Integrated M.Sc. (Physics)

SEMESTER I
Communicative English
Language I
Chemistry I
Problem Solving and Computer Programming
Trigonometry and Differential Equations
Mechanics and Properties of Matter
Chemistry Lab I
Problem Solving and Computer Programming Lab
Cultural Education I

SEMESTER II
Professional Communication
Language II
Chemistry II
Advanced Computer Programming Introduction to Python
Matrices and Vector Calculus
Basics of Electricity and Magnetism
Chemistry Lab II - Instrumental
Advanced Computer Programming / Python Lab
Physics Lab I - Mechanics and Properties of Matter
Cultural Education II

SEMESTER III
Basic Experimental Techniques in Physics
Optics and Wave Motion
Elective A
Analog Electronics
Introduction to Mathematical Physics
Physics Lab II – Heat, Electricity and Magnetism
Life Skills I
Amrita Value Programme I

SEMESTER IV
Environmental Science and Sustainability
Digital Electronics
Elective B
Introduction to computational Physics
Physics Lab III - Optics

Modern Physics
Life Skills II
Amrita Value Programme II

SEMESTER V
Thermal Physics
Electrodynamics
Solid State Physics
Free/Open Elective* /Living Lab@
Elective C
Physics Lab IV – Modern Physics
Life Skills III

SEMESTER VI
Atomic and Molecular Physics
Intermediate Mechanics
Introduction to Modern Optics
Elective D
Physics Lab V – Electronics
Project (for Exit-option students)

SEMESTER VII
Classical Mechanics
Quantum Mechanics I
Mathematical Physics I
Computational Physics
Advanced Physics Lab
Simulation Lab
Mini Project

SEMESTER VIII
Quantum Mechanics II
Mathematical Physics II
Statistical Mechanics
Advanced Electrodynamics
Experimental Techniques
Advanced Electronics Lab

SEMESTER IX
Atomic, Molecular and Optical Physics
Condensed Matter Physics

Nuclear and Particle Physics
Elective I
Elective II
Spectroscopy Lab

SEMESTER X
Dissertation
Viva voce

ELECTIVES A, B, C, D
Medical Physics
Introduction to Nanophysics And Applications
Biophysics
Astronomy
Computational Methods for Physicists
Concepts of Nanophysics and Nanotechnology
Introduction to Photonics
Nonlinear Optics
Optical Engineering
Physics of Semiconductor Devices
Principles of Lasers and Laser Applications
Laser Theory
Laser Applications
Batteries and Fuel Cells
Forensic science
Electrochemistry

ELECTIVES – I, II
Biophotonics
Earth's Atmosphere
Earth's Structure and Evolution
Fibre-optic Sensors and Applications
Fibre Optics and Technology
Nanophotonics
Nonlinear Dynamics
Nuclear Physics
Optoelectronic Devices
Physics of Cold Atoms and Ions
Quantum Electrodynamics
Quantum Optics
Thin Film Technology

Fundamentals of Plasma Physics
Space Physics
Ultrafast lasers and Applications
Energy and Environment in the 21st century
Micro and Nano Magnetism Materials and its
Applications
X-ray Diffraction and its Applications
Solar energy conversion
Fabrication of Advanced Solar cell
Astrophysics and Cosmology
Special Theory of Relativity