اعتماد
NCAAA

T4

2020

Course Specifications

Course Title:	General topology
Course Code:	2024101-3
Program:	Bachelor in Mathematics.
Department:	Mathematics and Statistics Department
College:	Faculty of sciences
Institution:	Taif university

Table of Contents

A. Course Identification

1. **Credit hours: 3**

2. Course type

a.	University ☐	College ☐	Department √		Others ☐
b.		Required √		Elective ☐	

3. Level/year at which this course is offered: 10th level / 4th year

4. Pre-requisites for this course (if any)**:**

Set theory (2022106-3)

5. Co-requisites for this course (if any)**:**

None

6. Mode of Instruction (mark all that apply)

No	Mode of Instruction	Contact Hours	Percentage
1	**Traditional classroom**	4Hr/week	100
2	**Blended**		
3	**E-learning**		
4	**Distance learning**		
5	**Other**		

7. Contact Hours (based on academic semester)

No	Activity	Contact Hours
1	**Lecture**	40
2	**Laboratory/Studio**	
3	**Tutorial**	
4	**Others** (specify)	
	Total	40

B. Course Objectives and Learning Outcomes

1. Course Description

This course reinforces and extends the concepts and techniques of in Set theory, and introduces the concept of Topological spaces, Base, Subbase, Continuity, Separation axiom, Compactness, Connectedness and their application to problems. Topology is the study of extension Geometry. In this course we will explore the link between form and other sciences. My approach will be primarily at the whole concepts previous, and although a background in sets theory, it is not absolutely crucial for success in this course. It's more important that the students are curious and willing to learn. The students will be exposed to current research in topology through lecture, by reading scientific articles and by writing a short research report on a topic of the student choice that is as broadly or narrowly related to topology**.**

2. Course Main Objective

The student will be taught as follows:

1. Recognizing the basic concepts of topology.

2. Explaining Cartesian product topology, Base and sub base and Matric space.
3. Describe continuity, open maps, closed maps and Homeomorphism.
4. Outline Separation axioms, Regular spaces and Normal spaces.
5. Describe Compactness and Connectedness and Components.

3. Course Learning Outcomes

	CLOs	Aligned PLOs
1	**Knowledge and Understanding:**	
1.1	Recognize topological space.	K1
1.2	Describe continuity, open maps, closed maps and Homeomorphism.	K1
1.3	Outline Separation axioms, Regular spaces and Normal spaces.	K1
2	**Skills:**	
2.1	Apply the different Separation axioms.	S1
2.2	Measure the topology induced by Metric space.	S1
3	**Values:**	
3.1	Articulate ethical behavior associated with institutional Guidelines in classroom, and in Lab.	V3

C. Course Content

No	List of Topics	Contact Hours
1	Introduction about topology and topological definitions.	4
2	Topological spaces (Open set, Limit points, Closed set and Closure.)	4
3	Topological spaces (Interior, Exterior and Boundary).	4
4	Base, Sub base and Cartesian product topology & Continuity.	4
5	Open maps and Closed maps and Homeomorphisms.	4
6	**Midterm exam,** Separation axioms 1	4
7	Separation axioms 2	4
8	Metric spaces.	4
9	Compactness	4
10	Connectedness and Components	4
Total		40

D. Teaching and Assessment
1. Alignment of Course Learning Outcomes with Teaching Strategies and Assessment Methods

Code	Course Learning Outcomes	Teaching Strategies	Assessment Methods
1.0	**Knowledge and Understanding:**		
1.1	Recognize topological space.	• Lectures • Group discussions	• Quizzes • Assignments
1.2	Describe continuity, open maps, closed maps and Homeomorphism.	• Lectures • Group discussions	• Exams • Assignments
1.3	Outline Separation axioms, Regular spaces and Normal spaces.	• Lectures • Group discussions	• Quizzes • Assignments
2.0	**Skills:**		
2.1	Apply the different Separation axioms.	• Interactive classes Group discussions	• Quizzes Assignments
2.2	Measure the topology induced by Metric space.	• Lectures • Group discussions	• Exams • Quizzes

Code	Course Learning Outcomes	Teaching Strategies	Assessment Methods
3.0	**Values:**		
3.1	Articulate ethical behavior associated with institutional Guidelines in classroom, and in Lab.	• Lectures • Group discussions	• Exams • Quizzes

2. Assessment Tasks for Students

#	Assessment task*	Week Due	Percentage of Total Assessment Score
1	**Quizzes + Home works**	**Continues**	**10 %**
2	**Midterm exam**	**5th-6th**	**30 %**
3	**Class Work (Homework- report- class test….)**	**8th**	**10 %**
4	**Final exam**	**11th**	**50 %**

Assessment task (i.e., written test, oral test, oral presentation, group project, essay, etc.)

E. Student Academic Counseling and Support

Arrangements for availability of faculty and teaching staff for individual student consultations and academic advice:
6 hours per week (as defined in the teaching schedule of the faculty member) for academic advice and consultations.
Teaching staff is also available using Blackboard web site and Taif University "Edugate" System.

F. Learning Resources and Facilities
1.Learning Resources

Required Textbooks	Fundamentals of General Topology: Problems and Exercises by A. Alam, 2005, Publisher: DAR ALZAMAN LIBRARY, SAUDI ARABIA (Arabic Language), 2005. ISBN: 2058
Essential References Materials	J. R. Munkres, Topology, second edition, Pearson, Mar 10, 2017. ISBN-13: 978-0131816299, ISBN-10: 0131816292
Electronic Materials	Sidney A. Morris, Book: topology without tears, Version of June 2, 2020, www.topologywithouttears.net
Other Learning Materials	**NA**

2. Facilities Required

Item	Resources
Accommodation (Classrooms, laboratories, demonstration rooms/labs, etc.)	**Lecture halls, containing white boards, and electronic monitors - The seats fit the number of students - Laboratories equipped with suitable numbers of computers**
Technology Resources (AV, data show, Smart Board, software, etc.)	Laptop, smart board, and projector
Other Resources (Specify, e.g., if specific laboratory equipment is required, list requirements or attach a list)	**Wi-Fi internet connections**

G. Course Quality Evaluation

Evaluation Areas/Issues	Evaluators	Evaluation Methods
Effectiveness of teaching and assessment	Students	Indirect
Quality of learning resources	Peer Reviewer Students	Direct Indirect
Extent of achieving the course learning outcomes	Peer Reviewer Students	Direct Indirect

Evaluation areas (e.g., Effectiveness of teaching and assessment, Extent of achievement of course learning outcomes, Quality of learning resources, etc.)
Evaluators (Students, Faculty, Program Leaders, Peer Reviewer, Others (specify)
Assessment Methods (Direct, Indirect)

H. Specification Approval Data

Council / Committee	Department of Mathematics and Statistics
Reference No.	11
Date	12-7-1443 H

قسم الرياضيات والإحصاء
Mathematics and Statistics Department

جامعة الطائف
TAIF UNIVERSITY