

PHYSICS Sem-6

STATISTICAL MECHANICS AND SOLID STATE PHYSICS

Sr No	Topic	Link
Unit 1		
1	Phase space	https://www.youtube.com/watch?v=NASCKUGNgVc
2	unit cell	https://www.youtube.com/watch?v=uHeeBEQLfBE
3	microstates, macrostates	https://www.youtube.com/watch?v=o1EinUCgFsw
4	Energy states, density of energy states	https://www.youtube.com/watch?v=JGxeSJu7F5s
5	probability & thermodynamic probability	https://www.youtube.com/watch?v=NY7TsmN-dtg
6	principle of equal a priori probabilities	https://www.youtube.com/watch?v=4BJ-YAMVC-4
7	most probable distribution,	https://www.youtube.com/watch?v=wGQtgfvNzo
8	Boltzman entropy relation	https://www.youtube.com/watch?v=2ab2OCSWMAw
9	Maxwell Boltzman statistics	https://www.youtube.com/watch?v=KBe1d8BdjQ
10	Maxwell Boltzman statistics and its application	https://www.youtube.com/watch?v=kFFFW2bgHA8
Unit II		
1	Distinguishable & indistinguishable particles	https://www.youtube.com/watch?v=9bxbyp_lcc0
2	concepts of boson & fermions	https://www.youtube.com/watch?v=vZVCmMyZcvU
3	Bose – Einstein statistics	https://www.youtube.com/watch?v=1aHFG7VLR-g
4	Fermi- Dirac distribution	https://www.youtube.com/watch?v=kbbOpFEU5E
Unit III		
1	Amorphous and Crystalline Materials	https://www.youtube.com/watch?v=Bn22VV2Yx_g
2	Unit Cell.	https://www.youtube.com/watch?v=G6Fiazt1Qtg
3	Miller Indices	https://www.youtube.com/watch?v=qr1erveViHA
4	Reciprocal Lattice	https://www.youtube.com/watch?v=jkXqzdJhp8
5	Coordination Number	https://www.youtube.com/watch?v=4cRRA8IzU_w
6	Types of Lattices	https://www.youtube.com/watch?v=61Lgo56bBbg
7	Bragg's Law	https://www.youtube.com/watch?v=iqi6Yxdxb2Q
8	Determination of lattice parameters of NaCl crystal	https://www.youtube.com/watch?v=HzjKXOG-yRY
9	Defects in solids – points, line & plane defects	https://www.youtube.com/watch?v=QaC-phLCXQw
Unit IV		
1	Free electrons; conduction electrons,	https://www.youtube.com/watch?v=jHT42z9dcOA

2	electron collision	https://www.youtube.com/watch?v=M5J3Y_zRqLo
3	mean free path	https://www.youtube.com/watch?v=vUtO3BS-zM
4	conductivity & Ohm's	https://www.youtube.com/watch?v=RW4C0bOm-Cl
5	density of states	https://www.youtube.com/watch?v=M2pbN29cJcY
6	concept of Fermi energy.	https://www.youtube.com/watch?v=JzAUxNDQ-Ho
7	Band structure : Electron in periodic potential,	https://www.youtube.com/watch?v=l_DZb9BJMqE
8	nearly free electron model (qualitative)	https://www.youtube.com/watch?v=y3Va0wphOmE
9	energy band energy gap,	https://www.youtube.com/watch?v=mje44dAK7cE
10	metals, insulators and semiconductors	https://www.youtube.com/watch?v=DQUXKhFMA8M
Unit V		
1	Atomic magnetic moment	https://www.youtube.com/watch?v=chA8ifOvvGO
2	magnetization vector	https://www.youtube.com/watch?v=JPYO_CloIMM
3	magnetic susceptibility Dia -, Para-, and Ferromagnetic Materials	https://www.youtube.com/watch?v=9RcHLSmmjo
4	Classical Langevin Theory of dia and Paramagnetic Domains	https://www.youtube.com/watch?v=QFTSra92xjY
5	Quantum Mechanical Treatment of Paramagnetism	https://www.youtube.com/watch?v=2nGGVyo3PM
6	Curie's law Weiss's law	https://www.youtube.com/watch?v=grbgmlePAb0
7	Hysteresis and Energy Loss.	https://www.youtube.com/watch?v=Q6N5-oxEP1Q
Unit VI		
1	Superconductivity: Introduction to Superconductors Critical Temperature; Critical magnetic field	https://www.youtube.com/watch?v=pdz4UdmpJko
2	Meissner –effect;	https://www.youtube.com/watch?v=NVeAmKUbxvA
3	Type I and type II Superconductors	https://www.youtube.com/watch?v=AX962gXo0CI
4	Idea of BCS theory	https://www.youtube.com/watch?v=-f556_xD0Ts
5	Cooper pair	https://www.youtube.com/watch?v=zGPb04wg_5o
6	Applications of superconductors.	https://www.youtube.com/watch?v=bYFagcLrl4k
7	Nano Technology: Introduction to nano size materials	https://www.youtube.com/watch?v=oDmaQCMwQKM
8	Applications of superconductors of nano materials in different fields.	https://www.youtube.com/watch?v=RuwMGFDIavw