



B. Sc. (Physics) SEMESTER-I
Paper-I (Properties of Matter and Mechanics)

Unit- I

Stress, Strain and Hookes law

<https://www.youtube.com/watch?v=D23hzv-3Tf0&pp=ygUcU3RyZXNzIGFuZCBzdHJhaW4gaG9va2VzIGxhdw%3D%3D>
https://www.youtube.com/watch?v=mDs9crZ_vMw

Modulus of Elasticity (Young's Modulus, Bulk Modulus, Modulus of Rigidity)

<https://www.youtube.com/watch?v=RNEcXCCmSZo>

Poisson's Ratio

<https://www.youtube.com/watch?v=tuOIM3P7ygA>

Relation Connecting the Elastic Constants

<https://www.youtube.com/watch?v=RLd1Oh9j-zs>
https://www.youtube.com/watch?v=mqBzxU_lxPk

Elastic Limit

<https://www.youtube.com/watch?v=7OXQNv73qr4>

Work done in stretching a wire- Strain Energy

https://www.youtube.com/watch?v=_rrqRRfivRs

Angle of Twist and Angle of Shear

<https://www.youtube.com/watch?v=cn4pcb3ExJo>

Expression for the Torque required to twist a cylinder

<https://www.youtube.com/watch?v=BUYCE6EQEAE>

Time Period of Torsional Pendulum

<https://www.youtube.com/watch?v=pAJ2CQ28Lag>

Determination of Modulus of Rigidity by using Torsional Pendulum

<https://www.youtube.com/watch?v=sA719FiPNN4>

Maxwell's Needle

<https://www.youtube.com/watch?v=PT1ZWLBbHmk>
https://www.youtube.com/watch?v=hQtFyu0F_I

External bending Moment

<https://www.youtube.com/watch?v=SBEPaTuH1ZI>



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Internal bending Moment, Expression for Depression of Cantilever

<https://www.youtube.com/watch?v=3V1fA2VZ2Qw>

<https://www.youtube.com/watch?v=7IeJgDSQkaw>

Unit- II

Streamline and Turbulent flow

<https://www.youtube.com/watch?v=9A-uUG0WR0w>

Viscosity

<https://www.youtube.com/watch?v=VvDJyhYSJv8>

Newton's law of viscous force

<https://www.youtube.com/watch?v=mXOoYjALJGA>

Laminar flow and critical velocity, Reynold's Number

<https://www.youtube.com/watch?v=Bxv6iNiRHAQ>

Euler's equation of motion of non-viscous fluid, Bernoulli's theorem

<https://www.youtube.com/watch?v=j-rHqTfDmUI>

Application of Bernoulli's theorem

<https://www.youtube.com/watch?v=GJu-OKhn4Jo>

Poiseuille's Formula

<https://www.youtube.com/watch?v=xwyssfQ6oVc>

Stokes law of viscosity

<https://www.youtube.com/watch?v=2odVI4Vc5UE>

Terminal Speed

<https://www.youtube.com/watch?v=cCDfNkcGhDM>

Effect of temperature and pressure on viscosity of liquid

<https://www.youtube.com/watch?v=lsLCxPabF6o>

Unit- III

Surface Tension

<https://www.youtube.com/watch?v=I8xFVGdkkUU>

Angle of Contact

<https://www.youtube.com/watch?v=PziAQZbiCpc>

Surface Energy

<https://www.youtube.com/watch?v=M8wsuln-6Og>

Methods of determination of surface tension of liquid



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<https://www.youtube.com/watch?v=4dtVsLkT1ss>

Newton's law of motion

<https://www.youtube.com/watch?v=mmvnFJGPL88>

Motion in a plane

<https://www.youtube.com/watch?v=Oi5n3h7Psjs>

Components of velocity and acceleration in different coordinate system

<https://www.youtube.com/watch?v=DbNjEFoeEJg>

Centripetal acceleration

https://www.youtube.com/watch?v=NH1_sO8QY3o

Coriolis force and its applications

<https://www.youtube.com/watch?v=OvAIOzhNZnE>

Unit- IV

System of particles

<https://www.youtube.com/watch?v=X8l2XFLzgys>

Center of mass

<https://www.youtube.com/watch?v=dqvobp04rhs>

Equation of motion

https://www.youtube.com/watch?v=GX5zToM_Vvg

Conservation of linear and angular momentum

<https://www.youtube.com/watch?v=0BcOUiJff3Q>

Conservation of energy

<https://www.youtube.com/watch?v=LjjcG-IbR4>

Single stage and multistage rockets

<https://www.youtube.com/watch?v=h0blZJoLFfo>

Elastic and inelastic collisions

<https://www.youtube.com/watch?v=8OB8eIPgEkQ>

Moments of inertia and their products

<https://www.youtube.com/watch?v=BlS5KnQOWkY>

Moment of inertia of cylinder and sphere

<https://www.youtube.com/watch?v=JaFQwM1QiVc>