

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: Thermodynamics

Code: Phy 221

Credit Hours:

Lecture: 2 hr/week

Tutorial: 1 hr/week

Practicals: 0

Total:2 hr/week

B- Professional Information

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

Understand the theory of ideal gases, first and second law of thermodynamics.

2 – Intended Learning Outcomes of Course (ILOs)

a- Knowledge and Understanding:

To make the graduate able to:

a1-Understand the theory of gas motion.

a2- Understand the first and second law of thermodynamics.

a3- Study the collision of molecules.

a4- Understand real gases and Van der val's equation.

a5- Know the mean idea in freezing gases.

b- Intellectual Skills

To make the graduate able to:

b1- Differentiate between the real and ideal gas.

b2- Collect, summarize and analyze the practical data.

b3-

c- Professional and Practical Skills

To make the graduate able to:

c1 - Analyze the natural phenomena which related to gases motion.

c2- Design the thermal engine.

c3- Design the freezing machines.

d- General and Transferable Skills

d1- Solve problems.

d2- Work in team.

d3- Wright reports

3- Contents

Topic	No. of hours	Lecture	Tutorial/Practical
Theory of gases motion	3	2	1/0
First law of thermodynamics	6	4	2/0
Collision of molecules	3	2	1/0
Real gases and Vander val equation	6	4	2/0
Second law of thermodynamics	9	6	3/0
Third law of thermodynamics	6	4	2/0
Thermodynamics probability function and entropy	3	2	1/0

4– Teaching and Learning Methods

4.1- Lectures

4.2-Discussion sessions

4.3-Class activities

5- Student Assessment Methods

5.1 Oral exam to assess understanding

5.2- Mid-term exam to assess Understanding

5.3- Final term exam to assess knowledge with understanding

Assessment Schedule

Assessment 1 Oral exam week 1-12

Assessment 1 Mid-term exam week 7

Assessment 2 Final term 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>0 %</u>
Total	100%

6- List of References

6.1- Course Notes

.....Lecture materials.....

6.2- Essential Books (Text Books)

Halliday Fundamental of Physics 6th Edn. Resnick, Walker John Willy & Sons 2006

6.3- Recommended Books

Halliday Fundamental of Physics 6th Edn. Resnick, Walker John Willy & Sons 2006

6.4- Periodicals, Web Sites, ... etc

<http://www.hep.com>

[http://www. Physics2000](http://www.Physics2000)

[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: Prof. Dr. Nabil El-Nagar

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

Date: 1/6 /2007

