| Code | Subject Title | Cr. Hrs | Semester |
|---|---|---|---|
| PHY-103 | Electricity and Magnetism | 3 | II |
| Year | Discipline | | |
| 1 | Physics | | |

Electric field of continuous charge distributions, dipole in an electric field, Applications of Gauss' law, calculating the field from the potential, capacitor with dielectric, electric current density and Ohm's law, semiconductors and superconductors, magnetic force on a charged particle, magnetic force on a current, torque on a current loop, magnetic dipole, Biot-Savart Law, Ampere's law, Faraday's Law, Lenz's Law, motional E.M.F, induced electric fields, Gauss' law for magnetism, origin of atomic and nuclear magnetism, magnetization, magnetic materials, induced magnetic fields and displacement current, Maxwell's equations, generating an electro-magnetic wave, traveling waves and Maxwell's equations, energy transport and the Poynting vector.

***Books Recommended:***

*Physics Vol. II (extended)* by Resnick, Halliday and Krane, 4th Edition, John Wiley and Sons Inc, New York, 1992.

*Physics Vol.II (extended)* by Resnick, Halliday and Krane, 5th Edition, John Wiley and Sons Inc, New York, 2002.

*Fundamental of Physics* by Halliday Resnick and Krane, 5th Edition, John Wiley and Sons Inc, New York, 1999.

*University Physics* 8th Edition by Sears, Zemansky and Young, Addison-Wesley, Reading (MA), USA, 2000.

*Physics* by Alonso and Finn: Addison-Wesley, Reading (MA), USA, 1999.