**(Lesson Plan) ODD**

**MCM DAV College for Women, Sector – 36A, Chandigarh**

**Monthly Teaching Plans (*Odd Semester*)**

**Session – (2020-21)**

**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**

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| **S.No.** | **Date**  **(Monthly)** | | | **Topics Covered** | **Academic Activity Undertaken\*** |
| **From** | **To** | |
| 1 | 19th Sep,2020 | 30th Sep,2020 | | * De Broglie waves, * wave packet, * Phase velocity and Group velocity, * Electron microscope, * Particle diffraction | * **Lecture using digital board** * **Online Sources** * **Discussions** |
|  |  |  | |  |  |
| **Departmental Meeting to Coordinate and Review the Monthly completion of Syllabus as per lesson plans** | | | | | |
| 2 | 1st Oct,2020 | 31st Oct,2020 | | * Davisson-Germer experiment, * Interferometry with particles. * Uncertainty principle with illustrations, * Principle of complementarity. | * **Lecture(using digital board),** * **Group Discussions** * **Online Sources** |
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| **Departmental Meeting to Coordinate and Review the Monthly completion of Syllabus as per lesson plans** | | | | | |
| 3 | 1st Nov,2020 | 30th Nov,2020 | | * Quantum mechanics, Wave equation, * Plausible arguments leading to time-dependent Schrodinger equations, Born’s interpretation of Wave function, complex character, continuity and boundary conditions, probability interpretation, normalization, * Probability current, Probability conservation equation, * Principle of superposition. | * **Lecture(using digital board),** * **Assignments** * **Oral Tests** |
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| **Departmental Meeting to Coordinate and Review the Monthly completion of Syllabus as per lesson plans** | | | | | |
| 4 | 1st Dec,2020 | 31st Dec,2020 | | * Fundamental postulates of quantum mechanics. * Eigen values and Eigen functions. * Operator formalism, Position, momentum and energy operators, * expectation values, * Ehrenfest theorem, Hermitian operators. | * **Lecture using digital board** * **Online sources** * **Group Discussions** |
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| **Departmental Meeting to Coordinate and Review the Monthly completion of Syllabus as per lesson plans** | | | | | |
| 5 | 1st Jan,2021 | 20th Jan,2021 | | * Steady-state Schrodinger equation, * Application to stationary states for one dimension, * 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 | * **Lecture(using digital board),** * **Group Discussions** * **Oral Tests and Assignments** |
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| **Departmental Meeting to Coordinate and Review the Monthly completion of Syllabus as per lesson plans** | | | | | |
| 6 | 20th Jan,2021 | | 10th Feb,2021 | * Energy levels and Eigen functions, * Principal, Orbital and Magnetic quantum numbers, * Electron probability density. | * **Lecture(using digital board),** * **Group Discussions** * **Oral Tests and Assignments** |
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| **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 – (2020-21)**

**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**

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| **S.No.** | **Date**  **(Monthly)** | | | **Topics Covered** | **Academic Activity Undertaken\*** |
| **From** | **To** | |
| 1 | 15th March,2021  (Tentative) | 31st March,2021 | | * 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. | * **Lecture using digital board** * **Online Sources** * **Group Discussions** * **PPT** |
|  |  |  | |  |  |
| **Departmental Meeting to Coordinate and Review the Monthly completion of Syllabus as per lesson plans** | | | | | |
| 2 | 1st April,2021 | 30th April,2021 | | * Spin-orbit coupling, electron magnetic moment, total angular momentum, * Hyperfine structure, examples of one electron systems * Anomalous Zeeman Effect, Lade-g factor (sodium D-lines). * Paschen-Back Effect, Stark Effect. | * **Lecture(using digital board),** * **Group Discussions** * **Online Sources** * **PPT** * **Visual Demonstration** |
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| **Departmental Meeting to Coordinate and Review the Monthly completion of Syllabus as per lesson plans** | | | | | |
| 3 | 1st May,2021 | 31st May,2021 | | * Symmetric and Ant symmetric wave functions, * Exclusion principle, Many electron atoms, Slater determinant, * Electronic configurations, Hund’s rule, Spin-Orbit coupling * L-S coupling, J-J couplings, term symbols. | * **Lecture(using digital board),** * **Assignments** * **Oral Tests** * **Group Discussions** |
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| **Departmental Meeting to Coordinate and Review the Monthly completion of Syllabus as per lesson plans** | | | | | |
| 4 | 1st June,2021 | 30th June,2021 | | * 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, | * **Lecture using digital board** * **Online sources** * **Group Discussions** * **PPT** |
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| **Departmental Meeting to Coordinate and Review the Monthly completion of Syllabus as per lesson plans** | | | | | |
| 5 | 1st July,2021 | 31st July,2021 | | * Rotational vibration levels and spectra of diatomic molecules, * Vibration-Rotational spectra, Electronic spectra of molecules, * Franck Condon principle, fluorescence and phosphorescence, * Raman Effect, * Magnetic resonance experiments. | * **Lecture(using digital board),** * **Group Discussions** * **Oral Tests and Assignments** |
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| **Departmental Meeting to Coordinate and Review the Monthly completion of Syllabus as per lesson plans** | | | | | |
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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