GUJARAT TECHNOLOGICAL UNIVERSITY
DIPLOMA IN MECHANICAL ENGINEERING
SEMESTER- VI

Subject Name: **Project -II**
Subject Code: **2361906**

NOTE: Either OPTION-A or OPTION-B is to be undertaken. (ANY ONE).

OPTION- A.

INDUSTRY BASED-IDP SOLUTION

Student will continue to work on the same IDP/UDP of V semester. It is to be noted that solution **should not be:**

i. On paper.
ii. In form of only suggestions.
iii. In form of theoretical approach only.
iv. Repetitive.

To undertake this option, following conditions should be satisfied.

1. It will be absolutely necessary to have feasible and implementable approach.
2. Industry certificate permitting implementation of IDP.
3. IDP outcome must be physical and must be at related industry place.
4. IDP outcome must be measurable and acceptable to grant the term for this subject.

EX. NO.	EXPERIENCE TYPE	EXPERIENCE TITLE	HOURS	
			TEACHER+ (OUT OF TOTAL)	STUDENT ++ (TOTAL)
1	PREPARATORY	Appreciate the main objectives of learning this subject. 1. Familiarize with various problem solution techniques. 2. Integrate the knowledge and skill for executing the project. 3. Identify and solve various problems in project execution. 4. Develop the ability to: a. Plan , monitor and control any given set of tasks with cost-quality & productivity Consciousness. b. Utilize the available resources in efficient and effective manner.	02	02

		c. Lead and communicate the team effectively. 5. Recall and strengthen know-how for engineering drawing fundamentals, various machining processes and primary managerial skills. 6. Explore your innovative and creative ability.		
2	STUDY	Study and prepare content for the technological knowledge and approach required to solve the IDP at industry place.	09	09
3	IDP/UDP SOLUTION	Solution of IDP/UDP at industry place. The report for this experience should include following. a) V semester's project term work. b) Literature survey. c) Details of Various solution approaches thought and executed. d) Details of solution achieved. (Consider requirement of project report.) e) Problems encountered during execution of IDP/UDP solution and solution adopted. f) Day to day logbook.(Suggested as per Annexure-I.) g) Photographs/clips of "work in progress".	62	144
4	PRESENTATION	Prepare and deliver power point presentation for the solution in presence of batch. Also discuss important events and outcome.	05	05
5	PROJECT REPORT	Documentation of final project report which includes following. a) Title page-(Suggested as per Annexure-II.) b) Certificate –As per Annexure-III. c) Certificate from industry (Permission and completion). d) Index. e) Preface. f) Objectives, syllabus. g) IDP/UDP-title. h) Content for the technological knowledge required to solve the IDP/UDP at industry place. i) Details of Various solution approaches thought and executed. j) Details of solution achieved. k) Description/specifications/parameter	06	08

		of processes/etc. of resources (specifically materials, methods and machines) used for solution. l) Photographs/clips of "work in progress". m) Problems encountered during execution of IDP/UDP solution and solution adopted. n) Presentation. o) Day to day logbook. p) Expected benefits. q) Project report of semester V- separately.		

+	Equivalent periods for teachers. This is not necessary to arrange the periods on weekly basis. The periods are to be arranged on the basis of need and convenience. Total hours are 84 which includes required content teaching, guidance and counseling at industry-institute, guidance and counseling through telephone/email/net, follow-up at industry, industry visits, coordination with industry, follow-up for project progress, taking presentations, guidance and counseling for project preparation, etc..
++	Equivalent periods for students. This also includes working on project work individually or in group, as per guidance received. This also includes self preparation of project work.

OPTION- B.

INSTITUTE-IN HOUSE WORKSHOP BASED UDP SOLUTION.

Student will carry out the project work at in-house workshop & taking the support of industry. It is preferable that Project-II be in line with IDP/UDP selected in V semester.

It is to be noted that **UDP must be:**

i. Innovative in nature.
ii. Feasible and implementable.
iii. Working in nature when solved/manufactured.

EX. NO.	EXPERIENCE TYPE	EXPERIENCE TITLE	HOURS	
			TEACHER+ (OUT OF TOTAL)	STUDENT ++ (TOTAL)
1	PREPARATORY	Appreciate the main objectives of learning this subject. 1. Familiarize with various problem solution techniques. 2. Integrate the knowledge and skill for executing the project. 3. Identify and solve various problems in project execution. 4. Develop the ability to: a. Plan , monitor and control any given set of tasks with cost-quality & productivity consciousness. b. Utilize the available resources in efficient and effective manner. c. Lead and communicate the team effectively. 5. Recall and strengthen know-how for engineering drawing fundamentals, various machining processes and primary managerial skills. 6. Explore your innovative and creative ability.	02	02
2	SELECTION / REFINING OF PROJECT / UDP	1. Literature survey. Use internet search, print mediums, expert field consultation, visits to industry/ exhibition, etc. for project/UDP selection/refining. 2. Selection of project / UDP. The project/UDP should be: a. Innovative in nature. b. Feasible using the infrastructure of the Institute. c. To give practice for drawing/ drafting. d. Incorporating major manufacturing processes. e. Non repetitive in nature. f. Able to develop the generic as well as technology related skills. g. Having measurable and analytical end results. h. Working in nature. 3. The Project-II should not be: a. Readymade. b. Assembly of readymade parts. c. Cleaning/oiling type maintenance.	05	15

