



Ministry of Higher Education and Scientific Research

Scientific Supervision and Evaluation Authority

Department of Quality Assurance and Academic Accreditation

Accreditation Division

Guide to the Description of the Academic Program and Course Department of Mathematics

2025–2026

Introduction

The educational program is considered an integrated and organized package of courses that includes procedures and learning experiences arranged as course syllabi. Its primary purpose is to build and refine graduates' skills, making them qualified to meet labor market requirements. The program is reviewed and evaluated annually through internal or external auditing procedures and programs, such as the external examiner program.

The academic program description provides a concise summary of the main characteristics of the program and its courses, clarifying the skills that are developed for students based on the objectives of the academic program. The importance of this description lies in the fact that it represents the cornerstone for obtaining program accreditation. It is prepared by teaching staff under the supervision of scientific committees in academic departments.

This guide, in its second edition, includes an updated academic program description after revising the items and sections of the previous guide in light of developments and updates in the Iraqi educational system. It includes the traditional academic program description under the (annual, semester-based) system, in addition to adopting the unified academic description issued according to the Studies Department letter No. T3/2906 dated 3/5/2025, concerning programs that adopt the Bologna Process as the basis for their operation.

In this context, we emphasize the importance of preparing accurate academic program and course descriptions to ensure the proper functioning of the educational process.

Concepts and Terminology

Academic Program Description:

Provides a concise summary of the program's vision, mission, and objectives, including an accurate description of the intended learning outcomes in accordance with specified learning strategies.

Course Description:

Provides a concise summary of the most important characteristics of the course and the expected learning outcomes that the student should achieve, demonstrating whether the student has fully benefited from the available learning opportunities. It is derived from the program description.

Program Vision:

An ambitious image of the future of the academic program, aiming to be advanced, inspiring, motivating, realistic, and applicable.

Program Mission:

Clarifies the objectives and the activities necessary to achieve them in a concise manner, and defines the development paths and directions of the program.

Program Objectives:

Statements that describe what the academic program intends to achieve within a specific time frame; they must be measurable and observable.

Curriculum Structure:

All courses/subjects included in the academic program according to the adopted learning system (semester-based, annual, Bologna Process), whether they are requirements of the Ministry, University, College, or Academic Department, along with the number of credit units.

Learning Outcomes:

A coherent set of knowledge, skills, and values acquired by the student after successfully completing the academic program. Learning outcomes must be defined for each course in a manner that achieves the program objectives.

Teaching and Learning Strategies:

Strategies used by faculty members to develop student teaching and learning. They are plans followed to achieve learning objectives and describe all in-class and extracurricular activities undertaken to achieve the program's learning outcomes.

Ministry of Higher Education and Scientific Research
The Supervision and Scientific Evaluation Apparatus
Department of Quality Assurance and Academic Accreditation

College Academic Program Description Form For The Academic Year 2025-2026

University: Diyala

College/Institute: Basic Education

Scientific Department: Mathematics

Final Degree Name/Bachelor of Education / Mathematics

Academic system /semester

Date of Filling out the File: 1/10/2025

Signature:

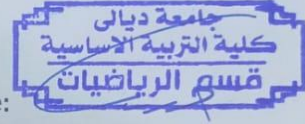


Name of the Department Head

Prof. Dr. Mohammed Ali Murad

Date: 26/4/2026

Signature:



Scientific Associate Name:

Asst. Prof. Dr. Haider Abdel-Baqi

Date: 26/4/2026

Check the file before:

Name of the Director of the Division of Quality Assurance and
University Performance:

Instructor. Dr. Wedyan Habeeb Hameed

Date: 26/4/2026

Signature:



Approval of the Dean of the College:

Asst.Prof.Dr.Ayman Abed Aoun Nazzal

1. Program Mission

To prepare qualified university–level teachers in the field of specialization by equipping them with the principles of knowledge, scientific and logical thinking, scientific research skills in mathematical sciences, and the skills necessary for future communication with society in the workplace.

2. Program Objectives

These are statements that describe what the academic program intends to achieve within a specific time frame and are measurable and observable:

Preparing competent university teachers who possess the educational skills necessary to teach mathematics.

Developing students' scientific attitudes in a way that enables them to enhance their self–capabilities for postgraduate studies.

Providing students with the skills required to deal with and solve scientific problems using sound scientific methods.

