



# Course Specifications

Muharram 1437 H

Institution:	Majmaah University
Academic Department :	Electrical Engineering
Programme :	Power & Machines Track
Course :	Special Electrical Machines
Course Coordinator :	Dr.Praveen R.P.
Programme Coordinator :	.....
Course Specification Approved Date :	25/ 3/ 1437 H



## A. Course Identification and General Information

1 - Course title : <b>Special Electrical Machines</b> Course Code: <b>EE490</b>		
2. Credit hours :            ( 3 )		
3 - Program(s) in which the course is offered: <b>Electrical Engineering (Power &amp; Machines Track)</b>		
4 – Course Language : <b>English</b>		
5 - Name of faculty member responsible for the course: <b>Dr.Praveen R.P.</b>		
6 - Level/year at which this course is offered : <b>10th/5th</b>		
7 - Pre-requisites for this course (if any) :		
8 - Co-requisites for this course (if any) : <b>Power Electronics (EE 374)</b>		
9 - Location if not on main campus : <b>College of Engineering</b>		
10 - Mode of Instruction (mark all that apply)		
A - Traditional classroom	<input checked="" type="checkbox"/> What percentage? <table border="1" style="display: inline-table; vertical-align: middle;"><tr><td style="text-align: center;"><b>100%</b></td></tr></table>	<b>100%</b>
<b>100%</b>		
B - Blended (traditional and online)	<input type="checkbox"/> What percentage? <table border="1" style="display: inline-table; vertical-align: middle;"><tr><td style="text-align: center;">..... %</td></tr></table>	..... %
..... %		
D - e-learning	<input type="checkbox"/> What percentage? <table border="1" style="display: inline-table; vertical-align: middle;"><tr><td style="text-align: center;">..... %</td></tr></table>	..... %
..... %		
E - Correspondence	<input type="checkbox"/> What percentage? <table border="1" style="display: inline-table; vertical-align: middle;"><tr><td style="text-align: center;">..... %</td></tr></table>	..... %
..... %		
F - Other	<input type="checkbox"/> What percentage? <table border="1" style="display: inline-table; vertical-align: middle;"><tr><td style="text-align: center;">..... %</td></tr></table>	..... %
..... %		
Comments :		
.....		

## B Objectives

<p><b>What is the main purpose for this course?</b></p> <p>The student should be able to :</p> <ol style="list-style-type: none"> <li>1- Teaching the students the necessary information about some motors which have special applications and other motors which are used in control systems.</li> <li>2- Enabling the students to use the special motors and the fractional horsepower motors in building some simulating hardware models for their graduation project.</li> <li>3- Preparing the students to deal with special drive systems found in some productive industries, and to master the different servo mechanisms in the power stations and factories.</li> </ol>
<p><b>Briefly describe any plans for developing and improving the course that are being implemented :</b></p> <ol style="list-style-type: none"> <li>1. To encourage the students to do application oriented micro-projects</li> </ol>



## C. Course Description

### 1. Topics to be Covered

List of Topics	No. of Weeks	Contact Hours
Stepper Motors- Different Types, Principle of Operation, Modes of Operation	2	8
Characteristics of Stepper Motors, Applications, Drive Circuits	1	4
Reluctance Motor – Construction, Principle of Operation, Characteristics, Applications	2	8
Hysteresis Motors - Construction, Principle of Operation, Characteristics, Applications	2	8
Two Phase Servo Motors – Types, Construction, Principle of Operation, Characteristics, Drive Circuits, Applications	2	8
Universal Motors - Construction, Principle of Operation, Characteristics, Applications	2	8
AC Commutator Motors and Eddy Current Motors- Construction, Principle of Operation, Characteristics, Applications	2	8
Linear Induction Motors and Linear DC Motors - Construction, Principle of Operation, Characteristics, Applications	2	8

### 2. Course components (total contact hours and credits per semester):

	Lecture	Tutorial	Laboratory	Practical	Other:	Total
<b>Contact Hours</b>	45	15	0	0	0	60
<b>Credit</b>	3	0	0	0	0	3

