BIRLA INSTITUTE OF TECHNOLOGY AND SCIENCE, Pilani
Pilani Campus

INSTRUCTION DIVISION
SECOND SEMESTER 2015-2016
Course Handout Part II

Date: 05/01/2016

Course No. : EEE F414 / INSTR F414
Course Title : Telecommunication Switching Systems and Networks
Instructor in Charge (IC) : Dr. Praveen Kumar A.V.

1. Scope and objective of the course:

The course deals with the theoretical and practical aspects of the present day telecommunication switching systems and data networks. Topics ranging from the electromechanical switching systems to the voice and data integration systems will be covered. Space and time division switching systems and Traffic engineering will be discussed. The course will also cover applications such as SONET, data networks and ISDN.

2. Text Book:

i) John C. Bellamy, Digital Telephony, 3rd Ed., John Wiley & Sons, 2000

3. References:

i) T. Viswanathan and M. Bhatnagar, Telecommunication Switching Systems and Networks, 2nd Ed., Prentice-Hall, 1992

ii) Roger L. Freeman, Telecommunication System Engineering, 4th Ed., , John Wiley & Sons, 2004

4. Proposed Course Plan:

Lec. No.	Topics to be covered	Reference to Textbook
1-2	Course overview, Telecom networks, Hierarchical and Non-hierarchical networks	Ch1
3-9	Analog network, Switching and transmission systems, Pair-Gain systems, FDM hierarchy, Transmission bandwidth and impairments, Signaling, Analog interfaces, Dynamic Non-hierarchical Routing, Voiceband data transmission, Digital switching, TDM hierarchy	
10-11	Digital voice networks - advantages and disadvantages	Ch 2
12-16	Voice digitization, PAM, PCM, Companding, DPCM, DM	Ch 3
17-23	Digital transmission and multiplexing, Pulse transmission, Line coding, TDM	Ch 4
24-29	Space division switching, Blocking probabilities, Time division switching, Combination switching, STS and TST switching	Ch 5
31-32	Introduction to SONET / SDH, Multiplexing and framing	Ch 8
33-35	Data networks, Packet switching and routing, ATM networks	Ch 10
36-37	Introduction to ISDN, Architecture and Protocol	Ch 11
38-41	Traffic engineering, analysis, Loss systems, Delay systems	Ch 12

5. Evaluation Scheme:

Component	Weightage	Duration	Date & Time	Evaluation type
Quiz	20 %	10-15 min	During lecture hour	Closed book
Mid sem. Exam	40 %	90 min	14/3 9:00 - 10:30 AM	Closed book
Comprehensive Exam.	40 %	3 hours	3/5 FN	Open + Closed book

6. Chamber Consultation Hours: To be announced in the class

7. Notices: To be displayed in Nalanda or EEE notice board.

8. Make-up policy: Make-up will be given only to cases that are approved by both the IC and the HOD.

Instructor in Charge
Chamber : 2210-D