



University of Management & Technology

School of Science & Technology

Department of Electrical Engineering

EE 375 - Telecommunication Switching and Transmission Networks

Lecture Schedule	As per timetable on EED Website	Semester	Fall 2012
Pre-requisite		Credit Hours	3
Instructor(s)	Muhammad Basit Shahab	Contact	basit.shahab@umt.edu.pk
Office	2S-33 (Cabin 12)	Office Hours	See office door or EED Website
Course Description	The course is a high level course in Electrical Engineering especially for specialization in Telecommunication. Course will include in-depth knowledge of Telecommunication switching techniques along with their evolution from past to the future, and the ways of transmission that exist in the modern wireless and wired communication. The course directly contributes to objectives a, b, d, e, g, h and i of the HEC Electrical Engineering Curriculum.		
Expected Outcomes	This course has been designed to equip Telecommunication/Electrical Engineers with the knowledge of: <ul style="list-style-type: none">• Different Telecommunication Networks around us.• Concepts underlying design of telecom switching network.• Tele Traffic Engineering theory and practice.• Signaling network planning and design.• Quality of Service (QoS) concepts and their impact on the network design.• Evolution in the Telecom Switching		
Textbook(s)	Required: <ul style="list-style-type: none">• Telecommunications Switching, Traffic and Networks by J.E.Flood, Prentice Hall, 3rd Edition. Reference: <ul style="list-style-type: none">• Signaling in Telecommunication Networks by John G van Bosse, Fabrizio U Devetak, 2nd Edition, Wiley-Interscience.• Fundamentals of Telecommunications by Roger L. Freeman, 2nd Edition, IEEE.		
Grading Policy	<ul style="list-style-type: none">• Homework : 15%• Quizzes : 10% (All Announced)• Midterm : 25% 60-70 minute exam. All topics covered before the midterm exam will be included.• Final : 50% 120-150 minute exam. Will be comprehensive.• Any student having more than 7 absents will be awarded SA.		

Course Schedule

Lecture	Topics	Textbook (TB) / Reference (Ref) Readings
1-4	Introduction to Telecommunication Trends from past to the future Modern Telecommunication architectures	Slides
5	Introduction to Optical Communication	Tutorial
6-9	Types of public switched network, Numbering, routing system and charging, subscriber function, Telephone system basic requirement, Telephone equipment characteristics, Dialing system, DTMF, subscriber and group switching	TB Chapter 1 & 2
10 - 12	Strowger, cross-bar, Digital analysis. Controlling sections, Stored Programmable Controlled exchange, Signaling: Subscriber line and register	TB Chapter 3
13 - 16	FDM and PCM 30/32 channel, CCITT, CCIR function in switching planning, Digital Network: ISDN, SDH	Ref 1, (Chapter 1)
17 - 20	Telephone traffic performance, Teletraffic and queuing theory, Delay and loss system, Grade of service, Erlang and Bernoulli distribution	TB Chapter 4
21 -24	Concept of Switch, 2 Stage Network, 2 Stage Network, N Stage Network, Blocking and Striking non-blocking Network,	TB Chapter 5
25-28	Time Space Time and Space Time Space Switches	TB Chapter 6
29-30	ATM and B-ISDN, Intelligent Networks	TB Chapter 7
Final Term Exam (Comprehensive)		