Enabling students to design and develop instructional aids for use in teaching mathematics.

Developing and updating scientific curricula in the field of mathematics.

Cooperating with all college departments to maintain and continuously develop mathematical equipment on a regular basis.

Encouraging attendance and participation in scientific conferences and seminars to stay informed about the latest developments in teaching methods and advances in scientific research in specialized fields.

4. Program Accreditation

All courses/subjects included in the academic program according to the adopted learning system (course–based system), whether they are requirements of the Ministry, University, College, or Academic Department, along with the number of credit units.

5. Other External Influencing Factors

Centralized admission system and students' admission averages.

1. Program structure				
Credit hours		The name of the course or course	Course or course code	Educational level
practical	Theoretical			
-	2	Democracy and human rights	DEMF1	The first

-	2	Islamic Education/Civilization	ISLF12	The first
-	2	Arabic language	ARBF12	The first
-	2	English language	ENGF12	The first
2	1	Computer I	COMF1	The first
-	3	Foundations of Education	EDUF12	The first
2	2	Differentiation	MAB03D111	The first
-	2	Developmental psychology	DEVF1	The first
-	2	The principles of probability	MAB03P113	The first
2	2	The foundations of mathematics I	MAB03M112	The first
2	1	The foundations of mathematics II	MAB03M112	The first
-	3	Numbers theory	MAB03NT123	The first

-	2	Matrices	MAB03M128	The first
2	2	Integration	MAB03I121	The first
1	1	Computer II	MAB03MO128	The first
-	2	English Language	ENGSE3	The second
-	3	Educational Psychology	EDPSE4	The second
-	2	Psychology of classroom thinking and teaching	CLTSE4	The second
2	2	Advanced Differentiation	MAB03AD211	The second
2	1	Advanced probability	MAB03AP212	The second
2	2	Linear algebra	MAB03LA213	The second
2	1	Computer (matlab)	MAB03MO227	The second
2	2	Advanced Integration	MAB03AI221	The second
-	3	Geometric	MAB03G222	The second
1	2	Computer	COMSE4	The second
-	2	Arabic II	ARBSE	The second
-	2	graph theory	MAB03DT322	The second
-	2	Mathematics thinking	MAB03MT313	The second
-	2	Baath regime crimes in Iraq	BAASE3	The second
-	2	Curricula and school books	CURSE3	The second

2	1	Computer III	Univ3113	Third
-	3	General teaching methods and applications	COll 3209	Third
-	2	Educational research methodology	Coll 3210	Third
-	2	Measurement and Evaluation	Coll 3211	Third
-	2	Curricula and school books	Coll 3212	Third
1	3	Numerical Analysis	Math 3317	Third
-	2	Mathematical thinking	Math 3318	Third
-	2	Mathematical thinking	Math 3319	Third
2	2	Ordinary differential equations	Math 3320	Third
1	2	Group Theory	Math 3321	Third
1	2	Rings	Math 3322	Third
2	2	Specialized teaching methods	Math 3323	Third
-	3	Specialized I teaching methods	Math 3324	Third
2	2	Mathematical analysis	Math 3325	Third
-	3	graph Theory	Math 3326	Third
		Sustainable development	SUSTH6	Third
2	2	Advanced statistics	MAB03AS223	Third
-	2	Educational Administration and direction	Coll 4214	Fourth

12	-	Application	Coll 4215	Fourth
1	2	Linear programming	Coll 4216	Fourth
2	2	Topology	Math 3327	Fourth
2	2	Complex analysis	Math 3328	Fourth
-	3	Specialized teaching methods	Math 3329	Fourth
2	-	Research Project Graduation	Math 3330	Fourth
-	2	Professional ethics	Math 3331	Fourth
-	2	Arabic Literature	Coll 3213	Fourth
-	2	Environmental and Health Education	ENVFI2	Fourth

Planning for personal development -13

Review the previous steps and their outputs -1

Access to the latest developments in books, periodicals and the information network in the field of specialization -2

.Periodic (annual) updating of approved teaching plans -3

Admission criterion (setting regulations related to admission to the college or institute) -14

.Preparatory certificate - scientific branch - competitive rate based on desire

The most important sources of information about the program -15

Books, periodicals, theses, international information network, personal experience of the course teacher

Please tick the boxes corresponding to the individual learning outcomes from the program under

