



## **C.U.SHAH UNIVERSITY – Wadhwan City**

**FACULTY OF:** -Technology and Engineering (Diploma Engineering)

**DEPARTMENT OF:** -Computer, Electrical and Electronics and Communication Engineering

**SEMESTER:** - I **CODE:** -2TE01EWS1

**NAME–** Electronics Workshop

### **Teaching & Evaluation Scheme:-**

Subject Code	Subject Name	Teaching Scheme (Hours)				Credits	Evaluation Scheme							
		Th	Tu	Pr	Total		Theory				Practical (Marks)		Total	
											Internal	University		
							Sessional Exam		University Exam		Pr	TW		Pr
							Marks	Hours	Marks	Hours				
2TE01EWS1	Electronics Workshop	00	00	02	02	01	---	----	----	---	50	50	----	100

**Objectives:** -Students of Computer, Electrical, Electronics etc allied programs always comes across different types of electrical and electronic systems. Such systems are built and interconnected using various components such as wires and cables, active and passive electrical/electronic components, and connectors. Printed circuit board (PCB) is a common example of component used to build a device used in any of above allied systems. This course deals with basic introduction of system components of electrical and electronic systems, and provides hands on practice in assembling, interconnecting, testing, and repairing such system by making use of various tools used in Electronic workshop.

**Prerequisites:** - None

### **Course Outlines:-**

Sr. No.	Course Contents	Hours
1	<b>Cables and Collectors</b> General specification of cable – characteristic impedance, current carrying capacity, flexibility, types of cables –SWG single core, Multi core, Single Strand, Multi strand and their type, Armourd cable, shielded wire, Coaxial cable, Twisted pair, Flat ribbon cable, Teflon coated wires, fiber cable, Optical fiber cable. General Specification of contactor- contact resistance, breakdown voltage, insulation resistance, construction diagram.	
2	<b>Switches and Protective Device</b> Switches- Toggle switch, SPDT, DPDT, TPDT, centre off, without centre off, single pole, double poles, intermediate switch. Protective Device- Fuses construction, types and application, Relays construction, types and application. MCB	
3	<b>Electrical and Electronics Components</b>	

	Resistance- types of resistance, material used for resistance, Temperature co-efficient. Capacitor – Materials used for capacitor, working voltage, coding of capacitor and types of capacitors. Type of inductor, working and its characteristics. Electronic material properties, types of semiconductors, Diode, introduction of ICs and its pin identification for different types of ICs. Soldering and disordering techniques.	
4	<b>Measuring Instrument</b> Checking of continuity, measurement of AC-DC Voltage and resistance using Analog multimeter and Digital Multimeter. Measurement of AC-DC Voltage and resistance using CRO, measurement of time and frequency of AC voltage using CRO. Testing of components- resistance, capacitor, inductor, diode with help of Analog and Digital Multimeter.	
5	<b>Computer Hardware:</b> Introduction, Motherboard, Central processing unit, Random Access Memory, Firmware, Computer Power Supply, DVD, CD, Optical Disc Drive, Blu-ray Disc, Floppy Disk, Hard Disk etc.	
6	<b>Computer Hardware Peripherals:</b> Introduction, Expansion card, Computer hardware, Computer peripheral, Computer bus, Peripheral Component Interconnect, PCI Express, Accelerated Graphics Port, Video card, Sound card, Network card, USB, Firewire, PS/2 Connector, USB flash drive, Webcam etc.	

#### List of Experiments:-

- Draw and identify the various symbol used in Electrical and Electronic circuit.
- Identify different types of Resistors.
- Identify different types of Capacitors.
- Identify the various types of Inductors.
- Identify the different types Cables and wires.
- Identify the different types of Switches and discover its usage.
- Identify the various types of Diodes.
- Identify the various types of IC packages.
- Study of soldering techniques, material and safety precaution.
- Soldering and disordering of PCB.
- Study of breadboard and bread-boarding techniques.
- Measurement of current, voltage and resistance by multimeter.
- Introduction to Computer Software and Hardware
- Introduction to Components of a Computer System 1
- Introduction to Components of a Computer System 2
- Introduction to Operating Systems (DOS/Windows/Linux)
- Introduction to various functions of Operating System
- Introduction and use of Start Menu of Operating System
- Introduction to Desktop of an Operating System (Ex. Windows Desktop)
- Introduction to Explorer of an Operating System (Ex. Windows Explorer)
- Introduction to Control Panel of an Operating System.
- Introduction to File and Folder Options.
- Introduction to The My Documents Folder
- Internet Explorer Basics of Operating System
- Adding and Configuring Hardware
- Controlling the Task Manager of Operating System

**Learning Outcomes:-**

- Identification of Electrical and Electronic components.
- Use of Electrical and Electronic components.
- Identification of components of a Computer System.
- Trouble shooting and arrangement of basic Electrical, Electronic and Computer Components.

**Books Recommended:-**

- Elements of Electrical Engineering, **J.B.Gupta** ,S.K.Katariya & Sons
- A Hand Book of Electrical Engineering, **S.L.Bhatiya**, Khanna Publication
- Electronic Engineering Materials, **Rains & Bhhatacharya**, Khanna Publication
- Electronic component Handbook, **Thomas H.Jones**, Reston Publication.