

GUJARAT TECHNOLOGICAL UNIVERSITY
DIPLOMA IN MECHANICAL ENGINEERING
SEMESTER- VI

Subject Name: **Mechatronics Practice (Elective Practice -II)**

Subject Code: **2361922**

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. Develop the ability to interpret / read simple digital circuits / Printed Circuit Boards (PCBs). b. Identify situations where Mechatronics can be applied for automation. c. Select components and develop the logic & arrangement for simple mechatronic systems. 2. Strengthen know how for basic electrical and electronics engineering , theory of machine and machine design concepts.	2
Study and demonstration	02	Elements of mechanical, pneumatic and hydraulic actuation systems.	6
	03	Elements of electrical actuation systems.	
	04	Working of all types of sensors, electronics components & devices.	
	05	Three working mechatronic systems.	
Performance	06	Prepare the logic gate base digital circuit on given input conditions and confirm the desired output.	2
	07	Perform and correlate input and output for Analog to Digital Conversion (ADC) and Digital to Analog Conversion (DAC).	2
	08	Input required parameters and confirm the desired output-with microprocessor, micro controller and programmable logic controller (PLC).	4
	09	Design , prepare and test four simple mechatronic system for given set of conditions/parameters/requirements in a batch.	8
Download and seminar	10	a) Prepare and present seminar individually in your batch. (Seminar topic has to be given by teacher).	4

presentation, (Copy downloaded content and seminar of whole batch In one /one set of CD/DVD)		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.	
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 PCB.
 - iii. Design , prepare and test the simple mechatronic system for given set of conditions/parameters/requirements.
 - iv. Perform any one experience from experience number 6 and 7.

Reference Books:

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| 1. | Mechatronics | HMT(TMGH). |
| 2. | Mechatronics | W.Bolton(Pearson Education). |