SEMESTER III

MAHENDRA ENGINEERING COLLEGE (AUTONOMOUS) - SYLLABUS					R 2013
DEPARTMENT	INFORMATION TECHNOLOGY	PROGRAMME CODE & NAME			B-TECH IT EC & [redacted]
COURSE CODE	COURSE NAME	HOURS/WEEK		CREDIT	MAXIMUM MARKS
		L	T	P	C	
	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.

UNIT I	ANALOG COMMUNICATION	9 Hrs

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.

UNIT II	DIGITAL COMMUNICATION	9 Hrs

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).

UNIT III	DATA AND PULSE COMMUNICATION	9 Hrs

Data Communication: History of Data Communication - Standards Organizations for Data Communication- Data Communication Circuits - Data Communication Codes - Error Detection and Correction Techniques - Data communication Hardware . **Pulse Communication:** Pulse Amplitude Modulation (PAM) – Pulse code Modulation (PCM) - Delta Modulation and Adaptive Delta Modulation.

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

- Wayne Tomasi, "Advanced Electronic Communication Systems", 6/e, Pearson Education, 2007.
- Simon Haykin, "Communication Systems", 4th Edition, John Wiley & Sons, 2001.

REFERENCES

- Rappaport T.S, "Wireless Communications: Principles and Practice", 2nd Edition, Pearson Education, 2007
- H.Taub, D L Schilling and G Saha, "Principles of Communication", 3rd Edition, Pearson Education, 2007.
- B. P.Lathi, "Modern Analog and Digital Communication Systems", 3rd Edition, Oxford University Press, 2007.
- Blake, "Electronic Communication Systems", Thomson Delmar Publications, 2002.
- Martin S.Roden, "Analog and Digital Communication System", 3rd Edition, Prentice Hall of India, 2002.
- B.Sklar, "Digital Communication Fundamentals and Applications" 2nd Edition Pearson Education, 2007.

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