هيئة تقويم التعليم والتدريب
Education & Training Evaluation Commission

اعتماد NCAAA T4 2020

Course Specifications

Course Title:	**General Mathematics**
Course Code:	**101 Math**
Program:	**B. Sc. in Mathematics**
Department:	**Mathematics**
College:	**Science**
Institution:	**Jazan University**

Table of Contents

A. Course Identification

1. Credit hours:	**3**
2. Course type	
a.	University ☐ College ☑ Department ☐ Others ☐
b.	Required ☑ Elective ☐
3. Level/year at which this course is offered:	**Level 1/Year 1**
4. Pre-requisites for this course (if any)**:**	None.
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**	**42**
2	**Laboratory/Studio**	
3	**Tutorial**	**3**
4	**Others** (specify)	
	Total	**45**

B. Course Objectives and Learning Outcomes

1. Course Description

This course is designed to provide students with

- **Basic Algebraic Operations:** The set of real numbers, Operation on real numbers, Exponents and Radicals, Integer exponents, Roots of real numbers, Rational exponents and radicals, Simplifying radicals, Polynomials and Basic operations, Factoring**.**
- **Equations and Inequalities:** Linear equations, Linear inequalities, Absolute value in equations and inequalities, Complex Numbers, Quadratic equation and application by (factoring -quadratic formula).
- **Graphs:** Cartesian coordinate systems, (reflection-symmetry), Distance in the plane, (distance-midpoint-circle), Equation of a line , Slope , Special forms of line, Parallel and perpendicular lines.
- **Functions:** Definition of function , Domain , Even and odd function, Composition
- **System of Linear Equations:** Solving System of Linear Equations (Graphical, Substitution and Elimination).
- **Matrix:** Matrix operations (Equality, Addition Subtraction and Multiplication).
- **Solving System of Linear Equation by Gauss-Jordan method.**

2. Course Main Objective

After finishing the course, the student is expected to be familiar with the following:

- Basic Algebraic Operations
- Equations and Inequalities

- Graphs
- Functions
- System of Linear Equations
- Matrix
- System of Linear Equation by Gauss-Jordan method

3. Course Learning Outcomes

CLOs		Aligned PLOs
1	**Knowledge and Understanding**	
1.1	Distinguishing mathematical concepts relevant to Basic Algebraic Operations, Equations and inequalities, Graphs, Functions, System of Linear Equations, Matrix and System of Linear Equation by Gauss-Jordan method	K1
1.2	Identify background science, features and structures of Mathematics problems in Basic Algebraic Operations, Equations and inequalities, Graphs, Functions, System of Linear Equations, Matrix and System of Linear Equation by Gauss-Jordan method.	K2
1.3	Explain notations and concepts required for the solution of Basic Algebraic Operations, Equations and inequalities, Graphs, Functions, System of Linear Equations, Matrix and System of Linear Equation by Gauss-Jordan method	K3
2	**Skills :**	
2.1	Apply theoretical, computational or practical aspect relevant to Basic Algebraic Operations, Equations and inequalities, Graphs, Functions, System of Linear Equations, Matrix and System of Linear Equation by Gauss-Jordan method	S1
2.2	Compute numerical quantities for various parameters to approximate the solution in Basic Algebraic Operations, Equations and inequalities, Graphs, Functions, System of Linear Equations, Matrix and System of Linear Equation by Gauss-Jordan method.	S2
2.3	Apply various mathematical rules, techniques and theorems in Application. in Basic Algebraic Operations, Equations and inequalities, Graphs, Functions, System of Linear Equations, Matrix and System of Linear Equation by Gauss-Jordan method.	S3
2.4	Solve mathematical problem using critical thinking for Equations and inequalities, Graphs, Functions, System of Linear Equations, Matrix and System of Linear Equation by Gauss-Jordan method using critical thinking.	S4
3	**Values:**	
3.1	Cultivate a mathematical attitude and nurture the interest.	V1
3.2	Realize the importance of responsibilities through different modes of practice, competition and related activities.	V2
3.3	Inculcating values and ethics in thought, expression and deed.	V3

C. Course Content

No	List of Topics	Contact Hours
1	Basic Algebraic Operations	12
2	Equations and Inequalities	9
3	Graphs	6

