



GUJARAT TECHNOLOGICAL UNIVERSITY

Bachelor of Vocation (B.Voc) Semester: III

Branch: Production Technology

Subject Name: Mechatronics Lab

Subject Code: 21130306

Type of course: Under Graduate

Prerequisite: None

Rationale: In the field of Electronics, it is essential to know the functional aspects of several instruments useful in the process of signal measurement. Prior to the measurement, the process of signal conversion to equivalent electrical quantity and conversion of electrical quantity in one or the other forms are important steps. Basic practical concept of plc, Sensors, transducers, motors etc.

Teaching and Examination Scheme:

Teaching Scheme			Credits	Examination Marks				Total Marks
L	T	P		Theory Marks		Practical		
			ESE (E)	PA(M)	ESE (V)	PA (I)		
0	0	2	2	0	0	30	20	50

L- Lectures; T- Tutorial/Teacher Guided Student Activity; P- Practical; C- Credit; ESE- End Semester Examination; PA- Progressive Assessment

Contents:

Sr. No.	Practical / Hands on Exercise	Teaching Hrs.
1	To study & perform characteristics and use of LVDT.	2
2	To study measurement of temperature using thermocouple and RTD	2
3	To study strain Measurement using strain gauge.	2
4	To Study of Load Measurement System Load Cell	2
5	To demonstrate usage of DSO for steady state periodic waveforms produced by a function generator.	2
6	To demonstrate usage of DVM and Digital multi meter.	2
7	To study use of actuators like relay, solenoid valve.	2
8	To demonstrate Industrial Automation system and PLC.	2
9	To demonstrate the different motion system.	2
10	Practical demonstration of DC motors, AC motors, Stepper motors	2
	Total	20

Major Equipment:

1. Computers / Workstations
2. Necessary number of meters, accessories and instruments etc.



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3. Relay, motor, Solenoid valves etc.

Course Outcome:

Sr. No.	CO Statement	Marks % Weightage
CO 1	Explain basics of different sensors	25
CO 2	Explain basics of automation components and systems	25
CO 3	Basic learning of mechanical actuation system.	25
CO 4	To learn electrical actuation system.	25

List of Open Source Software/learning website:

1. www.nptel.ac.in
2. <http://www.scilab.org/>
3. <http://www.vlab.co.in/>