



C.U.SHAH UNIVERSITY – WADHWANCITY

FACULTY OF: - Technology and Engineering (Diploma Engineering)

DEPARTMENT OF: - Mechanical Engineering

SEMESTER: - VI **CODE:** - 2TE06PRJ1

NAME OF SUBJECT: - Project-II

Teaching & Evaluation Scheme:-

Subject Code	Name of the Subject	Teaching Scheme				Credits	Evaluation Scheme							
		Th	Tu	Pr	Total		Theory				Practical (Marks)			Total
							Sessional Exam		University Exam		Internal		University	
							Marks	Hours	Marks	Hours	Pr/Viva	TW	Pr	
<u>2TE06PRJ1</u>	Project-II	0	0	10	10	5	--	--	--	--	--	100	100	200

Objective: -

- To develop the skills and ability to work in small groups.
- To apply the concepts of various engineering subjects to real life problems.
- Perform various tasks like market survey, industrial visits, creative and innovative techniques, etc to identify project.
- Draw details and assembly production drawings.
- Plan material and processes optimally and economically
- Develop sense of environmental responsibility.

Prerequisites: -

Fundamental knowledge of all subjects studied before.

Rationale:-

The student is introduced to various aspects of mechanical engineering at this stage. The project gives him an opportunity to get some hands on practical experience on different subjects covered so far. This provides a practical experience to the student about the different theoretical topics which are studied at length during the course so far. The selection of project topics will be based on following guidelines. The student can either continue same project for the 6th semester or can change his / her project title.

Course outline:-

Students will choose a **project topic** (any one) of their choice from the following three categories.

Sr. No.	Categories of Project
1	<p>Manufacturing Type Project: To select subject eg. Screw jack, drill jig etc. Preparation of manufacturing drawings and detail drawings of any assembly studied Machine drawing subject eg. Screw jack etc assigning suitable tolerances at required places. Own guidance, supervision and observation. Assembling the components and form the required assembly.</p> <p>Note:</p> <ul style="list-style-type: none"> • Student may select any other assembly outside text book. • The assembly should contain min 5 to max 10 components; excluding std parts like nut-bolts. • The overall size of the assembly should be within min 4inch³ to max 1ft³ approx. • The components may be made out of steel, wood or any other durable material. The project model needs to be a working model at least to the level of demonstration. • A group of min 2 to max 4 students can be formed per project.

2	<p>Thesis Type Project: Selecting a topic, an assembly, a unit, a device, a component etc. which can be examined from technical respective. e.g. fan, gearbox, Oil seals, bearings, screw jacks, locks, cutting tools, pipe joints, welding methods, threaded fasteners, couplings, belts, chains, domestic mixers, refrigerators, ergonomics, lubrication, wear, friction etc. Collecting information related to the selected subject from the point of view of its working, design features, specifications, manufacturers, manufacturing methods, suppliers, costing, design types, feature comparison, science technique-principal involved therein, related statistical data, failure studies, origin, history involved etc. whichever is applicable.</p> <p>Note:</p> <ul style="list-style-type: none"> The student may need to visit places to collect data, observe manufacturing processes, collect information from different sources like library books, internet, manufacturers, associated people etc. Max 2 students can form a group for thesis project.
3	<p>Special Purpose Project: To select ANY TECHNICAL TOPIC of your choice, but essentially covering manufacturing activity. Only write-up is not permitted.</p> <p>Note:</p> <ul style="list-style-type: none"> The topic will be finalized only after discussing the scope with concerned staff. The aspects covered in two other types above; should be mainly applicable to the selected topic.

Term Work:

A consolidated report on the project work (complete or incomplete) will be prepared at the end of each semester. The extent of written work will vary, depending on the related manufacturing work (if any) that is involved with the project

Suggested List of Exercises:-

Sr. No.	Practical Exercises	Number of Hours
1	Preparatory Activities Objectives of learning this subject and list of attitude dos and don't	02
2	Basic Techniques Explain all basic techniques, Identify at least five needs which require product development / modification. Each student will identify separately, Given the live product/case (to be assigned by teacher), generate at least ten questions for each following basic techniques leading to identify project/problem: Productivity, Quality, Cost/waste reduction, Value analysis. Carry out market survey for given product, Prepare cause and effect diagram (Fish bone diagram) for given data, Perform SWOT analysis for self, Briefly explain and present 5-S and 7-S frame work, Visit an industry and prepare the report on project which can be undertaken for manufacturing at institute place and/or live problems which can be solved at industry place, Carry out literature survey for basic techniques.	06
3	Identification of Problem/Project Student will practice and will identify at least one problem/ project and will prepare following: Details and assembly production drawings.(For manufacturing type project). OR Define live problems at industry place. Also prepare necessary drawings for live problem solution at industry place, Bill of material, Cost estimation of parts and complete project.	02
4	Work allocation matrix: Prepare work allocation matrix along with provision of follow-up remarks and notes. (Suggested format of work allocation matrix with provision of follow-up is attached herewith in Annexure -I).	06
5	Project execution: Execute project preparation activities as per work allocation matrix. (Option of flexi time based work can also be practiced. For this option, it may not be necessary to exactly follow the time table slots. This can be on continuous base also.)	80

