

2019-2020 SPRING SEMESTER QUANTUM PHYSICS-2 WEEKLY COURSE PLAN

WEEK	DATES	TOPICS	EXPLANATIONS
1	03 -07 February	CHAPTER-1 Quantum Mechanics in Three Dimensions	First Meeting
2	10-14 February	CHAPTER-1 Quantum Mechanics in Three Dimensions 1.1) Hamiltonian 1.2) Schrödinger Equation 1.3) The Statistical Interpretation 1.4) Normalization and Probability 1.5) The Dirac-Delta Function	
3	17 -21 February	1.6) Commutators in Three Dimensions 1.7) Three Dimensional Problems 1.8) Schrodinger Equation in Spherical Coordinate System, Angular Equation	
4	24 -28 February	1.8) Schrodinger Equation in Spherical Coordinate System, Angular Equation 1.9) Radial Equation	RECITATION
5	02-06 March	1.9) Radial Equation 1.10) Hydrogen Atom	RECITATION
6	09-13 March	1.10) Hydrogen Atom	RECITATION
7	16-20 March	CHAPTER-2 Angular Momentum 2.1) Commutator Relations 2.2) Eigenfunctions and Eigenvalues	RECITATION
8	23-27 March	MIDTERM	
9	30 March-3 April	CHAPTER -3 Introduction to Matrix Mechanics 3.1) Eigenvectors and Eigenvalues	

2019-2020 SPRING SEMESTER QUANTUM PHYSICS-2 WEEKLY COURSE PLAN

		3.2) Operator Method in Matrix Mechanics	
10	6-10 April	3.3) Matrix Mechanics in Quantum Physics 3.4) Harmonic Oscillator	
11	13-17 April	CHAPTER -4 Spin 4.1) Spin Commutator Relations 4.2) Eigenfunctions and Eigenvalues 4.3) An Electron in a Magnetic Field	RECITATION
12	20-24 April	4.4) Clebsch Gordon Coefficients 4.5) Additional Angular Momenta	RECITATION
13	27 April-1 May	CHAPTER -5 Time-Independent Perturbation Theory 5.1) First and Second Order Perturbation Theory 5.2) Two Fold Degeneracy	
14	4-8 May	CHAPTER -6 Identical Particles 6.1) Two Particle Systems 6.2) Helium Atom	
15		FINAL EXAM	

Textbooks:

- 1) *Introduction of Quantum Mechanics*, David J. Griffiths, Second Edition
- 2) *Quantum Physics*, 3rd Edition, Stephen Gasiorowicz
- 3) *Introductory Quantum Mechanics*, Richard L. Liboff

Course Grading System:

2 Midterm+Homeworks (60%) and Final (40%)