

Physics Syllabus for 1st & 2nd year / A - Level

Chapter 1: Measurements

1.1: Physical Quantities

- Physical Quantities
- Problem on Physical Quantities

1.2: International System of Units

- International Systems of Base Units
- Supplementary units

1.3: Scientific Notation

1.4: Errors and Uncertainties

- Errors and Uncertainty in Measurement

1.5: Rounding off Numbers

- Rounding Off the numbers
- Introduction to Significant Figures

1.6: Precision and Accuracy

- Precision and Accuracy
- Problem on Precision and Accuracy

1.7: Indicating Uncertainty

- Assessment of Total Uncertainty in the Final result

1.8: Dimensions

- Dimensions of Physical Quantities

Chapter 2: Vectors and Equilibrium

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- Vector and its Representation

2.2: Cartesian Coordinate System or Rectangular Coordinate System

- Rectangular Coordinate system

2.3: Addition of Vectors

- Addition of Forces
- Commutative Property of Addition of Vectors
- Vectors Subtraction

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- Multiplication of Vector by a scalar

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- Determination of a Vector from its Rectangular Components

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- Vector Addition by Rectangular Components
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2.7: Products of Vectors

- Scalar or Dot product
- Characteristics of the Scalar Product
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- Characteristics of Cross Product

2.8: Torque or Moment of Force

- Introduction to Torque or Moment of a Force

2.9: Equilibrium

2.10: Concurrent Forces

- Equilibrium of Bodies Under the Action of Coplanar Forces

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- Conditions for Equilibrium

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- Difference between Distance and Displacement

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- Introduction to velocity
- Problem on Introduction to Velocity

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- Introduction to Acceleration
- Average Acceleration and Retardation
- Problem on Introduction to Acceleration

3.4: Graphical Analysis of Motion

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Review of Equations of Uniformly Accelerated Motion

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- First Law of Newton
- Second Law of Newton
- Third Law of Newton

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- Advanced Momentum
- Momentum and Newton's Second Law of motion
- Impulse
- Law of Conservation of Momentum

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- Elastic and Inelastic Collisions
- Elastic Collision in one Dimension
- More on Elastic Collision in one Dimension
- Some Cases of Elastic Collision

3.9: Momentum and Explosive Forces

3.10: Projectile Motion

- Features of Projectile

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- Work Done by a Constant Forces
- Work Done By a Variable Forces

4.2: Work done in Gravitational Field

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- Power and velocity

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- The implication of Energy Losses in Practical Devices and Efficiency
- Ideal Machine

4.6: Absolute Potential Energy

- Absolute Potential Energy

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4.8: Inter Conversion of Potential Energy and Kinetic Energy

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- Advance law of Conservation of Energy

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- Energy from Tides
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- Angular Momentum
- Law of Conservation of Angular Momentum

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- Rotational Kinetic Energy

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- Rotational Kinetic Energy of a Disc and Hoop

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5.9: The Orbital Velocity

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- weightlessness in Satellites and Gravity Free system

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- Artificial Gravity
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- Some other Parameters of Simple Harmonic Motion

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- Simple Pendulum
- Energy conservation in SHM

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- Advantages and Disadvantages of Resonance

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- Effects of Various Factors on Speed of Sound in Air

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- Interference

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- Beats

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- Stationary waves in a Stretched String

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- Resonance of Air Column and Organ Pipes
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- Electric Field as Potential Gradient
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- More on Electric Potential at a Point due to a Point Charge
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- Charging and Discharging a Capacitor
- More on Charging and Discharging a Capacitor

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- Magnetic Field Due to Current in a Long Straight Wire

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- Force on a Moving Charge in a Magnetic Field
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- Determination of e/m of an Electron
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- Three Phase A.C. Supply

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- Principle of Metal Detectors

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- Comparator as a Night Switch

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- Interaction of Electromagnetic Radiation With Matter
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- Building Blocks of Matter