COLLEGE OF TECHNOLOGY AND ENGINEERING

DEPARTMENT OF CIVIL ENGINEERING

1 YEAR BE I SEMESTER SESSION 2015-16

1. Course Code : **CE 100**
2. Course Title : **ENGINEERING MECHANICS**
3. Credit : 3(2+1)
4. Theory Lecture Outlines :

1.	Introduction of condition of equilibrium: Force, system of force, coplanar forces.
2.	*Moment and couples:* Moment and parallel forces, Couples, General conditions of equilibrium
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4.	*Practical Applications:* Levers, Cracked levers, Steel yards. Sagging chains and toggle joints.
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6.	*Centre of Gravity:* Centre of parallel forces, C.G. in some simple cases, C.G. of Solids.
7.	*Moment of Inertia:* Moment of inertia, Radius of gyration and perpendicular axis.
8.	Determination of moment of inertia of simple sections. Mass of moment of inertia.
9.	*Friction:* Introduction, Critical angle of friction, Friction on horizontal planes
10.	Friction on inclined planes, Wedge and block, Screw jacks, Rolling friction.
11.	*Machines:* Introduction, Effects of friction, Loss of work, Reversible and irreversible machine,
12.	Law of machine, Wheel and axle, Differential wheel and axle,
13.	Pulley block, Screw jack, Single and double purchase crab,
14.	Worm and Worm wheel, System of pulleys.
15.	*Frames:* Statically determinate plane frames, Method of joints, Method of sections, Graphical method
16.	*Rectilinear Motion,* Motion under gravity, Projectiles equation of the path, Maximum height attained,
17.	Time of flight, Horizontal range. Angle of projection, Projectile from a given height, Projectile on an inclined plane, Problems.
18.	*Work, Power and Energy:* Work, Power, Work done by torque, Energy,Law of conservation

19.	*Work, Power and Energy:* Work, Power, Work done by torque, Energy,Law of conservation
20.	*Centripetal and centrifugal forces*
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22.	*Laws of motion:* Newton's Law of motion and their explanation
23.	Collision of elastic bodies; Impulse and impulsive force, Principle of conservation of momentum
24.	Collision of elastic bodies; Impulse and impulsive force, Principle of conservation of momentum
25.	Loss of kinetic energy during impact.
26.	Loss of kinetic energy during impact.
27.	Numericals
28.	Numericals
29.	Revision
30.	Revision

Text Books/References

1. I.B. Prasad. Engineering Mechanics, Khanna Publisher,
New Delhi.
2. R.S. Khurmi. Applied Mechanics, S. Chand & Company Ltd.,
New Delhi
3. S.B. Junnarkar. Applied Mechanics, Charotar Publishing House,
New Delhi.
4. Saluja. Applied Mechanics, Satya Prakashan, New Delhi.

(Dr. B.S. Singvi)
Prof.& Head (Civil Engg)