

Department of Electrical Engineering, IIT Madras

ESB-106, B-Slot

July-Dec. 2009

EC-305 : Communication Systems

Part-1: From “*Digital Telephony*”, J.C.Bellamy, 3rd Ed (John Wiley)

1.1 Chapter 1 – Introduction: reading

1.2 Chapter 2 – Why digital? reading

1.3 Chapter 3 – Voice digitization (all topics; from 3.7 onwards for reading);
(**) Sampling of band-pass signals (Notes)

1.4 Chapter 4 – Digital transmission & multiplexing – including elastic buffering, bit-stuffing

1.5 Chapter 5 – Digital switching: 5.1, 5.2, 5.3 (excluding 5.2.3 to 5.2.6), 5.3, & 5.4

Part-2: From “*Wireless Communications*”, T.S.Rappaport, (Electronic Copy)

2.1 Chapter 1 – Introduction to wireless communications: reading

2.2 RF Principles, Path Loss, Receiver Sensitivity, Wireless Communication Link Budget, Analog repeater design, BER of Analog Repeater and Regenerative Repeater (Handout + Class Work)

2.3 Chapter 2 – Cellular concept – System design fundamentals
(emphasis on co-channel interference and system capacity, and trunking efficiency)

2.4 Chapter 8 – Multiple access techniques for wireless communications (focus only on FDMA, TDMA, and DS-CDMA), user capacity in cellular TDMA and DS-CDMA systems

~~2.5 Error Detection and ARQ Protocols – from “*Data Networks*”, Bertsekas & Gallager~~

~~2.6 Special presentations on “Packet Switched Wireless Access Networks”~~

Assessment Method:

Quiz1 – 20; Quiz2 – 20; End Sem – 40; The remaining 20 marks will be awarded to assignments and/or “short quizzes” for 10-15mins duration.

There will be no TAs for this course; however, some graduate students may be helping out once in a while in handling tutorial sessions, etc. Contact me at ESB-334b for more details. Soft-copies of additional material will be made available at www.ee.iitm.ac.in/~giri.