

RGPV (DIPLOMA WING) BHOPAL		OBE CURRICULUM FOR THE COURSE		FORMAT-3	Sheet No. 1/5
Branch	ELECTRICAL ENGG, ELECTRONICS&TELECOMMUNICATION, ELECTRICAL &ELECTRONICS, ELECTRONICS&INSTRUMENTATION, ELECTRONICS ENGG,OPTO-ELECTRONICS		Semester	II	
Course Code	206	Course Name	ELECTRICAL & ELECTRONIC WORKSHOP		
Course Outcome - 1	Utilize the various types of tools, accessories and electronic components.			Teach Hrs	Marks
Learning Outcome E0120611	Identify the various types of electronic components. (Psychomotor domain)			9 Hrs	10 Marks
Contents	<p>Resistors: Classification of resistors, Materials used for resistors, Maximum power rating, tolerance, temperature co-efficient, Carbon film resistors, Standard wire wound resistors, Colour Coding, LDR.</p> <p>Capacitors: Materials used for capacitors, Working voltage, Capacitive reactance. Coding of capacitors. Types of Capacitor: Fixed Capacitor types (Disc, Ceramic capacitor, Aluminium electrolytic capacitor), Variable capacitor types (Air Gang, PVC gang capacitor, Trimmer mica capacitor).</p> <p>Inductors: Air core, iron core, ferrite core inductor, frequency range Inductors: - A.F., R.F., I.F., Toroidal Inductor.</p> <p>ICs: Monolithic IC, thick & thin film IC, Hybrid IC, Linear IC, Digital IC, IC packages- SIP, TO5, Flat, DIP, Pin Identification. Identification of components i.e. Diodes, Transistors, FET, UJT, SCR, Transformers.</p>				
Method of Assessment	External: Laboratory observation and viva voce.				
Learning Outcome E020612	Operate various types of tools and accessories for assembling (Psychomotor domain and Affective domain)			9 Hrs	10 Marks
Contents	<p>Workshop safety: General safety rules for workshop, general safety measures to be observed in workshop, general housekeeping activities, preparing list of general safety rules</p> <p>Tools and Accessories for Assembling: Surface mount technology (SMT) & Surface mount device (SMD), Soldering and Desoldering technique, Different types of Cutters, Nose pliers, Wire strippers, Screw drivers, Lead straighteners, Extractors, Soldering Iron, Desoldering Pump, Crimping tool. Breadboard wiring, general purpose PCB soldering/wiring.</p>				
Method of Assessment	Internal: Laboratory observation and viva voce.				

RGPV (DIPLOMA WING) BHOPAL		OBE CURRICULUM FOR THE COURSE		FORMAT- 3	Sheet No. 2/5
Branch	Electrical Engineering			Semester	II
Course Code	206	Course Name	ELECTRICAL & ELECTRONIC WORKSHOP		
Course Outcome -2	Compare different types of cables, connectors and displays respectively for specific use.			Teach Hrs	Marks
Learning Outcome E0120623	Select cables for a given specific task (Psychomotor domain)			9 Hrs	10 Marks
Contents	<p>Cables: General specifications of cables, characteristic impedance, current carrying capacity, flexibility.</p> <p>Types of cables – Standard wire gauge (SWG) single core, multi core, single strand, multi strand and their types. Armoured cable, Shielded wires, Coaxial cables, Twisted pair, Flat ribbon cable, Teflon coated wires, Fiber cables - optical fiber cable</p>				
Method of Assessment	External: Laboratory observation and viva voce.				
Learning Outcome E0120624	Use connector and display for a given application (Psychomotor domain)			9 Hrs	10 Marks
Contents	<p>Connectors: General specifications of connectors - contact resistance, breakdown voltage, insulation resistance. Constructional diagram, applications of BNC, D series, FRC connector, RJ 45 connectors. Constructional diagram and applications of Phone plug & jacks</p> <p>DISPLAYS: Seven segment, LED & LCD</p>				
Method of Assessment	Internal: Laboratory observation and viva voce.				

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Branch	Electrical Engineering			Semester	II
Course Code	206	Course Name	ELECTRICAL & ELECTRONIC WORKSHOP		
Course Outcome - 3		Categorize use of different switches and protective devices		Teach Hrs	Marks
Learning Outcome E0120635	Use different switches for given application (Psychomotor domain)		9 Hrs	10 Marks	
		Switches: Toggle switches-SPST, SPDT, DPST, DPDT. Thumb-wheel switches- BCD, Decimal, Rotary switches, Push button switches, Key, DIP switches and Membrane switch. Keyboard Switches: Mechanical and Capacitive.			
Method of Assessment		External: Laboratory observation and viva voce.			
Learning Outcome E0120636	Identify appropriate protective devices for electrical and electronic circuits (Psychomotor domain)		9 Hrs	10 Marks	
Contents	Fuse: Glass fuse, Resettable fuse, Shunt fuse- MOV, HRC fuse. Contact Relay: Working and application of General purpose relay, NO contact, NC contact. MCB: Working and applications.				
Method of Assessment		External: Laboratory observation and viva voce.			

