



# Course Specifications

Muharram 1437 H

Institution:	Majmaah University /College of Engineering
Academic Department :	Electrical Engineering.
Programme :	Electrical engineering
Course :	Fundamentals of Electrical Power Systems
Course Coordinator :	
Programme Coordinator :	
Course Specification Approved Date :	.... / ... / ..... H



## A. Course Identification and General Information

1 - Course title :	Fundamentals of Electrical Power Systems	Course Code:	EE 270.
2. Credit hours :	3		
3 - Program(s) in which the course is offered:	Electrical Engineering		
4 – Course Language :	English		
5 - Name of faculty member responsible for the course:	.....		
6 - Level/year at which this course is offered :	Fall semester, sophomore year		
8 - Pre-requisites for this course :	Electromagnetic I EE 206		
8 - Co-requisites for this course :	None		
9 - Location if not on main campus :	(College of Engineering)		
10 - 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?	..... %
D - e-learning	<input type="checkbox"/>	What percentage?	..... %
E - Correspondence	<input type="checkbox"/>	What percentage?	..... %
F - Other	<input type="checkbox"/>	What percentage?	..... %
Comments :	.....		

## B Objectives

What is the main purpose for this course?

- This course is aim to help the students to understand the basic components of a power system.
- Understand the methodologies for main and alternative sources of electrical energy.
- Understanding of the main concepts of different systems of supplying electrical energy.
- Knowledge of the theory of transmission lines and underground cables construction and their analysis.
- Understanding of the basic distribution systems structure and their analysis.

Briefly describe any plans for developing and improving the course that are being implemented :

Increased use of IT or web based reference material, changes in content as a result of new research in the field.



## C. Course Description

### 1. Topics to be Covered

List of Topics	No. of Weeks	Contact Hours
Power system components and elements	2	6
Generation of electrical energy: main sources and alternativesources	3	9
Transmission line conductors	2	6
Electric insulators: types-parameters	2	6
Analysis of transmission lines: short lines, medium lines and longlines	2	6
Power cables parameters: series impedance, shunt admittance	2	6
Analysis of distribution systems: radial system- ring system	2	6

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

	Lecture	Tutorial	Laboratory	Practical	Other:	Total
<b>Contact Hours</b>	<b>30.</b>	<b>15.</b>	<b>0</b>	<b>0</b>	<b>0</b>	45
<b>Credit</b>	<b>2</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	2

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

On average two hours per week needed to prepare the required assignments, project of the course

2
---

### 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>			
<b>1.2</b>			



	NQF Learning Domains And Course Learning Outcomes	Course Teaching Strategies	Course Assessment Methods
1.3	<b>The ability to recall, understand, and present information, including knowledge of specific facts, knowledge of concepts, principles and theories, and knowledge of procedures</b>	Lecture, debate, small group work, whole group and small group discussion, research activities, lab demonstrations, projects, debates, role playing, case studies, memorization and individual presentation	Standardized exams, Seminars and Assignments.
<b>2.0</b>	<b>Cognitive Skills</b>		
2.1			
2.2			
2.3			
2.4	<b>The ability to analyze, design, and implement systems.</b>	Lecture, small group work, , research activities, lab demonstrations, projects and individual presentation.	Standardized exams, oral exams, micro projects
2.5			
2.6			
<b>3.0</b>	<b>Interpersonal Skills &amp; Responsibility</b>		
3.1			
3.2			
3.3			
3.4			
3.5			
3.6			





	NQF Learning Domains And Course Learning Outcomes	Course Teaching Strategies	Course Assessment Methods
<b>4.0</b>	<b>Communication, Information Technology, Numerical</b>		
<b>4.1</b>	<b>An ability to apply knowledge of mathematics, science, and engineering</b>	Lecture, research activities, lab demonstrations, projects, case studies, memorization and individual presentation	Standardized exams, oral exams, micro projects
4.2			
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
<b>1</b>	<b>First Exam</b>	7	20%
<b>2</b>	<b>Second Exam</b>	12	20%
<b>3</b>	<b>Final Exam</b>	15	40%
<b>4</b>	<b>Quizzes and Homework</b>	During semester	20%





## **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)

1. All students are distributed among academic advisors
2. Advising Information are included in the student Guide and in the college website
3. Every Advisor assignees 3 office hours for supporting the student academic counseling

## **E. Learning Resources**

1. List Required Textbooks :

- **A. Alarainy, et...," Fundamentals of electrical power engineering", King Saud Univ., academic press.**

2. List Essential References Materials: None

3. List Recommended Textbooks and Reference Material :

- **Ashfaq Husain, "Electrical power systems", CBS, 4th edition**
- **Gonen "Electric power distribution: System engineering", McGraw Hill**

4. List Electronic Materials :  
None

5. Other learning material :

- **Computer-based programs/CD.**
- **Professional standards or regulations and software.**

## **F. Facilities Required**

1. Accommodation

2. Computing resources (AV, data show, Smart Board, software, etc)  
A laptop for the instructor.

3. Other resources

## **G Course Evaluation and Improvement Processes**

1 Strategies for Obtaining Student Feedback on Effectiveness of Teaching:

- **Completion course evaluation questionnaire,**
- **Classroom observations to measure student behavior through how well the student groups are interacting in-class activity and how well the in-class activity went.**

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





## Faculty Peer Assessment

### 3 Processes for Improvement of Teaching :

1. **Plan:** The instructor will develop a strategy for teaching.
2. **Do:** The strategy will be implemented for one semester.
3. **Study:** The experiences of the students will be collected through a survey.
4. **Act:** Effective teaching strategies will be implemented and revised as more experiences are gained.

### 4. Processes for Verifying Standards of Student Achievement

Check marking of a sample of examination papers

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

1. **Continuous improvement is a circular process, encompassing student assessment, course planning and design, implementation, evaluation, and revision.**
2. **A feedback from all relevant assessment tools must be considered in the continuous process of course objectives refinement and assessment.**
3. **Continuous process for reviewing feedback from student on the quality of the course and planning for improvement**

## Course Specification Approved

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

### Course's Coordinator

**Name :** .....

**Signature :** .....

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

### Department Head

**Name :** .....

**Signature :** .....

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

