Lesson planning for B.Tech. 2nd semester started w.e.f ……. 1st January 2019
Subject: Semiconductor Physics BS-115A
Name of institute: Seth Jai Parkash Mukand Lal Institute of Engineering & Technology (JMIT)
Name of teachers with designation: Dr Sanjeev Garg Professor, Dr Umesh Singh Professor and Ms Ritu Verma, Assistant Professor
Department: Applied Sciences

Month	**Class**	**Topic /chapter covered**	**Academic Activity**	**Test /Assignment**
Day 1	B.Tech. 2nd sem.	Crystalline and Amorphous solids, Crystal structure: lattice translation vector	Lecture	
Day 2	B.Tech. 2nd sem.	Symmetry operations	Lecture	
Day 3	B.Tech. 2nd sem.	Space lattice, basis; Unit cell and Primitive cell	Lecture	
Day 4	B.Tech. 2nd sem.	Two and three dimensional Bravais lattices	Lecture	
Day 5	B.Tech. 2nd sem.	Characteristics of Unit cells: SC, BCC, FCC structure	Lecture	
Day 6	B.Tech. 2nd sem.	HCP structure	Lecture	
Day 7	B.Tech. 2nd sem.	Simple crystal structure: NaCl, CaCl structure	Lecture	
Day 8	B.Tech. 2nd sem.	Diamond, ZnS structure	Lecture	
Day 9	**B.Tech. 2nd sem.**	**Revision**		**Assignment/Test**
Day 10	B.Tech. 2nd sem.	Miller Indices	Lecture	
Day 11	B.Tech. 2nd sem.	Miller Indices	Lecture	
Day 12	B.Tech. 2nd sem.	Bonding in Solids	Lecture	
Day 13	B.Tech. 2nd sem.	Point defects in crystals: Schottky defect	Lecture	
Day 14	B.Tech. 2nd sem.	Frenkel defect	Lecture	
Day 15	**B.Tech. 2nd sem.**	**Revision**		**Assignment/Test**
Day 16	B.Tech. 2nd sem.	Need and origin of Quantum concept	Lecture	
Day 17	B.Tech. 2nd sem.	Need and origin of Quantum concept	Lecture	
Day 18	B.Tech. 2nd sem.	Wave-particle duality, Phase velocity	Lecture	
Day 19	B.Tech. 2nd sem.	and group velocity	Lecture	
Day 20	B.Tech. 2nd sem.	Uncertainty Principle and	Lecture	

		applications		
Day 21	B.Tech. 2nd sem.	Schrodinger's time-independent & time-dependent wave equation Physical significance of wave function	Lecture	
Day 22	**B.Tech. 2nd sem.**	**Revision**		**Assignment/Test**
Day 23	B.Tech. 2nd sem.	Classical free electron theory	Lecture	
Day 24	B.Tech. 2nd sem.	Electrical conductivity in metals	Lecture	
Day 25	B.Tech. 2nd sem.	Thermal conductivity in metals, Wiedemann- Franz law, Success and drawbacks of free electron theory	Lecture	
Day 26	B.Tech. 2nd sem.	Quantum free electron theory: wave function, eigen values	Lecture	
Day 27	B.Tech. 2nd sem.	Quantum free electron theory: wave function, eigen values	Lecture	
Day 28	B.Tech. 2nd sem.	Fermi – Dirac distribution function	Lecture	
Day 29	B.Tech. 2nd sem.	Density of states	Lecture	
Day 30	B.Tech. 2nd sem.	Fermi energy and its importance	Lecture	
Day 31	B.Tech. 2nd sem.	Thermionic Emission	Lecture	
Day 32	**B.Tech. 2nd sem.**	**Revision**		**Assignment/Test**
Day 33	B.Tech. 2nd sem.	Bloch theorem	Lecture	
Day 34	B.Tech. 2nd sem.	Kronig-Penney model (qualitative)	Lecture	
Day 35	B.Tech. 2nd sem.	E versus K diagram, Brillouin Zones	Lecture	
Day 36	**B.Tech. 2nd sem.**	**Revision**	**Lecture**	**Assignment/Test**
Day 37	B.Tech. 2nd sem.	Concept of effective mass of electron	Lecture	
Day 38	B.Tech. 2nd sem.	Energy levels and energy bands	Lecture	
Day 39	B.Tech. 2nd sem.	Distinction between metals, insulators and semiconductors	Lecture	
Day 40	B.Tech. 2nd sem.	Hall effect and its applications	Lecture	
Day 41	**B.Tech. 2nd sem.**	**Revision**		**Assignment/Test**
Day 42	B.Tech. 2nd sem.	Conduction in Semiconductor	Lecture	

Day 43	B.Tech. 2nd sem.	Intrinsic Semiconductors: Conductivity of charge carriers	Lecture	
Day 44	B.Tech. 2nd sem.	Carrier concentration in intrinsic semiconductors	Lecture	
Day 45	B.Tech. 2nd sem.	Carrier concentration in intrinsic semiconductors	Lecture	
Day 46	B.Tech. 2nd sem.	Extrinsic Semiconductors: n-type semiconductors	Lecture	
Day 47	B.Tech. 2nd sem.	p-type semiconductors	Lecture	
Day 48	B.Tech. 2nd sem.	Charge carrier concentration in extrinsic semiconductors	Lecture	
Day 49	**B.Tech. 2nd sem.**	**Revision**		**Assignment/Test**
Day 50	B.Tech. 2nd sem.	The pn junction, current voltage characteristics of pn junction	Lecture	
Day 51	B.Tech. 2nd sem.	BJT	Lecture	
Day 52	B.Tech. 2nd sem.	FET	Lecture	
Day 53	B.Tech. 2nd sem.	Metal-Semiconductor junction: Schottky	Lecture	
Day 54	B.Tech. 2nd sem.	Metal-Semiconductor junction: Ohmic	Lecture	
Day 55	B.Tech. 2nd sem.	Semiconductor Laser	Lecture	
Day 56	**B.Tech. 2nd sem.**	**Revision**		**Assignment/Test**