"Education for Knowledge, Science, and Culture"
- Shikshanmaharshi Dr. Bapuji Salunkhe

Shri Swami Vivekanand Shikshan Sanstha's

Vivekanand College, Kolhapur
(Autonomous)

KOLHAPUR (AUTONOMOUS)

Department of physics

B.Sc. III Syllabus (w.e.f. 2023-24)

Mathematical Physics

CO's:

After completion, Students are able to

1. understand Cartesian, spherical polar and cylindrical co-ordinate systems.

2. understand Solve partial differential equations.

3. understand applications of partial differential equations.

4. Solve problems based on mathematical Physics

Nuclear and Particle Physics

CO's:

After completion, students are able to;

1. Explain about the knowledge of particles.

2. Explain significance of various decays in the nuclear process.

3. Understand the spin parity concept & magic no. related to shell.

4. Know about the detectors and accelerators.

Quantum Mechanics

CO's:

After completion, Students are able to:

1. Define Concept of wave packet and Uncertainty principle.

2. Understand Schrödinger time dependent and time independent wave equations.

3. understand applications of Schrodinger equation.

4. understand operators, Commutation relations space and Hilbert.

HEAD
DEPARTMENT OF PHYSICS
VIVEKANAND COLLEGE, KOLHAPUR
(EMPOWERED AUTONOMOUS)

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Solid State Physics I

CO's:

After completion, Students are able to understand

1. define various types of solids depending on crystal structure

2. know different methods for structural analysis of crystal

3. explain concept of energy bands in solid

4 explain superconductivity phenomenon and its types

Semiconductor Devices and Instrumentation

CO's :

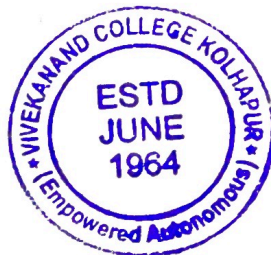After completion, students are able to

1. learn about the CRO, IC's.

2. Understand the knowledge of digital electronics.

3. Know the devices made up of semiconductors

4. develop critical skill of device fabrication

Classical Mechanics

CO's:

After completion, Students are able to understand

1. define constraints, Degree of freedom and generalized coordinates etc., and understand principle of virtual work and D'Alembert's principle.

2. derive Lagrange's equation from D'Alembert's principle and understand its of Langrange's equation.

3. define Inertial and Non–Inertial reference frames, Understand Michelson Morley Experiment, define Relativistic addition of velocities, Length contraction, Time dilation. Describe mass energy relation.

4. Define Poisons and Laplace equation and their physical significance and describe motion of charged particles in electric and magnetic fields.

Elements of Modern Physics

CO's:

After completion, Students are able to understand
1. understand atomic structure, atomic models and atomic spectra.
2. understand fine structure and Zeeman effect.
3. understand Rotational and Vibrational spectra, Raman Effect and Characteristic properties of Raman lines.
4. understand Milky Way galaxy and origin of solar system.

Solid State Physics II

CO's:

After completion, students are able to
1. know about free electron theory, band gap energy, Hall effect
2. know about dielectric properties of material
3. explain concept of X-ray diffraction
4. analyse different materials with the help of x-ray diffraction pattern