GUJARAT TECHNOLOGICAL UNIVERSITY

DIPLOMA IN MECHANICAL ENGINEERING

SEMESTER- VI

Subject Name: **Hydraulic and Pneumatic Devices Practice (Elective Practice -II)**

Subject Code: **2361918**

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	01	1. Appreciate main objectives of learning this subject: a. Read/interpret given hydraulic/pneumatic circuit. b. Operate , maintain and assemble simple hydraulic and pneumatic devices/elements. c. Identify and rectify simple and common troubles of hydraulic and pneumatic devices. 2. Strengthen know how for fundamental fluid mechanics units and systems.	2
Study and demonstration	02	Major hydraulic elements and at least three devices.	2
	03	Major pneumatic elements and at least three devices.	2
	04	Computer based hydraulic and pneumatic system circuit designs.	2
Performance	05	Test various logic circuits for hydraulics and pneumatics.	2
	06	Design, assemble and operate hydraulic system, based on given simple system requirement (Design mainly include selection and arrangement of elements).	4

	07	Design, assemble and operate pneumatic system, based on given simple system requirement (Design mainly include selection and arrangement of elements)	4
	08	Take any two hydraulic devices/elements (eg. Power pack, cylinder, hydraulic jack, hydraulic brake), make system diagram, dismantle and assemble them.	6
	09	Take any two pneumatic devices/elements (eg. Pneumatic brake, cylinder, air suspension, pneumatic drill), make system diagram, dismantle and assemble them.	
Download and seminar presentation, (Copy downloaded content and seminar of whole batch In one /one set of CD/DVD)	10	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)Present and discuss the same in your batch.	4
Industrial visit	11	Visit at least two related industries.	-
Assignments (Home Assignment)	12	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 Mechatronics).	-
		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 termwork 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 teachers.
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. Interpret/read given simple hydraulic/pneumatic circuit.
    iii. Design , prepare and test the simple hydraulic/pneumatic circuit for given set of conditions/parameters/requirements.

Reference Books:

1.	Mechatronics	W.Bolten (Pearsons)
2.	Hydraulic and Fluid mechanics and Hydraulic machineries	Abdula Sharrif and others (Dhanapatrai publications)
3.	Hydraulic & Hydraulic machineries	TTTI,Madras.
4.	Automatic process control	Donald P. Eckman(Wiely Eastern)
5.	Hydraulic machines including fluidics	Dr.Jagdishlal(metropolitine book co., NewDelhi.
6.	Industrial pneumatic control	Z.J.Lansky(Marcel Dekker,Inc.

Additional Reference Books:

1.	Fluid power design handbook	Frank Yeaple
2.	Process control	Peter Harriott(TMGH)