



C. U. SHAH UNIVERSITY – WADHWAN CITY

FACULTY OF TECHNOLOGY AND ENGINEERING B. TECH. SEMESTER: - I

Department: All Branches (CE/EC/IT/EEE/Elect./IC)

SUBJECT NAME: Electronics & Electrical Workshop Practice (EWP)

SUBJECT CODE: 4TE01EWP1

Teaching & Evaluation Scheme: -

Subject Code	Subject Name	Teaching Scheme (Hours)				Credits	Evaluation Scheme							
		Th	Tu	Pr	Total		Theory				Practical (Marks)			Total
							Sessional Exam		University Exam		Internal		University	
							Marks	Hours	Marks	Hours	Pr/Viva	TW	Pr	
4TE01EWP1	Electronics & Electrical Workshop Practice (EWP)	0	0	2	2	1	-	-	-	-	50	50	---	100

Objectives:-

- The objective is to impart training to help the students to develop engineering skill sets.
- This exercise also aims in inculcating respect for physical work and basic electronic circuit trouble shooting in addition to some amount of value addition by getting exposed to interdisciplinary engineering domains.

Prerequisites:-

- Looking to the wide field of the engineering, there was a need of comprehensive course.

Course outline: -

Sr. No.	Course Contents	Total Hours
1	Introduction: Introduction to Workshop	02
2	Basic Electronics Components Study: <ul style="list-style-type: none"> • Identification of Components like resistor, capacitor, diode, transistor (BJT and FET), and other semiconductors (e.g. SCR, LED, LCD, etc.) and Integrated circuits (basic analog and digital ICs like 741, 555). • Specifications for the various electronic components, e.g. resistance value by color code, wattage, diode P and N terminals, capacitor specifications like voltage, capacitance, transistor terminal identification, PNP and NPN transistors, FET terminal identifications, step-up/step-down transformers, center tapped transformers. 	04
3	Instrument familiarization:	04

	Instruments like Ammeter, voltmeter, multimeter, CRO, function generator, single and dual power supply; Operating and measurement practice on these instruments.	
4	Soldering Practice : Understanding the bread-board and general purpose PCB, Design of basic circuits on bread-board, Soldering practice on general purpose PCB	04
5	Earthing : Study the types of Earthing, e.g. Pipe earthing, Plate earthing.	02
6	Electrical Wiring: Connectors & switches, system of wiring, domestic wiring installation, sub circuits in domestic wiring, simple control circuit in domestic installation, industrial electrification. Illumination: Types of lamps, fixtures & reflectors, illumination schemes for domestic, industrial & commercial premises, Lumen requirements for different categories. Safety & protection: Safety, electric shock, first aid for electric shock other hazards of electrical laboratories & safety rules, use of multi-meters, grounding, importance of grounding, equipment of grounding for safety. Circuit protection devices, fuses, MCB, ELCB & relays.	10
7	Mini Project : Students have to prepare circuit of any electronic application on bread board and do the testing of it after working condition. They have to then solder it on general purpose PCB.	04
8	Introduction to Personal Computer(PC): Dismantling of a Personal Computer (PC), Identification of Components of a PC such as power supply, motherboard, processor, hard disk, memory (RAM, ROM), CMOS battery, CD drive, monitor, keyboard, mouse, printer, scanner, pen drives, disk drives etc Assembling of PC, CMOS setup, BIOS Setup	04
9	Operating System Installation: Installation of Operating System (Linux) and Device drivers, Boot-up sequence. Basic troubleshooting and maintenance, PC configuration, Configuration of Dual OS.	04
10	Fundamentals of Networking: Identification of network components- LAN card, wireless card, switch, hub, router, different types of network cables (straight cables, crossover cables, rollover cables) Basic networking and crimping, Basics of Internet	04

Learning Outcomes: -

- Students will get on hand training regarding various practical applications like component identification, laboratory instruments, bread-board mounting and soldering on PCB & Hardware and networking.
- Practical method of explaining the core subject and the philosophy of the subject.

Books Recommended:-

1. "A textbook of electrical technology" Vol-I, **B.L.Theraja**, S chand & company Ltd. New Delhi.
2. "Fundamental of Computer", **Sukhvir Sing** , Khanna Publications ,Delhi.
3. "A+ Guide to Hardware: Managing, Maintaining and Troubleshooting", **Jean Andrews**, Delmar Cengage Learning.
4. "Electronic Troubleshooting", **Daniel Tomal& Neal Widmer**, McGraw-Hill Education.
5. "Troubleshooting Electronic Equipment", **Ragbir Singh Khandpur**, Tata McGraw-Hill Education
6. "Principles of Electronics", **V. K. Mehta**, S Chand & Company
7. "Fundamentals of Electrical Engineering & Electronics", **B. L. Theraja**, S Chand & Company