HASAN KALYONCU UNIVERSITY
Faculty of Engineering
Course Description Form

COURSE: Strength of Materials				
CODE: CE223	**SEMESTER:** FALL			
LANGUAGE: ENGLISH	**TYPE:** COMPULSORY			
PRE-REQUISITES: - **CO-REQUISITES: -**	**THEORY**	**PRACTICAL**	**CREDIT**	**ECTS**
WEEKLY HOURS: 4	4	0	4	5

CONTENT OF THE COURSE:
Mechanical properties of materials, Stress, Strain, Stress-strain diagrams, Linear elasticity, Hooke's Law. Plasticity. Axial load, thermal stresses. Torsion, Bending, Transverse shear, Shear stresses, shear center. Stress transformation,, Mohr Circle. Strain transformation. Normal force with bending, Bending with shear, Bending with torsion. Study of elastic curve by various methods.

OBJECTIVE OF THE COURSE:
To prepare a qualified civil engineer to deal with the engineering materials (Concrete – steel….etc) and use these materials in design of steel and concrete structures- The module also educates the student as to how the strength of material used in civil engineering is evaluated. Along with the behaviors of these materials under different types of stresses and strains undergone during such loading.

WEEKLY SCHEDULE AND PRE-STUDY PAGES	
Week	**Topics**
1	Class Introduction, review, stress
2	Strain
3	Mechanical properties of materials
4	Axial load
5	Axial load
6	Torsion
7	Torsion
8	Midterm exam
9	Bending
10	Bending
11	Transverse shear
12	Combined loadings
13	Stress transformation
14	Stress transformation

TEXTBOOK: "Mechanics of Materials" By R. C. Hibbeler – Pearson Prentice Hall, Upper Saddle River, New Jersey 07458, 8th Edition, 2011.

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11
LO1	3	2	0	1	0	0	0	0	0	0	0
LO2	3	2	0	1	0	0	0	0	0	0	0
LO3	3	2	0	1	0	0	0	0	0	0	0
LO4	3	2	0	1	0	0	0	0	0	0	0
LO5	3	2	0	1	0	0	0	0	0	0	0
	PO: Program Outcomes | LO: Learning Outcomes Values: 0: None | 1: Low | 2: Medium | 3: High										

INSTRUCTOR(S):	Asst.Prof.Dr. Dıa Eddın NASSANI
FORM PREPARATION DATE:	22.05.2019

LEARNING OUTCOMES OF THE COURSE:

LO1: Determine the normal and shear stress/strain
LO2: Find the elastic deformation of axially loaded member
LO3: Determine the shear stresses in a circular shaft due to torsion
LO4: Determine the stress in a beam member caused by bending
LO5: Find the principal stresses/strains and maximum in-plane shear stress/strain

CONTRIBUTION OF THE COURSE TOWARDS PROVIDING VOCATIONAL EDUCATION: Students learn about the relationship of load deformation in building elements and gain the ability to design in more detail by learning the basic concepts of structural behavior.