

Course Information & Assignment Schedule – May 2024 – CEA Prague

ME 270 - BASIC MECHANICS I

School of Mechanical Engineering - Purdue University

DAY	DATE	TOPIC	CHAPTER	HOMEWORK
STATICS				
1 Th	May 9	Introduction; Unit conversions Position, unit, and force vectors Dot product	1.A-1.F 2.A-2.B 2.C	H.2.A, H.2.B H.2.C, H.2.D H.2.E
2 F	May 10	Particle equilibrium – 2D Particle equilibrium – 3D Moment about a point	3.A-3.E 3.A-3.E 4.A-4.B	H.3.A, H.3.B H.3.C, H.3.D H.4.A
3 M	May 13	Equilibrium of rigid bodies – 2D Equilibrium of rigid bodies – 3D	4.C-4.F 4.C-4.F	H.4.B, H.4.C H.4.D, H.4.E H.4.F
4 T	May 14	Force couples; Equivalent systems Centers of mass and centroids Distributed loads	5.A-5.B 5.C 5.D	H.5.A, H.5.B H.5.C, H.5.D H.5.E
5 W	May 15	Fluid statics and buoyancy Friction – general	5.E-5.F 6.A-6.B	H.5.F, H.5.G H.5.H, H.6.A H.6.B
6 Th	May 16	Friction – tipping vs. slipping Friction – flat belts Friction – wedges	6.C 6.D 6.E	H.6.C, H.6.D H.6.E, H.6.F H.6.G
F	May 17	No class – Long Weekend		
7 M	May 20	Trusses – method of joints Trusses – zero force members Trusses – method of sections	7.A-7.C 7.D 7.E-7.H	H.7.A, H.7.B H.7.C, H.7.D H.7.E
8 T	May 21	Frames and machines	8.A-8.D	H.8.A, H.8.B H.8.C, H.8.D H.8.E
STRESS ANALYSIS				
9 W	May 22	Internal force/couple analysis Shear force and bending moment diagrams	9.A 9.B-9.D	H.9.A, H.9.B H.9.C, H.9.D H.9.E
10 Th	May 23	Axial stress and strain Stress-strain curves; Failure analysis	10.A-10.E 10.A-10.E	H.10.A, H.10.B H.10.C, H.10.D H.10.E
F	May 24	No class – Day Trip to Skoda Auto, Mladá Boleslav		
11 M	May 27	Shear stress and strain Shear stress due to torsional loads on shafts	11.A-11.E	H.11.A, H.11.B H.11.C, H.11.D H.11.E
12 T	May 28	Stresses in beams due to bending loads	12.A	H.12.A, H.12.B H.12.C, H.12.D H.12.E
13 W	May 29	Stresses in beams due to bending loads Second moments of area	12.A 12.B	H.12.F, H.12.G H.12.H, H.12.I H.12.J
14 Th	May 30	Course review		
15 F	May 31	Final exam		

Homework Assignments: Homework problems are due prior to the start of the next class.

Solution Videos: Solution videos for homework problems posted following due date.