MODULE DESCRIPTION FORM

نموذج وصف المادة الدراسية

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| **Module Information**  معلومات المادة الدراسية | | | | | | | |
| **Module Title** | Mechanics | | | | **Module Delivery** | | |
| **Module Type** | Supportive | | | | **☒ Theory**   * **Lecture Lab**   **☒ Tutorial**   * **Practical** * **Seminar** | | |
| **Module Code** | MIE12204 | | | |
| **ECTS Credits** | 4 | | | |
| **SWL (hr/sem)** | 100 | | | |
| **Module Level** | | 1 | **Semester of Delivery** | | | | 2 |
| **Administering Department** | | MIE | **College** | MUC | | | |
| **Module Leader** | Hashem Abdul-Rahem Abdul Ammer | | **e-mail** | hashem.attrah@muc.edu.iq | | | |
| **Module Leader’s**  **Acad. Title** | | Lecturer Assistant | **Module Leader’s Qualification** | | | | MSc. |
| **Module Tutor** | Name (if available) | | **e-mail** | E-mail | | | |
| **Peer Reviewer Name** | | Dr.Noor Kadhim Meftin | **e-mail** | noor.kadhim@muc.edu.iq | | | |
| **Scientific Committee Approval Date** | | 01/06/2023 | **Version Number** | | | 1.0 | |

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| **Relation with other Modules**  العلاقة مع المواد الدراسية األخرى | | | |
| **Prerequisite module** | None | **Semester** |  |
| **Co-requisites module** | None | **Semester** |  |

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| **Module Aims, Learning Outcomes and Indicative Contents**  أهداف المادة الدراسية ونتائج التعلم والمحتويات الارشادية | |
| **Module Aims**  أهداف المادة الدراسية | 1. To understanding of mechanics theory through the application of motion. 2. To determine the forces, stress and strain under force effected. 3. To determine the reaction forces under load applied. 4. To understand the friction basic under mechanic applied 5. To understand a newton laws in motion. 6. To understand and solve problems in forces analysis. 7. To determine the materials properties and selective of materials. |
| **Module Learning Outcomes**  مخرجات التعلم للمادة الدراسية | 1. Identify the basic of forces result in applications of structures. 2. Identify the basic of Equilibrium force system. 3. Recognize how phenomena motion in mechanics subject. 4. Summarize what is mean of forces reaction in beams. 5. Explain the analysis force in mechanics application. 6. Identify the basic of stress and strain in mechanics applications. 7. List the various parameters associated with mechanics theory. 8. Identify the basic of forces analysis and their applications. 9. Explain the Newton's laws used in mechanics application. 10. Identify the basic of friction forces in motion. 11. Identify the basic of welding and riveted joint in mechanics applications. 12. Explain the mechanical test to determine the mechanic properties. 13. Discuss the phenomena of moment of forces under different force moment. |
| **Indicative Contents**  المحتويات الارشادية | Indicative content includes the following.  Part A :   1. Introduction of forces, Analysis of Forces, Result of forces, Moment of forces, Equilibrium force system. [18 hrs ] 2. Stress, Strain, stress – strain curve, Simple strain, Variable stress. [18 hrs] 3. Beams and bending, Analysis of structure. [15 hrs] |

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|  | 1. Friction, coefficient of friction, mechanism of friction. [18hrs] Part B:    1. Materials properties, material selective, stress- strain diagram. [18 hrs]    2. Mechanical tensile test, compression test, impact test, hardness test.[ 18 hrs   ]   * 1. Mechanical joint, Rivet joint, welding connection. [15 hrs]   2. Beams and bending, Analysis of structure, Centroid, Second moment of area. [18 hrs] |

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| **Learning and Teaching Strategies**  استراتيجيات التعلم والتعليم | |
| **Strategies** | Strategies in mechanical subject like:  The main strategy that will be adopted in delivering this module is to encourage students’ to participation in the exercises, while at the same time refining and expanding their mechanical subject thinking development 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. |

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| **Student Workload (SWL)**  الحمل الدراسي للطالب | | | |
| **Structured SSWL (h/sem)**  الحمل الدراسي المنتظم للطالب خلال الفصل | 48 | **Structured SWL (h/w)**  الحمل الدراسي المنتظم للطالب أسبوعيا | 3. |
| **Unstructured USWL (h/sem)**  الحمل الدراسي غير المنتظم للطالب خلال الفصل | 52 | **Unstructured SWL (h/w)**  الحمل الدراسي غير المنتظم للطالب أسبوعيا | 7.5 |
| **Total SWL (h/sem)**  الحمل الدراسي الكلي للطالب خلال الفصل | 100 | | |

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| **Module Evaluation**  تقييم المادة الدراسية | | | | | |
|  | | **Time/Nu**  **mber** | **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 |  |
| **Report** | 1 | 10% (10) | 13 | LO # 5, 8 and 10 |
| **Summative**  **assessment** | **Midterm Exam** | 2 hr | 10% (10) | 7 | LO # 1-7 |
| **Final Exam** | 2hr | 50% (50) | 16 | All |
| **Total assessment** | | | 100% (100 Marks) |  |  |

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| **Delivery Plan (Weekly Syllabus)**  المنهاج الاسبوعي النظري | |
|  | **Material Covered** |
| **Week 1** | Introduction of forces |
| **Week 2** | Result of forces |
| **Week 3** | Moment of forces |
| **Week 4** | Equilibrium force system |
| **Week 5** | Stress, Strain |
| **Week 6** | Simple strain |
| **Week 7** | Variable stress |
| **Week 8** | Friction |
| **Week 9** | Materials properties |
| **Week 10** | Rivet and weld connection |
| **Week 11** | Beams and bending |
| **Week 12** | Analysis of structure |
| **Week 13** | Centroid |
| **Week 14** | Second moment of area |
| **Week 15** | General Problems |
| **Week 16** | **Preparatory week before the final Exam** |

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| **Learning and Teaching Resources**  مصادر التعلم والتدريس | | |
|  | **Text** | **Available in the**  **Library?** |
| **Required Texts** | 1- Engineering Mechanic's Statics, 12th Edition by R. C. Nibbler, 1995. | Yes |
| **Recommended Texts** | 2- Engineering Mechanic's Statics, 7th Edition by James, L.  Meriam, L. G Kraige, 1995. | No |
| **Websites** |  | |

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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. | | | | |