

Lecture schedule on Staistical Mechanics

SSN

Sl. No.	Topic	Lecture	Tutorial
1	Macrostate and microstate — classical & quantum description	1	0
2	Connection between microstate and microstate — averaging	1	1
3	Ergodic hypothesis — idea of ensemble	1	0
4	Liouville's theorem — postulate of equal a priori probability	1	0
5	Connection with Thermodynamics — Boltzmann postulate	1	0
6	Statistical idea of temperature & pressure of a gas	1	0
7	Different types of ensemble — canonical & grand canonical	1	1
8	Law of equipartition of energy & its applications	1	1
9	Partition function and thermodynamic quantities	1	0
10	Density of states: for ideal gas, standing waves	1	1
11	Occupation number distributions — classical approach	1	0
12	Derivation of Maxwell-Boltzmann distribution	1	0
13	Applications of M-B distribution	1	1
14	Gibb's paradox: distinguishability & indistinguishability	1	0
15	Quantum symmetry requirements of identical particles	1	0
16	Derivation of Bose-Einstein distribution	1	0
17	Specific heat of solids – Einstein's approach	1	0
18	Specific heat of solids – Debye's correction	1	0
19	Photon gas and Planck's distribution	1	0
20	Derivation of Fermi-Dirac distribution	1	0
21	Classical limit of quantum distribution functions	1	0
22	Degenerate Fermi gas and Bose condensates	1	1
23	Calculation of electron specific heat in metals	1	0
24	Thermo-ionic emission and Richardson-Dushman equation	1	1
Total		24	6