

Course Title	<b>Introduction to Electromagnetism</b>				
Course Code	<b>MME 107</b>				
Course Type	Compulsory				
Level	Undergraduate				
Year / Semester	1 <sup>st</sup> year / 2 <sup>nd</sup> Semester				
Teacher's Name	Ioannis Giapintzakis				
ECTS	5	Lectures / week	3+1 hours	Laboratories / week	0
Course Purpose and Objectives	The aim of the course is the comprehension of basic concepts and phenomena of Electromagnetism, and development of students' ability in solving problems using calculus. Particular emphasis is given to the relationship between the basic physical phenomena and their application in technology.				
Learning Outcomes	<ul style="list-style-type: none"> <li>• Define and apply Gauss's law in electricity</li> <li>• Define and apply Gauss' Law in magnetism</li> <li>• Define and apply the general form of Ampère's law</li> <li>• Define and apply Faraday's law of induction</li> <li>• Analyze DC circuits using Kirchhoff's rules</li> <li>• Analyze RC, LC and RL circuits</li> <li>• Analyze the RLC series ac circuit using phasors</li> <li>• To explain the basic operation principal of various electrical devices and systems.</li> </ul>				
Prerequisites	None	Required	None		
Course Content	The aim of the course is the comprehension of basic concepts and phenomena of Electromagnetism, and development of students' ability in solving problems using calculus. Particular emphasis is given to the relationship between the basic physical phenomena and their application in technology. Topics covered: Electric charge and matter; Electric field; Electrostatic potential; Capacitors and dielectrics; Electric current and resistance; DC circuits; Magnetism; Magnetic fields; Ampere's law; Faraday's law; Inductance and coils; Electromagnetic oscillations; AC circuits; Electromagnetic waves.				
Teaching Methodology	<ul style="list-style-type: none"> <li>• Lectures</li> <li>• Tutorials</li> <li>• Homework problems</li> <li>• Demonstrations (during lecture)</li> <li>• Communicative, Collaborative</li> <li>• During the first week of the semester the students receive the course syllabus, which includes the course content, bibliography, learning outcomes, assessment and office hours.</li> </ul>				

Bibliography	<ul style="list-style-type: none"> <li>• Serway, R.A. and J.W. Jewett, <i>Physics for Scientists &amp; Engineers: - Electricity, Magnetism, Light and Optics, Modern Physics</i> (8th edition, Translated in Greek). Klidarithmos.</li> </ul>
Assessment	<ul style="list-style-type: none"> <li>• Homework exercises 10%</li> <li>• 1<sup>st</sup> Midterm exam 20%</li> <li>• 2<sup>nd</sup> Midterm exam 30%</li> <li>• Final exam 40%</li> </ul>
Language	Greek