Department of Physics

SEMESTER – VI (UG/SHPHS/C-14) CORE-T-14

Statistical Mechanics

Credit-4; Full Marks: 25

Subject Teacher: DR ABHIJIT SINHA

SYLLABUS UNITIZATION

Month	Week	**Topics to be taught**
March	2	Macrostate & Microstate, Elementary Concept of Ensemble, Microcanonical ensemble, Phase Space, Entropy and Thermodynamic Probability
March	3	Canonical ensemble, Partition Function, Thermodynamic Functions of an Ideal Gas,
March	4	Classical Entropy Expression, Gibbs Paradox, SackurTetrode equation
April	1	Law of Equipartition of Energy (with proof) – Applications to Specific Heat and its Limitations
April	2	Thermodynamic Functions of a Two-Energy Levels System,
April	3	Negative Temperature. Grand canonical ensemble and chemical potential.
April	4	**Class Test**
May	1	Properties of Thermal Radiation.
May	2	Blackbody Radiation. Pure temperature dependence. Kirchhoff's law
May	3	Stefan-Boltzmann law: Thermodynamic proof.
May	4	Radiation Pressure. Wien's Displacement law.
June	1	Wien's Distribution Law. Saha's Ionization Formula
June	2	Rayleigh-Jean's Law. Ultraviolet Catastrophe.
June	3	**Class Test**
June	4	**Revision**