		NOTE: Project / UDP, selected individually or in group and approved by batch faculty, has to be undertaken for execution. Preparation of report includes following. i) Literature survey (Internet, print, visits, etc). ii) Details of various feasible projects/UDPs considered. iii) Selection criteria. iv) Assembly Drawing/Sketch of project/UDP finalized. v) Parts/material lists.		
3	STUDY	MS Project-features, approaches to prepare master schedule, analysis.(study , Learning).	02	04
4	PLANNING	List activities and prepare master schedule using MS Project. Take the print and attach with Project report. (Suggested list of activities is attached herewith in Annexure - IV).	02	04
		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 -V).	02	02
5	PROJECT PREPARATION	Execute project preparation activities as per work allocation matrix. Maintain logbook regularly covering requirements of project report preparation.	60	128
6	PRESENTATION OF PROJECT	Prepare and deliver power point presentation for the project/UDP in presence of batch. Also discuss important events and outcome.	05	05
7	PREPARATION OF PROJECT REPORT.	Documentation of final project report which includes following in sequence. a) Title page-(Suggested as per Annexure-II.) b) Certificate –As per Annexure-III. c) Index. d) Preface/Acknowledgement. e) Objectives, syllabus. f) Project / UDP-title. g) Selection, description and working of project-Literature surveyed. h) Concepts and understanding of MS project, CPM and PERT. i) List of activities and work allocation matrix along with follow-up along with project schedule made in MS-Project. j) Assembly and detail production drawings. k) Workshop layout with dimensions. l) List and specifications of materials, machineries, equipments and tools used for project execution. m) Bill of material with make or buy decision. n) Specifications of bought out parts. o) Process sheets.	06	08

		p) Flow process charts. q) Specification and consumption of consumables. r) Details of inspection / testing carried out. s) Details of rework / rectifications carried out. t) Cost estimation. u) Monitoring and control report/sheet. v) Notes on troubleshooting. w) Notes on individual achievement of skills / experience /problems / solutions. x) References. y) Day to day logbook.(Suggested as per Annexure-I.) z) Moments at work-photographs in action. Photographs/clips for "work in progress".		

+	Periods for teachers are to be arranged in regular time table. However periods may be arranged on flexi based (as per need) and should be total 84 hours/term.
++	This includes market/industry survey/study, industrial visits, self preparation of drawings-layouts-specifications, preparation of schedules, doing special operations at outside if required, estimations, costing, individual preparations, project report preparation, etc. as per guidance of teacher.

NOTE FOR OPTION A & OPTION B.

FOR STUDENTS:

a) It is advised that student download this copy of syllabus and plan to achieve the objectives of learning this subject.
b) Attach copy of syllabus as part of term work.

GENERAL:

1. Prepare the report with A4 size paper,30mm left margin,20mm top, bottom and right margins, Arial font of size 14 for titles and size 12 for detail content, single spacing, prepared in MS Word, print on both side of paper.
2. Term work report of student of regular mode should exclude Distance Learning manual, photocopies, pre-printed content, etc. Focus should be on developing the term work as original efforts of students.
3. 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. Suggested format as per Annexure-I may be used.
4. Term work has to be defended (along with term work of V semester and VI semester) by Practical / Oral examination to be conducted by external and internal examiners. Power Point Presentation is also to be included.

ANNEXURE-I

FORMAT FOR DAY TO DAY LOG BOOK

ENROLLMENT NUMBER OF THE STUDENT :	
NAME OF THE STUDENT :	
INSTITUTE :	

DATE:	DETAILS OF WORK CARRIED OUT.	INITIAL OF STUDENT.	INITIAL OF INDUSTRY/ INSTITUTE GUIDE AND INSTRUCTOR/WORKMAN.

