



**B. Sc. (Physics) SEMESTER-VI**

**Paper-I (Relativity, Nuclear physics and Bio Physics)**

Unit I:

Relativity- Frame of reference, Inertial and non inertial frames, Galilean transformation equations

<https://youtu.be/cft1HQDyimQ?feature=shared>

Galilean invariance

<https://youtu.be/T29o53MV-xo?feature=shared>

Michelson-Morley experiment

<https://youtu.be/RmBr2pKqPLQ?feature=shared>

Postulates of the special theory of relativity

<https://youtu.be/ErgEkxL-S2o?feature=shared>

Lorentz transformations, Length contraction

<https://youtu.be/Rh0pYtQG5wI?feature=shared>

Time dilation, Velocity addition theorem, Variation of mass with velocity, Mass energy equivalence

<https://youtu.be/Hb44MQxjWbo?feature=shared>

Unit II

Nuclear physics- G. M. counter

<https://youtu.be/jxY6RC52Cf0?feature=shared>

Wilson cloud chamber

<https://youtu.be/fl-GDRSETgY?feature=shared>

Cyclotron, Linear accelerator

<https://youtu.be/rOXfm6EezeA?feature=shared>

Nuclear reaction, Discovery of neutron, Packing fraction, Mass defect and binding energy, Nuclear fission

<https://youtu.be/IlSvBdvEjRY?feature=shared>

Liquid drop model, Chain reaction, Nuclear reactors, Nuclear fusion, Cosmic ray, Elementary particles, Shell model of the nucleus

<https://youtu.be/RTIThUySwUE?feature=shared>



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### Unit III

Nuclear physics- Alpha decay, Range of  $\alpha$  particle, Geiger Nuttal law, Magnetic spectrometer for energy of  $\alpha$  particle, Tunneling, Gamow's theory of  $\alpha$  decay,

<https://youtu.be/RTIThUySwUE?feature=shared>

$\beta$ - decay, Measurement of energy of  $\beta$  particle and end point energy, Neutrino theory of  $\beta$ - decay,  $\gamma$ -decay, Energy of  $\gamma$  photon

<https://youtu.be/avKic7oiwvA?feature=shared>

### Unit IV:

Bio physics-History of bio physics, Bio Potential- compound action Potentials of the human body

<https://youtu.be/9gs1aOE5hXw?feature=shared>

Electrocardiogram for heart (ECG)

<https://youtu.be/xIZQRjkwV9Q?feature=shared>

Electroencephalogram for brain (EEG)

[https://youtu.be/tZcKT4l\\_JZk?feature=shared](https://youtu.be/tZcKT4l_JZk?feature=shared)

Electroretinogram for eye retina (ERG)

<https://youtu.be/DvMFe6WTlg8?feature=shared>

Electromyogram for muscle (EMG)

[https://youtu.be/sK065oV8\\_4w?feature=shared](https://youtu.be/sK065oV8_4w?feature=shared)

and Sonography (Working mechanism)

<https://youtu.be/rqhYeR1Yx0Y?feature=shared>

Bioinstruments- Basic principle, construction and working of colorimeters, Spectrophotometer PH-Meter and centrifuge measurement.

<https://youtu.be/GtklzKdZTVo?feature=shared>