Salahaddin University - Erbil
College of engineering - Civil Department

Module Name	Mechanics of Material			Code	1116
Course Status	Core	Duration:	15 week – one semester	Credit point	5
Pre-requisites	Engineering Mechanics		Total Work Load 135 hr	Class Attendence 60 hr	Self Studies 75 hr

Course Description	Mechanics of materials deals with the behavior of solid objects subject to **stresses** and **strains**. The study of strength of materials refers to calculating the stresses and strains in structural members, such as **beams, columns, and shafts**. The methods employed to predict the response of a structure under loading and its susceptibility to various failure modes takes into account the **properties of the materials** such as its **yield strength**, **ultimate strength**, **Young's modulus**, and **Poisson's ratio**; in addition the **geometric properties**, such as its **length**, **width**, **thickness**, **boundary constraints**. 1- The **students** will **learn** the **basic concept** of **stresses** and the corresponding **deformations** in various *structural members*. Considering **axial** loading, **shear**, **torsion**, and **bending forces**, considering the related **strain** (**axial** strain, **shear** strain, and **twisting**) due to external loads.
Course Objectives	1. To provide the **basic concepts and principles of mechanics of materials.** 2. To give an ability to **calculate stresses and deformations** of objects under external loadings. 3. To give an ability to apply the knowledge of mechanics of materials on **engineering applications and design problems**
Learning Outcome	At the end of the semester, students would be able to 1- Understand the concepts of stress and strain at a point as well as the stress-strain relationships for homogenous, isotropic materials. 2- Calculate the stresses and strains in axially-loaded members, circular torsion members, and members subject to flexural loadings. 3- Determine the stresses and strains in members subjected to combined loading and apply the theories of failure for static loading. 4- Design simple bars, beams, and circular shafts for allowable stresses and loads
Literature & text Books	R.C. Hibbeler "Mechanics of Material" Prentice Hall-Pearson, 8th Edition, 2011.

Type of Teaching		Theoretical	Tutorial
	4 hr	2 hr	2 hr

Evalution Profile	Students are required to do first midterm exam on 8 week, class room activities, quizzes, home works and final exam on week 15th. So that the final grade will be based upon the following criteria:		
	Course period efforts (out of 40%)	Midterm Exam (90 min written exam at week 8)	20 %
		Short exams (Quiz) at least 2 during the course period (one of them must befor week 8)	10 %
		assignments and home works at least 2 during the course period	6 %
		Class Room Activities, Reports and Seminars	4 %
	Course period efforts (out of 60%)	Written exam (120 min written exam week 15)	60 %
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