

Syllabus for Course Work Ph.D.
Department of Applied Physics
Faculty of Engineering and Technology
M.J.P. Rohilkhand University, Bareilly-243006

Paper-I: Review of Literature

Max. Marks: 50

Identification of problem and its solutions. Students has to develop annotated bibliography on and around the theme of research which must cover at least 10 books or reviewing of at least 20 research papers in the relevant field, published in reputed/refereed Journals.

Paper-II: Methodology

PHD-201

Max. Marks: 70

UNIT 1:

Determination of electronic structure: three basic methods.

UNIT 2:

Basic idea of classification of elementary particles and important properties and their modes of decay

UNIT 3:

Brief overview of traditional microscopes (IR, Raman, UV visible), Electronic microscopies for higher resolution.

Internal Assessment:

Max. Marks: 30

Paper-III: (Advance research topics in Physics)

PHD-202

Max. Marks: 70

UNIT 1

Effect of nanometer length scales, low dimensional system, Application of nano materials: molecular electronics and nano electronics; quantum devices; nano magnetic materials and devices.

UNIT 2

Basic principle of nuclear emulsion technique, Measurement of nuclear track parameters, Measurement of range, Range Energy relations, Ionization measurements, Grain density measurement, Blob-gap method, Delta rays angle measurements-projectile angle, dip angle and space angle measurements.

UNIT 3

Elementary quantum chemistry, Hartree Fock approximation and electron correlation, the electron density as the basic variable, early attempts, Density Functional Theory.

Internal Assessment:

Max Marks: 30

Dr. Anil Kumar
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