



Course Specifications

Program(s) on which this course is given:	Electronics & Electrical Communications Engineering
Major or Minor element of programs:	Major
Department offering the program:	Electronics and Electrical Communications
Department offering the course:	Electrical Power and Machines
Academic year / Level:	Third
Date of original/modified specification approval:	2003
Semester of course offering:	Second

A- Basic Information

1.a. Title:	Electrical machines			1.b. Code:	EPM 341			
2. Units/Credit hours per week:	2.a. Lectures	2	2.b. Tutorial	2	2.c. Practical	0	2.d. Total	4

B- Professional Information

1. Overall Aims of the Course:	The course aims to introduce the integral and fractional horsepower induction machines and their fields of applications, and the special purpose electric machines and their applications in control systems. Also the course highlights on the applications of electronics for controlling the operation of electrical machines.
2. Intended Learning Outcomes of Course (ILOs):	a) Knowledge and Understanding (1.1, 1.7)
	<div><div>1. Identify the performance characteristics of integral and fractional horsepower induction machines.</div><div>2. Identify the fields of applications of induction machines.</div><div>3. Identify the operation the performance characteristics of special purpose electrical machines and their applications in control systems.</div><div>4. Introduce the principles of control for different electrical machines and explain How to implement the control methods using solid state electronics</div></div>
	b) Intellectual Skills (3.1, 3.6, 3.4)
	<div><div>1. Prepare a mathematical model for evaluating the performance of integral horsepower induction machine.</div><div>2. Analyze the impact of supply parameters on the characteristics of single phase induction motors.</div></div>
	c) Professional and Practical Skills (2.1)
	<div><div>1. Choose the best servomotor for a certain application by understanding the advantages and disadvantages of each one.</div><div>2. Select and specify solid state controlled electrical drive system.</div></div>
	d) General and Transferable Skills

3. Contents

Topic	Total hours	Lectures	Tutorial/ Practical
Three-phase induction machines	8	4	4
Single-phase induction motors	8	4	4
Universal motors	8	4	4
Special purpose electric machines	16	8	8
Electronic control for electrical machines	16	8	8
4. Teaching and Learning Methods	Lectures (Y)	Practical Training/ Laboratory (N)	Seminar/Workshop (N)

	Class Activity (N)	Case Study (N)	Projects (N)
	E-learning (N)	Assignments /Homework (Y)	Other:
5. Student Assessment Methods			
5.a. Method		To assess (with reference to the ILOs)	
-Class test		a1	
-Mid-term		a1, a2, a3	
-Final exam		a1, a2, a3, a4, b1, b2, c1, c2	
5.b. Assessment Schedule		Week	
-Class test		4	
-Mid-term exam		8	
-Final		15	
5.c. Weighting of Assessments			
- Mid-term exam		20 %	
- Final-term Examination		70 %	
- class test		10%	
- Total		100 %	
6. List of References			
6.a. Course Notes : A part of the course is available with the students in electronic form and hard copy.			
6.b. Essential Books (Text Books)			
<ul style="list-style-type: none">• P.C.Sen, "principles of electric machines and power electronics", 2002.• S.J.Chapman, "Electric machinery fundamentals", 2000.			
6.c. Recommended Books.			
N/A			
6.d. Periodicals, Web Sites, ... etc: N/A			
7. Facilities Required for Teaching and Learning			
White/black board – Data show			
Course Coordinator:	Dr. Abdel-kader Ibrahim habash		
Head of Department:	Prof. Dr. Mahmoud T. Al-Hadidi		
Date:	2010-2011		