

RGPV (DIPLOMA WING) BHOPAL		OBE CURRICULUM FOR THE COURSE		FORMAT-3	Sheet No. 1/5
Branch	OPTOELECTONICS			Semester	3
Course Code		Course Name	Analog Circuits		
<b>Course Outcome 1</b>	Analyze resistive circuits using circuit Theorems			Teach Hrs	Marks
<b>Learning Outcome 1</b>	Define circuits parameters and network topologies both balanced & unbalanced.( <i>Cognitive</i> )			3	
<b>Contents</b>	Definitions (Nodes, Branches, Tree, Co-Tree) <b>Network Topologies</b> (Balanced and unbalanced): L-section, T-section, Pi-section, Twin-T, Ladder and Bridge sections.				
<b>Method of Assessment</b>	Internal				
<b>Learning Outcome 2</b>	Apply different circuit theorems to give resistive circuit solution. ( <i>Cognitive</i> )			6	
<b>Contents</b>	<b>Circuit Theorems</b> (only resistive networks without dependent sources) - Superposition Theorem, Reciprocity Theorem, Thevenin's Theorem, Norton's Theorem, Millman's Theorem, Maximum Power transfer theorem (all theorem explanations with suitable examples)				
<b>Method of Assessment</b>	External				
<b>Learning Outcome 3</b>	Setup and verify different circuits theorem on kits / simulation software. ( <i>Psychomotor</i> )			3	
<b>Contents</b>	Verify Superposition Theorem Verify Thevenin Theorem Verify Maximum Power Transfer theorem				
<b>Method of Assessment</b>	External				

<b>RGPV (DIPLOMA WING) BHOPAL</b>		<b>OBE CURRICULUM FOR THE COURSE</b>		<b>FORMAT-3</b>	<b>Sheet No. 2/5</b>
<b>Branch</b>	<b>OPTOELECTONICS</b>			<b>Semester</b>	<b>3</b>
<b>Course Code</b>		<b>Course Name</b>	<b>Analog Circuits</b>		
<b>Course Outcome 2</b>	Examine various transistor biasing circuits			<b>Teach Hrs</b>	<b>Marks</b>
<b>Learning Outcome 4</b>	Explain the significant aspects of transistor characteristics. <i>(Cognitive)</i>			3	
<b>Contents</b>	Brief review of transistor characteristics. Need of biasing, Load Line Concept (AC and DC), significance of coupling and bypass capacitor, Operating/quiescent point concept				
<b>Method of Assessment</b>	Internal				
<b>Learning Outcome 5</b>	Compare different BJT and FET biasing circuits. <i>(Cognitive)</i>			5	
<b>Contents</b>	<b>BJT Biasing-</b> Fixed, Emitter feedback, Collector feedback, Voltage divider biasing. <b>FET Biasing</b> – Fixed, Self and Voltage divider biasing				
<b>Method of Assessment</b>	External				
<b>Learning Outcome 6</b>	Plot the characteristics for BJT and FET circuits and place Q-point on load line. <i>(Psychomotor)</i>			4	
<b>Contents</b>	Plot input, output and load line characteristics of BJT (CE mode) Plot input and output characteristics of JFET (CS mode)				
<b>Method of Assessment</b>	Internal				

