

Devrukh Shikshan Prasarak Mandal's

**Nya. TATYASAHEB ATHALYE ARTS, Ved. S.R. SAPRE
COMMERCE & Vid. DADASAHEB PITRE SCIENCE
COLLEGE, DEVRUKH [AUTONOMOUS]**



Syllabus for F.Y. B.Sc.

Program: B.Sc.

Course: Physics

**Credit Based Semester and Grading System with the
Effect from
Academic Year 2019-20**

Syllabus for B.Sc. Physics (Theory & Practical)
As per credit based system
First Year B.Sc. 2019–2020.

The revised syllabus in Physics as per credit based system for the First Year B.Sc. Course will be implemented from the academic year 2019–2020.

Preamble:

The systematic and planned curricula from these courses shall motivate and encourage learners to understand basic concepts of Physics.

Objectives:

- To develop analytical abilities towards real world problems
- To familiarize with current and recent scientific and technological developments
- To enrich knowledge through problem solving, hands on activities, study visits, projects etc.

Course code	Title	Credits
Semester I		
ASPUSPHY101	Classical Physics, Optics and Thermodynamics	2
ASPUSPHY 102	Modern Physics and Digital Electronics	2
ASPUSPHYP 1	Practical I	2
		Total= 06
Semester II		
ASPUSPHY 201	Mathematical Physics, Optics and Wave Mechanics	2
ASPUSPHY 202	Electronics, Modern Physics and Electrostatics	2
ASPUSPHYP 2	Practical II	2
		Total=06

Semester II: Paper II

Name of the Programme	Duration	Semester	Subject
B.Sc. in Physics	Six semesters	II	Physics
Course Code	Title	Credits	
ASPUSPHY202	Electronics, Modern Physics and Electrostatics	2 for USPH202	

Unit I :

15 lectures

1. Alternating current theory:(Concept of L, R, and C: Review)
2. AC circuit containing pure R, pure L and pure C, representation of sinusoids by complex numbers, Series L-R, C-R and LCR circuits. Resonance in LCR circuit (both series and parallel), Power in ac circuit. Q-factor.
3. AC bridges: AC-bridges: General AC bridge, Maxwell, de-Sauty, Wien Bridge ,Hay Bridge.

Unit II : Wave nature of particle

15 lectures

- 1.Origin of Quantum theory, Black body (definition), , Matter waves, wave particle duality, Heisenberg's uncertainty Principle. Davisson-Germer experiment, G. P. Thompson experiment.
2. Bohr's theory in detail, correspondence, introduction of four quantum numbers

Unit III: Electrostatics and Magnetostatics

15 lectures

1. The Electric Field : Introduction, Coulomb's Law, The Electric Field, Continuous charge Distribution, Electric Potential, Introduction to Potential, Comments on Potential, The Potential of a Localized Charge Distribution
2. Work and Energy in Electrostatics: The Work Done to Move a charge, The Energy of a Point Charge Distribution
3. Magnetostatics: Magnetic Fields
4. The Biot Savart Law: Steady Currents, The Magnetic Field of a Steady Current Helmholtz coil and solenoid.

References :

CR: D. Chattopadhyay, P C Rakshit , Electricity and Magnetism 7th Ed. New Central Book agency.

TT :B.L. Theraja and A.K. Theraja , A Textbook of Electrical Technology Vol. I , S. Chand Publication

BN :Boylestad and Nashelsky, Electronic devices and Circuit Theory: 7th edition, Prentice Hall of India.

David J. Griffiths : Introduction to Electrodynamics, Prentice Hall India (EEE) 3rd Ed.

