# Deparment of Electrical Engineering, IIT Madras

ESB-243, B-Slot                                                                July-Dec. 2008

## EC-305 : Communication Systems

**Part-1:** From "*Digital Telephony*", J.C.Bellamy, 3$^{rd}$ 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)

1.4 Chapter 4 – Digital transmission & multiplexing

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, 2$^{nd}$ Ed (Pearson)
2.1 Chapter 1 – Introduction to wireless communications: reading

2.2 Chapter 2 – Modern wireless communications

(**) Path Loss, Receiver Sensitivity, Wireless Communication Link Budget (Notes)

2.3 Chapter 3 – Cellular concept – System design fundamentals
(emphasis on co-channel interference and system capacity, and trunking efficiency)

2.4 Chapter 9 – Multiple access techniques for wireless communications

**Part-3:** Other Topics
3.1 Error Detection and ARQ Protocols – from "*Data Networks*", Bertsekas & Gallager

3.2 Analog Communications – from Chapter 3, "*Principles of Comm.*", Ziemer & Tranter

3.3 Topics in Waiting List (will be included if there is time & inclination!) – ATM & Packet Switching (Ch.10 from Bellamy), Wireless Networking (Ch.10 from Rappaport), and SONET and Optical Transport (Ch.8 from Bellamy)

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.

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                                                                K. Giridhar July 30, 2008