Faculty of Engineering & Technology

Electric Drives

Information :

Course Code :	EPR 551	**Level :**	Undergraduate	**Course Hours :**	3.00- Hours

Department : Specialization of Electrical Power Engineering

Instructor Information :

Title	Name	Office hours
Professor	Hany Mohamed Hasanien Mohamed	4
Assistant Lecturer	Mohamed Abdallah Mahmoud Shaheen	5

Area Of Study :

Upon successful completion of the course, the student should be able to:
1. understand the fundamentals of electrical drives.
2. know the main components used in modern electric drives systems.
3. comprehend the relation between the electric motor characteristics and the load characteristics
4. identify different methods that can be used to control the speed of DC motors
5. identify different methods that can be used to control the speed of AC motors

Course outcomes :

a.Knowledge and Understanding: :	
1 -	Define the main components of modern electric systems
2 -	Identify the relation between the motor and load characteristics
3 -	Describe the behavior of electric motors under different modes of operations
b.Intellectual Skills: :	
1 -	Solve problems related to DC and AC drives systems
2 -	Compare between different methods used for speed control
3 -	Assess the performance of the drive system
4 -	Select suitable methods for speed control of AC and DC motors
c.Professional and Practical Skills: :	
1 -	Research different topics relevant to the course
d.General and Transferable Skills: :	
1 -	Write technical reports in accordance with standard scientific guidelines.
2 -	Work in a self-directed manner.
3 -	Analyze problems and use innovative thinking in their solution.

Course Topic And Contents :

Topic	No. of hours	Lecture	Tutorial / Practical
Introduction, Characteristics of Motors & Loads, Equation of Motion	15	9	6
Review of DC motors, Classical speed control and braking of DC motors	15	9	6
Speed control of DC motor using power electronic converters	15	9	6
Review of induction motors, Speed control and braking of induction motors	20	12	8

Teaching And Learning Methodologies :

Lectures

Tutorials

Course Assessment :

Methods of assessment	Relative weight %	Week No	Assess What
Attendance	10.00		
Final Exam	40.00	15	
First Mid-Term Exam	15.00	7	
Quizzes and Assignments (1)	10.00	5	
Quizzes and Assignments (2)	10.00	9	
Second Mid-Term Exam	15.00	11	

Course Notes :

No course notes are required

Recommended books :

M. H. Rashid. Power Electronics: Circuits, Devices, and Applications, 3rd ed. Pearson Education Inc., 2004.

R. Krishnan. Electric Motor Drives: Modeling, Analysis, and Control . Prentice Hall Inc., 2001.
T. Wildi. Electrical Machines, Drives, and Power Systems, 5th ed. Prentice Hall Inc., 2002