GUJARAT TECHNOLOGICAL UNIVERSITY

DIPLOMA IN MECHANICAL ENGINEERING

SEMESTER- VI

Subject Name: **Advance Manufacturing System Practice (Elective Practice -I)**

Subject Code: **2361910**

NOTE:- Following are the minimum experiences required, but the college can do more experiences if possible.

LABORATORY EXPERIENCES :			
Experience Type	**Experience Number**	**Description of Laboratory Experience**	**Hrs.**
Preparatory	1	1. Appreciate main objectives of learning this subject: a. Strengthen the fundamentals of machining processes and computers. b. Familiarize with advance manufacturing systems. c. Appreciate the need of higher mental ability and skill level to work with advance systems. 2. Recall and strengthen know-how for various machining processes and industrial management functions.	2
Study and demonstration	2	Various sensors and their applications.	2
	3	Flexible manufacturing system with protocols.	2
	4	Various robotics applications.	2
Performance	5	Develop GT codes in suitable part coding system for approximately 12 to 15 components. Ask each student to bring at least one component (having more than 5-6 operations) and also ask him/her to draw it and make the process plan including details of tools required.. Then the data will be interchanged by batch students. Also prepare feature matrix for all components. (Note : Collection of parts and making drawing and process plan as home assignment.)	4
	6	a) Learn fundamentals of any one database software operation. b) Prepare database for experience number 5 and analyse this database for formation of various groups.	4
	7	a) Prepare block diagram/structure for any group developed in exercise no.6 for use in Computer Aided Process Planning (CAPP). b) Estimate the time for each operation of each component	4

		of group. c) Assuming data on quantity of each component of group , calculate total time for each process.	
	8	Develop conceptual FMS model for any one group formed in experience number 6. Also explain steps & procedure for model. This exercise should be held in a group of 3-4 students & group should represent seminar for the model developed. Develop at least three models in a batch.	4
Download and seminar presentation, (Copy downloaded content and seminar of whole batch In one /one set of CD/DVD)	9	a) Prepare and present seminar individually in your batch. (Seminar topic has to be given by teacher). b) Download individually visual aids, movies, content and other related content for the given case/situation. (Case/situation has to be given by teacher-preferably from emerging/ recent trends).Present and discuss the same in your batch.	4
Industrial visits	10	Visit at least two related industries.	-
Assignments (Home Assignment)	11	Solve the given tutorials and assignments. One assignment must be on preparation of chart / diagram / poster / graph / drawing / etc on half imperial size of drawing sheet.(For subject AMS).	-
		Total	**28**

Notes:

A. 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.

B. FOR STUDENTS AND SUBJECT TEACHER/S.

a. Term work report content of each experience should also include following.
    i. Experience description / data and objectives.
    ii. Skill/s which is / are expected to be developed in student after completion of experience.
    iii. Steps / procedure to execute experience.
b. Term work report of student of regular mode should exclude Distance Learning manual, photocopies, printed content (except visual aids), etc. Focus should be on developing the term work as original efforts of students.
c. Term work content of industrial visit report should also include following.
    i. Brief details of industry visited.

ii. Type ,location, products, rough layout, human resource, etc of industry.
iii. Details, description and broad specifications of machineries/ processes observed.
iv. Safety norms and precautions observed.
v. Student's own observation on Industrial environment, productivity concepts, quality consciousness and quality standards, cost effectiveness ,culture and attitude.
vi. Any other details / observations asked by accompanying faculty.

d. Term work should also include experience logbook duly certified by subject teacher/s.
e. Term work is to be defended (along with term work) with practical examination by external and internal examiners .Practical examination will include followings:
   i. Viva
   ii. Developing GT codes of given components.
   iii. Developing conceptual FMS model based on given set of data.
   iv. Explaining working of specified item/machines/systems/ robot/ etc.

Reference Books:

1.	CAD/CAM/CIM	P.Radha krishnan & S.subra narayan (New Age Intentional)
2.	Computer Integrated Design & Manufacturing	Bedworth, Wolfe and Anderson (McGraw Hill Internationa publication)
3.	Mechatronics	HMT
4.	Introduction to Robotics	Arthur J. Critchlow (Mc Millan publication)
5.	Robotics for engineers	Yorom Koran (Mc G.H. Publication)
6.	Computer aided manufacturing	Rao, Tiwari & Kundra (TMGH Publication)
7.	Computer aided design and manufacturing	Dr.Sadhusingh (KP)

Additional Reference Books:

1.	Computer Integrated Manufacturing	S.K.Vajpayee (PHI Publication)
2.	Automation, Production and Computer integrated Manufacturing	Mikell P. Groover, (PHI publication)
3.	Mechatronics	Bradleg and Offers (Chapman and Hall publication)
4.	Practical Robotics	Willium C. Burns Jr. & Janet Evans worthington (PHI publication)
5.	Computer automated Manufacturing	John H. Powers Jr. (Mc GH Publication)
6.	CAD/CAM/FOF,	Vol I,II, & III Juneja, Pujara & Sagar TMGH)
7.	Production and operation mgt.	Chase/Aquilano (Irwin publication).