**Post Graduate Govt. College for Girls, Sector-42, Chandigarh**

**Teaching Plan (OddSemester) Session (2019-2020)**

**Class: B.Sc.3rdSem. /B.Sc.1st Sem. Name of the Teacher:KAMLESH KUMARI**

**Subject: PHYSICS Period:4th/3rd**

**Paper: B/C Room No:31/126**

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| **S. No** | **Dates** | **Topics to be Covered** |
| Week 1 | 23-07-2019 to 27-07-2019 | Concept of coherence, spatial and temporal coherence, coherence time, coherence length,  area of coherence. |
| Week 2 | 29-07-2019 to 03-08-2019 | Conditions for observing interference fringes. Interference by wavefront division and  amplitude division. Young’s double slit experiment. Lloyd’s mirror and Fresnel’s biprism,phase change on reflection.  Basic ideas of Vector Calculus,Gradient of Scalar field , Divergence and Curl of vector field. |
| Week 3 | 05-08-2019 to 10-08-2019 | |  | | --- | | Newton’s rings, Michelson interferometer—working, principle and  nature of fringes. | | Useful Relations involving Gradient ,Divergence and Curl. | |
| Week 4 | 13-08-2019 to 17-08-2019 | Interference in thin films, Role of interference in anti-reflection. Multiple beam interference.  Continued from week 3  Useful Relations involving Gradient ,Divergence and Curl. |
| Week 5 | 19-08-2019 to 24-08-2019 | Fabry-Perot interferometer, nature of fringes, finesse*.*Numerical problems,Class test.   |  | | --- | | Continued from week 4 Physical significance and applications , Conservative field, | | Green’s Theorem in a plane. | |
| Week 6 | 26-08-2019 to 31-08-2019 | *Diffraction :*Huygens-Fresnel’s theory of Diffraction. Fresnel’s half period zones, zone plates. Distinction between Fresnel and  Fraunhofer diffraction.   |  | | --- | | Laplacian in Rectangular coordinates.Stoke’stheorem, Gauss’s Divergence theorem.Coulomb’s Law for point charges and continuous distribution of charges. | |
| Week 7 | 02-09-2019 to 07-09-2019 | Fraunhofer diffraction due to single slit and intensity distribution, double slits and multiple slits (qualitative).  Electric field due to dipole, line charge, charged ring,circular disc and sheet of charge,Gauss’s law and its differential form. |
| Week 8 | 09-09-2019to 14-09-2019 | Fraunhofer diffraction at rectangular (qualitative discussion) and circular apertures.*Numerical problems and class test.*  Work & Potential difference, Potential difference as line integral of field, Electric potential due to dipole and quadrupole & its applications in Electrostatic field. |
| Week 9 | 16-09-2019 to 21-09-2019 | Effects of diffraction in  optical imaging, resolving power of microscope and telescope,  Electric field as gradient of scalar potential, curl E=0 .Calculation of E due to a point charge and dipole from potential. |
| Week 10 | 23-09-2019 to 28-09-2019  (Youth Festival 24-09-2019 to 27-09-2019) | |  | | --- | | diffraction grating, its use as a spectroscopic  element, resolving power, Moire’s fringes. | | |  | | --- | | Numerical Problems . | | |
| Week 11 | 30-09-2019 to 05-10-2019 | |  | | --- | | Discussion ofobjective type questions, Class test. | | Numerical problems and class test. | |
| Mid Semester Exams | | |
| Week 12 | 16-10-2019 to 19-10-2019 | Numerical problems. Poisson & Laplace’s equation, Concept of electrical images. |
| Week 13 | 21-10-2019 to 26-10-2019 | Polarization: Concept and analytical treatment of unpolarised , plane polarized and elliptically polarized light.Calculation of electric potential and field due to a point charge placed near an infinitely conducting sheet. |
| Week 14 | 29-10-2019 to 02-11-2019 | Double refraction, Nicol prism.  Discussion of Objective type questions andNumericals. |
| Week 15 | 04-11-2019 to 09-11-2019 | Sheet polarisers, retardation plates.  Polarisation of matter,atomic & molecular dipoles, induced dipole moment & atomic polarizability. |
| Week 16 | 11-11-2019 to 16-11-2019 | Production and analysis of polarized light (quarter and half wave plates).  Electric susceptibility and polarization vector.Relation K=1+ χ , |
| Week 17 | 18-11-2019 to 23-11-2019 | Numerical problems and class test.  Gauss’ s Law for dielectrics, Displacement vector.  Divergence D=0 , Energy stored in dielectric medium. |
| Week 18 | 25-11-2019 to 30-11-2019 | Numerical problems, Class Test.  Discussion of objective type questions , Class Test. |