Modules of Classes and Examinations, 2018-19
B.Sc. (General) in Physics
Semester-II

Total 75 Marks

➢ **Hiralal Bhakat Colllege, Nalhati**
➢

- ➢ **Core Course CC2B** ELECTRICITY AND MEGNATISM
- ➢ 40 Marks for Semester-end-Examination[#] (will be organized by University)
- ➢ 20 Marks for practical (will be organized by College in general and Department in Particular)
- ➢ 10+5=15 Marks for Internal Assessment (will be organized by College in general and Department in Particular)
- ➢ 10 Marks for Class Test/ Assignment/ Seminar
- ➢ 5 Marks for Attendence

> Attendence: 50% & above but below 60% - 2 Marks
> Attendence: 60% & above but below 75% - 3 Marks
> Attendence: 75% & above but below 90% - 4 Marks
> Attendence: 90% & Above - 5 Marks

Internal Assessment	Component 1 (C_1)	Component 2 (C_2)
Weightage	5 Marks	5 Marks
Number of Questions	5 (FIVE)	5(FIVE)
Date	16-04-2019	07-05-2019
Time	12:30 PM	12:30 PM
Syllabus	1.Vector Analysis: Review of vector algebra (Scalar and Vector product), gradient, divergence, Curl and their significance, Vector Integration, Line, surface and volume integrals of Vector fields, Gaussdivergence theorem and Stoke's theorem of vectors (statement only). 2.Electrostatics: Electrostatic Field, electric flux, Gauss's theorem of electrostatics. Applications of Gauss Theorem-Electric field due to point charge, infinite line of charge, uniformly charged spherical shell and solid sphere, plane charged sheet, charged conductor. Electric potential as line integral of electric field, potential due to a point charge, electric dipole, uniformly charged spherical shell and solid	1.Vector Analysis: Review of vector algebra (Scalar and Vector product), gradient, divergence, Curl and their significance, Vector Integration, Line, surface and volume integrals of Vector fields, Gaussdivergence theorem and Stoke's theorem of vectors (statement only). 2.Electrostatics: Electrostatic Field, electric flux, Gauss's theorem of electrostatics. Applications of Gauss Theorem-Electric field due to point charge, infinite line of charge, uniformly charged spherical shell and solid sphere, plane charged sheet, charged conductor. Electric potential as line integral of electric field, potential due to a point charge, electric dipole, uniformly charged spherical shell and solid sphere. Calculation of electric field from potential. Capacitance of an isolated spherical conductor. Parallel plate, spherical and cylindrical condenser. Energy per unit volume in electrostatic field. Dielectric medium, Polarisation, Displacement vector. Gauss's

sphere. Calculation of electric field from potential. Capacitance of an isolated spherical conductor. Parallel plate, spherical and cylindrical condenser. Energy per unit volume in electrostatic field. Dielectric medium, Polarisation, Displacement vector. Gauss's theorem in dielectrics. Parallel plate capacitor completely filled with dielectric.	theorem in dielectrics. Parallel plate capacitor completely filled with dielectric. 3.Magnetism: Magnetostatics: Biot-Savart's law & its applications- straight conductor, circular coil, solenoid carrying current. Divergence and curl of magnetic field.Magnetic vector potential.Ampere's circuital law. Magnetic properties of materials: Magnetic intensity, magnetic induction, permeability, magnetic susceptibility. Brief introduction of dia-, para- and ferro-magnetic materials. 4. Electromagnetic Induction: Faraday's laws of electromagnetic induction, Lenz's law, self and mutual inductance, L of single coil, M of two coils. Energy stored in magnetic field. (6 Lectures) Maxwell`s equations and Electromagnetic wave propagation: Equation of continuity of current, Displacement current, Maxwell's equations, Poynting vector, energy density in electromagnetic field, electromagnetic wave propagation through vacuum and isotropic dielectricmedium, transverse nature of EM waves, polarization.

Name of Teacher(s)	Md Ashik	Md Ashik
Number of Classes	30 (Tentative)	30(Tentative)

#Component 3 (C₃)

  ➢ 40Marks for Semester-end-Examination (will be organized by University)
  ➢ Answer 5 questions out of 8 carrying 02 marks each = 5 x 02 = 10 marks
  ➢ Answer 5 questions out of 7 carrying 03 marks each = 5 x 03 = 15 marks
  ➢ Answer 03 questions out of 05 carrying 5 marks each = 03x 5 = 15 marks

  ➢ Whole Syllabus of CC 2B

  ➢ Practical (Mechanics) = 20 Marks
    Laboratory Note Book: 05 Marks
    Viva- voce: 05 Marks
    Experiment: 40 Marks (This 40 marks will be transformed into 10 Marks)

> ➢ A project File (Laboratory Note Book), comprising one exercise each is to be submitted.