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| **logoUniversity of Management & Technology**  School of Engineering  Department of Electrical Engineering | | | |
| EE330 Computer Networks | | | |
| **Lecture Schedule** | As per section in Time table. | **Semester** | Spring 2016 |
| **Pre-requisite** | None | **Credit Hours** | 3 |
| **Instructor(s)** | Dr Sajjad Shami | **Contact** | sajjad.shami@umt.edu.pk |
| **Office** | Top floor | **Office Hours** | As displayed on office door and online |
| **Course Description** | This course will enable the students to gain understanding of the terminology and standards in modern day computer networks. Students will understand communication basics, networking and network technologies; with emphasis on data and computer communication within the framework of the OSI and TCP/IP protocol architectures, Internet and internetworking and how to apply these in the design and analysis of networks. | | |
| **Expected Outcomes** | In accordance with HEC recommended **outcomes,** following are the expected outcomes for this course. Upon completion, students will be able to:  **1.** master the terminology and concepts of the OSI reference model and the TCP‐IP reference model.  **2.** master the concepts of protocols, network interfaces, and design/performance issues in local area networks and wide area networks.  **3.** become familiar with networking concepts.  **4.** be familiar with contemporary issues in networking technologies  **5.** be familiar with network devices, tools and network programming | | |
| **Textbook(s)** | **Recommended Text: Computer Networks** by Andrew S. Tanenbaum (5th Edition, 2011)  **Reference: Computer Networking; A Top Down Approach** by Kurose and Ross 6th Edition 2013 | | |
| **Grading Policy** | * Quizzes &Assignments: 20% * All quizzes will be announced. Quizzes will be of 10-15 minutes duration. * Midterm : 30% In Class 60 minute exam. * All topics covered before the midterm exam will be included. * Final : 50% 120-150 minute exam. Will be comprehensive. | | |

**Course Outline**

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| **Lecture** | **Topics** | **Textbook (TB) /Handout** |
| 1-3 | **Introduction**  Uses of Computer Networks, Network Hardware, Network Software, Reference Models, Example Networks, Network Standardization | TB 1.1 – 1.6 |
| 4-6 | **The Physical Layer**  The Theoretical Basis for Data Communication, Guided Transmission Media, Wireless Transmission, Communication Satellites, The Public Switched Telephone Network, The Mobile Telephone System, Cable Television. | TB: 2.1 – 2.8 |
| 7-10 | **The Data Link Layer**  Data Link Layer Design Issues, Error Detection and Correction, Elementary Data Link Protocols, Sliding Window Protocols, Protocol Verification, Example Data Link Protocols | TB: 3.1 – 3.5 |
| 11-14 | **The Medium Access Control Sub layer**  The Channel Allocation Problem, Multiple Access Protocols, Ethernet, Wireless LANs, Broadband Wireless, Bluetooth, RFID, Data Link Layer Switching | TB: 4.1 – 4.8 |
| **Mid Term Exam (8thWeek)** | | |
| 15-19 | **The Network Layer**  Network Layer Design Issues, Routing Algorithms, Congestion Control Algorithms, Quality of Service, Internetworking, The Network Layer in the Internet | TB: 5.1 – 5.6 |
| 20-23 | **The Transport Layer**  The Transport Service, Elements of Transport Protocols, A Simple Transport Protocol, The Internet Transport Protocols: UDP, The Internet Transport Protocols: TCP. | TB: 6.1 – 6.7 |
| 24-30 | **Application Layer**  Service requirements, WWW, HTTP, Electronic Mail, Domain Name System, Socket programming | TB: 7.1 -- 7.5  RB: 2.1 – 2.7 |
| **Final Term Exam (Comprehensive)** | | |