

LESSON PLAN FOR EVEN SEMESTER(01 Feb. 2023- 15 May 2023)

Name of Faculty : Ms. SHIWANI SARAN

Designation : Assistant Professor

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Week	Date	THEORY (10 PERIODS/WEEK)			PRACTICAL (12 PERIODS/WEEK)	
		M. Sc.– I(2 nd Sem) Paper-V: (Mon.-Tue.) Electronics-II [02PER./WEEK]	M. Sc. – I(2 nd Sem) Paper-I: (Wed.-Sat.) Quantum mechanics [04 PER./WEEK]	M.Sc –II(4th Sem.) Paper-I: (Wed.-Sat.) Material Science-II [04 PER./WEEK]	M.Sc.-I(2nd Sem.) Practical (6 Lectures.) (Tue&Fri) [06 PER./WEEK]	M.Sc.-II(4th Sem. Practical (06 Lectures.) (Mon) [06PER./WEEK]
1	01.02.2023		UNIT-I Introduction to Quantum Mechanics.	UNIT-I Introduction to superconductivity		
	02.02.2023		Matrix algebra preliminaries	Occurrence of Superconductivity		
	03.02.2023		Transformations of matrices	Conventional superconductors		
	04.02.2023		Diagonalisation of matrices	Meissner effect		
	05.02.2023	Sunday				
	06.02.2023	UNIT-I Introduction of digital electronics.				Exp: With the help of Program find the root of equation using Newton's Rapshon method. (group- I&II)
	07.02.2023	Introduction to decimal and binary number			Exp:Clipping and Clamping	

2		system			(group-I)		
	08.02.2023		Infinite matrices and unitary transformation	Properties of superconductors : Heat capacity ,Infrared properties.			
	09.02.2023		Representation of operators as matrices	Isotope effect			
	10.02.2023		Representation of wavefunction as matrices	Energy gap in superconductors	Exp: Cuire Temperature Group-II		
	11.02.2023		Dirac's Ket and Bra notations.	Thermodynamics of superconducting transition			
	12.02.2023	Sunday					
3	13.02.2023	Discussion on octal and hexadecimal number system.				Exp: Least Square Fit method using Program (group-I&II)	
	14.02.2023	Study the BCD codes			Exp: Clipping and Clamping (group-III)		
	15.02.2023		Hilbert's Space	The attraction between electrons, cooper pairs			
	16.02.2023		Schrodinger picture	Type I and type II superconductors			
	17.02.2023		Heisenberg and interaction picture	London equation	Exp: Cuire temperature (group-IV)		
	18.02.2023	Mahashivratri					
	19.02.2023	Sunday					
	20.02.2023	Interconversion of decimal and BCD number				Exp: Newton's Rapshon method using program (group III&IV)	
	21.02.2023	Interconversion of binary and BCD			Exp: Clipping and Clamping		

4		numbers			(group-V)		
	22.02.2023		Solution of linear harmonic oscillator using matrix mechanics.	Flux Quantization			
	23.02.2023		Introduction to Schrodinger's equation.	UNIT-II Qualitative discussion of BCS theory.			
	24.02.2023		Discussion on Hydrogen Atom Problem.	Discussion on energy gap in superconductors	Exp: Cuire Temp. (group-VI)		
	25.02.2023		Solution of Hydrogen atom problem using Schrodinger formulation.	Coherence length			
	26.02.2023	Sunday					
	27.02.2023					Exp: Least Square fit mehod (group-III&IV)	
	28.02.2023	National Science Day Celebration					
	01.03.2023		UNIT-II Introduction to orbital and spin angular momentum.	Penetration Depth			
	02.03.2023		Representation of orbital angular momentum in cartesian and polar coordinates.	Duration of persistent current			
	03.03.2023		Infinitesimal rotaton operator as angular momentum operator	DC Johnson effect	Exp: Clipping and clamping (group-VII)		

04.03.2023		Commutation relations	AC Johnson effect		
05.03.2023 to 12.03.2023	Holy Vacations				
13.03.2023	Excess-3 code and Grey code	-----			Exp: Newton Rapshon method (group-V&VI)
14.03.2023	Johnson code and parity	-----		Exp: Clipping and Clamping (group-II)	
15.03.2023		Eigen function and eigen value of L^2 and L_z	Single particle Tunneling		
16.03.2023		Spherical Harmonics	Josephon Tunneling		
17.03.2023	-----	Spin angular momentum and Pauli spin matrices	Macroscopic Quantum Interference		
18.03.2023	-----	General angular momentum. Eigen function and eigen value of J^2 and J_z	High temprature superconductors.	Exp: Clipping and Clamping (group-IV)	
19.03.2023	Sunday				
20.03.2023	Introduction to Logic Gates-OR, AND, NOT, NAND,NOR and EX-OR gates	-----			Exp: Least Square Fit method (group-V&VI)
21.03.2023	Diode analysis of AND gate	-----		Exp: Clipping and Clamping (group-VI)	
22.03.2023		Clebsch Gordan (C.G.) Coefficient and its properties .	High Temperature oxide superconductors		
23.03.2023	Sahidi Diwas				

