

GUJARAT TECHNOLOGICAL UNIVERSITY

Diploma in Mechatronics Engineering

Semester: 4

Subject Name **MANUFACTURING PRACTICE - I I**

LABORATORY EXPERIENCES:

Experience Type	Experience Number	DESCRIPTION OF LABORATORY EXPERIENCE
PREPE-RATORY ACTIVITY	1	a. Cutting speed, feed, depth of cut and Metal Removal Rate(MRR). b. Various cutting tools materials, properties and applications. c. Various carbide inserts and ISO codification. d. Calculate RPMs for Lathe, Milling cutter and drill spindle based on given data. Use equations. e. Calculate strokes/minute for Shaping machine based on
	2	Kinematics and motion transmission of Lathe feed box.
	3	Kinematics and motion transmission of Lathe all geared head stock.
	4	Kinematics and motion transmission of Shaper machine ram stroke
	5	Mechanism and working of indexing head of Milling machine
STUDY	6	Kinematics and motion transmission of Drilling Machine
	7	Safety aspects followed in your work shop.
	8	Interpret surface finish, tool life and type of chip formation on varying cutting parameters for same work piece material and tool material
	9	Interpret surface finish and type of chip formation on varying work piece material with suitable cutting parameters.
	10	Compute cutting force using dynamometer.
DEMONSTRATION AND STUDY	11	Various Press Tools operations
	12	Grind Single Point Cutting Tool as per given geometry.
	13	Prepare a job on centre lathe as per the given drawing (Including plain turning, taper turning and grooving)
	14	Prepare a job on centre lathe as per the given drawing (Including plain turning, knurling, threading and boring)

	15	Prepare a plain surface and inclined surface on shaping machine. Also drill minimum two holes.
	16	Prepare a job using milling operations including use of indexing head (Excluding gear tooth cutting) and drilling/tapping operations.
	17	Prepare a Tool Lay-out of a given component for Capstan and Turret Lathe.
PREPERATION OF MODEL AND /OR CHART	18	Individually or in a group, prepare subject related model and / or chart. This has to be proposed by student/s and has to be approved by teacher.
SEMINAR PRESENTATION AND GROUP DISCUSSION	19	a) 10 minutes individual seminar presentation on given topic. b) Group discussion on given topic.
SCHOOL WITHIN	20	Guiding / Sharing /Mentoring the know-how by meritorious students to lower performing students.
SELF LEARNING AND LITURATURE SURVEY	21	1. Contact with field expert ,seniors, alumni and get further know-how individually or in a group. 2. Read /refer related book / magazine / article / literature / product pamphlets-catalogues and share the content. 3. Surf internet and download related movies/articles and share the content. 4. Visit individually any exhibition/industry and share the content.
PAPER SOLUTION	22	Given model paper by concerned teacher,(Not old papers), prepare solution.
ASSIGNMENT	23	Solve given assignments.
INDUSTRIAL VISIT	24	Visit at least 3 related industries.

NOTES :

1. Prepare term work report for each experience.
2. Term work report content of each experience should also include following. (As applicable).
 - a.Experience description / data and objectives.
 - b.Skill/s which is / are expected to be developed in student after completion of experience.
 - c.Drawing of experience / setup with labels/nomenclature to carry out the experience
 - d.The specifications of machines / equipments / devices / tools / instruments /items/elements which is / are used to carry out and to check experience.
 - e.Process parameters / setup settings' values applied to carry out experience.
 - f. Steps / Process description to execute experience.

- g.Information on recent machines / equipments / devices / tools / instruments /items available in market to carry out the experience.
 - h.Problems occurred/faced ,their causes and solution/s applied.
 - i. Special / Additional notes or remarks.
3. Distance Learning manual, photocopies, printed content, etc. are not permitted in Term work report of student of regular mode. Focus should be on developing the term work as original efforts of students.
 4. Term work content of industrial visit report should also include following.
 - a. Brief details of industry visited.
 - b. Type ,location, products, rough layout, human resource, etc of industry.
 - c. Details, description and broad specifications of machineries/processes observed.
 - d. Safety norms and precautions observed.
 - e. Student's own observation on Industrial environment, culture and attitude.
 - f. Any other details / observations asked by accompanying faculty.
 5. Term work includes workshop log book and experience logbook duly certified by workshop instructors and subject teachers.

Reference Books:

Sr. No	Name of Books	Author
1.	Workshop Technology I & II	J.A.Schey
2.	Workshop Technology I & II	Raghuwanshi
3.	Workshop Technology I, II & III	W.A.J. Chapman
4.	Manufacturing Processes	M.L.Begman
5.	Production Technology	R.K.Jain and S.C.Gupta
6.	Welding Engineering	B.E.Rossi
7.	Audles Welding Guide	F.D.Graham
8.	Manufacturing Processes	S.E.Rusinoft
9.	Production Technology	H.H.Marshall
10.	Production Technology	HMT
11.	Tools design	Cyril Donaldson, G.H Le Cain V.C. Glodd