



COURSE SPECIFICATIONS (2010-2011)



Benha University Faculty of Engineering at Shobra Electrical Engineering Department

A- Basic Information

Course Title: Physics **Code:** M172
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: Physics and Sciences Department
Academic year / level: First Year / First Semester
Date of specifications approval: 10/5/2006

B- Professional Information

1- Overall aims of course:

Write the aims of the course here ...

By the end of the course the student should be able to:

- provide education in Physics and related fields of high quality.
- provide the industry and the public services with engineers graduates of high caliber across all sciences.
- develop the knowledge and skills of the students to compete with others nationally and internationally.

2- Intended learning outcomes of course (ILOs)

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

a- Knowledge and Understanding

- a.1) Concepts and theories of mathematics and sciences, appropriate to the discipline.
- a.5) Methodologies of solving engineering problems, data collection interpretation.

b- Intellectual Skills

- b.1) Select appropriate mathematical and computer-based methods for modeling and analyzing problems.
- b.2) Select appropriate solutions for engineering problems based on analytical thinking.
- b.7) Solve engineering problems, often on the basis of limited and possibly contradicting information.

c- Professional and Practical Skills

- c.1) Apply knowledge of mathematics, science, information technology, design, business context and engineering practice to solve engineering problems.
- c.5) Use computational facilities and techniques, measuring instruments, workshops and laboratories equipment to design experiments, collect, analyze, and interpret results.
- c.7) Apply numerical modeling methods to engineering problems.



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d- General and Transferable Skills

- d.1) Collaborate effectively within multidisciplinary team.
- d.2) Work in stressful environment and within constraints.

3- Contents

Topic No.	Topic	Weeks	ILO's
1	• Quantum properties of light - Photo-electric effect	2	
2	• Properties of x-rays - x-rays diffractions	2	
3	• Compton Effect - Wave nature of mater	2	
4	• Principals of laser - Types of laser	2	
5	• Solid state physics - Polarization of light	2	
6	• Diffraction of light	2	
7	• Interference of light	2	
	Total	14 weeks	84 hours

4- Teaching and Learning Methods

- Lectures
- Practical training / laboratory
- 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.
- Oral exam to assess knowledge and intellectual 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
- Assessment 4 Oral Exam on week 14
- Assessment 5 Final exam on week 15

Weighting of Assessments

- 05% Home assignments
- 05% Quizzes



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10% Mid-term examination
20% Oral examination
60% Final-term examination
100% Total

6- List of References

Course notes

Course Notes • Lecture material and experimental sheets

Essential books

Essential Books (Text Books)

•Physics, David Halliday, Robert Resnick and Kenneth S. Krane, John Willey & Sons, Inc.

Recommended books

Recommended Books

•Physics for Scientists and Engineers with modern physics by Serway.

Periodicals Web sites, www.physicsresearch.com, www.electrostatic.Research.com, www.Google.com

7- Facilities required for teaching and learning

Lecture room equipped with overhead projector

Presentation board, computer and data show

Laboratory

Course coordinator: Dr. Dr. Ahmed Abdalla and Dr. Khaled El Essawi

Course instructor: Dr.

Head of Department: Prof. Dr. Ebtisam Saied **Date:** December 5, 2011