



MANNAR THIRUMALAI NAICKER COLLEGE(Autonomous)

(An Autonomous Institution Affiliated to Madurai Kamaraj University)

(Accredited with "A" Grade by NAAC)

Pasumalai, Madurai -625004

DEPARTMENT OF PHYSICS

(For those who joined in 2018-2019 and after)

Programme : PG	Part III	: Core
Semester : III	Hours per week	: 6
Subject Code : 18PPHC31	Credit	: 5

SOLID STATE PHYSICS – I

Course Outcomes:

CO1: To Study the concept of crystal structures.

CO2: To understand the different type of bonds in a crystals.

CO3: To get knowledge of vibration of molecules.

CO4: To know about the Fermi gas and Fermi surfaces.

Programme : PG	Part III	: Core
Semester : III	Hours per week	: 6
Subject Code : 18PPHC32	Credit	: 5

QUANTUM MECHANICS – II

Course Outcomes:

CO1: To get the knowledge of the Heisenberg model.

CO2: To understand the concept of scattering cross sections.

CO3: To reveal the theory of relativistic wave equation.

CO4: To understand the effect of symmetries in Quantum mechanics.

Programme : PG	Part III	: Core
Semester : III	Hours per week	: 6
Subject Code : 18PPHC33	Credit	: 5

ELECTRODYNAMICS

Course Outcomes:

CO1: To understand the principles of conservation of charge and superposition in electrostatics

CO2: To determine electric field energy due to charge distribution in a material media

CO3: To analyze the propagation of electromagnetic waves in a material medium

CO4: To study the electromagnetic radiation due to a charge distribution.

Programme	: PG	Part IV	: NME
Semester	: III	Hours per week	: 6
Subject Code	: 18PPHN31	Credit	: 4

NANOTECHNOLOGY

Course Outcomes:

- CO1:** To know about the basic concepts of nanotechnology.
- CO2:** To study the solid state nature of the crystals.
- CO3:** To acquire the knowledge of nanotubes and nanowires.
- CO4:** To describe MEMS basic process and manufacturing technologies.
- CO5:** To discuss nanocomposites synthesis and applications.

Programme	: PG	Part III	: Core
Semester	: IV	Hours per week	: 6
Subject Code	: 18PPHC41	Credit	: 5

SOLID STATE PHYSICS - II

Course Outcomes:

- CO1:** To study the concept of superconductivity in metals.
- CO2:** To get the knowledge of magnetization in bulk materials.
- CO3:** To bring the detailed ideas of dielectric and ferro electric crystals.
- CO4:** To understand about various defects and diffusion in metals.

Programme	: PG	Part III	: Core
Semester	: IV	Hours per week	: 6
Subject Code	: 18PPHC42	Credit	: 5

NUCLEAR PHYSICS

Course Outcomes:

- CO1:** To acquire the knowledge about the constituents of nucleus.
- CO2:** To know about detectors for nuclear particles.
- CO3:** To study the activities of nuclear fission and fusion processes.
- CO4:** To understand the concepts of Elementary particles.

Programme : PG	Part III	: Core
Semester : IV	Hours per week	: 6
Subject Code : 18PPHC43	Credit	: 5

MOLECULAR SPECTROSCOPY

Course Outcomes:

- CO1:** To study the experimental methods for various spectroscopy
- CO2:** To get the knowledge of spectrum analysis
- CO3:** To know about the applications of molecular spectroscopy
- CO4:** To understand spin resonance spectroscopy.

Programme : PG	Part III	: Elective
Semester : IV	Hours per week	: 6
Subject Code : 18PPHE41	Credit	: 4

ASTRO PHYSICS

Course Outcomes:

- CO1:** To acquire the knowledge about the Classification of Stars.
- CO2:** To know about Sun and Atmosphere of Stars.
- CO3:** To study about the Multiple Stars.
- CO4:** To understand the classification of Variable Stars.

Programme : PG	Part III	: Elective
Semester : IV	Hours per week	: 6
Subject Code : 18PPHE42	Credit	: 4

NETWORK AND COMMUNICATIONS

Course Outcomes:

- CO1:** To know the concepts of network topology
- CO2:** To understand the Internet and data communications systems
- CO3:** To study the Microwave Communication process
- CO4:** To familiarize tele Communication through Satellite.

Programme : PG	Part III	: Elective
Semester : IV	Hours per week	: 6
Subject Code : 18PPHE43	Credit	: 4

ADVANCED OPTICS

Course outcomes:

- CO1:** To acquire the knowledge about the magneto and electro optic effects.
- CO2:** To know about laser principles and types.
- CO3:** To study the holographic formation and applications.
- CO4:** To understand the principles and applications of fiber and non-linear optics and their applications.

Programme : PG
Semester : III & IV
Subject Code : 18PPHCP3

Part III : Practical
Hours per week : 03
Credit : 04

PRACTICAL - III

ANY 12 EXPERIMENTS

1. IC 555 Timers – Square wave generation, Scimit trigger or triangle wave generation
2. Solving simultaneously equations (Two variables only) using IC 741.
3. Half adder and Full adder circuits using ICs.
4. Optimizations of Boolean functions – Karnaugh Map Method.
5. Microprocessor based experiments – Addition, Subtraction and Mulplication.
6. Microprocessor based experiments- Ascending and Desending order
7. Study of basic the characteristics of op-amp
8. Construction of op-amp inverting & non-inverting amplifiers and study of their frequency response curves.
9. Construction of op-amp differentiator and integrator and study of their frequency response curves.
10. Construction and study of schematic trigger and its hysteresis.
11. Determination of Boltzmann Constant (K) and error estimation.
12. Laser based diffraction experiments
13. Refractive index of liquids using LASER
14. Refractive index of liquids using Newton's rings
15. Measurement of conductivity of thin film using four probe method.

Programme : PG
Semester : III & IV
Subject Code : 18PPHPR1

Part III : Project
Hours per week : 3
Credit : 4

PROJECT WORK AND VIVA-VOCE

Course Outcomes:

CO1: To develop the ability of the students to prepare a project.

CO2: To get clear idea about the new concepts in our field apart from the syllabus.

CO3: To discuss the analytical instrumentations used.

CO4: To analyse the social use of the project.