

Fizik Bölümü / PHYSICS /						
Course Code	Course Name	Teorical	Practice	Laboratory	Credits	ECTS
FZK-3004	Electromagnetic Theory	4.00	2.00	0.00	5.00	7.00
Course Detail						
Course Language	: Turkish					
Qualification Degree	: Bachelor					
Course Type	: Compulsory					
Preconditions	: Not					
Objectives of the Course	: This course is an introduction to the theory of electromagnetic field, the main aim of the course, the basic concepts of electrostatic, magnetostatic and fields and effects of static and moving loads, boundary value problem solutions, to derive Maxwell's equations.					
Course Contents	: The main topics of this course are; electrostatic; electric field, Gauss's law, electric potential, electrostatic energy, conductors, solution of Laplace equation in Cartesian coordinates, solution of Laplace equation in spherical coordinates and cylindrical coordinates, multi-pole expansion, electric fields in dielectric environments, mangetostatic, Biot-Savart's law, ampere's law, magnetic vector potential, magnetic fields in matter, electrodynamics; electromotor force, Faraday's law, Maxwell's equations.					
Recommended or Required Reading	: Griffiths D. J., Introduction to Electrodynamics, Prentice Hall, 3rd Edition, 1999 Jackson, J. D., "Classical Electrodynamics ", Wiley, 3rd Edition, 1999. Reitz, J., Milford, F., and Christy, R., "Foundations of Electromagnetic Theory", Addison-Wesley, 4th Ed., 1993.					
Planned Learning Activities and Teaching Methods	: Lecture, presentation, practice					
Recommended Optional Programme Components	: None					
Instructors	: Prof. Dr. Hüseyin Çavuş					
Instructor's Assistants	: None					
Presentation Of Course	: Face to face					

Course Outcomes	
Upon the completion of this course a student :	
1	Interpret the basic concepts of electromagnetic fields
2	Defines and writes Maxwell equations in static and dynamic forms.
3	Define boundary value problems and boundary conditions in electrostatic,
4	Interpret Magneteostatic and Faraday's Law

Preconditions						
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Weekly Contents					
	Teorical	Practice	Laboratory	Preparation Info	Teaching Methods
1.Week	*Electrostatic; Definition and applications of electric fields				
2.Week	*Gauss Law				
3.Week	*electrical potential				
4.Week	*Work and electrostatic energy, conductors				
5.Week	*Solution of Laplace Equation in Cartesian Coordinates (Boundary Value Analysis in Electrostatics)				
6.Week	*Solution of Laplace equation in spherical coordinates and cylindrical coordinates				
7.Week	*Multi-pole expansion				
8.Week	*Electric fields in dielectric environments				
9.Week	*Mangetostatic				
10.Week	*Biot-Savart Law				
11.Week	*Ampere's law				
12.Week	*Magnetic fields in matter				
13.Week	*Electrodynamics; electromotive force, Faraday's law				
14.Week	*Maxwell equations				

Assesment Methods %	
1	Md Term Exam 1 : 40.000
2	Final : 60.000

ECTS Workload	
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