**University of Management and Technology**

**Course Outline**

Course code : EE420L Course title : Digital Communication Lab

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| Program | BSEE Program |
| Credit Hours | 1 credit hours |
| Duration | One Semester. |
| Prerequisites | Communication systems, Signal and Systems , Probability Theory |
| Resource Person | Khalid Ijaz |
| Counseling Timing  (Room# 509,Control Lab) | See office hours. |
| Contact | Khalid.ijaz@umt.edu.pk  03334477566 |

**Chairman/Director signature………………………………….**

**Dean’s signature…………………………… Date………………………………………….**

**Learning Objective:**

The student will learn to implement Analog to Digital conversion system in MATLAB.They will also learn different techniques to convert Analog to Digital converter on Hardware as well. Students will be able to analyze the channel behaviour.

**Grade Evaluation Criteria**

Following is the criteria for the distribution of marks to evaluate final grade in a semester.

**Marks Evaluation Marks in percentage**

Semester evaluation 40 Marks

Final Lab Viva 60 Marks

Total 100 Marks.

**Recommended Text Books:**

Digital Communication second Edition by Bernard Sklar.

**Reference Books:**

* Modern Digital and Analog Communication Systems

3rd Edition by B.P.Lathi

* Communication Systems,

3rd Edition by Simon Haykin John Wiley & Sons

* Digital Communications,

Fourth Edition, by J .G. Proakis McGraw Hill, 2000.

* Analog and Digital Communication Systems,

6th edition by Leaon W. Couch II, Prentice Hall, 2k1.

**Calendar of Course contents to be covered during semester**

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| Week | Course Contents | | Experiments |
| 1 | To familiarize with MATLAB | | Lab 1. |
| 2 | Discrete time signal generation, autocorrelation and spectral density | | Lab 2. |
| 3 | Random numbers and probability density function | | Lab 3. |
| 4 | White Gaussian noise generation | | Lab4. |
| 5 | Sampling process and study of aliasing | | Lab5. |
| 6 | Quantization noise effect | | Lab 6. |
| 7 | Pulse code modulation (PCM) | | Lab 7. |
| 8 | A/D conversion on ADC 0804 | | Lab 8. |
| 9 | Pulse Width Modulation (Pwm) | | Lab 9. |
| 10 | | Pulse Width Modulation using 741 | Lab 10. |
| 11 | | Inter Symbol Interference and Eye Diagram in MATLAB | Lab 11. |
| 12 | | Bandpass Modulation and its different Types. ASK , FSK , PSK | LAB 12. |
| 13 | | Bandpass Modulation and its different Types. ASK , FSK , PSK on Trainers | Lab 13. |