Learning outcomes required from the program														fundamental Or optional	Course Name	Course Code
General and transferable skills related to employability and personal development		Emotional and value goals				Program Skills Objectives				Cognitive goals						
d2	d1	4c	3c	2c	1c	b4	b3	b2	b1	a4	3i	a2	a1			
√	√	√	√	√	√	√	√	√	√	√	√	√	√	fundamental	Democracy and human rights	Univ
√	√	√	√	√	√	√	√	√	√		√	√	√	fundamental	Islamic Education I	Univ
√	√	√	√	√	√	√	√		√	√	√	√	√	fundamental	Arabic I	Univ
	√	√	√	√	√	√	√	√	√	√	√	√	√	fundamental	English I	Univ
√	√	√	√	√		√	√	√	√	√	√	√	√	fundamental	Computer I+Windows	Univ
√	√	√		√	√	√	√	√	√	√	√	√	√	fundamental	Basics Psychology	Coll
√	√	√	√	√	√	√	√	√	√	√	√	√	√	fundamental	Fundamentals and principle basis education	Coll

√			√	√	√	√	√	√	√	√	√	√	√	fundam ental	Differentiation	Math
√	√	√	√	√	√	√	√	√	√	√	√	√	√	fundam ental	History of Mathematics	Math
√	√	√	√	√	√	√	√	√	√	√	√	√	√	fundam ental	The principles of probability	Math
√	√	√	√	√	√	√	√	√	√	√	√	√	√	fundam ental	The foundations of mathematics I	Math
√	√	√	√	√	√	√			√	√	√	√	√	fundam ental	The foundations of mathematics II	Math
√	√		√	√	√	√	√	√	√	√	√	√	√	fundam ental	Numbers theory	Math
√	√	√	√	√	√	√	√	√	√	√	√	√	√	fundam ental	Matrices	Math
√	√	√	√	√		√	√	√	√	√	√	√	√	fundam ental	Integration	Math
√		√	√	√	√	√	√	√	√	√	√	√	√	fundam ental	Word+Powerpoint	Univ
		√	√	√	√	√	√	√	√	√	√	√	√	fundam ental	English II	Univ
√	√	√	√	√	√	√	√	√	√	√	√	√	√	fundam ental	Educational Psychology	Coll
√	√	√	√	√	√	√	√	√	√	√	√	√	√	fundam ental	Guidance and mental health	Coll
√	√	√	√	√	√	√	√	√	√	√	√	√	√	Fundam	Educational	Coll

															ental	Statistics	
√		√	√	√	√	√	√	√	√	√	√	√	√		fundam ental	Advanced Differentiation	Math
√	√	√	√	√	√	√	√	√	√	√	√	√	√		fundam ental	Advanced possibilities	Math
√	√	√	√	√	√	√			√	√	√	√	√		fundam ental	Linear algebra	Math
	√	√	√	√	√	√	√	√	√	√	√	√	√		fundam ental	Computer(acces)	Math
√	√	√			√	√	√	√	√	√	√	√	√		fundam ental	Advanced Statistics	Math
√	√	√	√	√	√	√	√	√	√	√	√	√	√		fundam ental	Advanced Integration	Math
√	√	√	√	√	√	√	√	√			√	√	√		fundam ental	Geometric	Math
√			√	√	√	√	√	√	√	√	√	√	√		fundam ental	Computer spss	Math
√	√	√	√	√	√	√	√	√	√	√	√	√	√		fundam ental	Research partycrimes	
√	√	√	√		√	√	√	√			√	√	√		Fundam	Computer III	Univ

															ental		
√			√	√	√	√	√	√	√	√	√	√	√		fundam ental	Research Methods	Coll
√	√	√			√	√	√	√	√	√	√	√	√		fundam ental	TMS	Coll
√	√	√	√	√	√		√	√	√	√	√	√	√		fundam ental	Measurement and Evaluation	Coll
√	√	√	√	√	√	√	√	√	√	√	√	√	√		fundam ental	General methods of teaching	Coll
√	√	√	√	√	√	√	√	√	√	√	√	√	√		fundam ental	Numerical Analysis	Math
√		√	√	√	√	√	√	√	√	√	√	√	√		fundam ental	Mathematical thinking	Math
√	√	√	√	√		√	√	√	√		√	√	√		fundam ental	Tests and measurements	Math
√	√	√	√	√	√	√	√	√	√	√	√	√	√		fundam ental	Ordinary differential equations	Math
√	√	√	√	√	√	√	√	√	√	√	√	√	√		fundam ental	Groups Theory	Math
√	√	√	√	√	√	√	√	√	√	√	√	√	√		fundam ental	Computer (Mat Lab)	Math
√	√	√	√	√	√	√	√	√		√	√	√	√		fundam ental	Rings	Math
√	√	√	√	√	√	√	√	√	√	√	√	√	√		fundam ental	Specialized I teaching methods	Math
√	√		√	√	√	√	√	√	√	√	√	√	√		Fundam ental	Mathematical analysis	Math

