جامعة المجمعة
Majmaah University

Course Specifications

Institution :	Zulfi College Science
Academic Department :	Mathematics
Programme :	Mathematics BSc.
Course :	Introduction to Topology
Course Coordinator :	Dr. Ahmad Abd Allah Zedan
Programme Coordinator :	Dr. Ahmad Abd Allah Zedan
Course Specification Approved Date :	…./ … / …… H

A. Course Identification and General Information

1 - Course title : Introduction to Topology	Course Code: Math472
2. Credit hours : (4)	
3 - Program(s) in which the course is offered: Mathematics BSc	
4 – Course Language : English	
5 - Name of faculty member responsible for the course: Dr. Ahmad Zedan	
6 - Level/year at which this course is offered : Seven	
7 - Pre-requisites for this course (if any) : • **Real Analysis (1) Math381**	
8 - Co-requisites for this course (if any) : • **Introduction to Functional Analysis Math484**	
9 - Location if not on main campus **:** **(Main Campus – Zulfi)**	

10 - Mode of Instruction (mark all that apply)

A - Traditional classroom	√	What percentage?	**60 %**
B – Blended (traditional and online)	√	What percentage?	**20 %**
D – e-learning	√	What percentage?	**20 %**
E - Correspondence		What percentage?	……. %
F - Other		What percentage?	……. %

Comments :

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B Objectives

What is the main purpose for this course?

This course has been designed as an introduction to general topology. The student enrolled in this course should have a back-ground in Set Theory. This course covers basic point set topology, in particular, Metric and Topological spaces, Separation Axioms, Connectedness, Compactness.

Briefly describe any plans for developing and improving the course that are being implemented :

1-Cooprate with other educational institutions to find how they deal with the subject.

 2- Re- new the course references frequently.

 3-Frequently check the latest discovery in science to improve the course objectives.

4- The course needs the use of computers.

5- Posting some course material on the websites to help the students.

6- Focusing on generic skills.

C. Course Description

1. Topics to be Covered

List of Topics	No. of Weeks	Contact Hours
Sets and Relation – Functions – Cardinality - Order.	1	4
Topological Spaces – Accumulation Points – Interior, Closure, Boundary and exterior of sets – Coarser and Finer Topologies – Subspace	4	16
Bases and Subbases for topologies – Topologies generated by classes of sets	1	4
Continuous Function – continuity at a point – open and closed function – Homeomorphism spaces – metric Spaces – Hilbert Space – Normed Spaces	2	8
Separation Axioms – T1-spaces – Hausdorff Space – Regular Spaces – Normal spaces – Completely Regular spaces	2	8
Covers – Compact Sets – Subsets of compact sets – finite intersection property – compactness and Hausdroff spaces	2	8
separated Sets – Connect Sets – Connects Spaces - Connecters on the real line	2	8

2. Course components (total contact hours and credits per semester):

	Lecture	Tutorial	Laboratory	Practical	Other:	Total
Contact Hours	45	30	....	....	12	166

Credit	3	1	....	....	....	4

3. Additional private study/learning hours expected for students per week. | **5-6 Hours**

4. Course Learning Outcomes in NQF Domains of Learning and Alignment with Assessment Methods and Teaching Strategy

	NQF Learning Domains And Course Learning Outcomes	Course Teaching Strategies	Course Assessment Methods
1.0	**Knowledge**		
1.1	Define Topological Spaces, Accumulation Points , Interior, Closure, Boundary and exterior of sets – Coarser and Finer Topologies – Subspace	Start each chapter by general idea and the benefit of it.	Exams Midterms Final examination.
1.2	Recognize Bases and Subbases for topologies and write Topologies generated by classes of sets	Demonstrate the course information and principles through lectures.	
1.3	Describe Continuous Function , continuity at a point and list separation axioms		
1.4	Stat Covers – Compact Sets and named Connect Sets – Connects Spaces		
1.5	Outline the logical thinking.	Provide main ways to deal with the exercises.	Homework.
1.6	State the physical problems by mathematical method.	Solve some examples during the lecture.	Continuous discussions with the students during the lectures.
2.0	**Cognitive Skills**		
2.1	The students will explain and interpret a general knowledge of general topology.	Encourage the student to look for	Midterm exams Quizzes.

