



Course Specification

(Bachelor)

Course Title: Introduction to Mathematics

Course Code: Math1101

Program: General course

Department: Mathematics

College: Faculty of Science

Institution: University of Tabuk

Version: 4

Last Revision Date: 10 September 2023

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A. General information about the course:

1. Course Identification

1. Credit hours:

3 Credit hours (3 h Theoretical)

2. Course type

- A. ☒ University ☐ College ☐ Department ☐ Track ☐ Others
- B. ☒ Required ☐ Elective

3. Level/year at which this course is offered: (Level 1 / Year 1)

4. Course general Description:

The course will focus on elementary concepts of mathematics before a student undertakes advanced study in mathematics. Topics include algebra of the real numbers, algebraic, absolute value in equations and inequalities, complex numbers and elementary functions with an emphasis on their graphical properties and algebraic manipulations. Particular functions treated include linear, quadratic, polynomial, rational, exponential, logarithmic functions and trigonometric functions.

The students will also have an idea on right triangles, trigonometric identities, sequences, mathematical Induction, binomial formula and elementary geometry, such as circles and triangles.

5. Pre-requirements for this course (if any):

NA

6. Co-requisites for this course (if any):

NA

7. Course Main Objective(s):

The main goal of this course is to familiarize the students with the graphs, properties, and algebraic manipulations of elementary functions. They will be also able to use the basic concepts of mathematics, especially the basic algebraic operations, trigonometry, complex numbers sequences, mathematical induction and binomial formula and recognize the coordinates systems and their use in simple geometric cases.

2. Teaching mode (mark all that apply)

No	Mode of Instruction	Contact Hours	Percentage
1	Traditional classroom	45	100%
2	E-learning		
3	Hybrid - Traditional classroom - E-learning		
4	Distance learning		



3. Contact Hours (based on the academic semester)

No	Activity	Contact Hours
1.	Lectures	45
2.	Laboratory/Studio	
3.	Field	
4.	Tutorial	
5.	Others (specify)	
Total		45

B. Course Learning Outcomes (CLOs), Teaching Strategies and Assessment Methods

Code	Course Learning Outcomes	Code of CLOs aligned with program	Teaching Strategies	Assessment Methods
1.0	Knowledge and understanding			
1.1	Recall the definition of absolute value, elementary functions such as quadratic, trigonometric, exponential, logarithmic and their graphs.	ILO1	Lectures Class Discussions	Quizzes Midterm Exam Final Exam
1.2	Recognize the role of some concepts such as complex numbers	ILO1	Lectures Class Discussions	Quizzes Midterm Exam Final Exam
...				
2.0	Skills			
2.1	Apply the basic algebra skills to solve mathematical problems.	ILO1	Lectures Class Discussions Cooperative learning Assign tasks	Quizzes Midterm Exam Final Exam Homeworks
2.2	Solve linear equations and inequalities including absolute value, quadratic, radical, exponential and logarithmic functions	ILO1	Lectures Class Discussions Cooperative learning Assign tasks	Quizzes Midterm Exam Final Exam Homework's



Code	Course Learning Outcomes	Code of CLOs aligned with program	Teaching Strategies	Assessment Methods
2.3	Manipulate the elementary rules in triangles, and circles, and thus deduce the trigonometric identities easily	ILO1	Lectures Class Discussions Cooperative learning Assign tasks	Quizzes Midterm Exam Final Exam Homework's
2.4	Prove simple statements using mathematical induction	ILO1	Lectures Class Discussions Cooperative learning Assign tasks	Quizzes Midterm Exam Final Exam Homework's
2.5	Apply the knowledge of sequences in a variety of contexts	ILO1	Lectures Class Discussions Cooperative learning Assign tasks	Quizzes Midterm Exam Final Exam Homework's
3.0	Values, autonomy, and responsibility			
3.1	Take responsibility to work independently and with other members of the group	ILO8- ILO10	Cooperative learning Assign tasks	Homework's Class participation Essay
3.2	Demonstrate time management in self-study.	ILO9	Cooperative learning Assign tasks	Homework's Class participation Essay

C. Course Content

No	List of Topics	Contact Hours
1.	Basic Algebraic Operations.	3 hrs
2.	Absolute Value in Equations and Inequalities.	3 hrs
3.	Complex Numbers.	3 hrs
4.	Distance in the Plane, Functions	3 hrs
5.	Graphing Functions, Even and Odd Functions.	3 hrs
6.	Quadratic Functions.	3 hrs
7.	Operations on Functions.	3 hrs
8.	Inverse Functions.	3 hrs
9.	Exponential and Logarithmic Functions.	3 hrs
10.	Trigonometric Function Properties and Identities.	3 hrs
11.	Right Triangles.	3 hrs



12.	Sequences.	3 hrs
13.	Mathematical Induction.	3 hrs
14.	Arithmetic and Geometric Sequences.	3 hrs
15.	Binomial Formula.	3 hrs
Total		45 hrs

D. Students Assessment Activities

No	Assessment Activities *	Assessment timing (in week no)	Percentage of Total Assessment Score
1.	Activities	Weekly basis	5%
2.	Homework	Weekly basis	5%
3.	Quizzes	Weekly basis	10%
4.	Mid Exam1	6 th week	20%
5.	Mid Exam2	11 th week	20%
6.	Final Exam	At end of the Semester	40%

*Assessment Activities (i.e., Written test, oral test, oral presentation, group project, essay, etc.).

E. Learning Resources and Facilities

1. References and Learning Resources

Essential References	Precalculus: A custom publication by McGraw Hill, By Barnett, Ziegler, Byleen, Sobecki, 2011.
Supportive References	1.Courant, Richard, and Fritz John. Introduction to calculus and analysis I. Springer Science & Business Media, 2012 2.Elements of Mathematical Logic and Set Theory Hardcover – Import, January 1, 1967, by L. Slupecki, J.; Borkowski (Author)
Electronic Materials	Saudi electronic library https://www.sdl.edu.sa/
Other Learning Materials	All materials requested by the staff members during the lectures

2. Required Facilities and equipment

Items	Resources
facilities (Classrooms, laboratories, exhibition rooms, simulation rooms, etc.)	Lecture Room with maximum capacity of 30 students and equipped with White Board
Technology equipment (projector, smart board, software)	Data show, Smart board and internet connection.
Other equipment (depending on the nature of the specialty)	--





F. Assessment of Course Quality

Assessment Areas/Issues	Assessor	Assessment Methods
Effectiveness of teaching	Students	Direct/Indirect
	Department/Faculty	Direct/Indirect
	External committees	Indirect
Effectiveness of Students assessment	Students	Direct/Indirect
	Department/Faculty	Direct/Indirect
	External committees	Indirect
Quality of learning resources	Students	Direct/Indirect
	Department/Faculty	Direct/Indirect
	External committees	Indirect
The extent to which CLOs have been achieved	Students	Direct/Indirect
	Department/Faculty	Direct/Indirect
	External committees	Indirect
Other		

Assessors (Students, Faculty, Program Leaders, Peer Reviewer, Others (specify))

Assessment Methods (Direct, Indirect)

G. Specification Approval

COUNCIL /COMMITTEE	Approval by the Department Council
REFERENCE NO.	DEPARTMENT COUNCIL No (7)
DATE	14/09/2023

