Module Code:	MATH-426
Module Title:	**Electromagnetic Theory - II**
Module Rating:	3 Cr. Hours
Pre-Requisite:	Electromagnetic Theory - I

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 homogeneous 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

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