

ATTACHMENT 2 (e)

Course Specifications

Kingdom of Saudi Arabia

The National Commission for Academic Accreditation & Assessment

**Course Specifications
(CS)**

Course Specifications

Institution Najran University	Date of Report 1/5/1436H
College/Department Engineering College /Electrical Engineering	

A. Course Identification and General Information

1. Course title and code: Electromechanical Energy Conversion 422EE3		
2. Credit hours 3 (3 , 0 , 1)		
3. Program(s) in which the course is offered. (If general elective available in many programs indicate this rather than list programs) Electrical Engineering Programs		
4. Name of faculty member responsible for the course Dr. A. Elmitwally		
5. Level/year at which this course is offered 10 th /4 th year for Electrical		
6. Pre-requisites for this course (if any) 325EE3 Electrical Machines		
7. Co-requisites for this course (if any) None		
8. Location if not on main campus None		
9. Mode of Instruction (mark all that apply)		
a. Traditional classroom	<input checked="" type="checkbox"/>	What percentage? 100%
b. Blended (traditional and online)	<input type="checkbox"/>	What percentage? <input type="text"/>
c. e-learning	<input type="checkbox"/>	What percentage? <input type="text"/>
d. Correspondence	<input type="checkbox"/>	What percentage? <input type="text"/>
f. Other	<input type="checkbox"/>	What percentage? <input type="text"/>
Comments:		

B Objectives

1. What is the main purpose for this course?
1. To understand the basic principles of DC and synchronous machines. 2. To know the operation and testing of DC and synchronous machines.
2. Briefly describe any plans for developing and improving the course that are being implemented. (e.g. increased use of IT or web based reference material, changes in content as a result of new research in the field)
None

C. Course Description (Note: General description in the form to be used for the Bulletin or handbook should be attached)

1. Topics to be Covered		
List of Topics	No. of Weeks	Contact Hours
Introduction to synchronous machines and its construction ,Voltage Induced in the Armature Winding of Synchronous Machine, Equivalent Circuit of Synchronous Machine and its Phasor Diagram, Performance of Synchronous Generator	Weeks 1-4 (12 hours)	12 hours
Synchronous Generator Operating Alone, Parallel Operation of Synchronous Generators	5-8 (9 hours)	9 hours
Synchronous Motor Analysis, Steady State Operation, Starting.	8-9 (6 hours)	6 hours
Introduction to DC Machines and its construction, Classification of DC Machines, DC Generators Operation and Performance.	10-11 (6 hours)	6 hours
DC Motors Characteristics, Starting of DC Motors.	12-13 (6 hours)	6 hours
Speed Control of DC Motors.	14-15 (6 hours)	6 hours

2. Course components (total contact hours and credits per semester):						
	Lecture	Tutorial	Laboratory	Practical	Other:	Total
Contact Hours	45	15	None	None	None	60
Credit	3	0	None	None	None	3

3. Additional private study/learning hours expected for students per week.	3
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4. Course Learning Outcomes in NQF Domains of Learning and Alignment with Assessment Methods and Teaching Strategy
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Course Learning Outcomes, Assessment Methods, and Teaching Strategy work together and are aligned. They are joined together as one, coherent, unity that collectively articulate a consistent agreement between student learning, assessment, and teaching.

The *National Qualification Framework* provides five learning domains. Course learning outcomes are required. Normally a course has should not exceed eight learning outcomes which align with one or more of the five learning domains. Some courses have one or more program learning outcomes integrated into the course learning outcomes to demonstrate program learning outcome alignment. The program learning outcome matrix map identifies which program learning outcomes are incorporated into specific courses.

On the table below are the five NQF Learning Domains, numbered in the left column.

First, insert the suitable and measurable course learning outcomes required in the appropriate learning domains (see suggestions below the table). **Second**, insert supporting teaching strategies that fit and align with the assessment methods and intended learning outcomes. **Third**, insert appropriate assessment methods that accurately measure and evaluate the learning outcome. Each course learning outcomes, assessment method, and teaching strategy ought to reasonably fit and flow together as an integrated learning and teaching process. **Fourth**, if any program learning outcomes are included in the course learning outcomes, place the @ symbol next to it.

Every course is not required to include learning outcomes from each domain.

