

COURSE CURRICULUM FRAMEWORK UNDER AUTONOMY

Program: B. Sc.

Department: Physics

Semester 1		
Course code	Course Title	Credits
SPHY101	Mechanics and Thermodynamics-I Newton's laws of motion Applying Newton's laws, Work and Energy, Rotation of rigid bodies Elasticity, Fluid Dynamics Thermodynamic	2
SPHY102	Vector Calculus -I and Modern Physics Vector Algebra, Vector Calculus Structure of Nuclei, radioactivity Introduction to Quantum theory, X-Rays, Interaction of photon with matter	2
SPHY1PR	Practical -I	2

Semester 2		
Course code	Course Title	Credits
SPHY201	Mathematical Physics , Waves and Oscillations Differential Equations, Waves and oscillations Damped and Forced oscillations and Transient response of AC circuits	2
SPHY202	Electricity and Electronics Alternating current theory & AC bridges Circuit Theorems, DC power supply & Digital Electronics Transistor characteristics & General amplifier characteristics	2
SPHY2PR	Practical-II	2

Semester 3		
Course code	Course Title	Credits
SPHY301	Mechanics and Thermodynamics-II Mechanics Thermodynamic	03

	Low temperature physics	
SPHY302	Vector Calculus -II and Analog Electronics Vector Calculus Analog Electronics Oscillators and opamp circuits	03
SPHY303	Applied Physics-I Acoustics, Lasers and Fibre optics Biophysics Magnetism, nanotechnology	03
SPHY3PR	Practical-III	2.5

Semester 4		
Course code	Course Title	Credits
SPHY401	Optics and Digital Electronics Diffraction Polarization Digital Electronics	03
SPHY402	Quantum Mechanics The Schrodinger wave equation Applications of Schrodinger steady state equation-I Applications of Schrodinger steady state equation-II	03
SPHY403	Applied Physics-II Theory of errors Crystal physics Optical Instruments	03
SPHY4PR	Practical-IV	2.5

Semester 5		
Course code	Course Title	Credits
SPHY501	Mathematical, Thermal and Statistical Physics Probability Fourier series and Differential equations Statistical Thermodynamics Classical and Quantum Statistics	2.5
SPHY502	Electronics Solid state devices Differential amplifier Opamp, IC 555	2.5

	Astronomy	
SPHY503	Atomic and Molecular Physics Hydrogen Atom and electron spin Spin orbit coupling and Effect of magnetic field on atoms Molecular spectra and spectrometers Raman Effect, Electron spin resonance and Nuclear magnetic resonance	2.5
SPHY504	Electrodynamics Electrostatics Magnetostatics Electromagnetism EM waves	2.5
SPHY5PR1	Practical-I	3
SPHY5PR2	Practical-II	3
SPHY5AC	Analog Circuits, instruments and Consumer Appliances Transducers and Optoelectronics Devices Signal Generation, Conditioning and Measuring Instruments Data Acquisition and Conversion Modern Techniques and Consumer Appliances & SMPS	2
SPHY5ACPR	Practical	2

Semester 6		
Course code	Course Title	Credits
SPHY601	Classical Mechanics Central Force Lagrange's equations Fluid Motion and Rigid body rotation Non Linear Mechanics	2.5
SPHY602	Solid State Physics Electrical properties of metals Thermionic Emission and Band theory of solids Superconductivity and Real crystals Semiconductor Physics and Junction Diode Theory	2.5
SPHY603	Nuclear Physics Alpha and beta decay Gamma decay and nuclear models Nuclear Energy & Particle Accelerators Nuclear force & Elementary particles	2.5
SPHY604	Special Theory of Relativity Introduction to Special theory of relativity Relativistic Kinematics Relativistic Dynamics Relativity and Electromagnetism	2.5
SPHY6PR1	Practical-I	3
SPHY6PR2	Practical-II	3

SPHY6AC	Digital Electronics, Microprocessor and its Applications, Programm C++ Introduction to 8085 assembly language programming Advanced 8085 programming and 8255(PPI) C++ programming, I C++ programming, II	2
SPHY6ACPR	Practical	2