

## TEACHING PLAN FOR THEORY

Subject Teacher : Mrs. Shilpa Narhe

Subject: Engineering Physics		Class: A	Branch: F.Y.B.Tech.	Year 2018-2019	
Lecture No	Scheduled Date	Topics to be covered on the scheduled date		Actual Date	Remarks
		Syllabus Discussion, Discussion on course objective & course outcome			
<b>Unit I : Electron Ballistics</b>					
1	30/7/18	Introduction, Motion of electron in a uniform electric field a) parallel to uniform electric field			
2	31/7/18	b) Perpendicular to uniform electric field			
3	1/8/18	<b>TUTORIAL</b> Motion of electron in a magnetic field a) Perpendicular to an extensive uniform magnetic field, Motion of electron in transverse uniform limited magnetic field			
4	1/8/18	b) Deflection of electron due to transverse magnetic field, Motion of electron in crossed electric & magnetic field			
5	2/8/18	Electrostatic focusing, Magnetic focusing			
	3/8/17	<b>TAE 1(QUIZ)</b>			
6,7	3/8/18(EXTRA)	Devices-CRT, CRO			
8	6/8/18	Cyclotron, MCQ			
<b>Unit II : Ultrasonics</b>					
9	7/8/18(EXTRA)	Introduction, Prtduction of ultrasonics waves			
10	8/8/18	<b>TUTORIAL</b> Piezoelectric and magnetostriction oscillator			
11	8/8/18	Detection of ultrasonics, engineering applications of ultrasonics			
12	9/8/18	<b>Acoustics of Building:</b> Definitions: Velocity, frequency, wavelength, intensity, loudness, timber, reflection of sound, echo			
13	10/8/18(EXTRA)	Reverberation, reverberation time, Sabine's formaula, remedies over reverberation, Absorption of sound, absorbent materials			

14	10/8/18 (EXTRA)	Conditions for good acoustics of the building, Noise,		
15	13/8/18	Its effects and remedies		
16	14/8/18	MCQ		
	15/8/18	<b>HOLIDAY (Independence day)</b>		
	16/8/2018 TO 18/8/2018	<b>CAE I</b>		
<b>Unit III : QUANTUM MECHANICS</b>				
17	20/8/2018	Wave particle duality of radiation & matter, de broglie concept of matter waves, expressing de broglie wavelength in terms of kinetic energy and potential		
18	21/8/2018	Concept and derivation of group and phase velocity, matter waves, Heisenberg's uncertainty principle		
19	22/8/2018	<b>TUTORIAL</b> Illustration of it by electron diffraction at single slit, why an electron cannot exist in the nucleus, Numericals		
20	22/8/2018	Concept of wave function and probability interpretation, Schrodinger's time independent and dependent form		
21	23/8/2018	applications of schrodinger's time independent wave equations i) particle in 1-D rigid box (infinite potential well)		
22	27/8/2018	(Comparison of Quantum mechanical and classical mechanical predictions ii) Particle in 1-D non rigid box (finite potential well qualitative, results only)		
23	28/8/2018	Tunneling effect, example of tunneling effect in tunnel diode and scanning tunneling microscope		
24	29/8/2018	<b>TUTORIAL (NUMERICALS)</b>		
25	29/8/2018	, MCQ		
<b>Unit IV : LASER &amp; HOLOGRAPHY</b>				
26	30/8/18	Absorption, spontaneous emission, requirement for lasing action		

		(Stimulated emission, population inversion),		
27	3/9/18	Metastable state, active medium, resonant cavity, various pumping		
28	4/9/18	Characteristics of laser, various levels of laser systems with examples i) two level - semiconductor laser,		
29	5/9/18	<b>TUTORIAL( TAE2:SURPRISE TEST)</b>		
30	5/9/18	ii) Three level - ruby laser		
31	6/9/18	iii) Four level - He - Ne laser		
32	10/9/18	Applications in industry (drilling, welding etc), Medicine, Communication (Principle and advantages only),		
33	11/9/18	Information Technology (Holography - Recording and reconstruction),		
34	12/9/18	<b>TUTORIAL</b> , Numericals		
35	12/9/18	MCQ		
	13/9/18	<b>HOLIDAY (GANESH CHATURTHI)</b>		
	17/9/18 TO 19/9/18	<b>CAE II</b>		
<b>Unit V : BAND THEORY OF SOLIDS</b>				
36	24/9/18	Band theory in solids, free electron theory (qualitative), electrical conductivity in conductor and semiconductor		
37	25/9/18	Influence of external factors on conductivity (temperature, ; light and impurity), Fermi energy concept of effective mass, electron and holes		
38	26/9/18	Fermi - Dirac probability distribution function, position of fermi level in intrinsic semiconductor with derivation		
39	26/9/18	<b>TUTORIAL( TAE 3 HOME ASSIGNMENT)</b>		
40	27/9/18	extrinsic semiconductors, intrinsic semiconductor with derivation and extrinsic semiconductors		
41	28/9/18(EXTRA)	Dependence of fermi level on temperature and Doping concentration, diffusion and drift current		

41	28/9/18(EXTRA)	Band structure of PN junction diode under i) zero bias ii) forward bias iii) reverse bias		
43	1/10/18	Working of transistors (NPN only) on the basis of Band diagram		
	2/10/18	HOLIDAY (GANDHI JAYANTI)		
44	3/10/18	Working of transistors (NPN only) on the basis of Band diagram, Hall effect		
45	3/10/18	(TUTORIAL) Applications: Photovoltaic effect, working of solar cell on the basis of band diagram and its applications, MCQ		
<b>Unit VI : ADVANCED TRENDS IN PHYSICS (X RAYS)</b>				
46	4/10/18	General classification (zero – two dimensional and assembled nanostructures),		
47	5/10/18(EXTRA)	materials composition/function (metals, metal oxides, semiconductors, carbon, biological)		
48	5/10/18(EXTRA)	Size Dependent Chemical and Physical Properties: Electrical, optical, catalytic, magnetic,		
49	9/10/18	(TUTORIAL) thermodynamic, why purification is needed		
50	9/10/18	Applications: Electrical, optical, catalytic, magnetic, thermodynamic, purification, sensing, biology, medicine, solar cells, etc.		
	10/10/18 to 12/10/18	<b>CAE III</b>		
	17/10/18	<b>TAE V: SEMINAR / PPT</b>		
51-59	15/10/18 to 27/10/18	<b>REVISION</b>		
	29/10/18 to 31/10/18	<b>CAE IV</b>		
60	1/11/18	<b>TAE 7 (ANY OTHER)</b>		
	3/11/18	<b>TAE VI : EXTRA CURRICULAR END OF CLASSES</b>		

