FUTURE UNIVERSITY IN EGYPT جامعة المستقبل

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 :

- Develop the studentsô knowledge about different applications of electrical energy utilization including illumination schemes, electric traction, electric heating, electric welding.
- Develop the studentsô skills for lighting schemesô design.
- Prepare students to analyze, choose, and evaluate the electric traction systems.
- Prepare students to analyze and evaluate the different modes of electrical heating and electrical welding.
- Train students to use commercial software packages for the design of lighting schemes.

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.

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		