
 SAMRAT ASHOK TECHNOLOGICAL INSTITUTE (Engineering College), VIDISHA M.P. (An Autonomous Institute Affiliated to RGPV Bhopal) Department of Electrical Engineering											
Semester/Year		II / I		Program				B.Tech			
Subject Category		B.Tech		Subject Code:		EEA103		Subject Name:		Basic Electronics	
Maximum Marks Allotted								Contact Hours			Total Credits
Theory				Practical				Total Marks	L	T	
End Sem	Mid-Sem	Quiz	Ass	End Sem	LW	quiz	L				T
60	20	10	10	--	--	--	100	3	-	-	3
Prerequisites:											
Semiconductor devices, Basic laws of electrical engineering and their application.											
Course Objective:											
The students will be able to,											
<ul style="list-style-type: none"> The objective of the subject is to provide students with the importance of Electronics as a subject. To provide constructional features of electronics components, their characteristics and their application in different circuit's transistor gain amplifier, special diode, diode as a rectifier diode application clipping a clamping circuit. To develop the ability to analyze electronic circuits. Students will be able to calculate the performance of the power amplifier. To introduce negative feedback/positive feedback generator of waveform of different frequency. To explain multivibrator and its application. Need of different amplifiers, calculation of common mode gain and common mode rejection ratio. 											
Course Outcomes:											
After completing the course, the students will be able to											
CO1 - Acquire knowledge and able to demonstrate construction, working principle, characteristics, different parameters related to the performance of Diode and circuits.											
CO2 - Acquire knowledge and able to demonstrate the working, characteristic and designing of Transistors.											
CO3 - Able to demonstrate the working of power amplifier, its types and features.											
CO4 - illustrate different types of oscillators, working and applications.											
CO5 - Able to apply the knowledge of different regulator and applications.											
UNITS	Descriptions							Hrs.	CO's		
I	Review of P-N junction diode, I-V characteristics of a diode; half-wave and full-wave rectifiers, Zener diodes, Varactor diode, PIN diode, LED, Photo diode, Tunnel diode, clamping and clipping circuits.							8	CO1,C O3		
II	Structure and I-V characteristics of a BJT; BJT as a switch. BJT as an amplifier: DC-AC Load line, biasing methods, current mirror; common-emitter, common-base and common collector amplifiers; Hybrid parameter transistors, Field Effect Transistor, UJT							10	CO1, CO2, CO3		
III	Power amplifiers, class A, class B, class AB efficiency and power dissipation Push Pull amplifier complimentary push pull amplifier concept of feedback amplifier, negative feedback, and its advantages, voltage series, voltage shunt, current series and current shunt feedback amplifier.							6	CO1, CO2,C O3		
IV	Barkhausen criteria of oscillator Sinusoidal oscillators circuit, L-C (Hartley-Colpitts) oscillators, RC phase shift, Wien Bridge, and Crystal oscillators. Switching characteristics of diode and transistor, transistor as switch, Multivibrators, Bistable, Monostable, Astable multivibrators, Differential amplifier, calculation of differential, common mode gain and CMRR. Darlington pair, Boot strapping technique, 555 Timer.							7	CO1, CO2, CO3		
V	De Regulated Power Supplies : Introduction Voltage Regulator , Types of Voltage Regulators , Zener Diode Shunt Regulator , Working of Zener Diode Shunt Regulator , Optimum Value of Current Limiting, Disadvantages of Zener Diode Resistor ,Shunt Regulator , Transistor Shunt Regulator , Transistor Series Regulator.							9	CO3, CO4		
Guest Lectures (if any)											
Total Hours								40			
Suggestive list of experiments:											
NA											



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Semester/Year		II/I		Program				B.Tech			
Subject Category		ESC		Subject Code:		EEL110		Subject Name:		Electrical & Electronics Workshop	
Maximum Marks Allotted								Contact Hours			Total Credits
Theory				Practical				Total Marks	L	T	
End Sem	Mid-Sem	Quiz	Assg	End Sem	LW	Quiz	L				T
-	-	-		30	10	10	50	1	-	2	2
Prerequisites:											
Physics, Basic symbols of R,L,C, Basic knowledge of Electronics Components.											
Course Objective:											
1. To develop specialized manpower for electrical power and energy industry. 2. To augment the student's capacity by offering projects in emerging areas of Electrical & Electronics Engineering. 3. To improve student's perspective towards environmental issues by sensitizing and building the awareness of green technologies.											
Course Outcomes:											
CO1: Acquire the knowledge and able to learn the basic of Soldering, wiring, different electrical & electronics elements, PCB forming. CO2: Acquire the knowledge of grounding, protection, fuse wire etc. CO3: Acquire the knowledge and able to demonstrate the different type of motors, their working and its application. Such as stair case wiring, a room wiring etc. useful in commercial and demostic buildings. CO4: Demonstrate different types of testing on starter and power circuits. CO5: Demonstrate different circuits related to diode, transistor, timer and their applications.											
UNITs	Descriptions							Hrs.	CO's		
I	Introduction of tools, electrical materials, symbols and abbreviations. 2 Familiarization of various types of service mains - wiring installations - accessories and household electrical appliances.							3	1,2,3		
II	Importance of Neutral and Grounding and exposure to various earthing schemes Realization of different types of wiring systems like tube light wiring, staircase wiring along with the protection elements like fuse, MCB, ELCB etc.							3	1,2,3		
III	Assembling and disassembling of D. C. Machine, single phase motor and its meggering. Assembling and disassembling of single phase transformer and its meggering Different faults in domestic appliances like automatic iron, mixture, Oven, washing machine and repairing of the same. Application of Tester and Test Lamp for fault finding in Electrical Systems 8 Introduction to DOL and STAR-DELTA starter with power circuit							3	1,2,3		
IV	Application of Tester and Test Lamp for fault finding in Electrical Systems 8 Introduction to DOL and STAR-DELTA starter with power circuit and its control circuit Calibration of Energy meter							3	1,2,3		
V	V-I characteristics of P-N junction diode and Zener diode, Light Emitting diode, gain and frequency of Colpitt oscillator, gain and frequency of Hartley oscillator, performance of IC 555 timer in Astable, Mono stable, Bistable mode, zener diode as a voltage regulator, sine wave, square wave and Triangular wave on the CRO, characteristics of Field Effect Transistor (FET).							3	1,2,3		
Guest Lectures (if any)											
Total Hours								15			
Suggestive list of experiments:											



