Form: **Course Syllabus**	**Form Number**	EXC-01-02-02A
	Issue Number and Date	2/3/24/2022/2963 05/12/2022
	Number and Date of Revision or Modification	
	Deans Council Approval Decision Number	2/3/24/2023
	The Date of the Deans Council Approval Decision	23/01/2023
	Number of Pages	06

1.	**Course Title**	**Topology I**
2.	**Course Number**	0301761
3.	**Credit Hours (Theory, Practical)**	3
	Contact Hours (Theory, Practical)	3
4.	**Prerequisites/ Corequisites**	None
5.	**Program Title**	Master's in mathematics
6.	**Program Code**	
7.	**School/ Center**	Science
8.	**Department**	Mathematics
9.	**Course Level**	Master
10.	**Year of Study and Semester (s)**	1st year.
11.	**Other Department(s) Involved in Teaching the Course**	None
12.	**Main Learning Language**	English
13.	**Learning Types**	■Face to face learning ☐Blended ☐Fully online
14.	**Online Platforms(s)**	☐Moodle ☐Microsoft Teams
15.	**Issuing Date**	4 – 11 – 2024
16.	**Revision Date**	

17. Course Coordinator:

Name: Dr. Ayat Ababneh Contact hours:

Office number: 228 Phone number: N/A

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18. Other Instructors:

Name:
Office number:
Phone number:
Email:
Contact hours:
Name:
Office number:
Phone number:
Email:
Contact hours:

19. Course Description:

Topological spaces, neighborhoods, bases and subbases, continuous functions, product spaces, weak topologies, quotient spaces, filters, separation axioms: regular and completely regular spaces, normal and perfectly normal spaces, Lindelof, separable and second countable spaces, compact paces, locally compact spaces, sequentially and countably compact spaces, one-point compactification, paracompact spaces, connected spaces, homotopy theory, fundamental group, covering spaces, lifting theorem, the fundamental group of some spaces.

20. Program Student Outcomes (SO's):

(To be used in designing the matrix linking the intended learning outcomes of the course with the intended learning outcomes of the program)

1. Read, analyze and write logical arguments to prove mathematical and statistical concepts and theorems.

3. Communicate with mathematical and statistical ideas clearly and consistently, in writing and verbally.

21. Course Intended Learning Outcomes (CLO's):

(Upon completion of the course, the student will be able to achieve the following intended learning outcomes)

CLO 1: Know the fundamental results about neighborhoods, bases, subbases, continuous functions, quotient spaces and filters.

CLO 2: Understand higher separation axioms: regular, completely regular and normal spaces and study the relation between them.

CLO 3: Prove different theorems concerning Lindelof, separable and second countable.

CLO 4: Construct the one-point compactification of locally compact non compact spaces.

CLO5: Prove theorems about paracompact spaces.

CLO 6: Prove main theorems about connected spaces.

CLO 7: understand the basics of homotopy theory and being able to find the fundamental group of some surfaces.

Course CLOs	The learning levels to be achieved					
	Remembering	Understanding	Applying	Analysing	evaluating	Creating
CLO 1		●				
CLO 2		●				
CLO 3		●		●		
CLO 4			●	●		
CLO 5		●	●	●		
CLO6		●	●	●		
CLO 7		●	●	●	●	

22. The matrix linking the intended learning outcomes of the course with the intended learning outcomes of the program:

Program SO's / Course CLO's	SO (1)	SO (2)	SO (3)	SO (4)	SO (5)	SO (6)	SO (7)	SO (8)
CLO (1)	●		●					
CLO (2)	●		●					
CLO (3)	●		●					
CLO (4)	●		●					
CLO (5)	●		●					
CLO (6)	●		●					
CLO (7)	●		●					

