

University: Benha

Faculty: Science

Course Specifications

Programme(s) on which the course is given: **Basic science**

Major or Minor element of programs Major

Department offering the program: **Physics**

Department offering the course: **Physics**

Academic year/level **1st year /2nd semester**

Date of specification approval: **2008**

A- Basic Information

Title: Properties of Matter and Heat

Code: Phy 102

Credit Hours:

Lecture: 4 hr/week

Tutorial: 1 hr/week

Practical: 3 hr/week

Total:8 hr/week

B- Professional Information

1 – Overall Aims of Course

By Finishing of this course the graduate will be able to know the fundamental properties of matter, dimension theory, elastic theory, motion of rigid body, hydrodynamics, viscosity, heat conduction, radiation and black body radiation.

2 – Intended Learning Outcomes of Course (ILOs)

a- Knowledge and Understanding:

To make the graduate able to:

a1- Understand the properties of matter.

a2- Understand the dimensional theory.

a3- Study the elastic theory.

a4- Understand something about the viscosity of fluids.

a5- Know the way in which the heat is transferred.

b- Intellectual Skills

To make the graduate able to:

- b1- Exam the validity of the physical laws
- b2- Differentiate between different materials according to its physical properties.
- b3- Collect, summarize and analyze the practical data.

c- Professional and Practical Skills

To make the graduate able to:

- c1 - Analyze the properties of the different materials.
- c2- Chose the prop rate material for design the devices.

d- General and Transferable Skills

- d1- Solve problems.
- d2- Work in team.
- d3- Wright reports

3- Contents

Topic	No. of hours	Lecture	Tutorial/Practical
Sources of heat energy	4	4	
Kinds of thermometers	8	4	1/3
Quantity of heat	12	4	2/6
Heat transfer	16	4	3/9
Units and dimensions	4	4	
Elasticity	8	4	1/3
Dynamics of rigid body	12	8	1/3
Simple harmonic motion	20	8	3/9
Wave motion	4	4	
Fluid dynamics and viscosity	4	4	1/3

4– Teaching and Learning Methods

- 4.1- Lectures
- 4.2-Practical training
- 4.3-Class activities

5- Student Assessment Methods

- 5.1 Mid-term exam to assess Understanding
- 5.2 Oral exam to assess understanding
- 5.3 Practical exam to assess applying and evaluating the information.
- 5.4 Final term exam to assess knowledge with understanding

Assessment Schedule

- Assessment 1 Mid-term exam week 7
- Assessment 3 Oral exam week 1-12
- Assessment 4 Practical exam week 11
- Assessment 2 Final term exam week 14

Weighting of Assessments

Mid term examination	5 %
Final term examination	45%
Oral examination	5%
Practical examination	25 %
Semester work	10 %
Other types of assessment	10 %
Total	100%

6- List of References

6.1- Course Notes
.....Lecture materials.....

6.2- Essential Books (Text Books)
General Physics and heat (G.A. Grant)

6.3- Recommended Books

Halliday, Fundamental of Physics, 6th edition, John Wiley & Sons.Inc.
(2006)

6.4- Periodicals, Web Sites, ... etc
<http://www.hep.com>
<http://www.physics2000>
<http://www.physics.today>

7- Facilities Required for Teaching and Learning

Personal computer, data show, power point application, and experimental tool devices.

Course Coordinator: Prof. Dr. Nabil El-Nagar and Prof. Dr. Mabrok El-Mansy

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

Date: 1/6 /2007