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, nanotecnology	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, Programr C++** Introduction to 8085 assembly language programming Advanced 8085 programming and 8255(PPI) C++ programming, I C++ programming, II	2
SPHY6ACPR	Practical	2