

COURSE TITLE : BASIC ELECTRICAL ENGINEERING WORKSHOP

COURSE CODE : 2039

COURSE CATEGORY : B

PERIODS/WEEK : 3

PERIODS/SEMESTER : 45

CREDITS : 2

AI No.	Sub	On completion of this course the student will be able:
	1	To know safety precautions.
1	2	To familiarize different types of accessories used in electrical wiring. (Different types of wires, switches, fuses like cartridge and HRC , MCB, ELCB, RCCB etc, line tester).
	3	To identify various meters used in electrical engineering(DC voltmeter and ammeter, voltmeter, ammeter, wattmeter, energy meter, galvanometer, panel board meter, frequency meter).
	4	To understand different types of wires and cables (single strand, multi strand, gauges of wire, wire gauge, current ratings of cables- UG cables etc).
	5	To understand different types of switches and protecting switches(SPST, SPDT, TPTT, ICTDP, ICTP, knife switch, push button switch, toggle switch, rotary switch, push pull switch, limit switch).
	6	To understand the measurement of voltage and current.
	7	To know how to use multimeter (working of multimeter, measurement of resistance, DC and voltage, DC and current, different range selection, testing of electronic components).

LIST OF EXPERIMENTS

- Safety precautions.
 - Draw standard symbols of basic electrical measuring instruments and switches.
 - Practice usage of line tester.
1. To assemble and test a simple electric circuit containing source, knife switch, fuse and a load.
 - 2.
 3. To measure the voltage and current of a DC circuit including following steps.
 - a. Selection of proper instrument and range.
 - b. Reading of meter in correct position and correct way.
 - c. Use of multi range meter. (to clarify the importance of multiplication factor)
 4. To measure the voltage and current of a DC circuit using a multimeter.
 5. To measure the values of carbon resistors and compare these values with the colour code.
 6. To measure the size of various cables using standard wire gauge and micrometer.
 7. To verify the status of the following switches using multimeter or test lamp.
SPST, SPDT, DPST, DPDT, TPST, TPDT, push to on switch, push to off switch, rotary switch, and pull switch.
 8. To practice maintenance of lead acid battery.
 9. To measure magnetic flux of permanent magnet and an electromagnet using a flux meter.
 10. To assemble following circuits and verify voltage and current divisions.
 - a. Series circuit contains three lamps of different power ratings.
 - b. Parallel circuit contains three lamps of different power ratings.
 11. To read a wattmeter connected in an existing load.
 12. To read an energy meter connected in an existing installation.