√	√	√	√	√	√	√	√	√	√	√	√	√	√	fundamental	graph Theory	Math 4
√	√	√	√	√	√	√	√	√	√	√	√	√	√	fundamental	Sustainable development	
√	√	√	√	√		√	√	√	√	√	√	√	√	fundamental	Computer IIII	Univ 4
√	√	√	√	√	√	√	√	√	√		√	√	√	fundamental	Arabic IIII	Univ 4
√	√	√	√	√	√	√	√	√	√	√	√		√	fundamental	Curricula and textbooks	Coll 4
	√	√	√	√	√	√	√	√	√	√	√	√	√	fundamental	Educational Administration and direction	Coll 4
√	√	√	√	√	√	√	√	√	√	√	√	√	√	fundamental	Application	Coll 4
	√	√	√	√	√	√	√	√	√	√			√	fundamental	Linear programming	Math 4
√	√	√	√	√	√	√	√	√	√	√	√	√	√	fundamental	Topology	Math 4
√	√		√	√	√	√	√	√	√	√	√	√	√	fundamental	complex analysis	Math 4
√	√	√	√	√	√	√	√	√	√		√	√	√	fundamental	SpecializedII teaching methods	Math 4
√		√	√	√	√	√	√	√	√	√		√	√	fundamental	Research Project Graduation	Math 4
√	√	√	√	√	√	√	√	√	√	√	√	√	√	fundamental	Viewing	Coll 4

Expected Learning Outcomes of the Program

Knowledge

Learning Outcomes / Statement of Learning Results

Graduating qualified students in the field of mathematics to work as
.teachers in primary schools

Providing students with advanced fundamental mathematical skills
necessary to enrich their intellectual and technical knowledge in various
.fields of mathematics and its applications

Enabling students to identify and use scientific research tools during
.study and professional practice

Preparing and qualifying students to pursue postgraduate studies
through the development of their intellectual, scientific, and research
.skills

Enabling students to apply scientific methods and approaches in
.addressing and solving academic and professional problems

Introducing students to educational, psychological, and cultural sciences
and equipping them with these to achieve professional excellence and
.development

.Harmonizing theoretical trends with practical reality in mathematics

Enabling students to identify the latest teaching strategies, methods,
.and modern instructional aids for teaching mathematics

Employing modern educational technologies and tools in teaching
.mathematics

Keeping pace with recent scientific developments in mathematics and
.studying them

.Activating e-learning in the field of mathematics

A. Cognitive Objectives

- A-1. Enabling students to acquire and understand mathematical terminology and concepts
- A-2. Enabling students to acquire and understand methods of designing, operating, modifying, and developing various mathematical programs using mathematics
- A-3. Enabling students to acquire and understand methods of monitoring programs within mathematical systems to solve mathematical problems
- A-4. Enabling students to acquire and understand methods of electronic publishing
- A-5. Enabling students to acquire and understand methods of using database management systems
- A-6. Enabling students to acquire and understand information, knowledge, and theoretical concepts related to mathematical networks and communication systems
- A-7. Enabling students to acquire and understand modern programming languages and database systems
- A-8. Enabling students to acquire and understand educational, psychological, and cultural information, facts, and concepts
- A-9. Enabling students to acquire and understand strategies, methods, and approaches for teaching mathematics
- A-10. Introducing students to the most important references and sources in mathematical sciences

Program Skill-Based Objectives

Learning Outcomes / Statement of Learning Results

Graduating qualified students in mathematical sciences to work as teachers in intermediate and secondary schools

Providing students with advanced fundamental mathematical skills necessary to enrich their intellectual and technical knowledge in the .fields of mathematical sciences and their diverse applications

Enabling students to identify and use scientific research tools during .study and professional practice

