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

Shri Swami Vivekanand Shikshan Sanstha's

Vivekanand College, Kolhapur (Autonomous)

KOLHAPUR (AUTONOMOUS)

M.Sc. I Syllabus (w.e.f. 2018-19)

Paper title: Mathematical

l methods of Physics

Course Outcomes:

After the completion of course, the student could able to:

CO-1) Well-versed with the Matrices.

CO-2) Understand the elementary ideas and have acquired facility with numerical tools forsolving mathematical problems in Complex Variables.

CO-3) understand the complications associated with the Fourier Series and Transform

CO-4) Learn about the concept of some special functions, Frobenius power series and polynomials.

Paper title: Classical Mechanics

Course outcomes:

After the completion of course, students will attain

CO-1) Understanding of Mechanics and Lagrange's and Hamilton's theory.

CO-2) Gain basic knowledge of Canonical Transformation and Special Relativity and theevolutionary significance of it.

CO-3) develop important basic understanding about overall Mechanics.

CO-4) Learn about the concept of Lagrange's and Hamilton's theory.

Paper title: Quantum Mechanics-I

Course outcomes:

After the completion of course, students will attain

CO-1) understand basic concepts in the Origin and general formalism and representation of states and quantum dynamics.

CO-2) develop theoretical knowledge of Angular Momentum operator

CO-3) develop important basic understanding about time independent perturbation theory, and its applications.

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CO-4) Learn about the concept of various aspects of quantum theory.

Paper title: Condensed Matter Physics

Course outcomes:

Upon completion of the course, students will be able to:

CO-1) Understand and describe various crystal structures in crystallography.

CO-2) Describe and understand fundamental concepts of crystal defects.

CO-3) Discuss different aspects of Dielectric, Magnetism & Superconductivity.

CO-4) Assess and critique Semiconductor theory, semiconductor materials, which will eventually lead to a general framework of concepts applicable across a variety of semiconductordevices.

Paper title: Quantum Mechanics-II

Course outcomes:

At the end of the course, students will be able to:

CO-1) understand fundamentals of the time dependent perturbation and scattering theory.

CO-2) thorough understanding of the fundamentals of the quantum theory of radiation.

CO-3) learn about quantum computation, Paradoxes of entanglement.

CO-4) Learn about the concept of various aspects of quantum theory.

Paper title: Statistical Mechanics

Course outcomes:

After the completion of course, students will be able to,

CO-1) learn the classical statistical tools as required for analyzing research data.

CO-2) gained an understanding about classical statistics.

CO-3) gained an understanding about Quantum statistics.

CO-4) gained an understanding about problem solutions regarding classical Quantum statistics.

Paper title: Electrodynamics

Course outcomes:

At the end of the course, students will be able to:

CO-1) get fundamental understanding of the Maxwell's equations and propagation of plane electromagnetic wave

CO-2) gain better understanding of the Time dependent potentials and fields

CO-3) gain a sound understanding of Electromagnetic fields and Radiations

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CO-4) gain a sound understanding of the Relativistic mechanics and covariance.

Paper title: Atomic and Molecular Physics

Course outcomes:

At the end of the course, students will be able to:

CO-1) get fundamental understanding of the atom Model for two valance electrons.

CO-2) Better understanding of the Zeeman and Paschen-Back Effect.

CO-3) gain a sound understanding of the basics of Microwave.

CO-4) gain a sound understanding of the basics Infra-RedSpectroscopy.

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