**PG.GOVT COLLEGE FOR GIRLS, SECTOR-42, CHANDIGARH**

**Teaching Plan Odd Semester (For Ongoing Classes UG-PG)**

**Session (2021-2022)**

**Class: B.Sc 3rd Semester**   **Name of the Teacher: Rajwinder Singh**

**Subject: Physics Period :4th/6th**

**Paper :\*A/\*\*C Room No : 129**

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| **S. No** | **Dates** | **Topics to be covered** |
| Week 1 | 11-08-2021 to 14-08-2021 | \*Basic ideas of Statistical Physics, Scope of Statistical Physics, basic ideas about probability,  \*\*Plancks’s formula of Black body radiation. |
| Week 2 | 16-08-2021 to 21-08-2021 | \*Distribution of four distinguishable particles in two compartments of equal size.  \*\*Black body radiation and energy quantization |
| Week 3 | 23-08-2021 to 28-08-2021 | \*Concept of macrostates, microstates, thermodynamic probability, effects of constraints on the system,  \*\*Wave-particle duality – Photoelectric effect, X-ray diffraction, Compton effect, Pair production, Photon and gravity |
| Week 4 | 31-08-2021 to 04-09-2019 | \*Distribution of n particles in two compartments,  \*\*De Brogile waves, wave packet, Phase velocity and Group velocity, Electron microscope, Particle in a box |
| Week 5 | 06-09-2021 to 11-09-2021 | \*Deviation from the state of maximum probability, equilibrium state of dynamic system,.  \*\*Particle diffraction, Davisson-Germer experiment, Interferferometry with particles. |
| Week 6 | 13-09-2021 to 18-09-2021 | \*Distribution of distinguishable n particles in k compartments of unequal sizes  \*\*Uncertainty principle with illustrations, Principle of complementarity |
| Week 7 | 20-09-2021 to 25-09-2021 | \*Phase space and its division into elementary cells  \*\*Wave equation, Plausible arguments leading to time-dependent Schrodinger equations, Born’s interpretation of Wave function |
| Week 8 | 27-09-2021 to 01-10-2021 | \*Three kinds of statistics. The basic approach in the three statistics.  \*\*complex character, continuity and boundary conditions, probability interpretation, normalization, |
| Week 9 | 04-10-2021 to 09-10-2021 | \*Maxwell-Boltzman statistics applied to an ideal gas in equilibrium  \*\*Operator formalism, Position, momentum and energy operators, expectation values, Ehrenfest theorem, Hermitian operators. |
| Week 10 | 11-10-2021 to 16-10-2021 | \*Experimental verification of Maxwell-Boltzman’s law of distribution of molecular speeds.  \*\*Steady-state Schrodinger equation . |
| Week 11 | 18-10-2021 to 19-10-2021 | \*Need of quantum statistics--B.E. statistics  \*\*Potential step. potential barrier, Tunnel effect examples |
| **Mid Semester Exam (21st October 2021 – 30th October 2021)** | | |
| Week 12 | 01-11-2021 to 06-11-2021 | \*Derivation of Planck’s law of radiation  \*\*Appliction to stationary states for one dimension Scanning Tunneling microscope, rectangular potential well, Linear harmonic oscillator. |
| Week 13 | 08-11-2021 to 13-11-2021 | \*Deduction of Wien’s displacement law and Stefan’s law from Planck’s law  \*\*SchrÖdinger equation for spherically symmetric potential, spherical harmonics |
| Week 14 | 15-11-2021 to 20-11-2021 | \*F.D. statistics  \*\*hydrogen atom energy levels and eigenfunctions, |
| Week 15 | 22-11-2021 to 27-11-2021 | \*Fermi dirac distribution law  \*\*Principal, Orbital and Magnetic quantum numbers , |
| Week 16 | 29-11-2021 to 30-11-2021 | \*Comparison of M.B., B.E. and F.D. statistics  \*\*Electron probability density |