Course Syllabus

Code - Course Title	**EİD207U - Power Systems Analysis**
Course Type	III. SEMESTER
Laboratory + Practice	0+0
ECTS	**6.0**
Language of Instruction	Türkçe
Course Type	Required Courses
Course Instructor(s)	DOÇ. DR. NESLİHAN ŞAHİN

Mode of Delivery	Distance Education
Prerequisites	There is no prerequisite or co-requisite for this course.
Courses Recomended	It is suggested that EİD101U DEVRE ANALİZİ, EİD211U ELEKTRİK ENERJİSİ ÜRETİMİ, EİD201U ELEKTRİK MAKİNALARI ve EİD208U ELEKTRİK ENERJİSİ İLETİMİ VE DAĞITIMI have been taken.
Recommended Resources	Ağalar Ş., \\\\\\\"Güç Sistemleri Analizi\\\\\\\", T. C. Anadolu Üniversitesi yayınları no. 2735 , Açıköğretim Fakültesi yayını no. 1696, 2012, 01/11/2012
Work Placement	N/A

Course Syllabus

Weeks	Learning Outcomes	Topics	Teaching Methods
Week - 1		basic concepts used in power systems, circuit equations	
Week - 2		balanced three-phase circuits, power calculation at balanced three-phase systems, advantages of three-phase systems with respect to single phase systems	
Week - 3		definition of symmetrical components, sequence circuits of impedance loads, sequence circuits for series impedances	
Week - 4		sequence circuits of three-phase transmission lines, sequence circuits of rotating machines	
Week - 5		per-unit sequence models of three phase two winding and three phase three winding transformers, power calculation at sequence circuits	
Week - 6		ideal transformer, equivalent circuit of single phase practical trasformer, per-unit system, per-unit equivalent circuit of three-phase two winding transformer, three-phase transformers, auto-transformer	
Week - 7		Midterm Exam	
Week - 8		electrical networks, towers, cables	
Week - 9		isolators, surge arresters, disconnectors, breakers	
Week - 10		short and medium transmission line models, differential equations for transmission lines	

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Weeks	Learning Outcomes	Topics	Teaching Methods
Week - 11		equivalent pi circuit, lossless transmission lines, maximum power flow	
Week - 12		linear algebraic equations, Gauss elimination, Jacobi and Gauss-Seidel method, Newton-Raphson method	
Week - 13		Power flow problem, power flow solution with Gauss-Seidel method, power flow solution with Newton-Raphson method, fast decoupled power flow, control of power flow	
Week - 14		Final Exam	

Learning Outcomes

#	Learning Outcome
1	Students will be able to define power systems and the basic concepts related to them.
2	Students will be able to interpret symmetrical components related to three-phase systems and make mathematical calculations about them.
3	Students will be able to explain the basic principles and working principles of power transformers.
4	Students will be able to describe the most basic equipment used in power systems.
5	Students will be able to describe various steady-state transmission line models and calculate their related parameters mathematically.
6	Students will be able to solve power flow problems using various linear algebra methods.

Sustainable Development Goals

No content has been provided.

Course Theme

No content has been provided.

AKTS Workload

Activity	Duration (Hour)	Count	Workload
Teorik Derse Katılım	0	0	0
Sınıf Dışı Çalışma (Ön Hazırlık & Pekiştirme Amaçlı)	0	0	0
Ödevler	0	0	0
Proje - Rapor - Sunum Hazırlama	0	0	0
Ara Sınav Hazırlığı (sınav süresi dahil)	0	0	0
Final Sınavı Hazırlığı (sınav süresi dahil)	0	0	0
Uygulama (Laboratuvar, Müzik/Enstrüman Uygulaması, Atölye/Saha Çalışması vb.)	0	0	0
Staj Uygulaması	0	0	0
		Calculated ECTS	**0**

Assessment Method and Passing Requirements

No content has been provided.

Assessment Method and Passing Requirements	Quamtity	Percentage (%)
1.Midterm Exam	1	30
Final Exam	1	70
	Sum (%)	**100**