

University Benha

Faculty Science

Course Specifications

Programme(s) on which the course is given: **Chem & Physics**

Major or Minor element of programmes

Department offering the programme: **Physics**

Department offering the course: **Physics**

Academic year / Level: **2nd Year/ 1st semester**

Date of specification approval: **2008**

A- Basic Information

Title: Electromagnetism and Alternating current

Code: Phy. 231

Credit Hours:

Lecture: 2hr/week

Tutorial: 1hr/week

Practical

Total: 3hr/week

B- Professional Information

1 – Overall Aims of Course: By Finishing of this course the graduate will be able to:

Understand the wave forms, rote mean square value, resistance and phase angle. He also understand the circuit analysis, networks, transformers, understand the electric field intensity, magnetic force, cyclotron, mass spectra, internal induction and AC-generators.

2 – Intended Learning Outcomes of Course (ILOs)

a- Knowledge and Understanding:

To make the graduate able to:

a1- Determine the root mean square value of AC-current.

a2- Understand the network analysis.

a3- Study the transformers and its structure.

a4- Understand the sinusoidal field and the Ampere law.

a5- Understand the electromagnetic electromotive force.

a6- Study the eddy current and its applications.

b- Intellectual Skills

To make the graduate able to:

b1- Differentiate the direct current and the AC-current.

b2- Collect, summarize and analyze the practical data.

b3- Create the new electric circuit.

b4- Differentiate the electric and magnetic fields.

b5- Determine the electromotive force.

c- Professional and Practical Skills

To make the graduate able to:

c1 - Analyze the electric circuit and the different networks

c2- Design the specialized electronic circuits.

c4- Design of physical problems.

c5- Reason in major problems by a scientific way.

d- General and Transferable Skills

d1- Solve problems.

d2- Work in team.

d3- Write reports

3- Contents

Topic	No. of hours	Lecture	Tutorial
r.m.s., av. and eff. Value	3	2	0/1
RLC- circuit	3	2	0/1
Network	3	2	0/1
Circuit analysis	3	2	0/1
Transformers	3	2	0/1
Amplifiers	3	2	0/1
Electric and magnetic fields	3	2	0/1
Cyclotron and mass spectra	3	2	0/1
Magnetic induction	3	2	0/1
Generators	3	2	0/1
Eddy currents and its	3	2	0/1

applications			
The electromotive force	3	2	0/1

4– Teaching and Learning Methods

- 4.1- Lectures
- 4.2-Discussion sessions
- 4.3-Class activities

5- Student Assessment Methods

- 5.1 Mid-term exam to assess understanding
- 5.2 Final term exam to assess knowledge with understanding
- 5.3 Oral exam to assess understanding

Assessment Schedule

- Assessment 1 Mid-term exam week 7
- Assessment 2 Final term exam week 12
- Assessment 3 Oral exam week 1-12
- Assessment 4 final exam week 14

Weighting of Assessments

Mid-Term Examination	10 %
Final-term Examination	80 %
Oral Examination.	10 %
Practical Examination	0 %
Semester Work	0 %
<u>Other types of assessment</u>	<u>%</u>
Total	100%

6- List of References

- 6.1- Course Notes
.....Lecture materials.....
- 6.2- Essential Books (Text Books)
Optics,2nd edition; Jurgen R. Mey, LEBS Longman (1998)
- 6.3- Recommended Books
Optics,2nd edition; Jurgen R. Mey, LEBS Longman (1998)
- 6.4- Periodicals, Web Sites, ... etc
<http://www.hep.com>
[http://www.physics2000](http://www.physics2000.com)
[http://www.physics today](http://www.physics.today)

7- Facilities Required for Teaching and Learning

Personal computer, data show and power point application.

Course Coordinator: Dr. Karema El-Saed

Head of Department: Prof. Dr. L.I. abou-Salem

Date: 1/6 /2007