Preparing and qualifying students to pursue postgraduate studies by .developing their intellectual, scientific, and research skills

Enabling students to apply scientific methods and approaches to .address and solve academic and professional problems

Introducing students to educational, psychological, and cultural sciences and equipping them to achieve professional excellence and .development

Harmonizing theoretical orientations with practical reality in .mathematics

Enabling students to identify the latest teaching strategies, methods, .and modern instructional aids for teaching mathematics

Employing modern educational technologies and tools in teaching .mathematics

Keeping pace with recent scientific developments in mathematics and .studying them

.Activating e-learning in the field of mathematics

B. Skill Objectives

B-1. Enabling students to acquire skills in managing information systems .and databases

B-2. Enabling students to learn and acquire skills in designing and .supervising websites

B-3. Enabling students to possess skills in using modern technologies in .teaching and learning mathematical sciences

B-4. Enabling students to possess the ability to design and create effective educational activities that encourage student learning and participation

B-5. Enabling students to acquire classroom management skills, classroom interaction skills, and techniques for dealing with classroom problems using modern educational approaches

B-6. Providing students with the skills necessary to develop methods for teaching mathematics in its various forms

B-7. Enabling students to acquire skills in testing the validity and functionality of programs

B-8. Enabling students to acquire problem-solving skills

B-9. Enabling students to acquire scientific research skills

B-10. Enabling students to possess skills in preparing and constructing electronic and paper-based examinations and methods of grading them

B-11. Enabling students to acquire lesson planning skills in all its forms

B-12. Enabling students to acquire skills in using modern instructional aids for teaching mathematical sciences

B-13. Enabling students to possess mathematics teaching skills

Values

Learning Outcomes / Statement of Learning Results

Graduating qualified students in mathematical sciences to work as teachers in primary and intermediate schools

Providing students with advanced fundamental mathematical skills necessary to enrich their intellectual and technical knowledge in the fields of mathematical sciences and their diverse applications

Enabling students to identify and use scientific research tools during study and professional practice

Preparing and qualifying students to pursue postgraduate studies by
.developing their intellectual, scientific, and research skills

Enabling students to apply scientific methods and approaches in
.addressing and solving academic and professional problems

Introducing students to educational, psychological, and cultural sciences
and equipping them to achieve professional excellence and
.development

Harmonizing theoretical orientations with practical reality in
.mathematics

Enabling students to identify the latest teaching strategies, methods,
.and modern instructional aids for teaching mathematics

Employing modern educational technologies and tools in teaching
.mathematical sciences

Keeping pace with recent scientific developments in mathematical
.sciences and studying them

.Activating e-learning in the field of mathematical sciences

C. Affective and Value-Based Objectives

C-1. Enhancing students' awareness of the importance of studying
.mathematics

C-2. Encouraging students to practice professional, ethical, and
.academic behavior as a core value

.C-3. Promoting teamwork and cooperation among students

C-4. Developing students' sense of responsibility during study and
.professional practice

.C-5. Educating students to respect human dignity

C-6. Training students to respect freedom of expression, thinking, and
.creativity of others

C-7. Training students to respect the rights of beneficiaries of their profession regardless of culture, religion, gender, or ethnicity

C-8. Educating students on academic honesty in presenting and disseminating scientific and educational information

C-9. Promoting a culture of integrity and combating corruption in all its forms

C-10. Developing students' sense of national belonging and loyalty to the homeland.

Teaching and Learning Strategy

There are multiple teaching and learning methods adopted by colleges within the educational group. These methods vary according to the type of objectives, including cognitive objectives, skill-based objectives, affective objectives, and general objectives

First: Teaching and Learning Methods for Cognitive and Skill-Based Objectives

- .Lecture-based (expository) method
- .Use of PowerPoint presentations
- .Dialogue and discussion method
- .Use of screens and smart boards to present scientific material
- .Laboratory-based learning to acquire scientific skills
- .Reports and projects
- .Student group work
- .Workshops
- .Scientific field trips
- .Oral discussions

