

ELECTRONIC WORKSHOP

RGPV (DIPLOMA WING) BHOPAL		OBE CURRICULUM FOR THE COURSE		FORMAT-3	Sheet No. 1/5
Branch	INFORMATION TECHNOLOGY, COMPUTER SCIENCE & ENGG., COMPUTER HARDWARE & MAINTENANCE		Semester	II	
Course Code	206	Course Name	ELECTRONIC WORKSHOP		
Course Outcome - 1	Utilize the various types of tools, accessories and electronic components.			Teach Hrs	Marks
Learning Outcome 01	Identify and select different types of basic electronic components.(Psychomotor domain)			6 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 02	Operate various types of tools and accessories for assembling (Psychomotor domain and Affective domain)			6 Hrs	10 Marks
Contents	<p>Tools and Accessories for Assembling and maintenance: SMT & SMD: Soldering and De-soldering technique, Different types of Cutters, Nose pliers, Wire strippers, Screw drivers, Lead straighteners, Extractors, Soldering Iron, De-soldering Pump, Crimping tool. Breadboard wiring, general purpose PCB soldering/wiring.</p>				
Method of Assessment	Internal: Laboratory observation and viva voce.				

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Course Code	206	Course Name	ELECTRONIC WORKSHOP		
Course Outcome -2	Compare different types of cables, connectors and displays as per their applications.			Teach Hrs	Marks
Learning Outcome 03	Differentiate various types of cables, connectors and displays (Psychomotor domain)			6 Hrs	10 Marks
Contents	Cables: Co-axial cable, Twisted pair cable, Flat ribbon cable, Fibre optic cable.				
Method of Assessment	External: Laboratory observation and viva voce.				
Learning Outcome 04	Differentiate various types of connectors and displays (Psychomotor domain)			6 Hrs	10 Marks
Contents	Connectors: BNC, D series, Audio, Video, printer, edge, FRC, RJ-45 connectors, Phone Plug & Jacks and their application. Display LED display, Seven segment display, LCD display				
Method of Assessment	External: Laboratory observation and viva voce.				

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Branch	INFORMATION TECHNOLOGY, COMPUTER SCIENCE & ENGG., COMPUTER HARDWARE & MAINTENANCE		Semester	II	
Course Code	206	Course Name	ELECTRONIC WORKSHOP		
Course Outcome - 3	Categorize and use different switches and protective devices			Teach Hrs	Marks
Learning Outcome 05	List out various types of switches (Psychomotor domain)			6 Hrs	10 Marks
Contents	Switches: Toggle switches-SPST, SPDT, DPST, DPDT, Thumb-wheel switches- BCD, Decimal, Rotary switches, Push on/Push off switches, Keyboard switches-mechanical, Capacitive, membrane, DIP switches, Membrane switch.				
Method of Assessment	External: Laboratory observation and viva voce.				
Learning Outcome 06	Differentiate various types of fuse and relay. Utilize MCB (Psychomotor domain)			6 Hrs	10 Marks
Contents	Fuse: Glass fuse, Resettable fuse, Shunt fuse- MOV,HRC fuse. Relay: Working, construction and application of General purpose relay, NO, NC contact, Difference between switch & relay. MCB: Working principle, construction and applications.				
Method of Assessment	Internal: Laboratory observation and viva voce.				

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Branch	INFORMATION TECHNOLOGY, COMPUTER SCIENCE & ENGG., COMPUTER HARDWARE & MAINTENANCE		Semester	II	
Course Code	206	Course Name	ELECTRONIC WORKSHOP		
Course Outcome - 4	Select and use specific instruments to measure various parameters.			Teach Hrs	Marks
Learning Outcome 07	Measure different parameters using multimeter. (Psychomotor domain)			6 Hrs	10 Marks
Contents	Multimeter: Analog & Digital multimeter: Study and use analog & digital multimeter to measure- AC and DC voltage, AC and DC current, Different resistor, Continuity testing.				
Method of Assessment	External: Laboratory observation and viva voce.				
Learning Outcome 08	Select and measure various parameters of signal using function generator and CRO or DSO respectively. (Psychomotor domain)			6 Hrs	10 Marks
Contents	Function generator: Front panel controls and its function as frequency changer and amplifier. CRO: Front panel controls and its function – To measure of AC-DC voltage and resistance, To measure of time and frequency of AC voltage, To measure of voltage, time and frequency of different types of wave, Testing of various component-resistor, capacitor, inductor, transformer and diodes. DSO, Dual power supply and LCR meter.				
Method of Assessment	Internal: Laboratory observation and viva voce.				

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Course Code	206	Course Name	ELECTRONIC WORKSHOP		
Course Outcome - 5	Make use of different tools and components for preparing electronics circuits, cables and house wiring.			Teach Hrs	Marks
Learning Outcome 09	Perform connections for computer network cable and wiring for specific application. (Psychomotor domain)			6 Hrs	10 Marks
Contents	Prepare computer network cable using different type of cable and connectors.				
Method of Assessment	External: Laboratory observation and viva voce.			Teach Hrs	Marks
Learning Outcome 10	Assemble simple electronic circuits on bread board and PCB (Psychomotor domain)			6 Hrs	10 Marks
Contents	Study and use bread boards to implement simple electronic circuits using resistors / capacitors / diodes / transistors / switches / display devices. Prepare two simple electronic circuits using general purpose zero PCBs. Prepare two PCBs for simple electronic circuits.				
Method of Assessment	Internal: Laboratory observation and viva voce.				

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	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).	
3	Identify and use different tools and accessories used in manufacturing ofelectronic circuits. <ul style="list-style-type: none"> • Different types of cutters. • Nose pliers • Wire strippers • Screw drivers • Lead strengtheners • Extractors • Soldering iron • Desoldering pump • Crimping tool 	
4	Identify the type of components(L,C,R) and find out the values using LCR Meter	
5	Identify the various waveforms of Function Generator using CRO. Measure Amplitude & Frequency for various waveforms using CRO.	
6.	Use regulated power supply and identify front panel controls and their functions.	
7	Use DC and AC voltmeter and ammeter to measure DC and AC voltage current.	
8	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. 	
9	Use digital multi meter to measure: <ul style="list-style-type: none"> • AC and DC voltage • AC and DC current • Different resistor • Continuity testing. 	
10	Identify various kinds of electronic components	
11	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 	
12	Use of different display devices <ul style="list-style-type: none"> • LED display 	

	<ul style="list-style-type: none"> • Seven segment display • LCD display 	
13	Solder the joint connection of wires and components on a PCB and check it. De-solder it and Re-solder	
14	Prepare computer network cable (use different type of cable sand connectors)	
15	Use of breadboards to implement simple electronic circuits using resistors/ capacitors/diodes/transistors/switches/display devices.	
16	Prepare two simple electronic circuits using general purpose PCBs.	
17	Prepare two PCBs for simple electronic circuits.	
18	Assemble circuit on breadboards and PCBs (e.g rectifiers, oscillators, amplifiers).	

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 Beginners, Pustak Mahal, Dariya Ganj, Delhi	A.K. Maini