23. Topic Outline and Schedule:

Week	Lecture	Topic	CLO/s Linked to the Topic	Learning Types (Face to Face (FF)/ Blended (BL)/ Fully Online (FO)	Platform Used	Synchronous / Asynchronous Lecturing	Evaluation Methods	Learning Resources
1	1.1	Neighborhoods	1	FF		S	Homework	
	1.2	Bases	1	FF		S	Homework	
2	2.1	Subbases	1	FF		S	Homework	
	2.2	Continuous functions	1	FF		S	Homework	
3	3.1	Product space	1	FF		S	Homework	
	3.2	Compact spaces	1	FF		S	Homework	
4	4.1	Compact spaces	1	FF		S	Homework	
	4.2	Compact spaces	1	FF		S	Homework	
5	5.1	Compact spaces	2	FF		S	Homework	
	5.2	Compact spaces	2	FF		S	Homework	
6	6.1	Separation axioms	2	FF		S	Exam	
	6.2	Separation axioms	2	FF		S	Homework	
7	7.1	Separation axioms	3	FF		S	Homework	
	7.2	Separation axioms	3	FF		S	Homework	
8	8.1	Countability axioms	3	FF		S	Homework	
	8.2	Countability axioms	3	FF		S	Homework	
9	9.1	Countability axioms	3	FF		S	Homework	
	9.2	Lindelof spaces	3	FF		S	Homework	
10	10.1	Lindelof spaces	4	FF		S	Homework	
	10.2	Lindelof spaces	4	FF		S	Homework	
11	11.1	One-point compactification	5	FF		S	Homework	
	11.2	One-point compactification	5	FF		S	Homework	
12	12.1	Paracompact spaces	5	FF		S	Exam	
	12.2	Paracompact spaces	5	FF		S	Homework	
13	13.1	Connected spaces	5	FF		S	Homework	
	13.2		5	FF		S	Homework	

		Connected spaces						
14	14.1	Homotopy theory	5	FF		S	Homework	
	14.2	Covering spaces	5	FF		S	Homework	
15	15.1	Lifting theorem	5	FF		S	Homework	
	15.2	Fundamental group	5	FF		S	Homework	

24. Evaluation Methods:

Opportunities to demonstrate the achievement of the CLOs are provided through the following assessment methods and requirements:

Evaluation Activity	Mark	Topic(s)	CLO/s Linked to the Evaluation activity	Period (Week)	Platform
Homeworks	20		1		
Exam 1	20		2 – 3	6	On Campus
Exam 2	20		3, 4	12	On Campus
Final Exam	40		1 – 5	16	On Campus

25. Course Requirements:

Students should have a computer, internet connection, webcam, and an account on Microsoft Teams.

26. Course Policies:

1. The student is not allowed to take the course and its pre-requisite at the same time.
2. Attendance is essential to succeed in this course. You are expected to attend every class; please notify your instructor if you know you are going to be absent. All exams must be taken at the scheduled time. Exceptions will be made only in extreme circumstances, by prior arrangement with the instructor.
3. If a student is absent more than 10% from lectures without an excuse for sickness or due to other insurmountable difficulty, then he/she shall be barred from the final examination and he/she will get a failing grade in this course.
4. Medical certificates shall be given to the University Physician to be authorized by him. They should be presented to the Dean of the Faculty within two weeks of the student's ceasing to attend classes.
5. Test papers shall be returned to students after correction. His/her mark is considered final after a lapse of one week following their return.
6. Cheating is prohibited. The University of Jordan regulations on cheating will be applied to any student who cheats in exams or on homework.

27. References:

A- Required book(s), assigned reading and audio-visuals:

General Topology by S. Willard

B- Recommended books, materials, and media:

(1) Topology, a first course by Munkres.
(2) Topology by Dugurdji.

28. Additional information:

Name of the Instructor or the Course Coordinator: **Dr. Ayat Ababneh**	Signature: ……	Date: 22 –11– 2024
Name of the Head of Quality Assurance Committee/ Department: **Prof. Manal Ghanem**	Signature: ……	Date: ……
Name of the Head of Department: **Prof. Baha Alzalg**	Signature: ……	Date: ……
Name of the Head of Quality Assurance Committee/ School of Science: **Prof. Emad A. Abuosba**	Signature: ……	Date: ……
Name of the Dean or the Director: **Prof. Mahmoud I. Jaghoub**	Signature: ……	Date: ……