Shree Swami Vivekanand Shikshan Sanstha Kolhapur,

DATTAJIRAO KADAM ARTS, SCIENCE AND COMMERCE COLLEGE, ICHALKARANJI

Course Outcomes

MATHEMATICAL AND STATISTICAL PHYSICS (PAPER-IX)
B.Sc. III, SEMISER-V (PHYSICS)

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After successful completion of the course, the student is expected to:

1) To know the orthogonal curvilinear Co-ordinate system from three different co-ordinate system, have gained ability to apply for solving selected problem on it
2) Be able to apply differential equations of variations to diverse problems in physics including isoperimetric problems. Another interesting aspect is the use of Laplace equation and wave equation in solving physics problems.
3) To become familiar with the method of separation of variables to solve linear differential equations with inhomogeneous term.
4) To find solutions to integral equations using different methods. The students should be able to explain statistical physics and thermodynamics as logical consequences of the postulates of statistical mechanics
5) Apply the principles of statistical mechanics to selected problems and also basic concepts apply for research area.
6) Grasp the basis of ensemble approach in statistical mechanics to a range of situations
7) To learn the fundamental differences between classical and quantum statistics and learn about quantum statistical distribution laws
8) Study important examples of ideal Bose systems and Fermi systems M-B system.
9) To learn the laws related to black body radiation and radiation spectrum which is a pre-requisite for deeper understanding of particle physics, quantum mechanics and energy bands in solids.

After successful completion of the course, the student is expected to :

C01 : have gained a clear understanding of Maxwell's equations and electromagnetic boundary conditions.

C02 : know that laws of reflection, refraction are outcomes of electromagnetic boundary conditions. They will also be able design dielectric coatings which act like antireflection coatings. They will be able to distinguish between a good metal and a good dielectric.

C03 : have grasped the idea of electromagnetic wave propagation through wave guides and transmission lines.

C04 : extend their understanding of special theory of relativity by including the relativistic electrodynamics.

C05 : understand the rather complex physical phenomena observed in plasma.