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| Program | BS |
| Semester | Spring 2018 |
| Course | Data Communication and Networks |
| Course Code | CS 3712 |
| Prerequisite(s) | Microprocessor and Assembly Language CS 2521 |
| Course Facilitator | Khalid Mahmood Dar |
| Class Day(s) & Timing | Monday Wednesday 08:30- 09:50 |
| Books Recommended | Data Communications and Networking, 4th ed., Behrouz A. Forouzan, McGraw-Hill, 2007. |

***Course Description:***

To develop an understanding of the various aspects of data communications and computer networking systems. Topics include: data transmission, multiplexing, switching, protocols and architecture, internetworking and ISDN.

***Course Learning Objectives:***

To provide a solid conceptual understanding of the fundamentals of data communications and computer networks. More specifically,

1. To learn the basic concepts of data communications.

2. To learn the layered architecture of communication protocols.

3. To learn digital signal transmission and encoding techniques.

4. To learn multiplexing techniques.

5. To learn the concepts and techniques in error detection and correction.

6. To learn data link control and its related protocols.

7. To learn switching techniques.

8. To learn the main protocols and standards of the Internet.

9. To learn basic concepts of internetworking, addressing, and routing.

***Student Assessment and Marks Distribution:***

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| **S. No.** | **Assessments** | **Undergraduate**  **(16 Years Programs)** |
| 1 | Midterm Examination | 20 % |
| 2 | Assignments, Quizzes, Projects, etc. | 20% |
| 3 | Data Communication Lab | 20% |
| 4 | Final Exam | 40% |

# *Session wise Course Breakdown*

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| **Lecture No. Date** | **Topic** | **Reading Assignments** |
| 1/ 24 June | Introduction to Networking and Telecommunication | Chapter 1 |
| 2/ 25 June | Network models | Chapter 2 |
| 3/ 1 July | Data and Signals, Transmission Media Switching | Chapter 3 |
| 4/ 2 July | Encoding and Modulation | Chapter 4, 5 |
| 5/ 8 July | Multiplexing and Spreading | Chapter 6 |
| 6/ 9 July | Transmission Media, Switching | Chapter 7, 8 |
| 7/ 15 July | Telephone and Cable Networks | Chapter 9 |
| 8/ 16 July | Data link layer: Error Detection and Correction | Chapter 10 |
| 22-23 July | Mid Term Exam |  |
| 9/ 29 July | Data Link Control and Protocols | Chapter 11 |
| 10/ 30 July | Random and Controlled Accesses | Chapter 12 |
| 11/ 5 Aug | Local Area Networks (LANs), Wide Area Networks (WANs) | Chapter 13-16 |
| 12/ 6 Aug | Frame Relay and ATM | Chapter 18 |
| 13/ 12 Aug | Part 4: Network layer  Logical Addressing (, IPv4 and IPv6 Protocols | Chapter 19 |
| 14/ 13 Aug | Address Mapping, Error Reporting, and Multicasting | Chapter 21 |
| 15/ 19 Aug | Project Presentations |  |
| 16/ 20 Aug | Revision |  |
| 22-23 August | Final Exam |  |

***Counseling Hours(Teacher’s Availability in Office):***

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| **Timing** | **Monday** | **Tuesday** | **Wednesday** | **Thursday** | **Friday** | **Saturday** |
| FROM | 10:30 |  | 10:30 |  |  |  |
| TO | 11:30 |  | 11:30 |  |  |  |

Course Instructor: Khalid Mahmood

Email: khaliddar@maju.edu.pk

(Instructor’s Signature)\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_