stage – I entitled “*(Title of the Project)* ” under my supervision, in the partial fulfillment of Bachelor of Engineering - Mechanical Engineering of University of Pune.

Date:

Place:

Guide's Name
Guide

Internal Examiner

HoD Name
Head of the Department

Principal Name
Principal

Seal

A Project Report on
(TNR, 16pt, centrally aligned)

Title of the Project Report
(TNR, 27pt, Bold, Centrally Aligned, Title Case)

By
(TNR, 16pt, Centrally Aligned)

Mr. Student's 1 Name
(TNR, 16pt, Centrally Aligned)

Mr. Student's 2 Name
(TNR, 16pt, Centrally Aligned)

Mr. Student's 3 Name
(TNR, 16pt, Centrally Aligned)

Mr. Student's 4 Name
(TNR, 16pt, Centrally Aligned)

Guide
Guide's Name
(TNR, 16pt, Centrally Aligned)

Institute Logo

Department of Mechanical Engineering
Name of the Institute
[2018-19]
(TNR, 22pt, Title Case Centrally Aligned)

Name of the Institute

Institute Logo

C E R T I F I C A T E

This is to certify that *Mr. (Name of the Student)*, has successfully completed the Project Stage – || entitled “*(Title of the Project)*” under my supervision, in the partial fulfillment of Bachelor of Engineering - Mechanical Engineering of University of Pune.

Date:

Place:

Guide's Name
Guide

Internal Examiner

HoD Name
Head of the Department

Principal Name
Principal

External Examiner

Seal

Annexure iii: Project Registration form

Matoshri Education Society's

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

Mechanical Engineering Department

Date: / / 2022

Group ID:

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To,

The Head of the Department

Subject: Enrollment of Topic for 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.....

Internal Guide

Project Coordinator

**Head
Mech. Dept.**

*Paste
Visiting card of Industry
Guide
here*

Annexure iv: Industry Feedback Form

Matoshri College of Engineering and Research Centre, Eklahare, Nashik Industry Feedback Form for Sponsored Projects

Date:-

Time:-

Student Names: - 1. _____

3. _____

2. _____

4. _____

Name of College/Internal Guide:

Project Title: _____

Organization:- _____

Address: - : _____

THE WORK

(a) Nature of work on which student are engaged;

(b) What specific skills are the students learning?

SUPERVISION IN WORK PLACE

(C) How closely is student supervised?

* Hourly Daily Weekly Longer

(d) What Degree of interest do the supervisors take in the student's progress?

*None Moderate Considerable

The Students Performance

(Please use code from 1 to 5; leave section blank where no evidence is available and add comments)

	Poor	Fair	Average	Good	Excellent
	1	2	3	4	5
What degree of enthusiasm has the students shown towards work?					
How well has the students adjusted to the working situation?					
How good is the students attendance record?					
How much initiative or originality has the student displayed?					
How good is the students logbook?					
Is students actively working on preparation of reports?					

REMINDER FOR FUTURE VISITS or MORE GENERAL COMMENTS

(Are there any points which should be followed up on future visits?) _____

If you are not satisfied with any aspect of the students performance or the opportunities provided, please discuss this with the Industrial supervisor and follow up on any future visits. Try to arrange tri-partite discussion whenever possible so the students feels he/she is involved with decisions made about him/her.

Date:-

Name:-

Sign:-

Designation: -

Contact No.:-