

# SEMESTER III

MAHENDRA ENGINEERING COLLEGE (AUTONOMOUS) - SYLLABUS					R 2013	
DEPARTMENT	INFORMATION TECHNOLOGY	PROGRAMME CODE & NAME			B-TECH IT EC & <del>IT</del>	
COURSE CODE	COURSE NAME	HOURS/WEEK			CREDIT	MAXIMUM MARKS
		L	T	P		
	ANALOG AND DIGITAL COMMUNICATION	3	1	0	4	100

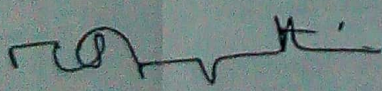
**OBJECTIVES:**

- To understand the analog and digital communication techniques.
- To learn data and pulse communication techniques.
- To be familiarized with source and error control coding.
- To gain knowledge on multi-user radio communication.

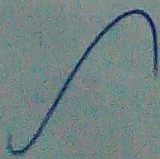
<b>UNIT I</b>	<b>ANALOG COMMUNICATION</b>	<b>9 Hrs</b>
<p>Introduction to Communication Systems: Modulation- Need for Modulation- Types - Theory of Amplitude Modulation - Evolution and Description of SSB Techniques - Theory of Frequency and Phase Modulation - Comparison of various Analog Communication System (AM - FM - PM).- Noise -Source of Noise.</p>		
<b>UNIT II</b>	<b>DIGITAL COMMUNICATION</b>	<b>9 Hrs</b>
<p>Amplitude Shift Keying (ASK) - Frequency Shift Keying (FSK) -Phase Shift Keying (PSK) - BPSK - QPSK - DPSK - Quadrature Amplitude Modulation (QAM) - Bandwidth Efficiency- Comparison of various Digital Communication System (ASK - FSK - PSK -DPSK).</p>		
<b>UNIT III</b>	<b>DATA AND PULSE COMMUNICATION</b>	<b>9 Hrs</b>
<p><b>Data Communication:</b> History of Data Communication - Standards Organizations for Data Communication- Data Communication Circuits - Data Communication Codes - Error Detection and Correction Techniques - Data communication Hardware . <b>Pulse Communication:</b> Pulse Amplitude Modulation (PAM) - Pulse code Modulation (PCM) - Delta Modulation and Adaptive Delta Modulation.</p>		



UNIT IV	SOURCE AND ERROR CONTROL CODING	9 Hrs
Entropy, Source encoding theorem, Shannon Fanon Coding, Huffman Coding, Mutual Information, Channel Capacity, Channel Coding Theorem, Error Control Coding, Linear Block Codes, Convolution Codes And Viterbi Decoding Algorithm.		
UNIT V	MULTI-USER RADIO COMMUNICATION	9 Hrs
Advanced Mobile Phone System (AMPS) - Global System for Mobile Communications (GSM) - Overview Of Multiple Access Schemes - Cellular Concept and Frequency Reuse - Channel Assignment And Hand Off - Bluetooth.		
Total hours to be taught		L: 45 + T : 15 = 60 Hrs
TEXT BOOKS		
<ul style="list-style-type: none"> <li>Wayne Tomasi, "Advanced Electronic Communication Systems", 6/e, Pearson Education, 2007.</li> <li>Simon Haykin, "Communication Systems", 4th Edition, John Wiley &amp; Sons, 2001.</li> </ul>		
REFERENCES		
<ul style="list-style-type: none"> <li>Rappaport T.S, "Wireless Communications: Principles and Practice", 2nd Edition, Pearson Education, 2007</li> <li>H.Taub, D L Schilling and G Saha, "Principles of Communication", 3rd Edition, Pearson Education, 2007.</li> <li>B. P.Lathi, "Modern Analog and Digital Communication Systems", 3rd Edition, Oxford University Press, 2007.</li> <li>Blake, "Electronic Communication Systems", Thomson Delmar Publications, 2002.</li> <li>Martin S.Roden, "Analog and Digital Communication System", 3rd Edition, Prentice Hall of India, 2002.</li> <li>B.Sklar, "Digital Communication Fundamentals and Applications" 2nd Edition Pearson Education, 2007.</li> </ul>		

  
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