Second: Teaching and Learning Methods for Affective Objectives

.Cooperative learning strategy

.Seminar-style discussion method

.Educational storytelling method

.Forming discussion groups during lectures

Assigning students tasks that require self-reflection and personal

.interpretation

.Explanation and clarification

.Using external resources and visual aids such as educational films

.Delivering lectures that promote affective values

.Organizing seminars, training courses, and workshops for students

Field visits to relevant ministries and educational institution

.11. Academic staff Members

Academic staff	Sepecialization	
	General Sepecialization	Sepecialization field
professor	mathematics	Apply mathematics
Assistant professor	mathematics	Teaching methods
Assistant professor	mathematics	Apply mathematics
Assistant professor	mathematics	Apply mathematics
Assistant professor	mathematics	Apply mathematics
Doctor	mathematics	Pure mathematics
Doctor	mathematics	Statistic
Doctor	mathematics	Apply mathematics
Doctor	mathematics	Apply mathematics
Assistant lecturer	mathematics	Apply mathematics
Assistant lecturer	mathematics	Apply mathematics
Assistant lecturer	mathematics	Apply mathematics
Assistant lecturer	mathematics	Apply mathematics
Assistant lecturer	mathematics	Apply mathematics
Assistant lecturer	mathematics	Pure mathematics
Assistant lecturer	mathematics	Pure mathematics

Assistant lecturer	mathematics	Pure mathematics
Assistant lecturer	mathematics	Pure mathematics
Assistant lecturer	mathematics	Pure mathematics
Assistant lecturer	mathematics	Apply mathematics
Assistant lecturer	mathematics	Apply mathematics

Course Instructor

M.A. Raed Mohammed

This course description provides a concise summary of the main characteristics of the course and the intended learning outcomes that students are expected to achieve, demonstrating whether they have made optimal use of the available learning opportunities. These .outcomes must be linked to the program description

:Educational Institution

University of Diyala / College of Basic Education

:Scientific Department / Unit

University Requirements / Department of Mathematics

:Course Title / Code

Islamic Education / MAB03IE129

:Attendance Type

Mandatory

:Semester / Academic Year

Second Semester / First Year

:Total Credit Hours

hours 30

:Date of Course Description Preparation

1/10/2025

:Course Objectives

:By the end of the academic year, the student will be able to

Learn the definition of the science of Usul al-Din (Principles of Religion),
.the names of this discipline, and the reasons for these names

Learn the pillars of faith according to the majority of Muslims, theology
(Ilahiyyat), the existence of God and His attributes, and the proofs of the
.existence of God Almighty

Learn the proof of origination (Huduth), the proof of providence and
creation, sensory deception, atheism, divine attributes, and the
.(essential attribute (existence

Learn the negative attributes (eternity, permanence, dissimilarity to
created things, self-subsistence, and oneness) and the attributes of
.(meaning (power, will, knowledge, life, hearing, sight, and speech

Learn the impact of the doctrine of monotheism on life, what is
impossible with respect to God Almighty, and what is permissible with
respect to Him

Course Description

Instructor: Assistant Lecturer Faten

This course description provides a concise summary of the main characteristics of the course and the expected learning outcomes that students are supposed to achieve, demonstrating whether they have made the most of the available learning opportunities. It is essential to .link this description with the program description

Educational Institution .1

College of Basic Education

Scientific Department .2

Mathematics Department

Course Title / Code .3

Calculus / MAB03D111

Attendance Mode .4

Mandatory

Semester / Year .5

First Semester / First Year

Total Study Hours .6

(hours (4 × 15 weeks 60

Date of Preparation .7

1/10/2025

Course Objectives .8

By the end of the course, the student should be familiar with the following concepts

Real numbers, their properties, absolute value, inequalities, and their solutions .1

Functions, domain and range, continuous and discontinuous functions, and uniform continuity .2

Differentiation and its rules, including theorems such as Rolle's Theorem and the Mean Value Theorem .3

Derivatives of trigonometric, exponential, and logarithmic functions .4

Applications of derivatives to find local maxima and minima, .5
.inflection points, and graphing functions

Course Learning Outcomes, Teaching, Learning, and Assessment .9
Methods

A. Cognitive Objectives

A1: Understand real numbers, their properties, absolute value, and *
.inequalities

.A2: Understand functions, domain and range, and types of continuity *

A3: Understand differentiation, its rules, and key theorems (Rolle's *
. (and Mean Value

A4: Understand derivatives of trigonometric, exponential, and *
.logarithmic functions

A5: Understand applications of derivatives in optimization and curve *
.sketching

