**بسم الله الرحمن الرحيم**

**University: Diyala University**

**College: College of Engineering**

**Department: Electronic Engineering**

**Stage: third**

**Lecturer name:**

 **ADNAN MOHAMMED TAHA**

**Qualification: MSc Degree.**

**Place of work: Electronic Dept.**

**Republic of Iraq**

**The Ministry Of Higher Education**

**& Scientific Research**



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| Course Instructor | **ADNAN MOHAMMED TAHA**  |
| E-mail | **adnanalmamory@gmail.com** |
| Title | **Communication I** |
| Course Coordinator | **ADNAN MOHAMMED TAHA**  |
| Course Objective | **The aim of this subject is to make the students ready to understand and comprehend the scientific theories and their applications related to their field of the study.** |
| Course Description | **Aims the theme of principles of communication engineering to teach the student during the school year idea for the basic arrangement and mathematical systems communication modulated linear. Where the student learns the principles and mathematical things electromagnetic, electrical, and transfers from one place to another using wires or wirelessly. In addition to filters of all kinds (filters) and how the process of nomination of the electric signals deriving from the middle which is filled with the noise naturally.** |
| Textbook | 1. **Modern digital and analoge communications by Marten**
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| Course Assessments | First semester | Second semester | Final Exam |
| **20 %** | **20 %** | **60 %** |
| General Notes |  |

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**Course Weekly Outline**

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| Week | Date | Topics Covered | Lab. Experiment Assignments | Notes |
| 1 | **27/9/**  | Communication system elements (Signal analysis) |  |  |
| 2 | **4/10/**  | Signal classification of periodic and non periodic signals |  |  |
| 4 | **18/10/**  | classification of systems |  |  |
| 5 | **24/10/**  | power spectral density and correlation |  |  |
| 6 | **1/11/**  | Noise |  |  |
| 7 | **8/11/**  | power calculation, thermal white Gaussian noise (AWGN) |  |  |
| 8 | **15/11/**  | band-limited noise (base band and bandpass) noise through linear systems. |  |  |
| 9 | **22/11/**  | liner modulation (AM) |  |  |
| 10 | **29/11/**  | AM\DSB-SC |  |  |
| 11 | **6/12/**  | AM/DSB-LC |  |  |
| 12 | **12/12/**  | AM/SSB-SC |  |  |
| 13 | **20/12/**  | AM/VSB |  |  |
| 14 | **27/12/**  | frequency division multiplexing (FDM) |  |  |
| 15 | **3/1/**  | commercial receivers (TRF and superheterodyne), and noise in AM systems |  |  |
| Spring Break |
| 1 | **21/2/**  | Angle modulationNBFM, NBPM, WBPM |  |  |
| 2 | **28/2/**  | WBPM |  |  |
| 3 | **6/3/**  | noise in angle modulation systems |  |  |
| 4 | **13/3/**  | Transmission lines |  |  |
| 5 | **20/3/**  | Equivalent circuit, characteristic impedance |  |  |
| 6 | **27/3/**  | phase velocity |  |  |
| 7 | **3/4/**  | reflection coefficient |  |  |
| 8 | **10/4/**  | standing waves, quarter-wave transformer |  |  |
| 9 | **17/4/**  | smith chart calculation and stub matching |  |  |
| 10 | **24/4/**  | Digital communications |  |  |
| 11 | **1/5/**  | Nyquist sampling theorem |  |  |
| 12 | **8/5/**  | pulse modulation PAM, PPM |  |  |
| 13 | **15/5/**  | Time division multiplexing (TDM), noise in pulse modulation |  |  |
| 14 | **22/5/**  | pulse code modulation PCM\TDM |  |  |
| 15 | **29/5/**  | Delta modulation (DM), quantization noise in PCM and DM. signaling format (unipolar, bipolar, &split-phase Mannhester) |  |  |
| 16 | **2/6/**  | Sinusoidal digital modulation ASK, PSK, FSK , and M-ary |  |  |

**INSTRUCTOR Signature: Dean Signature:**