



## COURSE SPECIFICATIONS (2011-2012)



Benha University

Faculty of Engineering at Shobra

Electrical Engineering Department

### A- Basic Information

**Course Title:** Utilization of Electrical Energy **Code:** EPE 421  
**Lecture:** 4 **Tutorial:** 2 **Practical:** **Total:** 6  
**Program on which the course is given:** B.Sc. Electrical Engineering (Power)  
**Major or minor element of program:** Major  
**Department offering the program:** Electrical Engineering Department  
**Department offering the course:** Electrical Engineering Department  
**Academic year / level:** **Fourth Year / Second Semester**  
**Date of specifications approval:** 10/5/2006

### B- Professional Information

#### 1- Overall aims of course:

- Study of topics of power quality issues in distribution systems and reactive power compensation.
- Practical related topics of Illumination & lighting systems in residential and industrial applications.

#### 2- Intended learning outcomes of course (ILOs)

By completion of the course, the student should be able to:

##### a- Knowledge and Understanding

a.22) Basics of low voltage power systems.

##### b- Intellectual Skills

b.16) Analyze the performance of electrical power generation, control and distribution systems.

##### c- Professional and Practical Skills



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c.17) Apply modern techniques, skills and engineering tools to electrical power and machines engineering systems.

**d- General and Transferable Skills**

d.9) Refer to relevant literatures.

**3- Contents**

No.	Topic	No. of hours	ILO's	Teaching / learning methods and strategies	Assessment method
1	Distribution systems, reactive power compensation	6	a22, b16, c17, d9	Lectures, Class activity, Assignments / homework	Home Assignments, Quizzes
2	Distribution systems, reactive power compensation	6	a22, b16, c17, d9	Lectures, Class activity, Assignments / homework	Home Assignments, Quizzes
3	Distribution systems, reactive power compensation	6	a22, b16, c17, d9	Lectures, Class activity, Assignments / homework	Home Assignments, Quizzes
4	Illumination & lighting systems, electric traction	6	a22, b16, c17, d9	Lectures, Class activity, Assignments / homework	Home Assignments, Quizzes
5	Illumination & lighting systems, electric traction	6	a22, b16, c17, d9	Lectures, Class activity, Assignments / homework	Home Assignments, Quizzes
6	Illumination & lighting systems, electric traction	6	a22, b16, c17, d9	Lectures, Class activity, Assignments / homework	Home Assignments, Quizzes
7	Illumination & lighting systems, electric traction	6	a22, b16, c17, d9	Lectures, Class activity, Assignments / homework	Home Assignments, Quizzes
8	<b>Mid-Term Exam</b>				
9	Alternative energy sources	6	a22, b16, c17, d9	Lectures, Class activity, Assignments / homework	Home Assignments, Quizzes
10	Alternative energy sources	6	a22, b16, c17, d9	Lectures, Class activity, Assignments / homework	Home Assignments, Quizzes
11	Alternative energy sources	6	a22, b16, c17, d9	Lectures, Class activity, Assignments / homework	Home Assignments, Quizzes
12	Power Quality	6	a22, b16, c17, d9	Lectures, Class activity,	Home Assignments,



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				Assignments / homework	Quizzes
13	Power Quality	6	a22, b16, c17, d9	Lectures, Class activity, Assignments / homework	Home Assignments, Quizzes
14	Power Quality	6	a22, b16, c17, d9	Lectures, Class activity, Assignments / homework	Home Assignments, Quizzes
15	<b>Final Exam</b>				
16					

#### 4- Teaching and Learning Methods

Lectures  
Seminar / workshop  
Class activity  
Case study  
Assignments / homework

#### 5- Student Assessment Methods

Assignments to assess knowledge and intellectual skills.  
Quiz to assess knowledge, intellectual and professional skills.  
Mid-term exam to assess knowledge, intellectual, professional and general skills.  
Final exam to assess knowledge, intellectual, professional and general skills.

#### Assessment Schedule

Assessment 1 on weeks 2, 5, 9, 11  
Assessment 2 Quizzes on weeks 4, 6, 10, 12  
Assessment 3 Mid-term exam on week 8,13  
Assessment 4 Final exam on week 15

#### Weighting of Assessments

05% Home assignments  
08% Quizzes



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20% Mid-term examination  
67% Final-term examination  
100% Total

### 6- List of References

Course notes

Utilization of Electrical Engineering by Dr. A. Rashad, Dr. M. Anwar

Essential books

1. J.B. Gupta, "Utilization of Electrical Power and Electrical Traction", Katson Publishing House, Eighth Edition, 1987.
2. S. Santoso et al, "Electrical Power Systems Quality", McGraw-Hill Professional, Second Edition, 2002.

Recommended books

1. J.B. Gupta, "Utilization of Electrical Power and Electrical Traction", Katson Publishing House, Eighth Edition, 1987.
2. S. Santoso et al, "Electrical Power Systems Quality", McGraw-Hill Professional, Second Edition, 2002.
3. T. A. Short, "Electric Power Distribution Equipment and Systems", Taylor & Francis Group, LLC, 2006.

### 7- Facilities required for teaching and learning

Lecture room equipped with overhead projector  
Presentation board, computer and data show

**Course coordinator:** Dr. A. Rashad

**Course instructor:** Dr. M. Shiple

**Head of Department:** Prof. Dr. Mousa Abd-Allah

Date: 1/1/2012