Benha University
Shoubra Faculty of Engineering
Industrial Engineering Department

Course Specification

Engineering Mathematics (3)

Course Specifications

Program(s) in which the course is given: Industrial Engineering
Major or minor element of programs: N/A
Department offering the program: Industrial Engineering
Department offering the course: Industrial Engineering
Academic year / Level: 2008/2009 / Level 1

A- Basic Information

Title: Engineering Mathematics (3) Code: EMP 101

Credit Hours: 3
Lecture: 2
Exercises: 2
Total: 4

B- Professional Information

1- Overall aims of the course

To teach the students the essential information as introduction about differential & integration &their applications, also about basic information related to the applications in the Engineers.
To teach the students differential for the functions of several variables
To teach the student how deal with the concept of the limit & continuity of the function mentioned above
To teach the student how to deal with the application of differentiation
To teach the student how to deal with ordinary differentiation equations
To teach the student how to deal with Some application of differentiation equations
To teach the student how to use the main idea of infinite Series
To teach the student basic information related to complex variable
To teach the student the technology of using all the above items

2- Intended learning outcomes of the course (ILOs)

a. Knowledge and understanding

Introduction differentiation & its application.
Integration the types of ordinary differential equations & its applications
Infinite Series & complex variable.

b. Intellectual skills

☒ Analysis ☐ Creative thinking ☒ Problem solving

c. Professional and practical skills

☐ Managing ☒ Engineering design
☒ Computer program ☒ Ability to diagnose
☒ Ability to identify the problem
☒ Ability to estimate cost ☐ Other

d. General and transferable skills

☒ Computing ☒ Communication
☒ Management ☒ Working in group
☒ Use of technological tools

3- Contents

Topic	No. of hours	Lecture	Tutorial/ Practical
Introduction	4	2	2
Differentiation	12	6	6
Applications	12	6	6
Ordinary differentiation equations	12	6	6
Applications	8	4	4
Infinite Series	8	4	4
Complex variable	4	2	2
Total	**60**	**30**	**30**

4- Teaching and learning methods

- ☒ Information collection
- ☒ Research assignment
- ☒ Lecture
- ☒ Class activities
- ☒ Discussions
- ☒ Field visit
- ☒ Practical training / lab
- ☒ Case study

5- Student assessment methods

Class attendance and participation
Homework assignments
First midterm exam
Final exam

Assessment schedule

Homework assignments	weeks 3, 5, 7, 9, 11
First midterm exam	week 8
Final exam	

Weighting of assessments

Final	40 %
7^{th} week Exam	30 %
12^{th} week Exam	20 %
Class attendance and participation	5 %
Homework assignments	5 %

6- List of references

6.1 Course notes

6.2 Essential books

- **Engineering Mathematics fifth Edition ,K.A.Stroud,Industrial Press.Inc. New York.2001**

6.3 Recommended books

- **Calculas,Thomas ,john wiley Sons,2003.**

7- Facilities required for teaching and learning

Computer Lab - Data Show - Overhead Projector

Course Coordinator: Prof. Dr.Aly ElSabagh
Program Coordinator: Prof. Dr. Attia Gomaa
General Supervisor & Vice Dean: Prof. Dr. Abdallh Saad
Date: 01 / 06 / 2010