	NQF Learning Domains And Course Learning Outcomes	Course Teaching Strategies	Course Assessment Methods
1.0	Knowledge		
1.1	Define and classify the synchronous machines and dc machines.	Lecture	HW, quizzes and Exams
1.2	Recognize and explain different equivalent circuits of synchronous machines and dc machines.	Lecture	HW, quizzes and Exams
2.0	Cognitive Skills		
2.1	Explain the principle operation of synchronous generators ,motors and dc machines	Lecture	HW, quizzes and Exams
2.2			
3.0	Interpersonal Skills & Responsibility		
3.1			
4.0	Communication, Information Technology, Numerical		
4.1	Apply different concepts to find correct solutions of electrical machine performance.	Lecture	HW, quizzes and Exams
4.2	Operate measuring instruments to determine electrical parameters of electrical machines and obtain its main characteristics.	Lecture	HW, quizzes and Exams
5.0	Psychomotor		
5.1	None		

5. Map course LOs with the program LOs. (Place course LO #s in the left column and program LO #s across the top.)									
Course LOs #	Program Learning Outcomes (Use Program LO Code #s provided in the Program Specifications)								
	1.1	1.2		2.1		3.2		4.1	4.2
1.1									
2.1									
4.1									
4.2									

6. Schedule of Assessment Tasks for Students During the Semester			
	Assessment task (e.g. essay, test, group project, examination, speech, oral presentation, etc.)	Week Due	Proportion of Total Assessment
1	Assignments	Scheduled	5 %
2	Quizzes	Scheduled	5 %
3	First Mid-Term exam	7	20 %
4	Second Mid-Term exam	13	20 %
5	Final Term exam	The final of the term	50 %

D. Student Academic Counseling and Support

1. Arrangements for availability of faculty and teaching staff for individual student consultations and academic advice. (include amount of time teaching staff are expected to be available each week)

- Teaching staff are available weekly for all the students and can answer any query that rises, beside the students can email their enquiries to the main lecture. Beside students have Open general discussions with other class mates.
- 5 hours per week and can be arranged according to the student needs.

E. Learning Resources

1. List Required Textbooks

Chapman;” Fundamentals of Electric Machinery”, McGraw Hill, 2005.

2. List Essential References Materials (Journals, Reports, etc.)

Principles of Electric Machines and Power Electronics, P. C. Sen, John Wiley & Sons, second edition, 1997.

3. List Recommended Textbooks and Reference Material (Journals, Reports, etc)

None

4. List Electronic Materials (eg. Web Sites, Social Media, Blackboard, etc.)

None

5. Other learning material such as computer-based programs/CD, professional standards or regulations and software.

None

F. Facilities Required

Indicate requirements for the course including size of classrooms and laboratories (i.e. number of seats in classrooms and laboratories, extent of computer access etc.)

1. Accommodation (Classrooms, laboratories, demonstration rooms/labs, etc.)

Laboratory with adequate daylight equipped with data projector.

2. Computing resources (AV, data show, Smart Board, software, etc.)
<ul style="list-style-type: none"> • None.
3. Other resources (specify, e.g. if specific laboratory equipment is required, list requirements or attach list)
None

G Course Evaluation and Improvement Processes

1 Strategies for Obtaining Student Feedback on Effectiveness of Teaching
Throughout the Course (Verbal Feedback):
<ul style="list-style-type: none"> • After the 3rd week. • At mid-semester. • End-of-Course.
2 Other Strategies for Evaluation of Teaching by the Program/Department Instructor
<ul style="list-style-type: none"> • Written feedback from a classroom observation that details judgment on teaching. • Written feedback that details judgment on course materials such as syllabi, handouts and exams. • Written documentation that details teaching contribution to the department.
3 Processes for Improvement of Teaching
<ul style="list-style-type: none"> • Learning from students feedback • Learning from instructor and department feedbacks • Learning/Using various teaching methods (lecturing, discussions, workshops, exams...) • Learning/Using various teaching medias (projector, whiteboard, videos, educational visits)
4. Processes for Verifying Standards of Student Achievement (e.g. check marking by an independent member teaching staff of a sample of student work, periodic exchange and remarking of tests or a sample of assignments with staff at another institution)
Check marking by an independent member teaching staff of a sample of student work.

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

- Ongoing updating and improving (during the course).
- Annual updating and improving (during summers).

Faculty or Teaching Staff: _____ Dr. A. Elmitwally

Signature: _____ Date Report Completed: 1/5/1438H

Received by: Dean/Department Head

Signature: _____ Date: 1/5/1438H