

Year & Sem: E2S1	Course Code: EC2104	Course Name: Analog Electronics-2	No. of Credits: 4	L 2	T&PS 2	P 0
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UNIT I: Multistage Amplifiers: Cascading of amplifiers, some useful transistor cascading (CD-CS, CC-CE, CC-CB, CD-CE), the cascode amplifier (MOS cascode and BJT cascode amplifier analysis), Darlington configuration. Current mirror (source) circuits (MOSFET and BJT basic current mirrors), Widlar and Wilson current mirrors. Amplifiers with active loads.

UNIT II: Oscillators & Its Applications: The oscillation criterion, analysis of RC phase shift, Wien Bridge, Hartley, Colpitts oscillators (single transistor and op-amp configurations).

UNIT III: Waveform Shaping Circuits Multivibrators- Astable, Monostable and Bistable Multivibrators, Schmitt trigger, square and triangular waveform generator. 555 Timer- 555 timer circuit, implementing Monostable and Astable MV using 555.

Unit IV: Power Amplifiers: Class A (transformer less and transformer coupled), class B, class AB and class C circuits analysis and efficiency calculation.

Unit V: D/A and A/D Converters: DAC characteristics, DAC types- weighted resistor and R-2R network. ADC characteristics, ADC types- dual slope, counter ramp, successive approximation and flash-ADC.

Unit VI: Phase Locked Loop Basic PLL topology and principle, Major building blocks of PLL- analog and digital phase detector, VCO, applications of PLL.

References/Text Books:

1. Sedra A. S. and K. C. Smith, Microelectronic Circuits, 5/e or 6/e, Oxford University Press, 2010
2. Boylestad R. L. and L. Nashelsky, Electronic Devices and Circuit Theory, 10/e or 11/e, Pearson, 2009
3. Millman J. and C. Halkias, Integrated Electronics, 2/e, TMH, 2010.
4. Neamen D., Electronic Circuit Analysis and Design, 3/e, TMH, 2006
5. Spencer R. R. and M. S. Ghausi, Introduction to Electronic Circuit Design, Pearson, 2003.

Lecture Plan: Unit-I & -II syllabus for MID-I, Unit-III & -IV syllabus for MID-II and Unit-V & -VI syllabus for MID-III examinations.

Video Lectures (Web Links):

1. <http://nptel.ac.in/courses/117106088/>
- 2.

Study Materials (Web Links):

- 1.
- 2.

Problems & Solutions (Web Links):