MODULE DESCRIPTION FORM

نموذج وصف المادة الدراسية

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| **Module Information**  **معلومات المادة الدراسية** | | | | | | | |
| **Module Title** | Analog Communication | | | | **Module Delivery** | | |
| **Module Type** | Core | | | | * **☒ Theory** * **☒ Lecture**   **Lab**   * **☐ Tutorial** * **☐ Practical** * **☐ Seminar** | | |
| **Module Code** |  | | | |
| **ECTS Credits** | 8 | | | |
| **SWL (hr/sem)** | 45 | | | |
| **Module Level** | | UGx112nd | **Semester of Delivery** | | | | 2nd |
| **Administering Department** | | ICE | **College** | KHW | | | |
| **Module Leader** | Dr.Adil Fadhil | | **e-mail** | adilfadhil@kecbu.uobaghdad.edu.iq | | | |
| **Module Leader’s Acad. Title** | | Lect. | **Module Leader’s Qualification** | | | | PhD. |
| **Module Tutor** | Name (if available) | | **e-mail** | E-mail | | | |
| **Peer Reviewer Name** | | Name | **e-mail** | E-mail | | | |
| **Scientific Committee Approval Date** | | 13/06/2023 | **Version Number** | | | 1.0 | |

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| **Relation with other Modules**  **العلاقة مع المواد الدراسية الأخرى** | | | |
| **Prerequisite module** | signals and systems, electrical and electronics circuits | **Semester** | 2nd |
| **Co-requisites module** |  | **Semester** |  |

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| **Module Aims, Learning Outcomes and Indicative Contents**  **أهداف المادة الدراسية ونتائج التعلم والمحتويات الإرشادية** | |
| **Module Objectives**  **أهداف المادة الدراسية** | The course aims to give the student the following subjects:  - Deal with continuous-wave modulation systems  - Deal with noise in continuous-wave modulation systems.  - to develop students’ ability to apply modern simulation software to system analysis. |
| **Module Learning Outcomes**  **مخرجات التعلم للمادة الدراسية** | Important: Write at least 6 Learning Outcomes, better to be equal to the number of study weeks.   1. -Introduce students to the basic concepts of signals, system modeling, and system classification; 2. -to develop students’ understanding of time-domain and frequency domain approaches to the analysis of continuous and discrete systems; 3. -to provide students with necessary tools and techniques to analyze electrical networks and systems; 4. -to develop students’ ability to apply modern simulation software to system analysis. |
| **Indicative Contents**  **المحتويات الإرشادية** | Indicative content includes the following.  Part A – basics of signals and systems.  -Introduce students to the basic concepts of signals, system modeling, and system classification [5 hrs]  understanding of time-domain and frequency domain approaches to the analysis of continuous and discrete systems [10 hrs]  Fundamental technological concepts, principles, and techniques associated with electronics and communications systems. [10 hrs]  Part B - communication systems  The structure of different communication systems. [20 hrs] |

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| **Learning and Teaching Strategies**  **استراتيجيات التعلم والتعليم** | |
| **Strategies** | Students enrolled in this course will be required to demonstrate their more in-depth knowledge of the course material by solving additional, more challenging exam problems, recitation and documentations and analyze, formulate and solve engineering problems in the field of Communication Engineering. |

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| **Student Workload (SWL)**  **الحمل الدراسي للطالب محسوب لـ ١٥ اسبوعا** | | | |
| **Structured SWL (h/sem)**  **الحمل الدراسي المنتظم للطالب خلال الفصل** | 75 | **Structured SWL (h/w)**  **الحمل الدراسي المنتظم للطالب أسبوعيا** | 5 |
| **Unstructured SWL (h/sem)**  **الحمل الدراسي غير المنتظم للطالب خلال الفصل** | 45 | **Unstructured SWL (h/w)**  **الحمل الدراسي غير المنتظم للطالب أسبوعيا** | 3 |
| **Total SWL (h/sem)**  **الحمل الدراسي الكلي للطالب خلال الفصل** | **120** | | |

