ISTANBUL AYDIN UNIVERSITY
2015 - 2016 ACADEMIC YEAR FALL SEMESTER
SYLLABUS

FACULTY	Faculty of Engineering
DEPARTMENT	Department of Electrical and Electronics Engineering
COURSE CODE AND TITLE	EEE321 ELECTROMAGNETIC FIELDS AND WAVES
CREDIT	3 (5)
TEACHING MEMBER	Prof. Dr. Hasan Huseyin Balik
OBJECTIVE	This course will provide students with the theoretical underpinnings of electromagnetic field and wave phenomena, allowing them to work out quantitative examples and prepare them for the electrical and electronics industry
GRADING PROCEDURE	20% Midterm, 20% Assignment, 20% Popup Quiz (2) and %40 Final
TEXT BOOK	1-Electromagnetic Fields and Waves, 3rd Edition (Paul Lorrain etc.) 2-Fundamentals of Electromagnetics with Matlab, 2nd Edition (Karld E. Lonngren etc.) 3-Fields and Waves in Communication Electronics, 3rd Edition (Simon Ramo etc.) 4-Electromagnetics (Edward J. Rothwell etc.) 5-MATLAB-Based Electromagnetics (Branislav M.Notaros) 6-Introductory Electromagnetics (Herbert P. Neff, Jr.) 7-Mühendislik Elektromanyetiğinin Temelleri (David K. Cheng)

COURSE OUTLINE:

1- Vector Operators, Coordinates Systems
2- Coulumb's Law, Gauss's Law, The Equations of Poisson and Laplace, Charge Conservation, Conductors
3- Electric Multipoles, Energy, Capacitance, and Forces
4- Dielectric Materials
5- Magnetic Flux Density, Vector Potantial, Ampere's Circuital Law, Magnetic field Strength
6- Ferromagnetizm, Magnetic Circuits, The Faraday Induction Law
7- Midterm Exam
8- Magnetic Energy, Macroscopic Magnetic forces, Maxwell Equations
9- Uniform Plane Waves in Free Space, Nonconductors, Conductors
10- Reflection and Refraction:The Basic Laws, Fresnel's Equations, Nonuniform Plane Waves, Total Reflection
11- Reclection and Refraction at the Surface of Good Conductor
12- Guided Waves General Principles, The coaxial and Microscript Lines
13- The Potaltials V and A, The Fields E and B
14- The Electric Dipole Transmitting Antenna, The Half-Wave antenna, Antenna Arrays, The Magnetic Dipole Antenna