6	<p>Documentation and presentation: Documentation of final project report which includes following in sequence.</p> <ul style="list-style-type: none"> • Title page-(Suggested as per Annexure-II.) • Preface/Acknowledgement. • Certificate as per Annexure-III. • Abstract • Index. • Introduction of project • Assembly and detail production drawings. • List of activities (suggested as per Annexure IV) and work allocation matrix. • Plant layout with dimensions. • List and specifications of machineries, equipments and tools. • Bill of material with make or buy decision. • Specifications of bought out parts. • Process sheets-As per format given in course Industrial engineering. • Flow process charts. • Specification and consumption of consumables. • Details of inspection / testing carried out. • Details of rework / rectifications carried out. • Cost estimation. • Monitoring and control report/sheet. • Notes on troubleshooting. • Notes on individual achievement of skills / experience/problems/solutions. • References. • Day to day logbook as per Annexure-V. • Presentation including moments at work-video/photographs inaction. 	16
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Notes:

- Prepare project report with MS Office with following guidelines.
Page: A4 (On One Side).
Margin: Top :15mm.
Bottom :15mm.
Right :15mm.
Left :30mm.
Font: Arial.
Size: 12-Bold, Content12,
Spacing 18 Points,
Header: Title Of The Project, Page Number On Top Right.
Footer: Academic Year, Short Name Of The Institute.
- Term work (hard copy) should also include experience logbook duly certified by workshop instructors (as applicable), Industry/Market/Field personnel (as applicable) and subject teachers.

ANNEXURE – I (Page layout - landscape)

WORK ALLOCATION MATRIX (Suggested)

ENROLLMENT NO. OF STUDENT:

NAME OF STUDENT:

BATCH:

Activity No	Short Description of Activity	Who will Perform	Planned dates		Actual Dates		Who has/have performed	Reason/s for any delay from planning	Sign. of Guide
			Start	End	Start	End			
1	Preparing and maintaining logbook as per Annexure-V.								
2	Finalization of assembly and detail drawings (This must be production drawings with suitable scale along with dimensions, tolerances, surface roughness symbols, heat treatment / other treatments required, material , quantity per assembly for components drawings ,etc.								
3	Preparing master schedule and work allocation matrix in group.								
4	Preparation of bill of material.								
5	Collecting data and specifications of available resources-mainly material and machineries/ equipment/facilities and tools.								
6	Make or Buy decision.								
7	Preparing specifications of bought-out parts.								
8	Preparation of process planning (sheets) for all components in standard format.								
9	List, quantities and specifications of consumables.								
10	Preparation of list of required tools-cutting tools, jigs, fixtures, measuring instruments and other tools along with necessary specifications and sketches if required.								
11	Identifying and locating required resources like material, machineries/equipments/ facilities and tools.								
12	Preparing plant layout.								
13	Manufacturing of components. <name of component 1> <name of component 2> <name of component 3> . . <name of component n>								
14	Details of inspection carried out.								
15	Assembly.								
16	Details of testing carried out.								
17	Rework / rectification activities if required.								
18	Project monitoring and control, record keeping.								
19	Costing.								
20	Preparation of notes on troubleshooting.								
21	Preparation of notes individually on : -Extent to which he/she has achieved learning outcomes. -Own experience in executing project. -He/ She has faced technical problems during execution of project and solutions found.								
22	Preparation of list of references.								
23	Preparation of project report.								
24	Presentation								

Annexure- II

PROJECT TITLE

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A PROJECT REPORT

<Italic>

submitted to

C. U. SHAH UNIVERSITY

<Bold>

in partial fulfillment for the award of the diploma

<1.5 line spacing><Italic>

IN

MECHANICAL ENGINEERING

<Bold>



DEPARTMENT OF MECHANICAL ENGINEERING

<Bold>

C. U. SHAH UNIVERSITY

<Bold>

Wadhwancity

GUJARAT, INDIA

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MAY - 2015

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ACKNOWLEDGEMENT

One page maximum. Times New Roman and Font Size 12

ANNEXURE - III

CERTIFICATE

< Size – 24>

THIS IS TO CERTIFY THAT

SHRI / KUM.....

HAS SATISFACTORILY COMPLETED HIS / HER

TERMWORK IN THE SUBJECT

PROJECT - II (<SUBJECT CODE >)

WITHIN THE PRESCRIBED TIME LIMIT AND PRESCRIBED BOUNDARY.

DATE OF SUBMISSION:

INSTITUTE GUIDE

HEAD OF DEPTT.

All < Size – 14>

ANNEXURE-IV

SUGGESTED LIST OF ACTIVITIES.

- Preparing and maintaining logbook as per Annexure-V.
- Finalization of assembly and detail drawings (This must be production drawings with suitable scale along with dimensions, tolerances, surface roughness symbols, heat treatment/ other treatments required, material , quantity per assembly for components drawings ,etc.
- Preparing master schedule and work allocation matrix in group.
- Preparation of bill of material.
- Collecting data and specifications of available resources-mainly material and machineries/equipment/facilities and tools.
- Make or Buy decision.
- Preparing specifications of bought-out parts.
- Preparation of process planning (sheets) for all components in standard format.
- List, quantities and specifications of consumables.
- Preparation of list of required tools-cutting tools, jigs, fixtures, measuring instruments and other tools along with necessary specifications and sketches if required.
- Identifying and locating required resources like material, machineries/equipments/facilities and tools.
- Preparing plant layout.
- Manufacturing of components.
 - <name of component 1>
 - <name of component 2>
 - <name of component 3>
 - .
 - .
 - .
 - <name of component n>
- Details of inspection carried out.
- Assembly.
- Details of testing carried out.
- Rework / rectification activities if required.
- Project monitoring and control, record keeping.
- Costing.
- Preparation of notes on troubleshooting.
- Preparation of notes individually on :
 - Extent to which he/she has achieved learning outcomes.
 - Own experience in executing project.
 - He/ She has faced technical problems during execution of project and solutions found.
- Preparation of list of references.
- Preparation of project report.
- Presentation.

ANNEXURE-V

FORMAT FOR DAY TO DAY LOG BOOK

[illegible]