



Course specification

University/Academy: Damanhour University

Faculty/Institute: Science

Department: Mathematics

1. course Data:

Course code: Math422	Course title: Mathematical Logic and Topology	Academic year/level: 2010-2011 Fourth year - Second term
Specialization: Mathematics and Physics	No. of instructional units: Lecture <input type="text" value="4"/> tutorial <input type="text" value="2"/> practical <input type="text" value="-"/>	

2. course Aim

Demonstrate theoretical knowledge and have practical skills in the subjects of Mathematical Logic and Topology; Demonstrate an ability to initiate and sustain in-depth research relevant to Mathematical Logic and Topology ; Have an opportunity to put theory into practice via work-based learning the applications of abstract mathematical Logic and Topology to the scientific discipline such as physics and chemistry.

3. Intended learning outcome

a) Knowledge and understanding	a1. Mention theories and concepts used in Mathematical Logic and Topology. a2. Identify the steps required to carry out a piece of research on a topic within Mathematical Logic and Topology. a3. Recognize the contribution and impacts of Mathematical Logic and Topology in real life problem.
b) Intellectual skills	b1. Apply appropriate theories, principles and concepts relevant to the Mathematical Logic and Topology. b2. Formulate a reasoned argument from a variety of sources relevant to Mathematical Logic and Topology.



	<p>b3. Analyze and interpret information from a variety of sources relevant to Mathematical Logic and Topology.</p> <p>b4. Select a reasoned argument to the solution of familiar and unfamiliar problems relevant to Mathematical Logic and Topology.</p>
c) Professional skills	<p>c1. Plan practical activities using techniques and procedures appropriate to Mathematical Logic and Topology.</p> <p>c2. Design a piece of independent research using Mathematical Logic and Topology techniques</p>
d) General skills	<p>d1. Think independently, Set tasks and solve problems on ethical scientific basis relevant to mathematical Logic and Topology.</p> <p>d2. Communicate with others positively as part of a group, involving leadership, group dynamics and interpersonal skills such as listening, negotiation and persuasion relevant to Mathematical Logic and Topology.</p> <p>d3. Use information and communication technology to discuss problems relevant to Mathematical Logic and Topology.</p>
4. course content	<p>Logical connectives and truth tables. Validity , equivalence and Consequence.</p> <p>Duality law. Decision problem. Principal conjunctive and disjunctive normal form.</p> <p>Propositional calculus. Deduction and equivalent theorems.</p> <p>Consistency and completeness of propositional calculus.</p> <p>Predicate calculus. Deduction and equivalent theorems.</p> <p>Reduced an normal forms in predicate calculus.</p> <p>Metric Spaces.</p> <p>Topological Spaces.</p>



	Hausdorff Spaces.
	Identification Maps and Quotient Topologies.
	Connected Topological Spaces.
	Homomorphisms.
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	Non
7. Student Assessment	
a. Procedures used:	Final exam
b. Schedule:	Assessment 1 Final exam Week 15
c. Weighing of Assessment:	Final exam 200 Marks
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)	1- Yu. L. Ershov & E. A. Palyutin , “ Mathematical Logic “ Mir Publishers , 1984 2-David R. Wilkins, " General Topology " Springer Virlag , 1996.
1- Recommended Books	None
2- Periodicals, web sites,...,etc	None

Course Instructor: Dr. Ragab Omar Abd El-Rahman

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

Date: / /