

Number of units 6	T 4	Pr 2	Th 2	Number of weekly hours	Annual System 30 weeks	Al-Esra'a University College Department: Engineering of Refrigeration and Air Conditioning Technologies
				Strength of Materials		Second stage
<u>Course Objective</u>						
Teaching the students, the effect of forces and moments on different mechanical parts working under various constraints.						

Week	Topic	Practical subject	Notes
1	Introduction — Stress and Strain.		
2	Direct stresses: Tension, Compression, Shear and Bearing	Tensile Test	
3	Statically Indeterminate Problems		
4	Statically Indeterminate Problems	Compression Test	
5	Thermal Stresses		
6	Stress Concentrations		
7	Rivets Joints		
8	Welded Joints		
9	Thin wall vessels		
10	Pressure vessels		
11	Stress variations with angles	Shear Test	
12	Mohr - circle.		
13	Mohr - circle.		
14	Torsion in circular shaft		
15	Beams / Shear Force & Bending moment		
Half-year Break			
16	Shear Force Diagram & Bending Moment Diagram	Torsion Test	
17	Shear Force Diagram & Bending Moment Diagram		
18	Bending Stress in Beams		
19	Bending Stress in Beams	Impact Test	
20	Vertical Shear in Beams		
21	Beams Sections	Hardness Test	
22	Combined Stresses in Beams		
23	Bending Deflection in Beams by Double Integration Method		
24	Bending Deflection in beams by Moment Area Method		
25	Bending Deflection in beams by Moment Area Method		
26	Statically Indeterminate Beams		
27	Statically Indeterminate Beams		
28	Columns		
29	Euler's Beam Equation.		

