Kingdom of Saudi Arabia
Ministry of Education
Umm Al–Qura University
Deanship of Graduate Studies

المملكة العربية السعودية
وزارة التعليم
جامعة أم القرى
عمادة الدراسات العليا

4/1/4. **Course Specification**:

COURSE SPECIFICATIONS
Form

Course Title: General Topology

Course Code: 4046601-4

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Course Specifications

Institution: Umm Al-Qura University   Date: March 31, 2018
College/Department : Faculty of Applied Science – Department of Mathematical Sciences

A. Course Identification and General Information

1. Course title and codeGeneral Topology (4046601-4)
2. Credit hours   4 Hours
3. Program(s) in which the course is offered: (If general elective available in many programs indicate this rather than list programs)   **MSc. Mathematics**
4. Name of faculty member responsible for the course   Dr. elsaid lashin
5. Level/year at which this course is offered   The firstLevel
6. Pre-requisites for this course (if any)   Intr. Topology (404360-3)
7. Co-requisites for this course (if any)
8. Location if not on main campus   Al-Abdia Campus
9. Mode of Instruction (mark all that apply):   a. traditional classroom   [√]   What percentage?   [100]   b. blended (traditional and online)   [ ]   What percentage?   [ ]   c. e-learning   [ ]   What percentage?   [ ]   d. correspondence   [ ]   What percentage?   [ ]   f. other   [ ]   What percentage?   [ ]   Comments:

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B Objectives

What is the main purpose for this course?
Be able to deal with different topological spaces and with some types of points such as interior, isolated, boundary and accumulation points.   **Be Familiar with the concepts of open ,closed sets and continuous mappings.**   **Understand the concepts of connectedness and compactness.**   **Deal with open and closed mappings.**   **Study the concepts of separations axioms.**   **Be familiar with the concept of topological property and hereditary property with its applications.**
2. Briefly describe any plans for developing and improving the course that are being implemented. (e.g. increased use of IT or web based reference material, changes in content as a result of new research in the field)   - Encouraging students to collect problems from web based reference material and supervise classroom discussions.   - Update references used in teaching process.   - Use e-learning facilities more efficiently.

C. Course Description (Note: General description in the form used in Bulletin or handbook)

Course Description:
This is a 4 credit hours course comprising approximately 60 hours of lectures.

1. Topics to be Covered		
List of Topics	No. of Weeks	Contact hours
Warming-Up: Theory of sets, Metric spaces , Topological spaces and Continuous functions.	2	8
Definition of connected and locally connected spaces with their properties. Studying of quotient spaces.	4	16
Compact spaces, Paracompact spaces, Countability, Separation Axioms and Tychonoff theorem.	4	16
Metrization theorem, Complete metric spaces , Nets and Filters.	5	20

2. Course components (total contact hours and credits per semester):						
	Lecture	Tutorial	Laboratory/ Studio	Practical	Other:	Total
Contact Hours	60	0				60
Credit	4	0				4

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1. Additional private study/learning hours expected for students per week.
Four hours weekly for homework and revision

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

On the table below are the five NQF Learning Domains, numbered in the left column.
First, insert the suitable and measurable course learning outcomes required in the appropriate learning domains (see suggestions below the table). **Second**, insert supporting teaching strategies that fit and align with the assessment methods and intended learning outcomes. **Third**, insert appropriate assessment methods that accurately measure and evaluate the learning outcome. Each course learning outcomes, assessment method, and teaching strategy ought to reasonably fit and flow together as an integrated learning and teaching process. (Courses are not required to include learning outcomes from each domain.)

Code #	NQF Learning Domains And Course Learning Outcomes	Course Teaching Strategies	Course Assessment Methods
1.0	**Knowledge:** After successful completion of the course, the student should be able to		
1.1	After successful completion of the course, the student should be able to Define a topological space, describe the standard examples of topological spaces from the course and demonstrate that they meet the definition. Define continuous function between topological spaces and demonstrate equivalence of alternative definitions.. Define and studying connected ,locally connected and quotient spaces. Define paracompact spaces ,countability and considering their properties . Studying separation axioms and tychonoff theorem . Define the metrization problem ,complete metric spaces , nets and filters with introducing their properties .	Lectures Tutorials Discussion Problem Solving	Exams Home work.
2.0	**Cognitive Skills**		
2.1	To define and recognize the basic concepts of topology. The ability of determining whether a given space is connected or not, the ability of generating a continuous mapping, and the ability of understanding the metrizability	Homework consisting in solving selected exercises. Encourage and develop self -	Homework Oral and written tests. Research projects.

