

## Course Description Form

|                                                                     |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
|---------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1. Course Name:                                                     |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
| Communications I                                                    |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
| 2. Course Code:                                                     |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
| <b>WBM-41-03</b>                                                    |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
| 3. Semester / Year:                                                 |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
| First semester/ 2025                                                |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
| 4. Description Preparation Date:                                    |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
| 4-9-2025                                                            |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
| 5. Available Attendance Forms:                                      |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
| presence in the classroom                                           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
| 6. Number of Credit Hours (Total) / Number of Units (Total)         |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
| 75 Hours / 3 Units                                                  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
| 7. Course administrator's name (mention all, if more than one name) |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
| Name: Ahmed Mohammed Merza<br>Email: ahmed.merza@uowa.edu.iq        |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
| 8. Course Objectives                                                |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
| <b>Course Objectives</b>                                            | 1-The study and detailed analysis of each theories concerning the designs of telecommunication systems<br>2- The application of the basic principles through linking theoretical and practical laboratory                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
| 9. Teaching and Learning Strategies                                 |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
| <b>Strategy</b>                                                     | <p><b>1.Theoretical Lectures:</b> Instructors provide lectures on fundamental concepts, theories, and principles of communication engineering. This help students understand the theoretical underpinnings of different communication systems and technologies.</p> <p><b>2. Practical Demonstrations:</b> Instructors demonstrate the practical applications of communication engineering concepts using real-world examples, simulations, and case studies. This helps students visualize how theoretical concepts are applied in practice.</p> <p><b>3. Assessments:</b> Students are assessed through a combination of quizzes, exams, assignments, and practical assessments to evaluate their understanding of communication engineering concepts. Feedback from assessments helps students identify areas for improvement.</p> |

## 10. Course Structure

| Week     | Hours | Required Learning Outcomes | Unit or subject name                                                                                                                      | Learning method                  | Evaluation method                                         |
|----------|-------|----------------------------|-------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------|-----------------------------------------------------------|
| 1        | 3     | 1&2                        | Introduction to Communications System element                                                                                             | Lectures presented In PDF format | Daily exams + homework assignments + monthly exams        |
| 2+3      | 6     | 1&2                        | Signal representation using Fourier Series.                                                                                               | Lectures presented In PDF format | Daily exams + homework assignments + monthly exams        |
| 4        | 3     | 1&2                        | Signal Spectrum using Fourier Transform                                                                                                   | Lectures presented In PDF format | Daily exams + homework assignments + monthly exams        |
| 5+6      | 6     | 1&2                        | Filters: Filtering action, Filters Classification based on (response: " ideal & practical" and mode), characteristics of filters response | Lectures presented In PDF format | Daily exams + homework assignments + monthly exams        |
| 7+8+9    | 9     | 1&2                        | Amplitude Modulation                                                                                                                      | Lectures presented In PDF format | Daily exams + homework assignments + monthly exams        |
| 10+11+12 | 9     | 1&2                        | Frequency Modulation                                                                                                                      | Lectures presented In PDF format | Daily exams + homework assignments + monthly exams        |
| 13+14    | 6     | 1&2                        | Noise in communication Systems                                                                                                            | Lectures presented In PDF format | <b>Daily exams + homework assignments + monthly exams</b> |
| 15       | 3     | 1&2                        | Sampling Theorem                                                                                                                          | Lectures presented In PDF format | <b>Daily exams + homework assignments + monthly exams</b> |

## 11. Course Evaluation

- Daily exams with practical and scientific questions.
- Participation scores for difficult competition questions among students
- Establishing grades for environmental duties and the reports assigned to them
- Semester exams for the curriculum, in addition to the mid-year exam and final exam

## 12. Learning and Teaching Resources

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|--------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Required textbooks (curricular books, if any)                      | -(McGraw) Schaum's Outlines of Signals & Systems.<br>-(Communications Engineering) Michael Fitz-Fundamentals of Communications Systems-McGraw-Hill Professional (2007) |
| Main references (sources)                                          | Theory and Problems of Analog and Digital Communications_2nd_Ed_Schaum's Outline Series.                                                                               |
| Recommended books and references (scientific journals, reports...) | All reputable scientific journals that are related to the broad concept of mathematical theories and their results                                                     |



Head of the Department

Dr. Osama Abdulbari



العميد  
د.م.أ. حسين هادي حسين  
عميد كلية الهندسة



د.م. أحمد حمزة حمزة