



Course Specifications

Course Title:	Introduction to Mathematics
Course Code:	Math1101
Program:	General course
Department:	Mathematics
College:	Science
Institution:	University of Tabuk

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A. Course Identification

1. Credit hours: 4 Hours/Week
2. Course type
a. University <input checked="" type="checkbox"/> College <input type="checkbox"/> Department <input type="checkbox"/> Others <input type="checkbox"/>
b. Required <input checked="" type="checkbox"/> Elective <input type="checkbox"/>
3. Level/year at which this course is offered: 1 st year / 1 st level
4. Pre-requisites for this course (if any): NA
5. Co-requisites for this course (if any): NA

6. Mode of Instruction (mark all that apply)

No	Mode of Instruction	Contact Hours	Percentage
1	Traditional classroom	40	100
2	Blended		
3	E-learning		
4	Distance learning		
5	Other		

7. Contact Hours (based on academic semester)

No	Activity	Contact Hours
1	Lecture	40
2	Laboratory/Studio	
3	Tutorial	
4	Others (specify)	
	Total	40

B. Course Objectives and Learning Outcomes

<p>1. Course Description:</p> <p>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.</p> <p>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.</p>
<p>2. Course Main Objective:</p> <p>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.</p>

3. Course Learning Outcomes

CLOs		Aligned PLOs
1	Knowledge and Understanding	
1.1	Recall the definition of absolute value, elementary functions such as quadratic, trigonometric, exponential, logarithmic and their graphs.	ILO1
1.2	Recognize the role of some concepts such as complex numbers	ILO1
2	Skills	
2.1	Apply the basic algebra skills to solve mathematical problems.	ILO1
2.2	Solve linear equations and inequalities including absolute value, quadratic, radical, exponential and logarithmic functions	ILO1
2.3	Manipulate the elementary rules in triangles, and circles, and thus deduce the trigonometric identities easily	ILO1
2.4	Prove simple statements using mathematical induction	ILO1
2.5	Apply the knowledge of sequences in a variety of contexts	ILO1
3	Values:(Interpersonal Skills & Responsibility)	
3.1	Take responsibility to work independently and with other members of the group	ILO8- ILO10
3.2	Demonstrate time management in self-study.	ILO9

C. Course Content

No	List of Topics	Contact Hours
1	Basic Algebraic Operations	4 hrs
2	Absolute Value in Equations and Inequalities, Complex Numbers	4 hrs
3	Distance in the Plane, Functions	4 hrs
4	Graphing Functions, Even and Odd Functions	4 hrs
5	Quadratic Functions, Operations on Functions	4 hrs
6	Inverse Functions	4 hrs
6	Mid -Exam #	
7	Exponential and Logarithmic Functions	4 hrs
8	Trigonometric Function Properties and Identities, Right Triangles	4 hrs
9	Sequences, Mathematical Induction	4 hrs
10	Arithmetic and Geometric Sequences, Binomial Formula	4 hrs
11-12	Revision& Final -Exam	
Total		40 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 the definition of absolute value, elementary functions such as quadratic, trigonometric, exponential, logarithmic and their graphs.	Lectures Class Discussions	Quizzes Midterm Exam Final Exam
1.2	Students will be able to recognize the role of some concepts such as complex numbers	Lectures Class Discussions	Quizzes Midterm Exam Final Exam

Code	Course Learning Outcomes	Teaching Strategies	Assessment Methods
2.0	Skills		
2.1	Students will be able to apply the basic algebra skills to solve mathematical problems.	Lectures Class Discussions Cooperative learning Assign tasks	Quizzes Midterm Exam Final Exam Homeworks
2.2	Students will be able to solve linear equations and inequalities including absolute value, quadratic, radical, exponential and logarithmic functions	Lectures Class Discussions Cooperative learning Assign tasks	Quizzes Midterm Exam Final Exam Homeworks
2.3	Students will be able to manipulate the elementary rules in triangles, and circles, and thus deduce the trigonometric identities easily	Lectures Class Discussions Cooperative learning Assign tasks	Quizzes Midterm Exam Final Exam Homeworks
2.4	Students will be able to prove simple statements using mathematical induction	Lectures Class Discussions Cooperative learning Assign tasks	Quizzes Midterm Exam Final Exam Homeworks
2.5	Students will be able to apply the knowledge of sequences in a variety of contexts	Lectures Class Discussions Cooperative learning Assign tasks	Quizzes Midterm Exam Final Exam Homeworks
3.0	Values		
3.1	Students will take responsibility to work independently and with other members of the group	Cooperative learning Assign tasks	Homeworks Class participation Essay
3.2	Students will be able to demonstrate responsibility to solve given assignments on their own and submit the solution on time.	Cooperative learning Assign tasks	Homeworks Class participation Essay

2. Assessment Tasks for Students

#	Assessment task*	Week Due	Percentage of Total Assessment Score
1	Home works	Weekly basis	10%
2	Quizzes	Weekly basis	10%
3	Activities	Weekly basis	5%
5	Mid Exam	5 th week	25%
6	Final Exam	At end of the Semester	50%

*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	Precalculus: A custom publication by McGraw Hill, By Barnett, Ziegler, Byleen, Sobecki, 2011.
Essential References Materials	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
Other Learning Materials	All materials requested by the staff members during the lectures

2. Facilities Required

Item	Resources
Accommodation (Classrooms, laboratories, demonstration rooms/labs, etc.)	Lecture Room with maximum capacity of 30 students and equipped with White Board
Technology Resources (AV, data show, Smart Board, software, etc.)	Data show, Smart board and internet connection.
Other Resources (Specify, e.g. if specific laboratory 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/Indirect
Effectiveness of teaching and assessment	Department/Faculty	Direct/Indirect
Effectiveness of teaching and assessment	External committees	Indirect
Extent of achievement of course learning outcomes	Students	Direct/Indirect
Extent of achievement of course learning outcomes	Department/Faculty	Direct/Indirect
Extent of achievement of course learning outcomes	External committees	Indirect
Quality of learning resources	Students	Direct/Indirect
Quality of learning resources	Department/Faculty	Direct/Indirect
Quality of learning resources	External committees	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	Study plans and programs committee
Reference No.	
Date	13/06/2022