6	24.03.2023		UNIT-III Introduction to Scattering- Scattering amplitude and cross section	Discovery and properties of high temperature superconductors	Exp: Cuire Temp. (group-I) Seminar on Cipping and Clamping and Hall effect	Seminar on Gamma ray spectrometer	
	25.03.2023		Scattering by spherically symmetric potential	Chemical aspect and structure of La-Ba-Cu-O , Y-Ba-Cu-O			
	26.03.2023	Sunday					
7	27.03.2023	Diode analysis of OR gate	-----			Exp: Newton's Rapshon Method (group-VII&VIII)	
	28.03.2023	Transistor analysis of NOT gate	-----		Exp: Cuire Temp. (group-III)		
	29.03.2023		Method of partial wave	Bismuth and thallium based superconductors.			
	30.03.2023	Ram Naomi					
	31.03.2023	-----	Optical theorem and phase shift in terms of potential.	UNIT-III Introduction to polymers	Exp: Cuire Temp. (group-V) Seminar on JFET & MOSFET and Modulation and Demodulation	Seminar on Gauss elimination method and Sum of series program	
	01.04.2023	-----	Low energy scattering, sign of phase shift, scattering length.	Polymerization			

02.04.2023	Sunday				
03.04.2023	Introduction to Boolean algebra-Boolean Axioms				Exp: Least square fit method (group-VII&VIII)
04.04.2023	Mahavir Jayanti				
05.04.2023		Green's function in scattering theory and expression for scattering amplitude.	Molecular weight and molecular weight distribution		
06.04.2023		Born series, first Born approximation	Thermosets	.	
07.04.2023		Scattering of an electron by a screened coulomb potential in first Born approximation	Thermoplasts	Exp: Cuire Temp. (group-VII) Seminar on Cuire temperature	Seminar on Eigen value and Simpson 1/3 rd Program
08.04.2023		Validity of first Born approximation	Amorphous polymers		
09.04.2023	Sunday				
10.04.2023	D' Morgan's theorems-statement and verification				Exp: Newton 's Rapshon method (group-IX)
11.04.2023	Reduction of Boolean				

9		Expression using D'Morgan's theorem.				
	12.04.2023		UNIT-IV Identical particles and spin: Indistinguishability of identical particles	Crystalline polymers		
	13.04.2023		Symmetry of wavefunctions, spin and statistics	Response of polymers to stress over a temperature range		Seminar on Matrix addition and Bisection Method Program
	14.04.2023	Dr. B. R. Ambedkar Jayanti				
	15.04.2023		Pauli exclusion principle	Rigid, Viscoelastic and rubbery regions		
	16.04.2023	Sunday				
10	17.04.2023	UNIT-II Introduction to K-Map				Exp: Least square fit method (group-IX)
	18.04.2023	Two and three variables K-map			Viva- Voice	
	19.04.2023		Construction of spin function for two electron systems	UNIT-IV Mechanical models for behaviour of polymers		
	20.04.2023		Consequences of symmetry effects in the study of He atom problem (ortho and para helium)	Maxwell and Kelvin elements		

	21.04.2023		Time independent perturbation theory- degenrate and non degenrate case.	Mechanical analog to the behaviour of polymers	Viva- Voice	Seminar on Simpson 3/8 th and Newton's Raphson method
	22.04.2023	Id-UL-FITR				
	23.04.2023	Sunday				
11	24.04.2023	Four variable K-Map				
	25.04.2023	Reduction of Boolean Expression Using K-Map			Viva-voice	
	26.04.2023		He atom problem	Introduction to ceramics		
	27.04.2023		Linear stark effect in hydrogen atom problem.	Physical and mecanical properties of ceramics		
	28.04.2023		Time dependent perturbation theory: constant and Harmonic perturbation.	Traditional ceramics	Viva- Voice	Seminar on Least square fit and Trapezoidal method

	29.04.2023		Golden rule for transition probability	Cement and concrete		
	30.04.2023	Sunday				
12	01.05.2023	Adder and subtractor				Viva- Voice
	02.05.2023	Introduction to Logic Families- DTL, TTL				
	03.05.2023		Interaction of single electron atom with electromagnetic field	New ceramics		
	04.05.2023		Induced absorption and emission	Doubts of UNIT-I		
	05.05.2023		Doubt of unit I	Doubts of UNIT-II		
	06.05.2023		Doubts of unit II	Doubts of UNIT-III		
	07.05.2023	Sunday				
13	08.05.2023	ECL and CMOS				Viva-voice
	09.05.2023	Parameters like- Power dissipation, Fan in , Fan out and Noise Immunity			Viva-Voice	
	10.05.2023		Doubts of unit III	Doubts of UNIT-IV		
	11.05.2023		Doubts of unit IV			

	12.05.2023					
	13.05.2023					
	14.05.2023	Sunday				
	15.05.2023	Duobt session				

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