University of Engineering and Technology Lahore, KSK campus
Department of Mechanical, Mechatronics and Manufacturing Engineering
B.SC. Mechanical Technology course skeleton

Course: MT-233 (Strength of Materials)	Name of Instructor: Mr. Muhammad Farooq	Session 2010	Semester 3rd	Duration Jan,2012–June,2012
Credit hours:	Part 1 (Theory)		Part 2 (Lab)	
	3		1	

Books and references:
1. Schaum's Outline of Strength of Materials by Willaim A Nash
2. Strength of Materials by Andrew Pytel and Ferdinand L. Singer
3. Strength of Materials by R.S Khurmi

Objectives: To comprehend the understanding of strength of materials methods that can be used in any industrial setup.

Course coaching method: Class Lectures and Lab sessions

Assessment method: Assignments, Quizzes, Vivas, Presentations, Group Discussions, Written examinations.

Week	Part 1 (Theory)	Part 2 (Lab work)
1	Introduction & Review of Mechanics, Stress Strain Diagram, Mechanical Properties of Materials	Lab introduction, work plan & layout.
2	Stress concept, types & explanation. Stresses in composite bars.	To draw the load-extension curve of a metallic wire and hence to determine the modulus of elasticity of the material of the wire.
3	Design concentration, Factor of safety, Selection of appropriate F.O.S.	
4	Strain concept, types & explanation. Young's modulus, Shear modulus,	To find the support reactions and central moment for a simply supported continuous beam with the different combination of loadings.
5	Poisson ratio, Volumetric strain & bulk modulus.	
First Quiz and Assignment-I (07-02-2012 & 14-02-2012)		
6	Torsion,. Solid & hollow shafts, Comparison b/w solid & hollow shafts. strength measurement of circular shafts	To investigate the relationship between shear stress and shear strain for rubber and to determine the modulus of rigidity of the material.
7	Compound shafts. Design of transmission shafts. Polar moment of inertia. Application of different shafts	
8	Geometrical Properties of Area, Parallel axis theorem, Perpendicular axis theorem, Problem Sheet	To measure the Young's modulus by using Four Point Bending Test method with deflection of beam apparatus.
9	**Mid Term Examination (written) (06-03-2012 OR 13-03-2012)**	
10	Pure Bending, Bending stress, flexure relationship for bending, Analysis of deformation, Section modulus, Problem Sheet & Applications.	To determine the modulus of rigidity of the given material of circular shaft.
11	Beams, Load, reaction, support—types, applications & explanation,	To determine the central deflection of a simply supported beam loaded by a concentrated load at mid point and hence determine the modulus of elasticity of the material of the beam.
12	Relation among load, shear & bending moment. Problems Applications.	
13	Shear force (S.F) & bending moment (B.M) diagrams. Problems & Applications.	To verify the laws of shearing force and bending moment on a beam.
Second Quiz and Assignment-II (17-04-2012 & 24-04-2012)		
14	Stress on an inclined plane , Maximum & minimum principal and shear stresses.	To determine the central deflection of a fixed ended beam loaded at mid-span by Concentrated loads.
15	Mohr's circle for stress, Construction procedure	Group Discussions. Industrial Applications case studies.
16	States of strain, Relationship b/w elastic constants,Problems & Applications	
17	**Final Examination (written) (22-05-2012 OR 29-05-2012)**	