3. Additional private study/learning hours expected for students per week.

6



#### 4. Course Learning Outcomes in NQF Domains of Learning and Alignment with Assessment Methods and Teaching Strategy

	NQF Learning Domains And Course Learning Outcomes	Course Teaching Strategies	Course Assessment Methods
<b>1.0</b>	<b>Knowledge</b>		
<b>1.1</b>	The ability to recall, understand, and present information, including knowledge of specific facts, knowledge of concepts, principles and theories, and knowledge of procedures	Lecture	Standardized Exams
<b>1.2</b>	.....	.....	.....
<b>1.3</b>	.....	.....	.....
<b>1.4</b>	.....	.....	.....
<b>1.5</b>	.....	.....	.....
<b>1.6</b>	.....	.....	.....
<b>2.0</b>	<b>Cognitive Skills</b>		
<b>2.1</b>	An ability to identify, formulate, and solve engineering problems	Lecture, Micro-Projects	Standardized exams, Micro projects
<b>2.2</b>	The ability to analyze, design, and implement systems	Lecture, Micro-Projects	Standardized exams, Micro projects
<b>2.3</b>	.....	.....	.....
<b>2.4</b>	.....	.....	.....
<b>2.5</b>	.....	.....	.....
<b>2.6</b>	.....	.....	.....
<b>3.0</b>	<b>Interpersonal Skills &amp; Responsibility</b>		
<b>3.1</b>	.....	.....	.....
<b>3.2</b>	.....	.....	.....
<b>3.3</b>	.....	.....	.....
<b>3.4</b>	.....	.....	.....
<b>3.5</b>	.....	.....	.....
<b>3.6</b>	.....	.....	.....
<b>4.0</b>	<b>Communication, Information Technology, Numerical</b>		
<b>4.1</b>	An ability to apply knowledge of mathematics, science, and		





	NQF Learning Domains And Course Learning Outcomes	Course Teaching Strategies	Course Assessment Methods
	engineering	Lecture, Micro- Projects	Micro projects, Standardized Exams
4.2	An ability to use the techniques, skills, and modern engineering tools necessary for engineering practice.	Lecture, Micro- Projects	Exams and Quizzes
4.3	.....	.....	.....
4.4	.....	.....	.....
4.5	.....	.....	.....
4.6	.....	.....	.....
<b>5.0</b>	<b>Psychomotor</b>		
5.1	.....	.....	.....
5.2	.....	.....	.....
5.3	.....	.....	.....
5.4	.....	.....	.....
5.5	.....	.....	.....
5.6	.....	.....	.....

### 5. Schedule of Assessment Tasks for Students During the Semester:

	Assessment task	Week Due	Proportion of Total Assessment
1	First Mid-Term	6	20%
2	Second Mid-Term	12	20%
3	Final Exam	15	40%
4	Micro-Project	7	10%
5	Quiz	11	10%
6	.....	.....	.....
7	.....	.....	.....
8	.....	.....	.....





## D. Student Academic Counseling and Support

1. Three office hours for supporting the student academic counselling.
2. All students are distributed among academic advisors
3. Advising information are included in the student Guide and in the College website

## E. Learning Resources

### 1. List Required Textbooks :

- Electric Machinery, A. Fitzgerald, Jr. Charles Kngsley and S. D. Umans

### 2. List Essential References Materials :

- Electric Machinery, A. Fitzgerald, Jr. Charles Kngsley and S. D. Umans

### 3. List Recommended Textbooks and Reference Material :

- 

### 4. List Electronic Materials :

- [www.nptel.ac.in](http://www.nptel.ac.in),....
- [www.faculty.mu.edu.sa/praveen.r](http://www.faculty.mu.edu.sa/praveen.r)

- .....

### 5. Other learning material :

- .....
- .....
- .....

## F. Facilities Required

### 1. Accommodation

- **Laboratory Available**
- **Lecture room Available .**
- .....

### 2. Computing resources

- LCD Projector Available
- Smart Board Available

### 3. Other resources

## G Course Evaluation and Improvement Processes

### 1 Strategies for Obtaining Student Feedback on Effectiveness of Teaching:

- Student's Course Survey is used by Quality Unit in the Department for obtaining students feedback





## 2 Other Strategies for Evaluation of Teaching by the Program/Department

### Instructor :

Visits of colleagues to monitor the teaching process

## 3 Processes for Improvement of Teaching :

The process for improvement in teaching is done by considering the following parameters:

1. Course Report
2. Results of students Course survey
3. Results of teaching evaluation by program instructor
4. Related workshops and training sessions

## 4. Processes for Verifying Standards of Student Achievement

A sample of the process of marking is checked by an independent member of teaching staff and thereafter the sum of the marks will be verified.

## 5 Describe the planning arrangements for periodically reviewing course effectiveness and planning for improvement :

1. Reviewing Course Report every semester
2. Improvement every Year

### Course Specification Approved

Department Official Meeting No ( ..... ) Date ... / .... / ..... *H*

#### Course's Coordinator

**Name :** Dr. Praveen R.P.

**Signature :** .....

**Date :** 25/ 3 /1437 *H*

#### Department Head

**Name :** Dr Abdullah Almuhasien

**Signature :** .....

**Date :** .../ ... / ..... *H*

