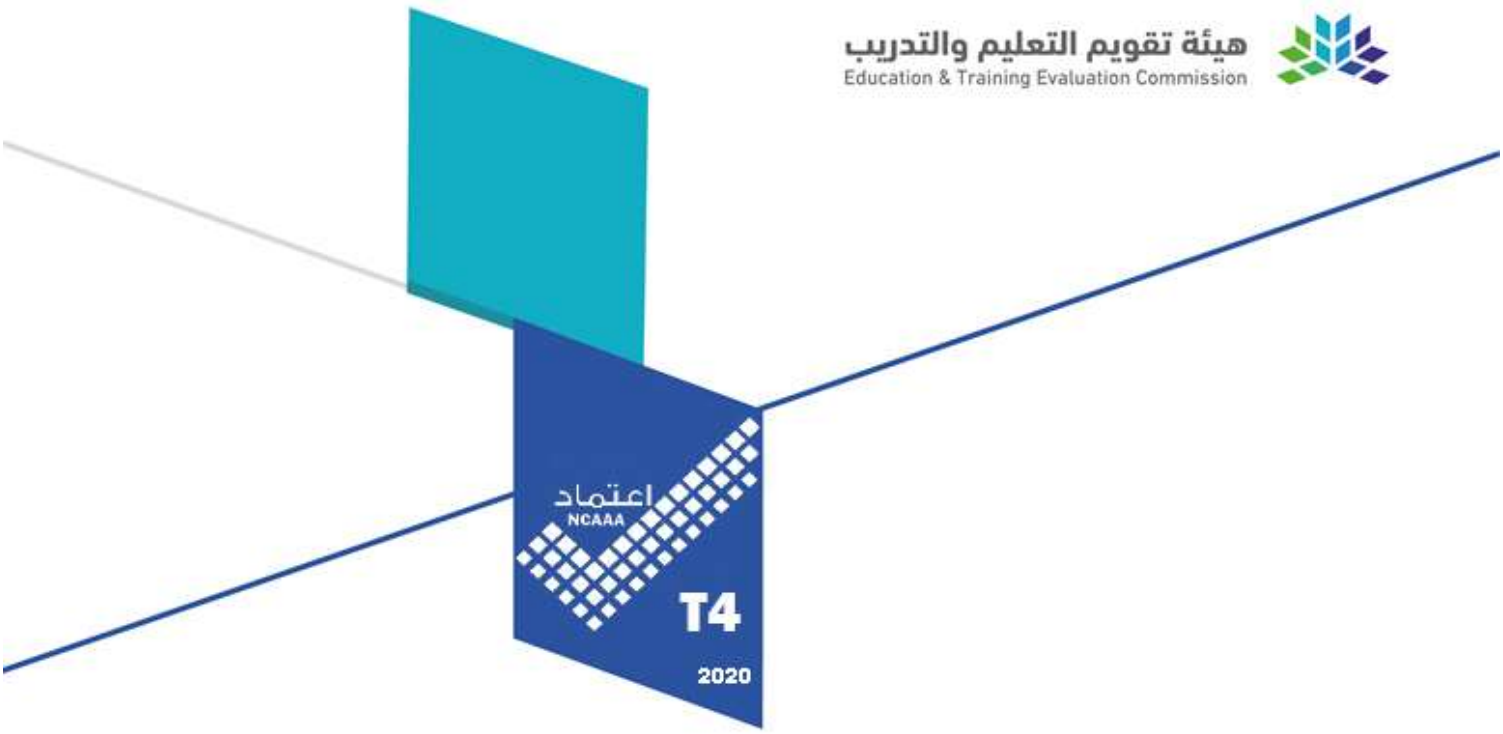
هيئة تقويم التعليم والتدريب
Education & Training Evaluation Commission



Course Specifications

Course Title:	Basic Mathematics
Course Code:	MATH 251
Program:	Bachelor of Science in Mathematics
Department:	Mathematics
College:	Science
Institution:	University of Tabuk

Table of Contents

A. Course Identification

1. Credit hours: 03 Hours/Week
2. Course type **a.** University ☐ College ☐ Department √ Others ☐ **b.** Required √ Elective ☐
3. Level/year at which this course is offered: **L3/Y2**
4. Pre-requisites for this course (if any): **MATH 101**
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**	45	100%
2	**Blended**		
3	**E-learning**		
4	**Distance learning**		
5	**Other**		

7. Contact Hours (based on academic semester)

No	Activity	Contact Hours
1	**Lecture**	45
2	**Laboratory/Studio**	
3	**Tutorial**	
4	**Others** (specify)	
	Total	45

B. Course Objectives and Learning Outcomes

1. Course Description

This course is designed to provide students with the basic concepts of mathematical logic, study mathematical induction and acquire and develops skills on theory of sets.

