**(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**
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| **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**
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| **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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| **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