

**Percentage of Revision of B.Sc. Physics
Syllabus Revised for the Academic Year - 2020-2021**

B.Sc Physics							
S.No	Course Code	Course Title	Change Details	% of Changes	Content Deleted	Content Updated	Reason for Change
1	18UPS508	Classical Dynamics	No Change				
2	19UPS405	Optics & Spectroscopy	No Change				
3	18UPS509	Relativity & Quantum Mechanics	No change	-	-	-	-
4	18UPS615	C Programming & Information Security	No change	-	-	-	-
5	18UPS616	Electronics Lab	No change	-	-	-	-
6	19UPS305	Electricity & Magnetism	No change	-	-	-	-
7	18UPS5S1	Mechanical Measurements	No change	-	-	-	-
8	18UPS5S2	Fundamentals of Biophysics	No change	-	-	-	-
9	18UPS6S3	Environmental Instrumentation	No change	-	-	-	-
10	18UPS6S4	Fundamentals of Astrophysics	No change	-	-	-	-
11	20UPS3N1	Principles of Physics – I	Modified	20	Conventional energy sources: Coal – Gas – Water – Agriculture	Semiconductor-Types of Semiconductor-Diode-LED-Capacitor-Rectifiers-	Feedback from Students

					and organic waste – Non conventional sources: Solar energy – Renewable energy resources	Resistors-Transistors-Amplifier-Integrated circuits	
12	20UPS4 N3	Principles of Physics – II	Modified	20	Electric train- Leakproof battery- cordless phones- Tubeless tyres- Radial and ordinary tyres-Non linear editing-Tear gas - Smell of dustbin	Battery-Types of Battery- Introduction - Laser-Principle- Characteristic Elements of Laser-Types of laser- Applications- Advantages- Disadvantages	Feedback from University Nominations
13	20UPS2 02	Heat & Thermodynamics	Modified	50	Concept of heat and temperature - Thermoelectric thermometer - Absolute zero and Ice point - Low temperature measurement - High temperature measurement - Specific heat of a gas – Cp & Cv- Determination of Cv by Joule's differential steam	Concept of ideal or perfect gas- Expression for the pressure exerted by a gas- Estimation of rms speeds of molecules- Quantum theory of specific heat : Specific heat of solids – Dulong and Petit's law – Variation of specific heat of diatomic gases with temperature- Conduction,	Feedback from University Nominations

					calorimeter - Determination of C_p by continuous flow electrical method - Dulong and Petit's law - Variation of Specific heat and Atomic heat with temperature - Corresponding states of matter- Electrolux refrigerator	convection and radiation - Coefficient of Thermal conductivity - Thermal diffusivity- Steady state- Lee's disc method of determining thermal conductivity of bad conductor- Searles method- Forbe's method - Radial and cylindrical flow of heat - Stefan's law and experimental verification - Determination of Stefan's constant - Blackbody - Properties of thermal radiation - Distribution of energy in the spectrum of a black body. Adiabatic demagnetization- Quasistatic process- entropy of perfect gas and zero point	
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						energy – Maxwell's thermo- dynamical relations – Helmoltz function – Gibb's function – Enthalpy -T- ds equation	
14	18UPS6 13	Atomic and Nuclear Physics	New/modif ied	20%	Laser Characteristic -Einstein's coefficients Population inversion Pumping methods Essential elements and Action of las system - Rub Laser- He-N Laser Applications Holography and Lasers i medicine - Constructio n and types of optical fiber - Critical angle - Acceptance angle, Acceptance cone and Numerical aperture - Propagation of light	Nuclear reaction energy - Reaction cross section - Nuclear fission - Energy released in fission of U235 - Chain reaction - Fission reactor - Nuclear fusion - Fusion reaction - Advantage s and problems of fusion. Ionization chamber: Simple Ionization chamber - Proportional counter -	Course Teache r Memb er of Board of Studie s

					through optical fiber - Optical fiber configurations - Fiber optic communication system	GM counter - Scintillation counter - Linear accelerator – Cyclotron.	
15	20UPS101	Core I: Properties of Matter and Accoustics	New/modified	60%	Capillary rise, energy required to raise a liquid in a capillary tube – stream lines and equation of continuity- Bernouill's equation – proof and applications – velocity of efflux of liquid- Toricellis theorem – Vena contractor – Venturimeter and pitot tube.	Unit I: Density of earth, Potential and field intensity due to a spherical shell and solid sphere (Inside and outside) – Potential and intensity at a point due to circular disc – Intensity and potential of the gravitational field at a point due to an infinite plane- Compound pendulum, Determination of epicenter and focus Unit II: - Determination of rigidity modulus: Static torsion method (Searle's method - scale and telescope) –Twisting couple on a cylinder- Strain energy in twisted cylinderDepres	

						sion of the loaded end of a cantilever – Measurement of Young's modulus: Cantilever depression – Measurement of Young's modulus by bending of beam (Non uniform and uniform bending)- Searle's method to determine the rigidity modulus Unit III: Bernoulli's theorem – Applications: Velocity of efflux of a liquid (Torricellis theorem), Velocity of efflux of a gas, , rotation viscometer – Comparison of viscosities (Ostwald Viscometer) – Variation of viscosity with temperature – Viscosity of gases : Rankine's method for air Unit IV: Determination of surface tension, Jaeger's experiment,	
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						drop weight method and capillary rise method – Experiment to determine the interfacial tension between water and kerosene – Applications of surface tension, Osmosis and vapour pressure of a solution – Osmosis and boiling point of a solution Unit V: Velocity of transverse waves along a stretched string (I method) – Laws of transverse vibration of strings – Verification of the Laws of transverse vibration of strings – Melde's experiment – Resonance – Musical sound and noise – Speech- Human voice – Human ear – Characteristic of Musical sound- Intensity of sound – Measurement of intensity of sound –	
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						Decibel – Bel – Phon (Definiton only) – Acoustics – Reverberation – Sabine’s Reverberation formula – Determination of Absorption coefficient – Factors affecting, Acoustics of Buildings – Sound distribution in an auditorium – Requisites for Good Acoustics – Ultrasonics – Production of Ultrasonics : Magnetostricti on Oscillator – Piezo electric oscillator – Detection of Ultrasonics- Acoustic grating – Application.	
16	20UPS2 03	Physics Lab I	Nil	Nil	Nil	Nil	Nil



BoS Chairman