18ECOE02	PRINCIPLES OF MODERN COMMUNICATION SYSTEMS	L	T	P	C
		3	0	0	3

Course Objectives:

1.	To have the knowledge of the basic concepts of AM, FM and PM.
2.	To gain knowledge about different pulse modulation and digital modulation techniques.
3.	To gain knowledge about technical information on satellite communication and .wireless communication

UNIT I	FUNDAMENTALS OF ANALOG COMMUNICATION	9	+	0

Modulation: Introduction - Amplitude modulation: Modulator and demodulator with waveforms - Angle Modulation: Frequency modulation - Phase modulation - Equivalence between PM and FM - FM transmitters and receivers (Block diagram approach only) - Comparison of various Analog Communication System (AM – FM – PM).

UNIT II	BASICS OF DIGITAL COMMUNICATION AND PULSE MODULATION	9	+	0

Pulse Amplitude Modulation (PAM) – Pulse Width Modulation (PWM) – Pulse code Modulation (PCM)–Differential Pulse Code Modulation - Pulse Position modulation: Generation and detection - Comparison of various Pulse Communication System (PAM – PWM – PCM -PPM).

Unit III	DIGITAL MODULATION TECHNIQUES	9	+	0

Amplitude Shift Keying (ASK) – Frequency Shift Keying (FSK) - Minimum Shift Keying (MSK) –Binary Phase Shift Keying (BPSK) – QPSK –M-ary PSK- Quadrature Amplitude Modulation (QAM) – M_ary QAM(Block diagram approach only) - Comparison of various Digital Communication System (ASK – FSK – PSK – QAM).

Unit IV	SATELLITE COMMUNICATION	9	+	0

History of Satellites-Kepler's laws - Satellite Orbits-Geosynchrous Satellites - Satellite Classification - Footprints - Satellite system link models: Uplink model and down link model - Muliple Access Techniques: TDMA - FDMA-CDMA - Comparison of Multiple Access Schemes - various satellite services.

Unit V	CELLULAR MOBILE COMMUNICATION	9	+	0

Cellular concept - Frequency reuse-Channel Assignment Strategy - Hand off mechanism - Example for wireless communication systems Basic propagation models:Reflection - diffraction and scattering - Blue Tooth-WLL-Global System for Mobile Communications (GSM) –GPRS.

Total (L+T)= 45 Periods

Course Outcomes:

Upon completion of this course, the students will be able to:

CO1	:	Understand the need for modulation and how analog modulation takes place
CO2	:	Know the advantage of digital communication and digital modulation schemes.
CO3	:	Have the knowledge about satellite communication.
CO4	:	Have the basics of wireless and mobile communication.

Text Books:

1.	Dennis Roddy, John Coolen, "Electronic Communications", Prentice Hall of India, 4th Edition.,2016
2.	Simon Haykin, "Communication Systems", 4th Edition, John Wiley & Sons, 2010

Reference Books:

1.	Rappaport T.S, "Wireless Communications: Principles and Practice", 2nd Edition, Pearson Education, 2007
2.	H.Taub, D L Schilling and G Saha, "Principles of Communication", 3rd Edition, Pearson Education, 2007.
3.	B. P.Lathi, "Modern Analog and Digital Communication Systems", 3rd Edition, Oxford University Press, 2007.
4.	Anokh Singh , "Principles of Communication Engineering" ,S.CHAND Publication, 2002

E-References:

1.	http://www.nptelvideos.in/2012/11/communication-engineering.html
2.	https://www.tutorialspoint.com/analog_communication/analog_communication_introduction.htm
3.	https://ocw.mit.edu/courses/electrical-engineering-and-computer-science/6-973-communication-system-design-spring-2006/lecture-notes/