The Hashemite University
Faculty of Science
Course Syllabus

Department of Mathematics

Course Name: Topology (2)
Course Number: 110101462
Pre-requisite: 110101461
Credit Hours: 3
Designation: Compulsory
Instructor: Dr. Mohammad Sarsak
Coordinator's E-mail: sarsak@hu.edu.jo

Course Description: The first axiom of countability, the second axiom of countability, connected spaces, components of a space, locally connected spaces, compact spaces, compactness in R^n, countably compact spaces, metric spaces, metric topologies, equivalent metric topologies.

Text Book: An Introduction To General Topology by Paul E. Long, Charles E. Merrill Publishing Company, 1986.

References:

1. Introduction To General Topology by George L. Cain, Addison-Wesely Publishing Company, 1994.
2. A Text Book on Topology by R. S. Aggarawai, S. Chaud and Company L.T.D., 1996.

Topics Covered:

Course Contents		
Section in Text	Topics	Week
6.4	The first axiom of countability	1
6.5	The second axiom of countability	2
8.1	Connected spaces	3
8.2	More properties of connected spaces	4
8.3	Components and locally connected spaces	5, 6
8.4	Compact spaces	7
8.5	More properties of compact spaces	8
8.6	Compactness in R^n	9
8.7	Other types of compactness	10, 11
9.1	Defining a metric	12
9.2	Metric topologies	13
9.3	Equivalent metric topologies	14

- **Specific Outcomes of Instruction (Course Learning Outcomes):**

After completing this course units, the students will be able to:

	Course Learning Outcomes (CLO)	(SO*)
CLO1.	To recognize the following concepts: First countable space, second countable space.	(a), (k)
CLO2.	To determine whether a given space is first countable space, second countable or not.	(a), (k)
CLO3.	To recognize the following concepts: Connected space, components of a given space, locally connected space.	(a), (k)
CLO4.	To determine whether a given space is connected, locally connected or not.	(a), (k)
CLO5	To find the components of a given space.	(a), (k)
CLO6	To recognize the following concepts: Compact space, countably compact space.	(a), (k)
CLO7	To determine whether a given space is compact space, countably compact or not.	(a), (k)
CLO8	To determine whether a given subset of R^n is compact or not.	(a), (k)
CLO9	To recognize the following concepts: Metric spaces, metric topologies, and equivalent metric topologies.	(a), (k)

*(SO) = Student Outcomes Addressed by the Course.

- **Student Outcomes (SO) Addressed by the Course:**

#	Outcomes Description Applied and Natural Sciences Student Outcomes	Contribution
(a)	an ability to apply knowledge of mathematics, science, and applied sciences	H
(b)	an ability to design and conduct experiments, as well as to analyze and interpret data	
(c)	an ability to formulate or design a system, process or program to meet desired needs	
(d)	an ability to function on multidisciplinary teams	
(e)	an ability to identify and solve applied sciences problems	
(f)	an understanding of professional and ethical responsibility	
(g)	an ability to communicate effectively	
(h)	the broad education necessary to understand the impact of solutions in a global and societal context	
(i)	a recognition of the need for, and an ability to engage in life-long learning	
(j)	a knowledge of contemporary issues	
(k)	an ability to use the techniques, skills, and modern scientific and technical tools necessary for professional practice.	M

H=High, **M**= Medium, **L**=Low

Grading Plan:

First Exam:	30 points	--/--/--
Second Exam:	30 points	--/--/--
Final Exam:	40 points	--/--/--