Code	Subject Title	Cr. Hrs	Semester
MATH-427	**Electromagnetic Theory - II**	**3**	**VIII**
Year	Discipline		
4	**Mathematics**		

Objectives:

Steady and Slowly Varying Currents

- The Faraday induction law
- Induced elecromotance in a moving system
- Inductance and induced electromotance
- Energy stored in a magnetic field

The Equations of Electromagnetism

- Maxwell's equations in free space and material media
- Solution of Maxwell's equations

Electromagnetic Waves

- Plane electromagnetic waves in ho mogeneous and isotropic media
- The Poynting vector in free space
- Propagation plane electromagnetic waves in non-conductors
- Propagation plane electromagnetic waves in conducting media
- Reflection and refraction of plane waves
- Guided waves; coaxial line; hollow rectangular wave guide
- Radiation of electromagnetic waves
- Electromagnetic field of a moving charge

Recommended Books:

- J. R. Reitz, F. J. Milford and R. W. Christy, Foundations of Electromagnetic Theory (Addison-Wesley Publishing Co., 1993)
- D. Corrison and P. Lorrison, Introduction to Electroma gnetic Fields and Waves (W.H. Freeman and Company, London, 1962).
- C.G. Someda, Electromagnetic Waves (CRC, 2006).
- J. D. Jackson, Classical Electrodynamics (Wiley, 1999).
- J. V. Stewart, Intermediate Electromagnetic Theory (World Scientific, 2001).
- G. E. Owen, Introduction to Electromagnetic Theory (Dover, 2003).