

Faculty of Engineering & Technology

Utilization of Electrical Energy

Information :

Course Code : EPR 513

Level : Undergraduate

Course Hours : 3.00- Hours

Department : Specialization of Electrical Power Engineering

Instructor Information :

Title	Name	Office hours
Lecturer	MARIAM AHMED SAMEH MOHAMAD AHMED ABBADI	8
Teaching Assistant	TOAA ABDELSALAM ELSAYED MOHAMED	
Teaching Assistant	Abeer Tharwat Said Awad	

Area Of Study :

Knowledge about different applications of electrical energy utilization including illumination schemes, electric traction, electric heating, electric welding.

Skills for lighting schemes design.

Ability to design lighting schemes for different applications.

Description :

Electrical traction systems, Mechanical and electrical characteristics, Speed curves, Operations during electrical traction, Electrical traction motors, Modern control of traction motors. Illumination: Artificial illumination requirements and characteristics, Standard specifications, Types of lamps and luminaries, Illumination curves, Installation of lamps, Luminaries and connections, gas filled lamp ignition. Electric heating: Resistance wires, Electric furnaces, Dielectric heating. Electric welding of metals: Welding transformers and generators, Arc welding, Spot welding. Electrolytic processes: Metal coating. Electric transportation: Cranes and hoists, Elevators and conveyor belts.

Course outcomes :

a. Knowledge and Understanding: :

1 -	Outline concepts and applications of electrical energy utilization.
2 -	Describe the characteristics of artificial illumination.
3 -	Explain different types of traction systems and their applications.
4 -	Describe methods of electric heating and their applications.
5 -	Demonstrate methods of electric welding and their applications.

b. Intellectual Skills: :

1 -	Design lighting schemes for several applications.
2 -	Analyze the performance of different traction systems.
3 -	Examine the effect of the different heat transfer modes in different mediums.

c. Professional and Practical Skills: :

1 -	Evaluate the performance of different electrical lighting systems with respect to Egyptian code.
2 -	Apply DIALux for the design of lighting schemes
3 -	Write technical reports in accordance with standard scientific guidelines.

d. General and Transferable Skills: :

1 -	Communicate effectively.
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Course Topic And Contents :

Topic	No. of hours	Lecture	Tutorial / Practical
Illumination: Artificial illumination requirements and characteristics	10	6	4
Types of lamps and luminaries	10	6	4
Design of lighting schemes - DIALux	15	9	6
Electrical traction systems	15	9	6
Applications for different traction systems	5	3	2
Electrical heating: Resistance wires	5	3	2
Electric furnaces, dielectric heating			
Electrical welding of metals			
Arc welding			

Teaching And Learning Methodologies :

Interactive Lecture
Discussion
Problem-based Learning
Report

Course Assessment :

Methods of assessment	Relative weight %	Week No	Assess What
Computer Assignment	10.00		
Final Exam	40.00		
Mid- Exam 1I	15.00		
Mid- Exam I	15.00		to assess the performance of students during the course
Participation	10.00		
Quizzes	10.00		