Course Specifications

Program(s) on which this course is given:	Electronics & Electrical Communications Engineering
Major or Minor element of programs:	Major
Department offering the program:	Electronics & Electrical Communications Engineering
Department offering the course:	Mechanical Power Engineering (offering part A of the Course; Mechanical Engineering Thermodynamics) and Mechanical Design and Production Engineering (offering Part B of the course)
Academic year / Level:	First
Date of original/modified specification approval:	2003/
Semester of course offering:	Second Semester

A- Basic Information

1.a. Title:	Mechanical Engineering (1)			**1.b. Code:**		INT 117		
2. Units/Credit hours per week:	2.a. Lectures	4	2.b. Tutorial	2	2.c. Practical	0	2.d. Total	6

B- Professional Information

1. Overall Aims of the Course:

Providing the fundaments of Engineering Thermodynamics and its applications to basic Mechanical Power Systems. Upon completion of this course, the students should be able to apply 1st and 2nd laws of thermodynamics on engineering systems. They also should be able to determine fluid properties and make energy analysis involved in these systems.

2. Intended Learning Outcomes of Course (ILOs):

a) Knowledge and Understanding (1.1)

Basic information, Concepts, and applications of thermodynamics to Mechanical Power Engineering Systems. Applying 1st and 2nd laws of thermodynamics on engineering systems. Fluid properties and energy analysis for engineering systems.

b) Intellectual Skills

√□ analysis √□ creative thinking √□ problem solving

c) Professional and Practical Skills

□ managing □ engineering design

□ computer programme √□ ability to diagnose

√□ ability to identify the problem

□ ability to estimate cost □ Others specify

d) General and Transferable Skills

√□ computing □ communication

□ management √□ working in group

√□ use of technological tool

3. Contents

Topic	Total hours	Lectures	Tutorial/ Practical
Basic Concepts & Pure Substance	6	4	2

1st Law of thermodynamics, and its applications to closed and open systems	6	4	2
2nd Law of Thermodynamics & Reversibility	6	4	2
Entropy	6	4	2
Power and Reversed Cycles	9	6	3
Elementary Principles of ICE	12	8	4

4. Teaching and Learning Methods	Lectures (Y)	Practical Training/ Laboratory (N)	Seminar/Workshop (N)
	Class Activity (Y)	Case Study (N)	Projects (N)
	E-learning (N)	Assignments /Homework (Y)	Other:

5. Student Assessment Methods

5.a. Method	**To assess (with reference to the ILOs)**
-Mid-term exam	A, B, C, D
-Final Exam	A, B, C, D
5.b. Assessment Schedule	**Week**
-Assessment 1; Mid-term exam	7
-Assessment 2; Final-Exam	15
5.c. Weighting of Assessments	
-Mid-Term Examination	30 %
-Final-term Examination	70 %
-Total	100 %

6. List of References

6.a. Course Notes: available to students.

6.b. Essential Books (Text Books): N/A.

6.c. Recommended Books.

- Fundamentals of classical thermodynamics, Van. Wylen, G.J.
- Thermodynamics by Cengel & Boles.
- Thermodynamics 4th edition, M.J. Moran and H.N. Shapiro, john Wiley & Sons., NY.
- Engineering thermodynamics, j.B. Jones & R.E. Dugan, Prentice-Hall, Inc., New York, 1989.
- Work out Engineering Thermodynamics, G. Boxer, Macmilan, Inc., New York.
- Classial Thermodynamics, L.D Russell & G.A. Adebiyi, Harcout College Publishing, inc., New York.
- Thermodynamics, Kenneth work, McGraw- Hill, New York, 1983.

6.d. Periodicals, Web Sites, … etc: N/A

7. Facilities Required for Teaching and Learning

- Smaller number of Students in lectures and tutorials
- Renewing and properly maintaining the blackboards
- Wireless microphones and properly maintaining them along with properly designed speakers
- Data show, screen and projector

Course Coordinator:	Dr. Ali Khattab
Head of Department:	Prof. Dr Mohamad mahmoud

Date:	**2011**