

(Lesson Plan) ODD

MCM DAV College for Women, Sector – 36A, Chandigarh
Monthly Teaching Plans (*Odd Semester*)
Session – (2021-22)

Name of the Teacher: Ms. Shreya Sharma

Department: Physics

Class: B.Sc (II)

Subject: Quantum Physics(I)

Section (s): Non-Medical A, Non-Medical B, Vocational

S.No	Date (Monthly)		Topics Covered	Academic Activity Undertaken*
	From	To		
1	18th August, 2021	31 st August, 2021	<ul style="list-style-type: none">✓ De Broglie waves,✓ wave packet,✓ Phase velocity and Group velocity,✓ Electron microscope,✓ Particle diffraction✓ Davisson-Germer experiment,✓ Interferometry with particles.✓ Uncertainty principle with illustrations,✓ Principle of complementarity.	<ul style="list-style-type: none">✓ Lecture using digital board and ppt in classroom (online and offline mode)✓ Group Quiz✓ Online animations for concept clarity
Departmental Meeting to Coordinate and Review the Monthly completion of Syllabus as per lesson plans				
2	1 st September, 2021	30 th September, 2021	<ul style="list-style-type: none">✓ Quantum mechanics, Wave equation,✓ Plausible arguments leading to time-dependent Schrodinger equations, Born's interpretation of Wave	<ul style="list-style-type: none">✓ Lecture(using digital board) ppt mode in classroom,✓ Oral questions✓ Own video lecture sharing for concept clarity

			<p>function, complex character, continuity and boundary conditions, probability interpretation, normalization,</p> <ul style="list-style-type: none"> ✓ Probability current, Probability conservation equation, ✓ Principle of superposition. 	
Departmental Meeting to Coordinate and Review the Monthly completion of Syllabus as per lesson plans				
3	1 st October,2021	31 st October,2021	<ul style="list-style-type: none"> ✓ Fundamental postulates of quantum mechanics. ✓ Eigen values and Eigen functions. ✓ Operator formalism, Position, momentum and energy operators, ✓ expectation values, ✓ Ehrenfest theorem, Hermitian operators ✓ Steady-state Schrodinger equation ✓ Application to stationary states for one dimension, ✓ 	<ul style="list-style-type: none"> ✓ Lecture(using digital board)ppt mode in classroom, ✓ Assignments ✓ Oral Tests
Departmental Meeting to Coordinate and Review the Monthly completion of Syllabus as per lesson plans				
4	1 st Nov,2021	30th Nov,2021	<ul style="list-style-type: none"> ✓ .Potential step, potential barrier, Tunnel effect examples, Scanning Tunneling microscope, ✓ Rectangular potential well, linear harmonic oscillator. Schrödinger equation for spherically symmetric potential, ✓ Spherical harmonics, Hydrogen atom ✓ Energy levels and Eigen functions, ✓ Principal, Orbital and Magnetic quantum numbers, 	<ul style="list-style-type: none"> ✓ Lecture using digital board ppt mode in classroom ✓ Online sources ✓ Group Discussions

			✓ Electron probability density.	
Departmental Meeting to Coordinate and Review the Monthly completion of Syllabus as per lesson plans				
			✓	✓
Departmental Meeting to Coordinate and Review the Monthly completion of Syllabus as per lesson plans				
			✓	✓
Departmental Meeting to Coordinate and Review the Monthly completion of Syllabus as per lesson plans				

*Any of these – (i) Lecture Method; (ii) PPT; (iii) Online Sources; (iv) Group Discussion; (v) Case Studies etc.
Other Methods adopted by the teacher – Please write the specific teaching method

EVEN
(Lesson Plan)

MCM DAV College for Women, Sector – 36A, Chandigarh
Monthly Teaching Plans (*Even Semester*)
Session – (2021-22)

Name of the Teacher: **Ms. Shreya Sharma**

Department: **Physics**

Class: **B.Sc (II)**

Subject: **Quantum Physics (II)**

Section (s): **Non-Medical A, Non-Medical B, Vocational**

S.No	Date (Monthly)		Topics Covered	Academic Activity Undertaken*
	From	To		
1	3 rd Feb, 2022 (Tentative)	28 th Feb, 2022	<ul style="list-style-type: none">✓ Radiative transitions, selection rules and life times,✓ Spectrum of hydrogen atom.✓ Normal Zeeman effect and experiment, Degeneracy of H-atom energy levels, fine structure,✓ Electron angular momentum, Larmor's frequency, electron spin angular momentum,✓ Exclusive principle, Stern- Gerlach experiment.	<ul style="list-style-type: none">✓ Lecture using digital board ppt mode in classrooms✓ Group Discussions✓ Quiz
Departmental Meeting to Coordinate and Review the Monthly completion of Syllabus as per lesson plans				
2	1 st March, 2022	31 st March, 2022	<ul style="list-style-type: none">✓ Spin-orbit coupling, electron magnetic moment, total angular momentum,	<ul style="list-style-type: none">✓ Lecture(using digital board)ppt mode in classroom,

			<ul style="list-style-type: none"> ✓ Hyperfine structure, examples of one electron systems ✓ Anomalous Zeeman Effect, Lande-g factor (sodium D-lines). ✓ Paschen-Back Effect, Stark Effect. ✓ Symmetric and Ant symmetric wave functions, ✓ Exclusion principle, Many electron atoms, Slater determinant, ✓ Electronic configurations, Hund's rule, Spin-Orbit coupling 	<ul style="list-style-type: none"> ✓ Group Discussions ✓ Visual Demonstration
Departmental Meeting to Coordinate and Review the Monthly completion of Syllabus as per lesson plans				
3	1 st April,2022	30 th April,2022	<ul style="list-style-type: none"> ✓ L-S coupling, J-J couplings, term symbols. ✓ Atomic spectra of H, Na, He and Hg, ✓ Selection rules. ✓ X-ray spectra, nomenclature, Selection rules, ✓ Mosley law, Auger Effect ✓ Molecular bonding, H₂ + ion and H₂ molecules, Complex molecules, molecular spectra, selection rules, symmetric structures, 	<ul style="list-style-type: none"> ✓ Lecture(using digital board)ppt mode in classroom, ✓ Assignments ✓ Oral Tests ✓ Group Discussions
Departmental Meeting to Coordinate and Review the Monthly completion of Syllabus as per lesson plans				
4	1 st May,2022	25 th May, 2022	<ul style="list-style-type: none"> ✓ Rotational vibration levels and spectra of diatomic molecules, ✓ Vibration-Rotational spectra, Electronic spectra of molecules, 	<ul style="list-style-type: none"> ✓ Lecture using digital board ppt mode in classroom ✓ Group Discussions

			<ul style="list-style-type: none"> ✓ Franck Condon principle, fluorescence and phosphorescence, ✓ Raman Effect, ✓ Magnetic resonance experiments. 	✓ Quiz
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***Any of these** – (i) Lecture Method; (ii) PPT; (iii) Online Sources; (iv) Group Discussion; (v) Case Studies etc.
 Other Methods adopted by the teacher – Please write the specific teaching method