



Course specification

University/Academy: Damanhour University

Faculty/Institute: Science

Department: Mathematics

1. course Data:		
Course code: Math 324	Course title: Real analysis	Academic year/level: 2009-2010 Third year - Second term
Specialization: Mathematics and Physics	No. of instructional units: lecture <input type="text" value="2"/> tutorial <input type="text" value="2"/> practical <input type="text" value="-"/>	

2. course Aim	Demonstrate theoretical knowledge and have practical skills in the subject of advanced real analysis. Demonstrate an ability to initiate and sustain in-depth research relevant to real analysis. Have an opportunity to put theory into practice via work-based learning.
3. Intended learning outcome	
a) Knowledge and understanding	a1. Review the theories and concepts used in the real analysis. a2. Identify the steps required to carry out a piece of research on a topic within real analysis. a3. Recognize the contribution and impacts of real analysis in different areas of science.
b) Intellectual skills	b1. Apply appropriate theories, principles and concepts relevant to the real analysis. b2. Assess and evaluate the literature within real analysis. b3. Demonstrate an appropriate judgment in selecting and presenting information using various methods relevant to real analysis.



<p>c) Professional skills</p>	<p>c1. Plan and design practical activities using techniques and procedures appropriate to real analysis.</p> <p>c2. Plan and design a piece of independent research using real analysis media and techniques.</p>
<p>d) General skills</p>	<p>d1. Use appropriate effective written and oral communication learning relevant to the topics in the course of real 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 these topics.</p> <p>d3. Deal with problems relevant to real analysis topics using ideas and techniques some of which are at the forefront of the discipline.</p> <p>d4. Think independently and develop the ability to self appraise and reflect on scientific data Arabic and in English relevant to real analysis.</p>
<p>4. course content</p>	<p>Real number system</p> <p>Set point properties</p> <p>Continuity</p> <p>Functions of bounded variation</p> <p>Definition of Riemann Stieltjes integrals</p> <p>The upper sums and the lower sums</p> <p>Comparison theorems.</p> <p>Lebegue integral on the real line</p> <p>Orthonormal system and trigonometric Fourier series</p> <p>Dirichlet's Theorem</p> <p>Dini's Theorem</p> <p>Fourier integrals</p>
<p>5. Teaching and learning methods</p>	<p>5.1 Lectures.</p> <p>5.2 Tutorials</p> <p>5.3 Homework</p> <p>5.4 Oral discussion</p>



6. teaching and learning methods for students with special needs	None
7. Student Assessment	
a. Procedures used:	Final exam
b. Schedule:	Assessment 1 Final exam Week 15
c. Weighing of Assessment:	Final exam 150 Marks (100%)
8. List of Textbooks and References:	
a. Course Notes	Course notes provided by the staff member of Math department, to be handed at the beginning of the semester.
b. Required Books (Textbooks)	M. A. Apostol, Mathematical Analysis, John Wiley, 1963
c. Recommended Books	Courant and Hilbert, Mathematical Physics, Springer Verlage, 1988
d. Periodicals, web sites,...,etc	None

Course Instructor: Dr. Ragab Omer Abd El-Rahman

Head of Department: Prof. Dr. Mohamed Darwish

Date: / /