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:	Mathematics and Engineering Physics
Academic year / Level:	First
Date of original/modified specification approval:	2003/
Semester of course offering:	First

A- Basic Information

1.a. Title:	Mathematics (2)			**1.b. Code:**	MTH 117A			
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:	At the end of this course, the student should be able to: • Apply partial differentiation techniques. • Classify and solve different types of ODEs. • Studying some applications using ODEs in the field of circuit analysis. • Determine the convergence of an infinite series. • Perform multiple integration using different techniques.
2. Intended Learning Outcomes of Course (ILOs):	**a) Knowledge and Understanding**
	1. Define and describe the basic properties of partial differentiation. (1.1) 2. Define and describe the basic types of ODEs. (1.1) 3. Explain the convergence testing techniques for any infinite series. (1.1) 4. Describe the different techniques of multiple integration. (1.1)
	b) Intellectual Skills
	1. Problem solving (being able to classify and solve ODEs, and perform multiple integrations) (3.1) 2. Being able to model any linear electrical system into its equivalent differential equation form. Then, solve this system using ODE's techniques. (3.1, 3.9) 3. Being able to change the order of multiple integration, and transform it into cylindrical or spherical coordinates. (3.1)
	c) Professional and Practical Skills
	1. Calculate the transient response for any linear circuit (RLC circuit). (2.1) 2. Evaluate the response of any linear control system. (2.1) 3. Studying the convergence of an infinite series. (2.1) 4. Using multiple integration to get the area, volume, inertia, …..etc. (2.1)
	d) General and Transferable Skills
	1. Acquire computational skills. (4.2) 2. Get acquainted with working in a group.(4.7) 3. Acquire communication skills.(4.7)

3. Contents

Topic	Total hours	Lectures	Tutorial/ Practical
Partial differentiation	24	16	8

Ordinary differential equations (ODEs)	24	16	8
Infinite series	14	8	6
Multiple integration	20	12	8
Applications	8	8	0

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)**
• Discussions and reports	c1, c2, c3, c4, d1, d2, d3.
• Assignments	a1, a2, a3, a4
• Quizzes	b1, b2, b3
• Midterm	a1, a2, a3, a4, b1, b2, b3, c1, c2, c3, c4
• Final	a1, a2, a3, a4, b1, b2, b3, c1, c2, c3, c4
5.b. Assessment Schedule	**Week**
Assessment 1 : Discussion	In every lecture.
Assessment 2 : Assignments and Quizzes	one per week.
Assessment 3 : Midterm	8
Assessment 4 : Report (Research project)	10,11,12
Assessment 5 : Final	15
5.c. Weighting of Assessments	
Assignments and reports	8.33%
Quizzes and discussion	10%
Midterm	15%
Final	66.67%
Total	100 %

6. List of References
6.a. Course Notes: Lecturer notes (in English).
6.b. Essential Books (Text Books)
• "Mathematics, First Year for Engineering Students", Department of Engineering Physics & Math.- Faculty of Engineering – Cairo university, 2006.
6.c. Recommended Books: N/A
6.d. Periodicals, Web Sites, … etc: N/A.
7. Facilities Required for Teaching and Learning
White board, data show, screen, projector.

Course Coordinator:	Prof. Dr. Said Rezk Grace
Head of Department:	Prof. Dr. Ahmad Alaa Aboulsoud
Date:	