Course Specification

(Bachelor)

Course Title:	**General Mathematics**
Course Code:	**101 Math**
Program:	**B. Sc. in Mathematics**
Department:	**Mathematics**
College:	**Science**
Institution:	**Jazan University**
Version:	**2023**
Last Revision Date:	**2/2023**

Table of Contents

A. General information about the course:

1- Course Identification

1. Credit hours:	3

2. Course type

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

3. Level/year at which this course is offered: Level1/Year1

4. Course general 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.**

5. Pre-requirements for this course (if any): None.

6. Co- requirements for this course (if any): None.

7. Course Main Objective(s):

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.

2. Teaching mode (mark all that apply)

No	Mode of Instruction	Contact Hours	Percentage
1.	Traditional classroom	33	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	33
2.	Laboratory/Studio	
3.	Field	
4.	Tutorial	
5.	Others (specify)	
	Total	33

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	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.	K1	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	K2	Lectures, Classroom discussions.	Written exam (Problem solve, MCQ, true/false, Proof, Short answer),

Code	Course Learning Outcomes	Code of CLOs aligned with program	Teaching Strategies	Assessment Methods
	inequalities, Graphs, Functions, System of Linear Equations, Matrix, and System of Linear Equation by Gauss-Jordan method.			Quizzes, Assignments.
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	Lectures, Classroom discussions.	Written exam (Problem solve, MCQ, true/false, Proof, Short answer), Quizzes, Assignments.
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.	S1	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	S2	Lectures, problem solving, Classroom discussions.	Written exam (Problem solve, MCQ, true/false, Proof, Short answer), Quizzes, Assignments.

Code	Course Learning Outcomes	Code of CLOs aligned with program	Teaching Strategies	Assessment Methods
	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.	S3	Lectures, problem solving, Classroom discussions.	Written exam (Problem solve, MCQ, true/false, Proof, Short answer), Quizzes, Assignments.
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	Lectures, problem solving, Classroom discussions.	Written exam (Problem solve, MCQ, true/false, Proof, Short answer), Quizzes, Assignments.
3.0	Values, autonomy, and responsibility			
3.1	Cultivate a mathematical attitude and nurture the interest.	V1	Group work and interactive discussion, web-based work	Assignments, Discussion.
3.2	Realize the importance of responsibilities through different modes of practice, competition, and related activities.	V2	Group work and interactive discussion, web-based work	Assignments, Discussion.
3.3	Inculcating values and ethics in thought, expression and deed.	V3	Group work and interactive discussion, web-based work	Assignments, Discussion.

C. Course Content

No	List of Topics	Contact Hours
1.	Basic Algebraic Operations.	9
2.	Equations and Inequalities.	6
3.	Graphs.	3
4.	Functions.	6
5.	System of Linear Equations.	6
6.	Matrix and System of Linear Equation by Gauss-Jordan method.	3
Total		33

D. Students Assessment Activities

No	Assessment Activities *	Assessment timing (in week no)	Percentage of Total Assessment Score
1.	Homework and Quiz	3	5 %
2.	First exam	6	20 %
3.	Second exam	10	20 %
4	Homework and Quiz	11	5 %
5	Final exam	12	50 %

*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	Barnett-Ziegler-Byleen, Pre-calculus, custom edition, McGraw-Hill, ISBN 13: 9780390204172, King Saud University, complied by Samir H. Saker.
Supportive References	• 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. Required Facilities and equipment

Items	Resources
facilities (Classrooms, laboratories, exhibition rooms, simulation rooms, etc.)	Classroom, Computer Lab.
Technology equipment (projector, smart board, software)	Data show; Smart Board, Mathematics software.
Other equipment (depending on the nature of the specialty)	

F. Assessment of Course Quality

Assessment Areas/Issues	Assessor	Assessment Methods
Effectiveness of teaching	Students, Peer and program leader.	Indirect (Course Evaluation Survey)- Indirect peer evaluation.
Effectiveness of students assessment	Students, Program assessment committee.	Direct/Indirect.
Quality of learning resources	Instructor.	Direct/Indirect.
The extent to which CLOs have been achieved	Students, Faculty members.	Indirect.
Other		

Assessor (Students, Faculty, Program Leaders, Peer Reviewer, Others (specify)
Assessment Methods (Direct, Indirect)

G. Specification Approval Data

COUNCIL /COMMITTEE	**Board Of Mathematics Department**
REFERENCE NO.	**2306**
DATE	**07/09/1444 A. H.; 29/03/2023 A. D.**