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| **Date:** | Examination No.: | Version: 2022-2023 | Start: 1/9/2022 |
| **Module Name - Code** | Mechanics of Materials - 6112 | | |
| **Module Language:** | English | | |
| **Responsible:** | Ghassan Marooki Werdina / PhD. | | |
| **Lecture (s):** | Ghassan Marooki Werdina / PhD. | | |
| **College:** | College of Engineering – Salahaddin University-Erbil | | |
| **Duration:** | 15 weeks – 1 semester | | |
| **Course outcomes:** | Mechanics of Materials is a branch of mechanics that studies the relationships between the external loads applied to a deformable body and the intensity of the internal forces acting within the body. The size of the members of a structure, their deflection and their stability depends not only on the internal loadings but also on the type of materials used.  In Mechanics of Materials student learn how to analyze and design structures and calculate the allowable design loads and stresses within their members.  Upon the successful completion of this course students should be able to:  Understand the fundamental concepts of stress and strain and the relationship between them.  Calculate stresses in bars and simple structures.  Solve problems relating to torsional stresses and deformation of elements with circular cross sections.  Calculate the flexural stresses in beams.  Draw shear and moment diagrams for beams. | | |
| **Course Content:** | * Axial stresses * Shear stresses * Bearing stresses * Strain * Torsion * Flexural stresses * Shear diagram * Moment diagram * Combined stresses. | | |
| **Literature:** | “Mechanics of Materials”, By L. Singer, 3rd Edition  “Mechanics of Materials”, By R. C. Hibbeler, 6th Edition  “Mechanics of Materials”, By Beer & Johnson  “Mechanics of Materials”, By James M. Gere.  “Advanced Mechanics of Materials”, By Arthur P. Boresi  “Mechanics of Materials”, By Madhukar Vable | | |
| **Type of Teaching:** | 3 hrs. Theoretical | | |
| **Pre-requisites:** |  | | |
| **Frequency:** | Semester | | |
| **Requirements for credit points:** | For the award of credit points, it is necessary to pass the module exam. It contains:  Five examination during the academic semester and Final examination.  **Student's attendance is required in all classes**. | | |
| **Credit point:** | 5 | | |
| **Grade Distribution:** | The following grade system is used for the evaluation of the module exam:  The module exam is based on the summation of two categories of evaluations:  **First: (40%)** of the mark is based on the academic semester effort which includes five examinations during the academic semester.  **Second: (60%)** of the mark is based on final examination that is comprehensive for the whole of the study materials reviewed during the academic semester. | | |
| **Work load:** | The workload is 135 hrs. It is the result of 45 hrs. attendance and 90 hrs. self-studies (Preparation for exam and applications). | | |