2. Course Main Objective

-Students will be able to recall basic rules and concepts of set theory, mathematical logic and induction and Boolean algebra.
-Students will be able to apply mathematical logic and Boolean algebra rules and induction to solve problems.

3. Course Learning Outcomes

	CLOs	Aligned PLOs
1	**Knowledge and Understanding**	
1.1	Students will be able to recall knowledge of the concepts of Basic Mathematics	K1
1.2	Students will be able to recognize methods of Basic mathematics in practical problems.	K2

CLOs		Aligned PLOs
2	**Skills :**	
2.1	Students will be able to analyze the mathematical problems.	S1
2.2	Students will be able to apply Set theory-symbols and expressions-union-intersection-difference-complement- Venn diagram-sets .	S3
2.3	Students will be able to illustrate how to communicate with Peers and Lectures.	S4
3	**Values:**	
3.1	Students will be able to take responsibility to submit assignments on time.	V2

C. Course Content

No	List of Topics	Contact Hours
1	Set theory-symbols and expressions-union-intersection-difference-complement- Venn diagram-sets .	3 Hrs
2	Operations on sets.	3 Hrs
3	Finite set, Power set. Mathematical induction	3 Hrs
4	Product Sets, Relations- Composition of Relations, Partitions.	3 Hrs
5,6	Functions, Compositions of Functions, One to One, Onto	6 Hrs
6	**Mid-Exam#1**	
7	Propositions and Compound Propositions.	3 Hrs
8	Propositions and Truth tables.	3 Hrs
9	Logical Equivalence, Algebra of Propositions, Logical Implication.	3 Hrs
10,11	Propositional Functions, Boolean Algebra as Lattices, sum of products for Sets.	6 Hrs
11	**Mid-Exam#2**	
12	Representation theorem.	3 Hrs
13	Sum of products from for Boolean Algebra.	3 Hrs
14	Binary operations.	3 Hrs
15	**Revision & Final Exam**	3 Hrs
Total		**45 Hrs**

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	Students will be able to recall knowledge of the concepts of Basic Mathematics	Introducing new ideas through case study Lectures Class Discussions	Quizzes I II Midterm Exams Final Exams homework assignments
1.2	Students will be able to recognize methods of Basic mathematics in practical problems.		
2.0	**Skills**		
2.1	Students will be able to analyze the mathematical problems.	Lectures Class Discussions	Quizzes I II Midterm Exams Final Exams Homework assignments.
2.2	Students will be able to apply Set theory-symbols and expressions-union-intersection-difference-complement- Venn diagram-sets .		

Code	Course Learning Outcomes	Teaching Strategies	Assessment Methods
2.3	Students will be able to illustrate how to communicate with Peers and Lectures.		
3.0	**Values**		
3.1	Students will be able to take responsibility to submit assignments on time.	Lectures Assign tasks	Quizzes Homework assignments

2. Assessment Tasks for Students

#	Assessment task*	Week Due	Percentage of Total Assessment Score
1	Activities	Weekly basis	5%
2	Homework	Weekly basis	5%
3	Quizzes	Weekly basis	10%
4	Mid Exam1	6th week	20%
5	Mid Exam2	11th week	20%
6	Final Exam	At end of the Semester	40%

***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 :
Six office hours per week in the lecturer schedule.

F. Learning Resources and Facilities

1.Learning Resources

Required Textbooks	Robert Wolf, Proof, Logic and Conjecture. The Mathematician Toolbox, W.H. Freeman 1997.
Essential References Materials	Bloch, Ethan D. Proofs and fundamentals: a first course in abstract mathematics. Springer Science & Business Media, 2011.
Electronic Materials	None
Other Learning Materials	None

2. Facilities Required

Item	Resources
Accommodation (Classrooms, laboratories, demonstration rooms/labs, etc.)	1.Lecture Room with max capacity of 30 students and equipped with White Board, Overhead projector and internet connection. 2.Library
Technology Resources (AV, data show, Smart Board, software, etc.)	Projectors
Other Resources (Specify, e.g. if specific laboratory	None

Item	Resources
equipment is required, list requirements or attach a list)	

G. Course Quality Evaluation

Evaluation Areas/Issues	Evaluators	Evaluation Methods
Effectiveness of teaching and assessment	Students	Direct and Indirect
Extent of achievement of course learning outcomes	Teachers	Direct
Quality of learning resources	Students	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	The Curriculum committee
Reference No.	
Date	25/08/2021