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| **Module Evaluation**  **تقييم المادة الدراسية** | | | | | |
| **As** | | **Time/Number** | **Weight (Marks)** | **Week Due** | **Relevant Learning Outcome** |
| **Formative assessment** | **Quizzes** | 3 | 10% (10) | 5 and 10 | LO #1, #2 and #10, #11 |
| **Assignments** | 2 | 10% (10) | 2 and 12 | LO #3, #4 and #6, #7 |
| **Projects** | 1 | 10% (10) | Continuous | All |
| **Report** |  | 10% (10) |  |  |
| **Summative assessment** | **Midterm Exam** | 2hr | 10% (10) | 7 | LO #1 - #7 |
| **Final Exam** | 3hr | 50% (50) | 16 | All |
| **Total assessment** | | | 100% (100 Marks) |  |  |

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| **Delivery Plan (Weekly Syllabus)**  **المنهاج الاسبوعي النظري** | |
| **Week** | **Material Covered** |
| **Week 1** | Introduction |
| **Week 2** | Amplitude Modulation :  DSB-SC |
| **Week 3** | Amplitude Modulation :  Normal AM |
| **Week 4** | Amplitude Modulation :  SSB-SC |
| **Week 5** | Amplitude Modulation :  VSB-SC |
| **Week 6** | Angle Modulation: Introduction to FM and PM |
| **Week 7** | Angle Modulation:  Narrowband FM/PM. |
| **Week 8** | Angle Modulation:  Wideband FM/PM Analysis |
| **Week 9** | Direct and Indirect FM/PM generation |
| **Week 10** | Super heterodyne AM/FM receiver |
| **Week 11** | Frequency division multiplexing (FDM) |
| **Week 12** | Noise in Analog Communication: Introduction |
| **Week 13** | Noise in Amplitude Modulation |
| **Week 14** | Noise in Angle Modulation |
| **Week 15** | Figure of merit and SNR comparison of analog communication systems. |
| **Week 16** | **Preparatory week before the final Exam** |

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| **Delivery Plan (Weekly Lab. Syllabus)**  **المنهاج الاسبوعي للمختبر** | |
| **Week** | **Material Covered** |
| **Week 1** | Amplitude Modulation : DSB-SC |
| **Week 2** | Normal AM |
| **Week 3** | SSB-SC |
| **Week 4** | FM and PM |
| **Week 5** | FM and PM |
| **Week 6** |  |
| **Week 7** |  |

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| **Learning and Teaching Resources**  **مصادر التعلم والتدريس** | | |
|  | **Text** | **Available in the Library?** |
| **Required Texts** | Text book 1 : B. P. Lathi, "Modern Digital and Analog Communication Systems", McGraw Hill press, 2010 | Yes |
| **Recommended Texts** |  | No |
| **Websites** | • http://ece572.cankaya.edu.tr/course.php?page=Lecture%20Notes&do=sitemap  • https://lecturenotes.in/subject/359/optical-fibre-communication-ofc#video  http://ecee.colorado.edu/~mcleod/teaching/ugol/lecturenotes/Lecture%2013%20Fiberoptics.pdf No | |

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| **Grading Scheme**  **مخطط الدرجات** | | | | |
| **Group** | **Grade** | **التقدير** | **Marks %** | **Definition** |
| **Success Group**  **(50 - 100)** | **A -** Excellent | **امتياز** | 90 - 100 | Outstanding Performance |
| **B -** Very Good | **جيد جدا** | 80 - 89 | Above average with some errors |
| **C -** Good | **جيد** | 70 - 79 | Sound work with notable errors |
| **D -** Satisfactory | **متوسط** | 60 - 69 | Fair but with major shortcomings |
| **E -** Sufficient | **مقبول** | 50 - 59 | Work meets minimum criteria |
| **Fail Group**  **(0 – 49)** | **FX –** Fail | **راسب (قيد المعالجة)** | (45-49) | More work required but credit awarded |
| **F –** Fail | **راسب** | (0-44) | Considerable amount of work required |
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| **Note:** Marks Decimal places above or below 0.5 will be rounded to the higher or lower full mark (for example a mark of 54.5 will be rounded to 55, whereas a mark of 54.4 will be rounded to 54. The University has a policy NOT to condone "near-pass fails" so the only adjustment to marks awarded by the original marker(s) will be the automatic rounding outlined above. | | | | |