Course Syllabus

Course Code and Name	**EE 26325 – Electromagnetic Fields -1**
Credit and contact hours	**3 (2, 1, 1) (Lecture, Tutorial, Lab)**
Required or Elective	**Required**
Level / Year	**Level (5) / Year (3)**
Course Prerequisite	**MATH26213 Differentiation and Integration – 2**
Textbook	W. Hayt and J. Buck, Engineering Electromagnetics, McGraw-Hill, 2011.
Course Description	This course covers the following topics: Vector analysis, Coordinate Systems-gradient, divergence, curl, and Laplacian of vector fields in different coordinate systems. Electrostatic fields: Coulomb's law and electric field intensity, electric flux density, Gauss's law and divergence, energy and potential, conductors, dielectrics and capacitance, Poisson, and Laplace equations. Steady magnetic fields: Magnetostatic fields: Biot-Savart's law, Ampere's law, curl and Stokes's theorem, magnetic flux density, magnetic forces, materials, and inductance – time varying fields – Maxwell equations. Wave Equation.
Brief List of Topics to be Covered	1- Vector analysis 2- Electrostatic Fields (Coulombs law and electric field intensity-Gauss's law, Energy and potential) 3- Boundary value problems 4- Capacitance, Poisson's and Laplace's equations 5- Magneto-static fields 6- Time-varying fields and Maxwell's equations
Course is prerequisite for	• EE26361 Electrical Machines – 1 • EE26342 Electromagnetic Fields – 2