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Branch	Electrical Engineering			Semester	II
Course Code	206	Course Name	ELECTRICAL & ELECTRONIC WORKSHOP		
Course Outcome - 4	Select specific instruments to measure various parameters.			Teach Hrs	Marks
Learning Outcome E0120647	Measure given parameters using multimeter and operate signal and function generator. (Psychomotor domain)			6 Hrs	10 Marks
Contents	Multimeter: Analog & digital multimeter- their use to measure AC and DC voltage, AC and DC current, resistances. Perform continuity testing. Signal and function generator: Front panel controls and its function as wave form generator for different amplitude and frequency.				
Method of Assessment	External: Laboratory observation and viva voce.				
Learning Outcome E0120648	Demonstrate CRO and DSO operation (Psychomotor domain)			6 Hrs	10 Marks
Contents	CRO: Front panel controls, measurement of different parameters. DSO: Different shaped wave form. Testing of various electrical and electronic components.				
Method of Assessment	Internal: Laboratory observation and viva voce.				

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Branch	Electrical Engineering			Semester	II
Course Code	206	Course Name	ELECTRICAL & ELECTRONIC WORKSHOP		
Course Outcome - 5	Make use of different tools and components preparing cable, house wiring and electronics circuits			Teach Hrs	Marks
Learning Outcome E0120659	Perform connections for computer network cable and wiring for specific application. (Psychomotor domain)			8 Hrs	10 Marks
Contents	Prepare computer network cable using different type of cables and connectors. Wiring of single switch board and tube-light connection.				
Method of Assessment	External: Laboratory observation and viva voce.				
Learning Outcome E01206510	Assemble simple electronic circuits using different boards (Psychomotor domain)			6 Hrs	10 Marks
Contents	Use of bread boards & general purpose PCBs for making simple electronic circuits using, resistors, capacitors, diodes, transistors, switches and/or display devices.				
Method of Assessment	Internal: Laboratory observation and viva voce.				

SUGGESTED LIST OF EXPERIMENTS

Sr. No.	Experiments	LO
1	Identify the various types of resistors and find out the values from color bands /written values on them and measure with multimeter.	
2	Identification and use of different electrical cables	
3	Identify the (i) Terminals of a diode and its polarity, (ii) Zener, LED, Photodiode, IR diode (iii) Terminals of a Transistor and its Type (n-p-n or p-n-p).	
4	Identify and use different tools and accessories used in manufacturing of electronic circuits. <ul style="list-style-type: none"> • Different types of cutters. • Nose pliers • Wire strippers • Screw drivers • Lead strengtheners • Extractors • Soldering iron 	

	<ul style="list-style-type: none"> • Desoldering pump • Crimping tool 	
5	Identify the type of components(L,C,R) and find out the values using LCR Meter	
6	Identify the various waveforms of Function Generator using CRO. Measure Amplitude & Frequency for various waveforms using CRO.	
7	Use regulated power supply and identify front panel controls and their functions.	
8	Use DC and AC voltmeter and ammeter to measure DC and AC voltage current.	
9	Use analog multi-meter to measure. <ul style="list-style-type: none"> • AC and DC voltage • AC and DC current • Resistance of Different resistors • Continuity testing. 	
10	Use digital multi meter to measure: <ul style="list-style-type: none"> • AC and DC voltage • AC and DC current • Different resistor • Continuity testing. 	
11	Identify various kinds of electronic components	
12	Use different switches <ul style="list-style-type: none"> • Toggle switches – SPST, SPDT, DPST, DPDT • Thumb-wheel switches • Rotary switches • Push on/Push off switches • Keyboard switches – mechanical, capacitive, membrane • DIP switches 	
13	Use of different display devices <ul style="list-style-type: none"> • LED display • Seven segment display • LCD display 	
14	Solder the joint connection of wires and components on a PCB and check it. De-solder it and Re-solder	
15	Prepare computer network cable (use different type of cable sand connectors)	
16	Use of breadboards to implement simple electronic circuits using resistors/ capacitors/diodes/transistors/switches/display devices.	
17	Prepare two simple electronic circuits using general purpose PCBs.	
18	Prepare two PCBs for simple electronic circuits.	
19	Assemble circuit on breadboards and PCBs (e.g rectifiers, oscillators, amplifiers).	
20	Prepare a switch board for a fan & lamp	
21	Connection of a single phase florescent tubelight	

REFERENCE BOOKS:

S.N.	Title & Publication	Author
1.	Electronic Component and Materials, Tata McGraw Hills publishing company Ltd., New Delhi	S.M. Dhir
2.	Printed circuit boards design and technology, Tata McGraw Hills publishing company Ltd., New Delhi	W.C. Bosshart
3.	Electronics Project for Biginners, Pustak Mahal, Dariya Ganj, Delhi	A.K. Maini
4.	basic Shop practical's in electrical engineering, Publication-Dhanpat rai and Co.	M. L. Anwani
5.	Electrical Drawing	J.B.Gupta