**Course description form**

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| 1. **Course Name**
 |
| Communication Systems |
| 1. **Course Code**
 |
| EP305 |
| 1. **Semester/Year**
 |
| 2n’d Semester/Third Year |
| 1. **The date this description was prepared**
 |
| 17 / 9 / 2023  |
| 1. **Available forms of attendance**
 |
| Face-to-Face theoretical lectures |
| 1. **Number of study hours (total) / number of units (total)**
 |
| 30/2 |
| 1. **Name of the course administrator**
 |
| Name: Lect. Saja Mazin SamiEmail: **S.M.sami**@uodiyala.edu.iq  |
| 1. **Course objectives**
 |
| The Communication Systems curriculum aims to introduce the student to basic communications skills, types of modulation, as well as SNR calculation. | **Objectives of the study subject** |
|  **9. Teaching and learning strategies.** |
| 1 - Providing students with the basics and additional topics related to the previous educational outcomes and skills to solve practical problems.2- Solving a group of practical examples by the academic staff.3- During the lecture, students participate in solving some practical problems.. | **The Strategy**  |
|  **10. Course Structure.** |
| Interpolation and solving differential equations. | **Learning method** | **Required learning outcomes** | **Name of the unit or topic**  | **Hours** | **Wek** |
| Daily, oral, monthly, written examinations and reports | Whiteboard and Data show | The student learns about the communications and signals system and its characteristics | Introduction to communication system ,channel band width and rate transmission | 4 | Week 1 to Week 2 |
| Daily, oral, monthly, written examinations and reports | Whiteboard and Data show | The student learns about the most important principles of amplitude modulation and its types | AM Concepts Modulation Index and Percentage of Modulation Sidebands and the Frequency Domain Pulse Modulation AM Power Single-Sideband Modulation Disadvantages of DSB and SSB Applications of DSB and SSB | 8 | Week3 to Week 6 |
| Daily, oral, monthly, written examinations and reports | Whiteboard and Data show | The student learns about the most important principles of frequency modulation and its types. | Fundamentals of Frequency Modulation Basic Principles of Frequency Modulation FM Signal Bandwidth Noise-Suppression Effects of FM Pre-emphasis Generation of FM Demodulation of FM (Balanced slope detection): Frequency Modulation Versus Amplitude Modulation ,SNR  | 10 | Week 7 to Week 11 |
| Daily, oral, monthly, written examinations and reports | Whiteboard and Data show | The student learns an introduction to digital communications and the series of techniques. used to convert an analog signal to digital | Introduction to digital communication systems The sampling theorem , reconstruction and aliasing ,PCM | 8 | Week 12 to Week 15 |
| **11.Course Evaluation** |
| Distribution of the grade out of 100 according to the tasks assigned to the student, such as daily preparation, daily, oral, monthly, written exams, reports, etc. |
| **12.Learning and teaching resources** |
| * Hewi Hsu, Ph.D, Analog and Digital Communications, 4th Edition, 2009, SCHAUM'S outlines
 | Required textbooks (methodology, if any) |
| * 1st Edition Optical Modulation Advanced Techniques and Applications in Transmission Systems and Networks.
 | Main references (sources) |
| British BS-Std American IEEE, ANSI and German VDE. | Recommended supporting books and references (scientific journals, reports....) |
| Any other materials available on the web. | Electronic references, Internet sites |