	NQF Learning Domains And Course Learning Outcomes	Course Teaching Strategies	Course Assessment Methods
		some complicated problems in the different references.	
2.2	Enable students to analyses the mathematical problems.	Ask the student to attend lectures for practice solving problem.	Doing homework. Check the problems solution.
2.3	Student's ability to write physical equations in a correct mathematical way.	Homework assignments.	Discussion of how to simplify or analyses some problems.
3.0	**Interpersonal Skills & Responsibility**		
3.1	The student should illustrate how take up responsibility.	Ask the students to search the internet and use the library. Encourage them how to attend lectures regularly by assigning marks for attendance.	Quizzes of some previous lectures. Ask the absent students about last lecture.
3.2	Must be shown the ability of working independently and with groups.	Teach them how to cover missed lectures. Give students tasks of duties	Discussion during the lecture.

	NQF Learning Domains And Course Learning Outcomes	Course Teaching Strategies	Course Assessment Methods
4.0	Communication, Information Technology, Numerical		
4.1	The student should illustrate how to communicating with: Peers, Lecturers and Community.	Creating working groups with peers to collectively prepare: solving problems and search the internet for some topics.	Discussing a group work sheets.
4.2	The student should interpret how to Know the basic mathematical principles using the internet.	Give the students tasks to measure their: mathematical skills, computational analysis and problem solving.	Discuses with them the results of computations analysis and problem solutions.
4.3	The student should appraise how to Use the computer skills and library.	Encourage the student to ask for help if needed.	Give homework's to know how the student understands the numerical skills.
4.4	The student should illustrate how to Search the internet and using software programs to deal with problems.	Encourage the student to ask good question to help solve the problem.	Give them comments on some resulting numbers.
5.0	Psychomotor		
5.1	Not applicable	Not applicable	Not applicable
5.2	Not applicable	Not applicable	Not applicable

5. Schedule of Assessment Tasks for Students During the Semester:

	Assessment task	Week Due	Proportion of Total Assessment
1	Midterm 1	5th week	20%
2	Midterm 1	10th week	20%
3	Homework + reports	During the semester	20%
4	Final exam	End of semester	40 %

D. Student Academic Counseling and Support

1- 8-office hours per week in the lecturer schedule.

2- The contact with students by e-mail and website.

E. Learning Resources

1. List Required Textbooks :
- Semymour Lipschutz, General Topology, McGraw-Hill. Inc
- Sidney A. Morris, Topology Without tears, 2007

2. List Essential References Materials :
- James Munkers : Topology : A first Course, Prentice Hall, 1975
- S. Willard : General Topology, Reading M.A. 1970
- D. Goshi : Introduction to General Topology, New Delhi 1986 .

3. List Recommended Textbooks and Reference Material :
- Same as mention above.

4. List Electronic Materials :
- http://www.seciencedirect.com.
- http://faculty.mu.edu.sa/m.khalaf/topology

5. Other learning material :
- Non.

F. Facilities Required

1. Accommodation

- **Classroom with capacity of 30-students.**
- **Library**

2. Computing resources
- **Not available**

3. Other resources
- **None**

G Course Evaluation and Improvement Processes

1 Strategies for Obtaining Student Feedback on Effectiveness of Teaching:
- **Student evaluation electronically organized by the University.**

2 Other Strategies for Evaluation of Teaching by the Program/Department Instructor :
- **The colleagues who teach the same course discuss together to evaluate their teaching**

3 Processes for Improvement of Teaching :
- **Course report, Program report and Program self-study.**
- **A tutorial lecture must be added to this course.**

4. Processes for Verifying Standards of Student Achievement
- **The instructors of the course are checking together and put a unique process of evaluation**

5 Describe the planning arrangements for periodically reviewing course effectiveness and planning for improvement :
- **1- The following points may help to get the course effectiveness:**
- *** Student evaluation.**
- *** Course report.**
- *** Program report.**
- *** Program self-study.**
- **2- According to point 1 the plan of improvement should be given**
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Course Specification Approved
Department Official Meeting No (…..) Date … / …. / ….. H

Course's Coordinator   **Department Head**

Name :   **Dr. Ahmad Zedan**   *Name :*   **Prof. Dr. Adel Zaki**
Signature :   *Signature :*   ………………………
Date :   …./ … / …… H   *Date :*   …./ … / …… H