RGPV (DIPLOMA WING) BHOPAL		OBE CURRICULUM FOR THE COURSE		FORMAT-3	Sheet No. 3/5
Branch	OPTOELECTONICS			Semester	3
Course Code		Course Name	Analog Circuits		
Course Outcome 3	Identify different types of transistor amplifiers			Teach Hrs	Marks
Learning Outcome 7	Explain single and multistage amplifiers and state its need (Cognitive)			5	
Contents	Transistor as an Amplifier (CE Amplifier) Single stage and two stage transistor amplifiers. Differentiate Cascade and Cascode transistor amplifiers. <b>Coupled Amplifiers</b> (only circuit diagrams and working without mathematical derivations): RC coupling, Direct Coupling, Transformer coupling, Darlington Pair				
Method of Assessment	External				
Learning Outcome 8	Classify and compare different types of amplifiers circuits. (Cognitive)			5	
Contents	<b>Classification of Amplifiers:</b> Class A, class B, class AB & class C amplifier. <b>Power Amplifiers</b> (only circuit diagrams and working without mathematical derivations): Audio Power Amplifier, Push-pull Amplifier				
Method of Assessment	External				
Learning Outcome 9	Demonstrate and plot the gain Vs frequency response for different amplifiers. (Psychomotor)			5	
Contents	Plot the gain Vs frequency response of single stage transistor amplifier (CE mode) Plot the gain Vs frequency response of single stage class A transistor amplifier (CE mode) Plot the gain Vs frequency response of push pull amplifier.				
Method of Assessment	Internal				

RGPV (DIPLOMA WING) BHOPAL		OBE CURRICULUM FOR THE COURSE		FORMAT-3	Sheet No. 4/5
Branch	OPTOELECTONICS			Semester	3
Course Code		Course Name	Analog Circuits		
<b>Course Outcome 4</b>	Examine feedback amplifiers and Oscillators			Teach Hrs	Marks
<b>Learning Outcome 10</b>	Describe the concept & importance of feedback amplifier. <i>(Cognitive)</i>			5	
<b>Contents</b>	<b>Feed Back Amplifier</b> - Importance & concept of Feed Back - Advantage of negative feedback, block diagram of a feedback amplifier				
<b>Method of Assessment</b>	Internal				
<b>Learning Outcome 11</b>	Explain the principal of oscillators and classify it. <i>(Cognitive)</i>			5	
<b>Contents</b>	<b>Oscillators:</b> Principle of Oscillator - positive feedback, Barkhausen circuit criteria for oscillation Types of sinusoidal Oscillators (BJT and FET based circuits)- Phase shift, Wein-Bridge, Hartley, Colpitts, Clapp, and Crystal Oscillator				
<b>Method of Assessment</b>	External				
<b>Learning Outcome 12</b>	Assemble circuits of various oscillator and verify output waveform. <i>(Psychomotor)</i>			5	
<b>Contents</b>	Verify the output waveform for sinusoidal oscillators (at least two oscillator circuits from- RC Phase Shift, Wein Bridge, Hartley, Colpitts, Clapp, Crystal are expected)				
<b>Method of Assessment</b>	External				

RGPV (DIPLOMA WING) BHOPAL		OBE CURRICULUM FOR THE COURSE		FORMAT-3	Sheet No. 5/5
Branch	OPTOELECTONICS			Semester	
Course Code		Course Name	Analog Circuits		
<b>Course Outcome 5</b>	Construct and Analyze various signal generators and Multivibrator			Teach Hrs.	Marks
<b>Learning Outcome 13</b>	Classify different type of transistor based Multivibrator. <i>(Cognitive)</i>			4	
<b>Contents</b>	<b>Multivibrators:</b> transistor based circuit diagram and Working of - Astable (free running) multivibrator, Monostable (Single shot) multivibrator, Bistable (Trigger) multivibrator				
<b>Method of Assessment</b>	External				
<b>Learning Outcome 14</b>	Construct various waveform generators using diodes & transistors <i>(Cognitive)</i>			4	
<b>Contents</b>	<b>Waveform Generators:</b> Sine wave, Square wave, rectangular and saw-tooth waveform generators using diodes and transistors, significance of duty cycle for various waveforms.				
<b>Method of Assessment</b>	External				
<b>Learning Outcome 15</b>	Operate different type of Multivibrator circuits and generate waveforms. <i>(Psychomotor)</i>			4	
<b>Contents</b>	Verify the non-sinusoidal output waveforms (at least two from-square, rectangular, triangular, saw-tooth) of transistor based multivibrator circuits.				
<b>Method of Assessment</b>	Internal				