

Year & Sem: E2S1	Course Code:EC2102	Course Name: Analog Communications	No. of Credits: 4	L 2	T&PS 2	P 0
------------------	--------------------	--	-------------------	--------	-----------	--------

UNIT I: Introduction: Communication System, Analog and Digital Messages, Signal-to-noise ratio, Channel Bandwidth and rate of communication, Modulation, Randomness, Redundancy and Coding. **Introduction to signals:** Size of signal, Classification of Signals, Some useful signal operations

UNIT II: Amplitude(Linear) Modulation: Baseband and Carrier communication, Amplitude modulation: Double sideband, Amplitude Modulation(AM), Quadrature Amplitude Modulation(QAM), Amplitude modulation: Single sideband, Amplitude modulation: Vestigial sideband, Carrier Acquisition, Super hetero dyne AM Receiver, Television.

UNIT III: Angle (Exponential) Modulation: Concept of Instantaneous Frequency, Bandwidth of Angle-Modulated Waves, Generation of FM Waves, Demodulation of FM, Interference in Angle-Modulated Systems, FM receiver.

UNIT IV: Introduction to theory of probability: Concept of Probability, Random Variables, Statistical Averages(Means), Central Limit Theorem, Corelation, Linear Mean Square Estimation.

UNIT V: Random Processes: From Random Variable to Random Process, Power spectral Density of a Random Process, Multiple Random Processes, Transmission of Random Processes through Linear Systems, Bandpass Random Processes, Optimum Filtering: Wiener-Hopf Filter

UNIT VI: Behavior of Analog Systems in the Presence of noise: Baseband Systems, Amplitude-Modulated Systems, Angle-Modulated Systems.

References/Text Books:

1. <https://www.pdf-archive.com/2015/09/19/modern-digital-and-analog-communication-systems-by-b-p-lathi/>
2. <https://archive.org/details/SimonS.HaykinDigitalCommunicationSystemsWiley2013>
3. https://books.google.co.in/books?id=_B0DaELen98C&pg=PA353&dq=3.%09communication+systems+by+AB+carlson&hl=en&sa=X&redir_esc=y#v=onepage&q=3.%09communication%20systems%20by%20AB%20carlson&f=false

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/117102059/>
2. <http://www.nptelvideos.in/2012/11/communication-engineering.html> 3. <http://nptel.ac.in/courses/117106090/>
3. <https://ocw.mit.edu/courses/electrical-engineering-and-computer-science/6-450-principles-of-digital-communications-i-fall-2006/video-lectures/>
4. <http://nptel.ac.in/courses/117106090/>