

Course No.	Course Name	L-T-P - Credits	Year of Introduction
EE231	ELECTRONIC CIRCUITS LAB	0-0-3-1	2016
<p><b>Course Objectives</b> To design and develop various electronic circuits using discrete components and OPAMPs.</p>			
<p><b>List of Exercises/Experiments :</b> ( Out of 18 experiments listed, 12 experiments are mandatory.</p> <ol style="list-style-type: none"> <li>1.Study &amp; Use of CRO: Measurement of current voltage, frequency and phase shift.</li> <li>2.Half wave and Full wave (Centre-tapped and bridge) Rectifiers with and without filters- Calculation of Ripple factor, Rectification efficiency, and % regulation.</li> <li>3. Clipping circuits using diodes</li> <li>4. Clamping circuits using diodes</li> <li>5. RC coupled amplifier using BJT in CE configuration- Measurement of gain, input and output impedance and frequency response</li> <li>6. JFET amplifier- Measurement of voltage gain, current gain, input and output impedance</li> <li>7.Design and testing of simple zener voltage regulators</li> <li>8.OPAMP circuits – Design and set up of inverting and non-inverting amplifier, scale changer, adder, integrator, differentiator</li> <li>9. Precision rectifier using Op-amps</li> <li>10.Phase shift oscillator using OPAMPs.</li> <li>11.Wein’s Bridge oscillator using OPAMPs.</li> <li>12.Waveform generation – Square, triangular and sawtooth wave form generation using OPAMPs.</li> <li>13. Basic comparator and schmitt trigger circuits using Op-amp</li> <li>14. Design and testing of series voltage regulator using zener diode</li> <li>15. Astable and monostable circuit using 555 IC</li> <li>16. RC phase shift oscillator using BJT</li> <li>17.Introduction to circuit simulation using any circuit simulation software.</li> <li>18. Introduction to PCB layout software</li> </ol>			
<p><b>Expected outcome.</b> The student should be able to design and implement various electronic circuits using BJTs and OPAMPs.</p>			
<p><b>Text Book/References:</b></p> <ol style="list-style-type: none"> <li>1. Malvino A. and D. J. Bates, Electronic Principles 7/e, Tata McGraw Hill, 2010.</li> <li>2. Boylestad R. L. and L. Nashelsky, Electronic Devices and Circuit Theory, 10/e, Pearson Education India, 2009.</li> <li>3. Choudhury R., Linear Integrated Circuits, New Age International Publishers. 2008.</li> <li>4. Millman J. and C. C. Halkias, Integrated Electronics: Analog and Digital Circuits and Systems, Tata McGraw-Hill, 2010.</li> </ol>			