B. Skill-Based Objectives

:Students will develop skills in

B1: Real numbers and their properties *

B2: Differentiation rules *

B3: Applying derivatives to find maxima, minima, and inflection points *

B4: Graphing functions *

Teaching and Learning Methods

- Informing students at the beginning of the semester about course .1
.topics and references
- .Preparing lectures sequentially based on the syllabus .2
- .Announcing upcoming lecture topics in advance .3
- .Assigning students to prepare papers on selected topics .4

Assessment Methods

- Two midterm exams (after week 5 and week 11), accounting for 40% .1
.of the total grade, considering participation and attendance
- Final exam (60%) covering all course content and different cognitive .2
(levels (recall, application, analysis

C. Affective and Value-Based Objectives

:Students should be able to

C1: Define differentiation and its properties *

C2: Understand differentiation rules *

C3: Understand derivatives of trigonometric, exponential, and *
logarithmic functions

C4: Graph functions *

:Teaching Methods

.Direct instruction supported by mathematical examples

:Assessment Methods

.Integrated within continuous and final evaluations

D. General and Transferable Skills

D1: Apply acquired mathematical skills in teaching basic education *
.students

.D2: Select examples from school mathematics curricula *

.D3: Evaluate students' acquisition of mathematical skills *

.D4: Design tests in mathematical thinking *

Course Description

:Instructors

Assistant Professor Mohammed Ali

Assistant Professor Dr. Iman Kadhim

This course description provides a concise summary of the main characteristics of the course and the expected learning outcomes that students are supposed to achieve, demonstrating whether they have made the most of the available learning opportunities. It is essential to .link this description with the program description

□

Educational Institution .1

College of Basic Education

Scientific Department .2

Mathematics Department

Course Title / Code .3

Matrices / MAB03M128

Attendance Mode .4

Mandatory

Semester / Year .5

Second Semester / First Year

Total Study Hours .6

Hours 30

Date of Preparation .7

1/10/2025

Course Objectives .8

By the end of the course, the student should be familiar with the following concepts

.Definition of matrices with illustrative examples .1

Types of matrices (diagonal, identity, scalar, zero matrices) with .2
.examples

Matrix operations (addition, subtraction, multiplication) with .3
.examples

.Linear systems and their definitions with examples .4

Methods of solving linear systems (Gaussian elimination, Cramer's .5
.rule, Gauss-Jordan method

.Determinants and methods of finding them according to matrix type .6

.(Transpose, trace, and inverse of a matrix (definitions and examples .7

.Symmetric and skew-symmetric matrices with examples .8

.Properties of transpose, inverse, symmetry, and trace .9

.A set of theorems related to the above topics .10

Course Learning Outcomes, Teaching, Learning, and Assessment .9
Methods

A. Cognitive Objectives

.A1: Understand the concept of matrices *

.(A2: Identify types of matrices (scalar, identity, zero, diagonal *

.A3: Understand properties of matrices *

.A4: Understand matrix operations *

.A5: Prove properties of matrices *

.A6: Understand linear systems and how to solve them using matrices *

B. Skill-Based Objectives

:Students will develop skills in

B1: Matrices and their types *

B2: Trace, transpose, and inverse of matrices *

B3: Matrix operations *

B4: Matrix dimensions *

B5: Methods of solving linear systems *

B6: Representing linear systems using matrices *

□

Teaching and Learning Methods

Informing students at the beginning of the semester about course .1
.topics and references

.Preparing lectures according to the sequence of the syllabus .2

.Informing students about upcoming lecture topics in advance .3

.Assigning students to prepare papers on selected topics .4

Assessment Methods

Two midterm exams (after week 5 and week 11), accounting for 40% .1
.of the total grade, considering attendance and participation

Final exam (60%) covering all course content and different cognitive .2
. (levels (recall, application, analysis

C. Affective and Value-Based Objectives

:Students should be able to

C1: Recognize the importance of matrices in real life and relate them *
.to practical applications

.C2: Develop positive attitudes toward the subject *

.C3: Enhance teamwork during assignments *

.C4: Appreciate the aesthetic value of mathematics *

:Teaching Methods

.Direct instruction supported with mathematical examples

:Assessment Methods

Integrated within ongoing and final assessments, including exams and
.class participation

D. General and Transferable Skills

D1: Apply acquired skills in teaching mathematics at the basic *
.education level

.D2: Select examples from school mathematics curricula *

.D3: Evaluate students' acquisition of applied skills *

.D4: Design tests in mathematics education for basic-level students *

