

Identification	Subject	Strength of Materials – 3credits
	Department	Mechanical and Civil Engineering
	Program	Undergraduate
	Term	Spring, 2017
	Instructor	Mirsadegh Seyedzavvar
	E-mail:	mseyedzavvar@khazar.org ; m.seyedzavvar@tabrizu.ac.ir
	Phone:	
	Classroom/hours	11 Mehseti str.(Nefthilar campus), Room number, 409 Monday, 17:00-18:30, Thursday, 15:20-16:50
	Office hours	Monday, 13:40–15:10 and Thursday, 10:10–11:40
Prerequisites	Engineering Mechanics <i>general understanding of rules and techniques of Phisic Mechanics</i>	
Language	English	
Compulsory/Elective	Compulsory	
Required textbooks and course materials	Mechanics of Materials, F.P. Bear, E.R. Johnston, J.T. DeWolf, D.F. Mazurek <i>Copies of the book is available in the library. Also, students are encouraged to Send an email to the instructor. The pdf file will be emailed back in 24h.</i>	
Course website		
Course outline	Strength of materials, also called mechanics of materials, is a subject which deals with the behavior of solid objects subject to stresses and strains. The complete theory began with the consideration of the behavior of one and two dimensional members of structures, whose states of stress can be approximated as two dimensional, and was then generalized to three dimensions to develop a more complete theory of the elastic and plastic behavior of materials. An important founding pioneer in mechanics of materials was Stephen Timoshenko. Strength of materials is based on the understanding of basic concepts and on the use of simplified models. This approach makes it possible to develop all the necessary formulas in a rational and logical manner, and to clearly indicate the conditions under which they can be safely applied to the analysis and design of actual engineering structures and machine components.	
Course objectives	The main objective of the study of the strength of materials is to provide the future engineers with the means of analyzing and designing various machines and load-bearing structures. This course is aimed to develop in the engineering students the ability to analyze a given problem in a simple and logical manner and to apply to its solution a few fundamental and well-understood principles. This course in mechanics of materials or strength of materials is offered to engineering students in the sophomore or junior year.	
Learning outcomes	On successful completion of this course students will be able to: <ol style="list-style-type: none"> 1. Recongise physical phenomenon in the context of strength of materials 2. Demonstrate an understanding of the structural mechanics theory for deformable bodies 3. Apply structural mechanics of deformable bodies to solve engineering problems 4. Demonstrate an understanding of the relationships between loads, member forces and deformations and material stresses and strains 5. Demonstrate an understanding of the assumptions and limitations of the structural mechanics theory 6. Competence in problem identification, formulation and solution 	
Teaching methods	Lecture	x
	Group discussion	--
	Experiential exercise	--
	Lab	--
	Case analysis	x

	Course paper	x	
	Others	---	
Evaluation	Methods	Date/deadlines	Percentage (%)
	Midterm Exam		25
	Class Participation		5
	Assignment and quizzes		30
	Project		--
	Final Exam		40
	Total		100

Policy	<ul style="list-style-type: none"> ▪ Ethics Copy of other students' work is highly discouraged. All assignments must be handled by the student himself. This is a university policy and violators will be reprimanded accordingly. ▪ Preparation for class The structure of this course demands your individual effort outside the classroom for extra practice of many problems within the textbook. After each session, every student needs to put sufficient time to practice and finish the assignments by the predetermined date. • Withdrawal (pass/fail) This course strictly follows grading policy of the School of Engineering. Thus, a student is normally expected to achieve a mark of at least 60% to pass. In case of failure, he/she will be required to repeat the course the following term or year. ▪ Cheating/plagiarism Cheating or other plagiarism in handling the assignments, Mid-term and Final Examinations will lead to course failure. In this case, the student will automatically get zero (0), without any considerations. ▪ Professional behavior guidelines The students shall behave in the way to create favorable academic and professional environment during the class hours. Unauthorized discussions and unethical behavior are strictly discouraged.
---------------	--

Tentative Schedule			
Week	Date/Day (tentative)	Topics	Textbook/Assignments
1		In trodution to the concept of stress	Chap 1
2		In trodution to the concept of stress	Chap 1
3		Stress and strain – axial loading	Chap 2
4		Stress and strain – axial loading	Chap 2
5		Tortion	Chap 3
6		Tortion	Chap 3
7		Quiz 1/ Delivery of assignments	

8		Pure bending	Chap 4
9		Pure bending	Chap 4
10		Analysis and design of beams for bending	Chap 5
11		Analysis and design of beams for bending	Chap 5
12		Shearing in beam and thin walls	Chap 6
13		Shearing in beam and thin walls	Chap 6
14		Transformation of stress and strain	Chap 7
15		Transformation of stress and strain	Chap 7
16		Final Exam/ Delivery of assignments	