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| | Ministry of Higher Education and Scientific Research - Iraq<br><br>University of Warith Al_Anbiyaa<br>Engineering College<br>Biomedical Engineering Department | |

# MODULE DESCRIPTION FORM

| Module Information | | | | | |
|---|---|---|---|---|---|
| **Module Title** | Engineering analysis | | | **Module Delivery** | |
| **Module Type** | Basic | | | ☒ **Theory**<br>☒ **Lecture**<br>**Lab**<br>☒ **Tutorial**<br>☐ **Practical**<br>☐ **Seminar** | |
| **Module Code** | BME-315 | | | | |
| **ECTS Credits** | 2 | | | | |
| **SWL (hr/sem)** | 30 | | | | |
| **Module Level** | | | **Semester of Delivery** | 1 | |
| **Administering Department** | BME | | **College** | ENG | |
| **Module Leader** | Ali mohammed abdulsadaa | | **e-mail** | Ali.mohammed@uowa.edu.iq | |
| **Module Leader's Acad. Title** | Assistant lecture | | **Module Leader's Qualification** | Ph.D. | |
| **Module Tutor** | | | **e-mail** | | |
| **Peer Reviewer Name** | | | **e-mail** | | |
| **Scientific Committee Approval Date** | | | **Version Number** | 1.0 | |

| Relation with other Modules | | | |
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| **Prerequisite module** | None | **Semester** | |
| **Co-requisites module** | None | **Semester** | |

| Module Aims, Learning Outcomes and Indicative Contents | |
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| **Module Aims** | The topic of geometric analysis of frequency functions mathematically aims to clarify the practical and philosophical challenges of current geometric analyses that have stimulated this continuous development, as well as to provide the basic concepts of functions and their useful fields for further study of engineering sciences and applied analytical mathematics in the scientific and practical field. This is done starting from reviewing the basic principles, studying the meaning of the function and how to draw it on the attempt, analyzing the integrative in relation to time and frequency, finding the purpose for it, vectors, and finally the polar coordinates, in addition to introducing the principles of integration and calculus, their applications, and some functions in particular, in addition to increasing the opportunity for students to practice sound thinking methods, such as reflective, deductive, and inductive thinking, and increasing their skills in using the problem-solving method to understand what they are studying, and to reveal new relationships. |
| **Module Learning Outcomes** | 1. An ability to identify, formulate, and solve engineering problems by applying principles of engineering, science, and mathematics.<br>2. An ability to apply engineering design process to produce solutions that meet specified needs with consideration of public health, safety, and global, cultural, social, environmental, economic, and other factors as appropriate to the discipline.<br>3. An ability to function effectively on a team whose members together provide leadership, create a collaborative and inclusive environment, establish goals, plan tasks, and meet objectives. |

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| **Indicative Contents** | B. Skills objectives of the course<br>B1- Familiarity with the mathematical analytical relations that represent the types of algebraic functions and their drawing.<br>C2- Familiarity with the laws of finding the derivative using the definition and returning it to the basic function under the influence of the integration properties.<br>C3- Familiarity with finding the field and the corresponding field of a function with one variable and how to draw it in terms of Cartesian coordinates<br>A4- Familiarity with concepts does not achieve the goal, solving immediate equations and performing algebraic operations on them. |

| **Learning and Teaching Strategies** | |
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| **Strategies** | Type something like: The main strategy that will be adopted in delivering this module is to encourage students' participation in the exercises, while at the same time refining and expanding their critical thinking skills. This will be achieved through classes, interactive tutorials and by considering type of simple experiments involving some sampling activities that are interesting to the students. |

| **Student Workload (SWL)** | | | |
|---|---|---|---|
| **Structured SWL (h/sem)** | 33 | **Structured SWL (h/w)** | 6 |
| **Unstructured SWL (h/sem)** | 17 | **Unstructured SWL (h/w)** | 4 |
| **Total SWL (h/sem)** | 50 | | |

| Module Evaluation | | | | | |
|---|---|---|---|---|---|
| | | Time/Number | Weight (Marks) | Week Due | Relevant Learning Outcome |
| Formative assessment | Quizzes | 2 | 10% (10) | 5, 10 | LO #1, 2, 10 and 11 |
| | Assignments | 2 | 10% (10) | 2, 12 | LO # 3, 4, 6 and 7 |
| | Projects / Lab. | 1 | 10% (10) | Continuous | All |
| | Report | 1 | 10% (10) | 13 | LO # 5, 8 and 10 |
| Summative assessment | Midterm Exam | 3 hrs. | 10% (10) | 7 | LO # 1-7 |
| | Final Exam | 3 hrs. | 50% (50) | 16 | All |
| Total assessment | | | 100% (100 Marks) | | |

| Delivery Plan (Weekly Syllabus) | |
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| | Material Covered |
| Week 1 | Fourier series |
| Week 2 | Complex Fourier series |
| Week 3 | examples |
| Week 4 | Fourier transform |
| Week 5 | Application of fourier transform |
| Week 6 | examples |
| Week 7 | Midterm exam |
| Week 8 | Laplace transform |
| Week 9 | Invers laplace transform |
| Week 10 | examples |
| Week 11 | The sequence |
| Week 12 | Z transform |
| Week 13 | Application of Z transform |
| Week 14 | examples |
| Week 15 | examples |
| Week 16 | Preparation week before the final exam |

| Delivery Plan (Weekly Lab. Syllabus) | |
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| | **Material Covered** |
| **Week 1** | |
| **Week 2** | |
| **Week 3** | |
| **Week 4** | |
| **Week 5** | |
| **Week 6** | |
| **Week 7** | |

| Learning and Teaching Resources | | |
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| | **Text** | **Available in the Library?** |
| **Required Texts** | Signals and systems , Sanjay sharma. 2011 | Yes |
| **Recommended Texts** | Signals and systems , Sanjay sharma. 2011 | No |
| **Websites** | https://www.coursera.org/browse/physical-science-and-engineering/electrical-engineering | |

| Grading Scheme | | | |
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| **Group** | **Grade** | **Marks (%)** | **Definition** |
| **Success Group (50 - 100)** | **A -** Excellent | 90 - 100 | Outstanding Performance |
| | **B -** Very Good | 80 - 89 | Above average with some errors |
| | **C -** Good | 70 - 79 | Sound work with notable errors |
| | **D -** Satisfactory | 60 - 69 | Fair but with major shortcomings |
| | **E -** Sufficient | 50 - 59 | Work meets minimum criteria |
| **Fail Group (0 – 49)** | **FX –** Fail | (45-49) | More work required but credit awarded |
| | **F –** Fail | (0-44) | Considerable amount of work required |
| **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. | | | |