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	problem. The ability of understanding open covering, compactness and to determine whether a given space is compact or not. Knowing other types of compactness and how the different types of compactness are related in general topological spaces .	education	
3.0	**Interpersonal Skills & Responsibility**		
3.1	Punctual attendance of classes is required. Students should demonstrate their sense of responsibility for learning by completing both reading and writing assignments in due time. Students learn to manage their time. Accustom students to take responsibility of self –learning Students should act responsibly and ethically in carrying	Discussion. Explanation. Guidance and supervision of the group Assignments for research projects.	Home work. Reports. Quizzes. Discussion
4.0	**Communication, Information Technology, Numerical**		
4.1	Ability to communicate in written and in oral. Ability to write reports in English Ability to explain each step in the problem solving process. Ability to apply course concepts to mathematical problem solving model. Ability to use information technology in communication and research projects. Interact with life problems using different methods of thinking and problem solving.	Lectures tutorials brain storming	Periodic written and oral tests. Discussion. Observation.
5.0	**Psychomotor**		
5.1	Not applicable	Not applicable	Not applicable

5. Schedule of Assessment Tasks for Students During the Semester			
	Assessment task (i.e., essay, test, quizzes, group project, examination, speech, oral presentation, etc.)	Week Due	Proportion of Total Assessment
1	First periodic exam	6	20
2	Second periodic exam	10	20
4	Homework + reports + Quizzes	Over all weeks	20
5	Final exam	End	40

D. Student Academic Counseling and Support

1. Arrangements for availability of faculty and teaching staff for individual student consultations

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and academic advice. (include amount of time teaching staff are expected to be available each week)
1- Office hours per week in the lecturer schedule (4 hours per week).
2- Contact with students by e-mail, SMS, and e-learning facilities.

E Learning Resources

1. Required Text(s)
- Mícheál O'Searcoid, Metric Spaces, Springer Undergraduate Mathematics Series, 2007
- Theodore W Gomelin and RE Greene, Introduction to topology, Dover publications (second edition), 1999.

2. Essential References
- Irving Kaplansky, Set Theory and Metric Spaces (AMS Chelsea Publishing) 2nd Edition
- S Stahl and C Stenson, Introduction to topology and Geometry, Wiley, 2013.

3. Recommended Books and Reference Material (Journals, Reports, etc) (Attach List):
Use previous list

4. Electronic Materials, Web Sites etc
http://ebookee.org/

5. Other learning material such as computer-based programs/CD, professional standards/regulations: Microsoft Word

F. Facilities Required

Indicate requirements for the course including size of classrooms and laboratories (i.e. number of seats in classrooms and laboratories, extent of computer access, etc.)

1. Accommodation (Lecture rooms, laboratories, etc.)
- Classroom with capacity of 30-students.
- Library.

2. Computing resources: Not available

3. Other resources (specify --eg. If specific laboratory equipment is required, list requirements or attach list):   None

G Course Evaluation and Improvement Processes

1 Strategies for Obtaining Student Feedback on Effectiveness of Teaching:

- Student feedback through electronic survey organized by the deanship of registration and acceptance.

2 Other Strategies for Evaluation of Teaching by the Instructor or by the Department

- Evaluation of the teachers by internal & external faculty members.

- Visiting to the classrooms.

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• Mutual visits between colleagues and giving advices to each other after each lecture

3 Processes for Improvement of Teaching
• Analysis of student course evaluation and feedback
• Peer evaluation and feedback
• Review of course portfolios
• Workshops on pedagogical methods

4. Processes for Verifying Standards of Student Achievement (eg. check marking by an independent member teaching staff of a sample of student work, periodic exchange and remarking of tests or a sample of assignments with staff at another institution)
• Analysis of course assessments by other reviewers on a periodic basis.

5 Describe the planning arrangements for periodically reviewing course effectiveness and planning for improvement.
• Material and learning outcomes are periodically reviewed internally and externally.
• Comparing course content and teaching methodologies with similar courses offered at other departments and universities.
• Studying the outcomes of the students' evaluations of the course and use it to improve teaching strategies.

Name of Course Instructor: E Lashin

Signature: _____ Date Specification Completed: April 15, 2018
Program Coordinator: _____

Signature: _____ Date Received: _____