



## Course specification

University/Academy: Damanhour University

Faculty/Institute: Science

Department: Mathematics

1. course Data:		
Course code: Math 455	Course title: Complex Analysis	Academic year/level: 2010-2011 Fourth year - First semester
Specialization: Special Physics	No. of instructional units:    lecture <input type="text" value="2"/> practical <input type="text" value="1"/>	

2. course Aim	Demonstrate theoretical knowledge and have practical skills in the theory of complex analysis. Demonstrate an ability to initiate and sustain in-depth research relevant to complex analysis. Have an opportunity to put theory into practice via applications of complex analysis on a real life problems.
3. Intended learning outcome	
a) Knowledge and understanding	a1. Review theories and concepts used in the complex analysis.  a2. Identify the steps required to carry out a piece of research on a topic within complex analysis.  a3. Recognize the contribution and impacts of complex analysis in applied science.
b) Intellectual skills	b1. Apply appropriate theories, principles and concepts relevant to the complex analysis.  b2. Assess and evaluate the literature within complex analysis.  b3. Demonstrate a reasoned argument to the solution of familiar and unfamiliar problems relevant to complex analysis.



<b>c) Professional skills</b>	<p>c1. Plan practical activities using techniques and procedures appropriate to complex analysis.</p> <p>c2. Execute a piece of independent research using complex analysis media and techniques.</p>
<b>d) General skills</b>	<p>d1. Deal with an appropriate effective written and oral communication skills relevant to complex analysis.</p> <p>d2. Work effectively as part of a group, involving leadership, group dynamics and interpersonal skills such as listening, negotiation and persuasion relevant to complex analysis.</p> <p>d3. Use organization skills (including task and time management) relevant to complex analysis both individually and in a group situation.</p> <p>d4. Set tasks and solve problems relevant to complex analysis using ideas and techniques some of which are at the forefront of the discipline.</p>
<b>4. course content</b>	<p>1-Basic properties of complex numbers.</p> <p>2-Functions of a complex variable.,</p> <p>3-Limits and continuity.</p> <p>4-Complex differentiation.</p> <p>5- Cauchy-Riemann equations.</p> <p>6-Complex integration.</p> <p>7- Cauchy's theorem.</p> <p>8-Cauchy's integral formula.</p> <p>9-Infinite series.</p> <p>10-Taylor's and Laurent's expansion.</p> <p>11-The residue theorem.</p> <p>12-Evaluation of some definite integrals.</p> <p>13-Conformal mapping.</p> <p>1-Basic properties of complex numbers.</p> <p>2-Functions of a complex variable.,</p> <p>3-Limits and continuity.</p>



<b>5. Teaching and learning methods</b>	5.1 Lectures. 5.2 Tutorials 5.3 Homework 5.4 Oral discussion
<b>6. teaching and learning methods for students with special needs</b>	None
<b>7. Student Assessment</b>	
<b>a) Procedures used:</b>	Final exam
<b>b) Schedule:</b>	Assessment 1    Final exam    Week 15
<b>c) Weighing of Assessment:</b>	Final exam 100 Marks (100%)
<b>List of Textbooks and References:</b>	
<b>d) Course Notes</b>	Course notes provided by the staff member of Math department, to be handed at the beginning of the semester.
<b>e) Required Books (Textbooks)</b>	R.V.Churchel & J.W.Brown, Complex variables and applications,
<b>f) Recommended Books</b>	None
<b>g) Periodicals, web sites,...,etc</b>	None

**Course Instructor:** Prof. Dr. Ragab Omer Abd El-Rahman

**Head of Department:** Prof. Dr. Mohamed Darwish

**Date:**    /    /