

Course Description Form

1. Course Name:	
Topology1	
2. Course Code:	
ScMath 3401	
3. Semester / Year:	
1 st Semester / 2024-2025	
4. Description Preparation Date:	
2024/10/10	
5. Available Attendance Forms:	
Official working hours/lectures	
6. Number of Credit Hours (Total) / Number of Units (Total)	
16+45 Hours / 3 Units	
7. Course administrator's name (mention all, if more than one name)	
Name: Alla Mohmod Farhan Email: eps.alaamahmood.farhan@uoanbar.edu.iq	
8. Course Objectives	
Course Objecti	<ul style="list-style-type: none"> - Identify the topological space and its theories and how to form a topology. - Study the topological concepts related to the study of continuous, open and closed sets and functions. <p>The student should know that the topological properties are the constant properties under the influence of homogeneous functions.</p> <p>The student should know that the genetic properties are the constant properties under the influence of subspaces.</p> <p>The student should know that the development of topology as an extension of set theory</p>
9. Teaching and Learning Strategies	
Strategy	<ul style="list-style-type: none"> - Managing the lecture in a practical manner related to the reality of daily life to attract the student to the subject of the lesson without straying from the core of the subject so that the material is flexible and capable of being understood and analyzed. - Assigning the student some group activities and assignments.

- Allocating a percentage of the grade for daily assignments and choice
 Managing the lecture in a way that makes him feel the importance of time

10. Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1.	3	Topological spaces	Definitions, examples some types of topological spaces such as: indiscrete, discrete, usual topology and compact finite topology	Lecture in classroom	Questions discussion
2.	3	Open, closed sets and neighborhoods	Definition of open and closed set, some examples definition of neighborhoods and relation between them.	Lecture in classroom	Questions, discussion & Quiz
3.	3	Basis and subbases	Definition of basis and basis, find topology generated from basis or basis, some examples and theorems	Lecture in classroom	Questions discussion
4.	3	Interior points and interior sets	Definitions, some examples and theorems about interior points	Lecture in classroom	Quiz
5.	3	Exterior points, exterior sets, boundary points and boundary set.	Definitions, examples, some theorems and relationships between exterior points and interior points	Lecture in classroom	Questions discussion
6.	3	Derived sets	Definition of derived sets examples with some theorems	Lecture in classroom	Questions discussion
7.	3	Closure of a set	Some properties, definitions and examples about closure of a set and relation with derived sets	Lecture in classroom	Questions discussion
8.	3	Dense set and topological space generated by metric space.	Definition of dense set study the topological space which is generated by metric space with some properties and theorems	Lecture in classroom	Questions & discussion Monthly exam
9.	3	Continuity, derived topological spaces and continuous at a point.	Definition of continuity image and inverse image topological spaces, study the relation between continuity and interior, closure sets	Lecture in classroom	Questions & discussion Quiz
10.	3	Open and closed functions	Definition of open and closed functions, some examples and theorems relation between open and closed function with continuous function.	Lecture in classroom	Questions & discussion Quiz

11.	3	Homeomorphic topology	Definition of Homeomorphic topolog examples, theorems and topological property .	Lecture in classroom	Questions discussion
12.	3	Subspace or induced spac	Definition and subspace examples, remarks and some theorems.	Lecture in classroom	Questions & discussion Quiz
13.	3	Restriction function	Definition of restriction function, examples and some theorems , relation with continuous functio	Lecture in classroom	Questions discussion
14.	3	Product space	Definition of Cartesian product , product space, quotient topology , som examples and theorems and study relations between themes	Lecture in classroom	Questions & discussion
15.		Review exam			Monthly exam

11. Course Evaluation

Quiz & Daily oral 10%
 Monthly exam 40%
 Final exam 50%

12. Learning and Teaching Resources

Required textbooks (curricular books, if any)

Main references (sources)

- 1- J.N . Sharma, Topology, Krishna Prakashan Media, 2003.
- 2- N. Bourbaki, General topology, part1, Addison Wesley, Reading, Mass, 1996.
- 3- R. Englking, Outline of general topology, Amsterdam, 1989.
- 4-C. Kuratowski, Topologies, Warsaw, 1952.
- 5-S. Willard, General topology, Addison Wesley Publishing Company, Inc, USA, 1970.
- 6- S. Michael, Elementary topology Second edition, Gemidnami, 1972.
- 7- وليم بيرفن، ترجمة عطا الله ثامر العاني، التبولوجيا العامة، جامعة بغداد- أساسيات . العراق، ١٩٨٦.
- عبد ربه محمد اسليم، فقه التبولوجيا، فلسطين 1999

Recommended books and references (scientific journals, reports...)	
Electronic References, Websites	