Course specification

University/Academy: Damanhour University
Faculty/Institute: Science
Department: Mathematics

1. course Data:

<table>
<thead>
<tr>
<th>Course code: Math303</th>
<th>Course title: Real analysis and topology</th>
<th>Academic year/level: 2009-2010 Third year - First term</th>
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</thead>
<tbody>
<tr>
<td>Specialization: Special Mathematics</td>
<td>No. of instructional units: lecture 3, tutorial 2, practical -</td>
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2. course Aim

Demonstrate theoretical knowledge and have practical skills in the subject of advanced analysis and the subject of topology. Demonstrate an ability to initiate and sustain in-depth research relevant to analysis and topology. Have an opportunity to put theory into practice via work-based learning.

3. Intended learning outcome

a) Knowledge and understanding

a1. Mention the theories and concepts used in the analysis and topology.

a2. Identify the steps required to carry out a piece of research on a topic within analysis and topology.

a3. Recognize the contribution and impacts of analysis and topology in different areas of science.

b) Intellectual skills

b1. Apply appropriate theories, principles and concepts relevant to the analysis and topology.

b2. Assess and evaluate the literature within analysis and topology.

b3. Demonstrate an appropriate judgment in selecting and presenting information using various methods relevant to analysis and topology;
| c) Professional skills | c1. Plan and design practical activities using techniques and procedures appropriate to analysis and topology.  
|                       | c2. Plan and design a piece of independent research using analysis and topology media and techniques.  
| d) General skills     | d1. Use appropriate effective written and oral communication learning relevant to the topics in the course of real analysis and topology.  
|                       | 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.  
|                       | d3. Deal with problems relevant to real analysis and topology topics using ideas and techniques some of which are at the forefront of the discipline.  
|                       | d4. Think independently and develop the ability to self appraise and reflect on scientific data Arabic and in English relevant to real analysis and topology.  
| 4. course content     | 1-Real number system  
|                       | 2-Set point properties  
|                       | 3- Continuity  
|                       | 4-Riemann-Stieltjes integrals  
|                       | 5-Functions of bounded variations  
|                       | 6-Topological Space  
|                       | 7- Applications.  
|                       | 8-Neighbourhood Systems, Closed sets, Dense sets.  
|                       | 9-Pseudometric paces, Separation Axioms.  
|                       | 10-Continuity, Open and closed functions.  
|                       | 11-Convergence – Filters – Compact Space.  
|                       | 12-Normal Space – Homotopy – Paths  
|                       | 13- Applications of topology.
5. Teaching and learning methods

5.1 Lectures.
5.2 Tutorials
5.3 Homework
5.4 Oral discussion

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%)

List of Textbooks and References:

d) Course Notes

Course notes provided by the staff member of Math department, to be handed at the beginning of the semester.

e) Required Books (Textbooks)


f) Recommended Books

Courant and Hilbert, Mathematical Physics, Springer Verlage, 1988

g) Periodicals, web sites,….etc

None

Course Instructor: Prof. Dr. Abd El- menaam Fouzaa

Prof. Dr. Fatai Brakat
Head of Department: Dr. Ragab Omar Abd El-Rahman

Date: -----/-----/-----