ANNEXURE-II
TITLE PAGE

INSTITUTE LOGO

< NAME AND ADDRESS OF INSTITUTE>

TERM WORK REPORT

SUBJECT : PROJECT – II

SUBJECT CODE : 2361906

DISCIPLINE : MECHANICAL ENGINEERING

ENROLMENT NUMBER :

NAME OF STUDENT :

DIVISION / BATCH :

SUBMISSION

SUBMITTED - V SEM. : <DATE>

SUBMITTED-VI SEM. : <DATE>

ANNEXURE-III
CERTIFICATE

CERTIFICATE

THIS IS TO CERTIFY THAT
SHRI / KUM

……

HAS SATISFACTORILY COMPLETED HIS / HER TERMWORK IN THE SUBJECT
PROJECT - II (2361906)
WITHIN THE PRESCRIBED TIME LIMIT AND PRESCRIBED BOUNDARY.

DATE: *STUDENT*

DATE: *INSTITUTE / INDUSTRY GUIDE*

DATE: *HEAD OF DEPTT.*

DATE: *PRINCIPAL*

ANNEXURE-IV

SUGGESTED LIST OF ACTIVITIES AFTER PROJECT IS SELECTED AND FINALISED.

1) Selection, description and working of project.
2) Learning with Critical Path Method concepts, types of activities (specifically dependent , independent and concurrent).
3) Preparing master schedule and work allocation matrix in group.
4) Project monitoring and control, record keeping.
5) Preparing and maintaining logbook.
6) Preparing finalized master schedule in MS Project.
7) Preparing conceptual sketch of assembly of project.
8) Preparation 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.
9) Collecting data and specifications of available resources-mainly material and machineries / equipments/facilities and tools.
10) Preparation of bill of material.

11) Make or Buy decision.
12) Specifications of bought-out parts.
13) Preparation of process planning (sheets) for all components in standard format.
14) List, quantity and specification of consumables.
15) Preparation of cost estimation.
16) Preparation of list of required tools-cutting tools, jigs, fixtures, measuring instruments and other tools along with necessary specifications and sketches if required.
17) Identifying and locating required resources like material, machineries/equipments / facilities and tools.
18) Preparing plant layout.
19) Manufacturing of components.
    a. <name of component 1>
    b. <name of component 2>
    d. <name of component 3>
    e. ..
    n. <name of component n>
20) Preparation of flow process charts.

21) Details of inspection carried out.
22) Assembly.
23) Details of testing carried out.
24) Rework / rectification activities if required.
25) Costing.
26) Preparation of notes on troubleshooting.
27) Preparation of notes individually on :
    a. Extent to which he/she has achieved the main objectives and skill level of subject learning mentioned at experience number 1.
    b. Own experience in executing project.
    c. He/ She has faced technical problems during execution of project and solutions found.
28) Preparation of list of references.

29) Preparation of project report.
30) Presentation.

ANNEXURE – V
WORK ALLOCATION MATRIX (SUGGESTED)

ENROLMENT NO. OF STUDENT: **NAME OF STUDENT:**
BATCH:

ENROLMENT NUMBERS OF GROUP STUDENTS.....

ACTIVITY NO.	SHORT DESCRIPTION OF ACTIVITY	WHO WILL PERFORM?	PLANNED DATES		ACTUAL DATES		WHO HAS / HAVE PERFORMED?	REASON/S FOR ANY DELAY / DEVIATION FROM PLANNING	INITIAL OF TEACHER
			STARTING	ENDING	STARTING	ENDING			
1	Selection, description and working of project.								
2	Learning with Critical Path Method concepts, types of activities (specifically dependent, independent and concurrent).								
3	Preparing master schedule and work allocation matrix in group.								
4	Project monitoring and control, record keeping.								
5	Preparing and maintaining logbook.								
6	Preparing finalized master schedule in MS Project.								
7	Preparing conceptual sketch of assembly of project.								
8	Preparation of assembly and detail drawings.								
9	Collecting data and specifications of available resources-mainly material and machineries / equipments/facilities and tools.								

10	Preparation of bill of material.								
11	Make or Buy decision.								
12	Specifications of bought-out parts.								
13	Preparation of process planning (sheets) for all components in standard format.								
14	List, quantity and specification of consumables.								
15	Preparation of cost estimation.								
16	Preparation of list of required tools-cutting tools, jigs, fixtures, measuring instruments and other tools along with necessary specifications and sketches if required.								
17	Identifying and locating required resources like material , machineries /equipments / facilities and tools.								
18	Preparing plant layout.								
19	Manufacturing of components.								
	Component 1								
	Component 2								
	Component 3								
	Component n								

20	Preparation of flow process charts.								
21	Details of inspection carried out.								
22	Assembly.								
23	Details of testing carried out.								
24	Rework / rectification activities if required								
25	Costing.								
26	Preparation of notes on troubleshooting.								
27	Preparation of notes individually on : a. Extent to which he/she has achieved the main objectives and skill level of subject learning mentioned at experience number 1. b. Own experience in executing project. c. He/ She has faced technical problems during execution of project and solutions found.								
28	Preparation of list of references.								
29	Preparation of project report.								
30	Presentation.								