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

**Teaching Plan Session Odd Semester**

**(2018-19)**

**Class: B.Sc.Ist /Ist (Biotech) Name of the Teacher: JYOTI**

**Subject: Electricity & Magnetism/Physics Period : IIIrd,Vth**

**Paper : C/Sem-I Room No : 315/111**

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| **S. No** | **Date From** | **Date Upto** | | **Topics to be covered** |
| Week 1 | July 24 2018 | July 28, 2018 | |  |
| Week 2 | July 30 2018 | Aug 4, 2018 | | Scalar and vectors, vector notation,addition and product of vectors,vector representation of area,Scalar & dot product and their properties.  Scalars & vectors,Unit vector, vector algebra,Laws of vector addition,Scalar & dot product and their proprties. |
| Week 3 | Aug 6, 2018 | Aug 11, 2018 | | Scalar & vector triple product,scalar & vector quadrupole product,Vector representation of line, plane & sphere.  Vector calculus: Divergence & curl of vector field, Gradient of a scalar field and some identities of vector calculus. |
| Week 4 | Aug 13, 2018 | Aug 18, 2018 | | Scalar & vector field,Derivatrive of a vector,Del operator, Integration of vectors, Flux,Divergence of a vector field and its expression in terms of cartesian coordinates  Physical quantities,Units(History & types), Units of measurement and ranges for fundamental physical quantities, System of units. |
| Week 5 | Aug 20, 2018 | Aug 25, 2018 | | Gauss divergence theorem,curl of a vector field & its expression in terms of cartesian components,Stoke’s theorem  Coulomb’s law for point charges, electric field due to point charge, Electric field due to dipole (on axial line and equator line) |
| Week 6 | Aug 27, 2018 | Sept 1, 2018 | | Gradient of a scalar field & its expression in terms of cartesian components,Green’s Theorem,Types of vector fields and their properties,Spherical & cylinderical coordinates  Electric flux,Gauss theorem & its applications(line of charge and sheet of charge) |
| Week 7 | Sept 3, 2018 | Sept 8 , 2018 | | Coloumb’s force law,Force experienced by test charge,Electric field,Superposition of electric fields,Electric field due to dipole(on axial & equatorial line)  Electric potential due to point charge and group of charges, Potential difference as line integral of electric field |
| Week 8 | Sept 10, 2018 | Sept 15, 2018 | | Electric field due to linear distribution of charge,sgheet of charge and uniformly charged circuylar ring, Solid angle,Electric lines of force,Flux,Gauss law 7 its differential form.  Electric Potential due to dipole on axial line, Electric potential due to dipole on equatorial line |
| Week 9 | Sept 17, 2018 | Sept 22, 2018 | | Application of Gauss law(linear charge,infinite plane sheet of charge,spherical distribution of charge),Coloumb law from Gauss law.  Capacitance,Series & parallel arrangements,Energy stored in the electric field of capacitor |
| Week 10 | Sept 24, 2018 | Sept 29, 2018 | | Work & Potential difference, Potential difference as line integral of electric field, Electric potential due to dipole & its application in electrostatic field.  Current,Current density |
| Week 11 | Oct 1, 2018 | Oct 8, 2018 | | Electric potential due to quadrupole & its application in electrostatic field, Electric field as a gradient of scalar potential, curl E=0,  Equation of continuity, Ohm’s law in vector form |
| **Mid Semester Exam (11 Oct 2017 – 17 Oct 2017)** | | | | |
| Week 12 | Oct 20, 2018 | | Oct 27, 2018 | Calculation of E due to a point charge and dipole from potential, Poisson & Laplace’s equation, Concept of electrical images  Interference of waves, phase and path differences, theory of interference fringes, Young’s experiment, coherent sources, Llyod’s mirror, Fresnel Bi-prism, Intensities of maxima and minima. |
| Week 13 | Oct 29, 2018 | | Nov 03, 2018 | Calculation of electric potential and field due to a point charge placed near an infinitely conducting sheet.  Diffraction of light, Rectilinear propagation, Fresnel and Fraunhofer diffraction (at single slit) |
| Week 14 | Nov 5, 2018 | | Nov 10, 2018 | Polarisation of matter,atomic & molecular dipoles, induced dipole moment & atomic polarizability  Rayleigh criteria for resolving power (telescope and microscope), Compound microscope (Principle, Construction, Ray diagram, magnifying power) |
| Week 15 | Nov 12, 2018 | | Nov 17, 2018 | Electric susceptibility & polarisation vector, relation K=1+χ ,  Fluorescent microscope (Concept), Polarization (Introduction) |
| Week 16 | Nov 19, 2018 | | Nov 22, 2018 | Gauss Law for dielectrics, Displacement vector  Quantum Theory of Light, X-Rays Diffraction, Compton effect, Bragg’s Law, De Broglie Wave equation, Phase velocity and group velocity |
| Week 17 | Nov 26, 2018 | | Dec 1, 2018 | Div D=0, Energy stored in dielectric media.  Electron microscope, Uncertainty principle (Statement), Applications of uncertainty principle (Particle in a box, Existence of electron in nucleus and atom), Radioactivity and its laws, Half-life and Mean life, uses of radioactivity. |