CODE	ANALOG	CATEGORY	L	T	P	CREDIT
EEL203	ELECTRONICSLAB	PCC	0	0	3	2

CO 1	Use the various electronic instruments and for conducting experiments.
CO 2	Design and develop various electronic circuits using diodes and Zener diodes.
CO 3	Design and implement amplifier and oscillator circuits using BJT and JFET.
CO 4	Design and implement basic circuits using IC (OPAMP and 555 timers).
CO 5	Simulate electronic circuits using any circuit simulation software.
CO 6	Use PCB layout software for circuit design

Mapping of course outcomes with program outcomes

	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8	PO 9	PO 10	PO 11	PO 12
CO 1	2								2			
CO 2	2	2	2						2			
CO 3	2	2	2						2			
CO 4	2	2	2						2			
CO 5	1	1			3				3			
CO 6	1				3				3			

LIST OF EXPERIMENTS

1. Measurement of current, voltage, frequencyand phase shift of signal in a RC network using oscilloscope.
2. Clipping circuits usingdiodes.
3. Clamping circuits usingdiodes.
4. Design and testing ofsimpleZener voltage regulator.
5. RC coupled amplifier using BJT in CE configuration-Measurement of gain, BW and plotting of frequencyresponse.
6. JFETamplifier-Measurement of gain, BW and plotting of frequencyresponse.
7. Op-amp circuits – Design and set up of invertingand non-inverting amplifier, scale changer, adder, integrator, and differentiator.
8. Op-amps circuits – Scale changer, adder, integrator, and differentiator.
9. Precision rectifierusingOp-amps.
10. Phase shift oscillator usingOp-amps.
11. Wein'sBridgeoscillator using Op-amps.
12. Waveform generation– Square, triangular andsaw tooth waveformgeneration usingOPAMPs.
13. Basic comparator and Schmitt triggercircuits using Op-amp (Use comparator ICs such as LM311).
14. Design and testing of series voltage regulator using Zenerdiode.
15. Astable and Monostable circuit using555IC.
16. RC phase shift oscillator using Op-amp.
17. Introductionto circuit simulation using any circuit simulation software.
18. Introduction to PCB layout software.

Text Books

1. Bell D. A., Electronic Devices and Circuits, Prentice Hall of India, 2007.
2. Malvino A. and D. J. Bates, Electronic Principles7/e, Tata McGraw Hill, 2010.
3. Boylestad R. L. and L. Nashelsky, Electronic Devices and Circuit Theory, 10/e, Pearson Education India, 2009.
4. Choudhury R., Linear Integrated Circuits, New Age International Publishers. 2008.

Reference Books

1. Floyd T.L., Fundamentals of Analog Circuits,, Pearson Education, 2012.
2. Robert T. Paynter and John Clemons, Paynter's Introductory electronic devices & circuits, Prentice Hall Career & Technology, New Jersey.
3. Millman J. and C. C. Halkias, Integrated Electronics: Analog and Digital Circuits and Systems, Tata McGraw-Hill, 2010.

4. Gayakward R. A., Op-Amps and Linear Integrated Circuits, PHI Learning Pvt. Ltd., 2012.

Course Project: Students have to do a mandatory course project (group size not more than 4 students) using to realise a functional analog circuit on PCB. A maximum of 5 marks shall be awarded for this project (to be evaluated along with the final internal test). Report to be submitted.

Example projects:

1. Audio amplifier.
2. Electronic Pest Repellent Circuit.
3. Electronic Siren.

Assessment Pattern :

Mark distribution   :

Total Marks	CIE	ESE	ESE Duration
150	75	75	2.5 hours

Continuous Internal Evaluation (CIE) Pattern:

Attendance	Regular Lab work	Internal Test	Course Project	Total
15	30	25	5	75

End Semester Examination Pattern:

The following guidelines should be followed regarding award of marks

(a) Preliminary work   : 15 Marks

(b) Implementing the work/Conducting the experiment   : 10 Marks

(c) Performance, result and inference (usage of equipment and troubleshooting)   : 25 Marks

(d) Viva voce   : 20 marks

(e) Record   : 5 Marks

General instructions : Practical examination to be conducted immediately after the second series test covering entire syllabus given below. Evaluation is a serious process that is to be conducted under the equal responsibility of both the internal and external examiners. The number of candidates evaluated per day should not exceed 20. Students shall be allowed for the University examination only on submitting the duly certified record. The external examiner shall endorse the record.