

Faculty of Engineering & Technology

Energy Systems

Information :

Course Code : EPR 341

Level : Undergraduate

Course Hours : 3.00- Hours

Department : Department of Electrical Engineering

Instructor Information :

Title	Name	Office hours
Professor	Hossam Eldin Abdallah Talaat	
Teaching Assistant	Mohammed Ashraf Abdulhamid Abdulfatah Seyam	

Area Of Study :

- 1- The students should gain knowledge in depth in areas related to Electrical Power and Machines
- 2- At the termination of course the students should be able to understand the applications of electrical power elements and different machines in practice.
- 3- The course focuses on training students to different examples of electrical power systems.

Description :

Energy resources and electric power generation, Power system structure: generation, transmission, and distribution, Power system components: generators, transformers, transmission lines, and circuit breakers, Power system analysis: power flow, active and reactive power controls, fault analysis and protection, power system stability.

Course outcomes :

a.Knowledge and Understanding: :

1 -	Define the construction of the machines.
2 -	Understanding the characteristics of different types of generators and transformers
3 -	Know the techniques of protections in power systems.
4 -	Know the power flow and stability of power system

b.Intellectual Skills: :

1 -	Suggest solutions to control power output from synchronous machines.
2 -	Improve intellectual thinking about power flow and stability of power systems.
3 -	Modify the protection of different components of power systems.

c.Professional and Practical Skills: :

1 -	Identify structure of different synchronous generators
2 -	Suggest the appropriate decisions for choosing the parameters of transmission lines.
3 -	Able to recognize the methods of protection in different components of power system.

d.General and Transferable Skills: :

1 -	Study the new ideas about power systems
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2 -	Suggest the appropriate decisions for choosing the protection of different components of power system
3 -	Practice working in a team to develop simplified protective schemes.

Course Topic And Contents :

Topic	No. of hours	Lecture	Tutorial / Practical
Introduction&Three-phase systems	5	3	2
Synchronous Alternators	10	6	4
Transformers	10	6	4
Transmission Lines	10	6	4
Stability	5	3	2
Power Flow	5	3	2
Fault Analysis	5	3	2
Protection	10	6	4

Teaching And Learning Methodologies :

Lectures
Tutorials
Laboratories

Course Assessment :

Methods of assessment	Relative weight %	Week No	Assess What
Final Written exam	40.00	15	to assess the comprehensive understanding of the scientific background of the course, to assess the ability of problem solving with different techniques studied
Laboratory Tutorials	10.00	6	to assess the ability of implementing a simple electric circuit that shows knowledge and understanding of different technical issues.
Mid-term 1	15.00	7	to assess the skills of problem solving, understanding of related topics
Mid-term 2	15.00	11	to assess the skills of problem solving, understanding of related topics
Performance	10.00	14	
Quiz 1	5.00	5	to assess the skills of problem solving, understanding of related topics
Quiz 2	5.00	5	to assess the skills of problem solving, understanding of related topics