4	Functions	6
5	System of Linear Equations	6
6	Matrix and System of Linear Equation by Gauss-Jordan method	6
Total		45

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	Distinguish mathematical concepts relevant to Basic Algebraic Operations, Equations and inequalities, Graphs, Functions, System of Linear Equations, Matrix and System of Linear Equation by Gauss-Jordan method	Lectures, Classroom discussions.	Written exam (Problem solve, MCQ, true/false, Proof, Short answer), Quizzes, Assignments
1.2	Identify background science, features and structures of Mathematics problems in Basic Algebraic Operations, Equations and inequalities, Graphs, Functions, System of Linear Equations, Matrix and System of Linear Equation by Gauss-Jordan method.		
1.3	Explain notations and concepts required for the solution of Basic Algebraic Operations, Equations and inequalities, Graphs, Functions, System of Linear Equations, Matrix and System of Linear Equation by Gauss-Jordan method		
2.0	**Skills**		
2.1	Apply theoretical, computational or practical aspect relevant to Basic Algebraic Operations, Equations and inequalities, Graphs, Functions, System of Linear Equations, Matrix and System of Linear Equation by Gauss-Jordan method	Lectures, problem solving, Classroom discussions.	Written exam (Problem solve, MCQ, true/false, Proof, Short answer), Quizzes, Assignments
2.2	Compute numerical quantities for various parameters to approximate the solution in Basic Algebraic Operations, Equations and inequalities, Graphs, Functions, System of Linear Equations, Matrix and System of Linear Equation by Gauss-Jordan method.		
2.3	Apply various mathematical rules, techniques and theorems in Application. in Basic Algebraic Operations, Equations and inequalities, Graphs, Functions, System of Linear Equations, Matrix and System of Linear Equation by Gauss-Jordan method.		
2.4	Solve mathematical problem using		

Code	Course Learning Outcomes	Teaching Strategies	Assessment Methods
	critical thinking for Equations and inequalities, Graphs, Functions, System of Linear Equations, Matrix and System of Linear Equation by Gauss-Jordan method using critical thinking.		
3.0	**Values**		
3.1	Cultivate a mathematical attitude and nurture the interest.	Group and interactive discussion,	Assignments
3.2	Realize the importance of responsibilities through different modes of practice, competition and related activities.		
3.3	Inculcating values and ethics in thought, expression and deed.		

2. Assessment Tasks for Students

#	Assessment task*	Week Due	Percentage of Total Assessment Score
1	Homework	3	5%
2	First exam.	7	20%
3	Second exam.	13	20%
4	Homework	14	5%
5	Final exam.	16	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 :

Each group of students assigned to a member of staff who will be available for help and academic guidance office hours at specific hours on daily basis. At least be available 8 hours per week.

F. Learning Resources and Facilities

1. Learning Resources

Required Textbooks	• Barnett-Ziegler-Byleen, Pre-calculus, custom edition, McGraw-Hill, ISBN 13: 9780390204172, King Saud University, complied by Samir H. Saker.
Essential References Materials	• Bittinger, Beecher, Ellenbogen, and Penna, College Algebra Graphs and Models, 2nd Editi Addison Wesley,(2001). • R. E. Larson, R. P. Hostetler, Algebra and Trigonometry, 6th Edition, Houghton Mifflin Company,(2004). • R. Aufmann, V. Barker, and R. Nation, College Algebra and Trigonometry, 4th Edition, Houghton Mifflin Company,(2003). • Precalculus, Michael Sullivan, Pearson publication, 9th edition.

Electronic Materials	Web sites dedicated to General Mathematics
Other Learning Materials	

2. Facilities Required

Item	Resources
Accommodation (Classrooms, laboratories, demonstration rooms/labs, etc.)	Classroom, Computer Lab.
Technology Resources (AV, data show, Smart Board, software, etc.)	Data show; Smart Board, Mathematics software.
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	Students, Peer and program leader	Indirect (Course Evaluation Survey)- Indirect peer evaluation
Assessment	Students, Program assessment committee	Direct/ Indirect
Extent of achievement of course learning outcomes	Instructor	Direct/Indirect
Quality of learning resources	Students, Faculty members	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	Board Of Mathematics Department
Reference No.	12th Meeting Of The Board Of Mathematics Department 1441-1442
Date	14/6/1442 A. H.; 27/1/2021 A. D.