Course Specifications

Program(s) on which this course is given:	Aerospace Engineering
Department offering the program:	Aerospace Engineering Department
Department offering the course:	Engineering Mathematics and Physics
Academic Level:	Second Year (Junior Level)
Date	November, 2007
Semester (based on final exam timing)	☑ Fall ☐ Spring

A- Basic Information

1. Title:	Mathematics (3)			**Code:**		MTH 216A		
2. Units/Credit hours per week:	Lectures	**2 Hrs./week**	Tutorial	**1 Hr./week**	Practical	**0**	Total	**3 Hrs./week**

B- Professional Information

1. Course description:

At the end of this course, the student should be able to:

- Deal with Functions of a Complex Variable.
- Understand the basic concepts of Complex Analysis
- Understand and apply the basic conformal mappings.

2. Intended Learning Outcomes of Course (ILOs):

a) Knowledge and Understanding

a1- Functions of a Complex Variable and their basic properties.

a2- Analiticity and Line Integrals in the Complex Plane.

a3- Series expansion of complex functions

a4- Singularities and Residues.

a5- Conformal Mappings

b) Intellectual Skills

b1- Apply Cauchy-Riemann equations to identify analytic functions.

b2- Differentiate and Integrate functions of a complex variable.

b3- Apply Cauchy's integral theorems and formulae.

b4- Find Taylor's and Laurent's series expansions of complex functions.

b5- Use conformal mappings to map regions in the z-plane onto others in the . . w-plane.

c) Professional and Practical Skills

	d) General and Transferable Skills

3. Contents

Topic	**Total hours**	**Lectures hours**	**Tutorial/ Practical hours**
Functions of a Complex Variable- Analiticity	12	8	4
Cauchy's Integral Theorems and Formulae	9	6	3
Series Representation of Complex Functions	6	4	2
Isolated Singularities and Residues	9	6	3
Conformal Mappings	9	6	3
Total	45	30	15

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

5. Student Assessment Methods

• **Assessment Schedule**	**Week**
-Assessment 1; Midterm	9th Week
-Assessment 2; Quiz	12th Week
-Assessment 3; Final	16th Week
• **Weighting of Assessments**	
Quiz	10%
Midterm	20%
Final	66.67%
Attendance	3.33%
Total	100%

6. List of References

6.1 - Course Notes:

Lecturer notes (in English).

6.2- Essential Books (Text Books)

"Mathematics, Second Year for Engineering Students", Department of Engineering Math. & Physics - Faculty of Engineering – Cairo university,.

6.3- Recommended Books Advanced Engineering Maths. by Erwin Kreyszig 8th ed., 2000 . Chapters 5-7 and 12-15 (45/MA
7. Facilities Required for Teaching and Learning
White board, projector

Course Coordinator:	Dr. Nabila Philip Attalla Seif
Head of Department:	**Prof. Ayman Hamdy Kassem**