Course Specifications

Programme(s) on which the course is given : P., P.&las., P.&G., P.&Ch.
Major or Minor element of programmes : major -major – minor- minor.
Department offering the programme : P., P., P.&G., P.&Ch.
Department offering the course Physics
Academic year / Level 1
Date of specification approval: 2012

A- Basic Information

Title:	**Thermodynamics**	**Code: P122**
Credit Hours:	**3 h**	**Lecture: 3h**
Tutorial: 00	**Practicals:00**	**Total: 3h**

B- Professional Information

1 – Overall Aims of Course

at the end of this course the student would be able to understand the thermodynamic relations, laws and entropy

2 – Intended Learning Outcomes of Course (ILOs)

a-Knowledge and Understanding:

student would be able to

a1- have the knowledge to the main thermodynamic systems and process

a2- understanding the thermodynamic concepts and relations

a3- understand the transfer of heat to work

b -Intellectual Skills

student should be able to

b1- Apply the thermodynamic treatment for different processes

b2 deal with the different thermodynamic

processes in heat engine, refrigerators and power plant

b3- be implicated with simple thermodynamic analysis of some processes

c- Professional and Practical Skills

student would be able to

c1- develop the experimental skills which are related to this field

c2- solve simple thermodynamic problems

d- General and Transferable Skills

The student should be able to

d1- apply the thermodynamic principles with other people

d2- Improve his knowledge about studying the statistical thermodynamics

3- Contents

Topic	No. of hours	Lecture	Tutorial/Practical
Definitions and concepts	6	2	
First law and applications	6	2	
Carnot's cycle and theorem	6	2	
Heat engine and refrigerator	3	1	
Second law and examples	6	2	
entropy	6	2	
Third law and application	3	1	

4– Teaching and Learning Methods

4.1-lectures

4.2 -disscutions

5- Student Assessment Methods

5.1 sheat exams … ……. to assess the theoretical knowledge

5.2 disscutions ……. to assess student scientific thinking

5.3 reaserch projects …. to assess the overall outcome

Assessment Schedule

Assessment 1	**sheet exam**	**Week 8&16 (mid &final term).**
Assessment 2	**Practical exams**	**Week 8&16 (mid &final term).**
Assessment 3	**oral exams**	**every week**
Assessment 4	**reaserchprojects**	**Final Week**

Weighting of Assessments

Mid-Term Examination 20 %

Final-term Examination 60 %

Oral Examination. 20 %

Total 100 %

6- List of References

6.1- Course Notes

6.2- Essential Books (Text Books)

a first course in thermodynamics; M. M. OBERI ,etal 1974

6.3- Recommended Books

thermodynamics, kinetic theory and statistical thermodynamics Francis W. Sears, etal 1977

heat and thermodynamics M.W. Zemansky 1984

6.4- Periodicals, Web Sites, … etc

7- Facilities Required for Teaching and Learning

Data show – computer – books – internet,….etc.

Course Coordinator: Prof.Dr.Ibrahem Zaki Hager

Head of Department: Prof.Dr. Sana Maize

Date: / /