



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, 3<sup>rd</sup> Ed., John Wiley & Sons, 2000

**3. References:**

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

ii) Roger L. Freeman, Telecommunication System Engineering, 4<sup>th</sup> 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   |                       |
| 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                 |



**Please Consider Your Environmental Responsibilities**  
**Do Not Print Unless Necessary**



BIRLA INSTITUTE OF TECHNOLOGY AND SCIENCE, Pilani  
Pilani Campus

**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**



Please Consider Your Environmental Responsibilities  
Do Not Print Unless Necessary

