

Ministry of Higher Education and Scientific Research
Scientific Supervision and Evaluation Authority
Quality Assurance and Academic Accreditation Department
Accreditation Division



Academic Program and Course Descriptions

Department of Mathematics

2026-2025

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

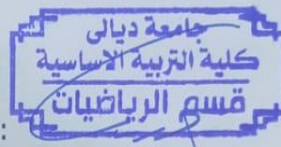
Signature:

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

Program Description

Year \ Level	Course Code	Course Name	Credit Hours		Total Hours	Number of Units
			Theoretical	Practical		
First \ First	DEMFI1	Democracy and Human Rights	2	-	2	2
	MAB03D111	Differential Calculus	2	2	4	3
	MAB03P113	Principles of Probability	2	-	2	2
	MAB03M112	Foundations of Mathematics 1	2	2	4	3
	MAB03NT123	Number Theory	2	-	2	2
	DEVFI1	Developmental Psychology	3	-	3	3
	MAB03MO1110	Computer	1	2	3	2
Total			14	6	20	17

Program Description

Year \ Level	Course Code	Course Name	Credit Hours		Total Hours	Number of Units
			Theoretical	Practical		
First \ Second	MAB03IE129	Islamic Education	2	-	2	2
	ARBF12	Arabic Language	2	-	2	2
	MAB03MO128	Computer (Office)	1	2	3	2

Year \ Level	Course Code	Course Name	Credit Hours			
	MAB03BE116	Foundations of Education and Pedagogy	3	-	3	3
	MAB03M122	Foundations of Mathematics 2	1	2	3	2
	MAB03M128	Matrices	2	-	2	2
	MAB03I121	Integral Calculus	2	2	4	3
	ENGSE3	English Language	2	-	2	2
Total			15	6	21	18

Course Description Form

Course Name: Democracy and Human Rights

Course Code: MAB03HR119

Semester / Year: First / First Year

Date of Description Preparation: 1/10/2025

Available Attendance Modes: Mandatory (In-Person)

Total Study Hours: 30 hours **Number of Units:** 2

Course Coordinator: Asst. Prof. Dr. Marwan Salim Nouri

Email: basichist1te@uodiyala.edu.iq

Course Objectives

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

- Learn (the definition of human rights and their characteristics)
- Learn Islam's position on human rights
- Learn the classifications of human rights
- Learn collective human rights
- Learn human rights during times of war and international and domestic conflicts
- Learn administrative corruption and its impact on human rights

Teaching and Learning Strategies

Cooperative Learning Strategy: Discussion based on identifying the basic concepts of the topic and then beginning instruction. This is a method that relies on dividing students into small heterogeneous groups of (4-6) members per group. Students in each group cooperate in explaining and understanding the topic, with the professor acting as a guide and mentor.

Course Structure

Week	Hours	Required Learning Outcomes	Unit/Topic Name	Teaching Method	Assessment Method	
1	2	-	Definition of Human Rights	Lecture	Formative Assessment	
2	2	-	Enumeration of Human Rights Characteristics	Lecture	Formative Assessment	
3	2	Learn Islam's position on human rights	Islam's Position on Human Rights	Lecture	Formative Assessment	
4	2	-	Islam's Position on Human Rights	Lecture	Formative Assessment	
5	2	-	Learn classification of human rights	Classifications of Human Rights	Lecture	Formative Assessment
6	2	-	Learn classification of human rights	Classifications of Human Rights	Lecture	Formative Assessment
7	2	First Month				

Week	Hours	Required Learning Outcomes	Unit/Topic Name	Teaching Method	Assessment Method	
		Exam - Various tests and problem solving related to the topic				
8	2	-	Learn collective human rights	Collective Human Rights	Lecture	Formative Assessment
9	2	-	Learn collective human rights	Collective Human Rights	Lecture	Formative Assessment
10	2	Learn human rights during times of war and international and domestic conflicts	Human Rights during Times of War and International and Domestic Conflicts	Lecture	Formative Assessment	
11	2	-	Learn human rights during times of war and international and domestic conflicts	Human Rights during Times of War and International and Domestic Conflicts	Lecture	Formative Assessment
12	2	-	Learn administrative corruption and its impact on human rights	Administrative Corruption and Its Impact on Human Rights	Lecture	Formative Assessment
13	2	-	Learn administrative corruption and its impact on human rights	Administrative Corruption and Its Impact on Human Rights	Lecture	Formative Assessment

Week	Hours	Required Learning Outcomes	Unit/Topic Name	Teaching Method	Assessment Method	
14	2	-	Learn administrative corruption and its impact on human rights	Administrative Corruption and Its Impact on Human Rights	Lecture	Formative Assessment
15	2	Second Month Exam - Objective tests and problem solving				

Course Assessment

Learning and Teaching Resources

1	Required Prescribed Books	None
2	Main References (Sources)	Human Rights Sources / Faculty of Law, Benha University, Egypt, issued on 1/2/2010. Transparency International - Global Corruption Report 2007. Lebanese Association for the Promotion of Transparency / No to Corruption - Corruption Book - 1st Edition - 2005 - Technopress Press - Lebanon
a	Recommended Books and References (Scientific Journals, Reports, etc.)	Human Rights Law Sources / Al-Wasat Website, Issue 378, Friday, September 19, 2003. Ahmed Helmy / Article / Individual Behavior and Human Rights / Arab Human Rights Journal / Issue 10 / 2007 / Dubai / International Human Rights Organization Website. Dr. Suleiman Abdul-Mun'im - The Phenomenon of Corruption / A Study on the Compatibility of Arab Legislation with the UN Convention against Corruption. p.17.
b	Electronic References, Internet Sites, etc.	Fares Al-Shihabi - Administrative Reform Cannot Be Achieved Without Radical Change in Thought, Objectives, and Laws / The Public Sector from the Perspective of Economic Liberalism - Article available on the website www.mafhoum.com

Course Description Form

Course Name: Differential Calculus

Course Code: MAB03D111

Semester / Year: First / First Year

Date of Description Preparation: 1/10/2025

Available Attendance Modes: Mandatory (In-Person)

Total Study Hours: 60 hours **Number of Units:** 3

Course Coordinator: Asst. Lect. Fatin Abdulrahman Hamid

Email: basicmath17te@uodiyala.edu.iq

Course Objectives

The student should be familiar with the following concepts:

1. The concept of real numbers and their properties, absolute value, inequalities and their solutions
2. The concept of functions, domain and range, continuous and discontinuous functions, uniform continuity
3. Differentiation and its rules, and some theorems such as Rolle's Theorem and the Mean Value Theorem
4. Derivatives of trigonometric, exponential, and logarithmic functions
5. Concepts of differentiation and their use in obtaining local maxima and minima, inflection points, and graphing functions

Course Outcomes, Teaching, Learning, and Assessment Methods

A. Knowledge Objectives

A1- The student should comprehend the concept of real numbers and their properties, absolute value, inequalities and their solutions.

A2- The student should know the concept of functions, domain and range, continuous and discontinuous functions, uniform continuity.

A3- The student should know differentiation and its rules, and some theorems such as Rolle's Theorem and the Mean Value Theorem.

A4- The student should know derivatives of trigonometric, exponential, and logarithmic functions.

A5- The student should comprehend concepts of differentiation and their use in obtaining local maxima and minima, inflection points, and graphing functions.

B. Skills Objectives of the Course

The student should develop skills in the following concepts:

- B1 – Real numbers and their properties
- B2 – Rules of differentiation
- B3 – Comprehend concepts of differentiation and their use in obtaining local maxima and minima, inflection points
- B4 – Graphing functions

Teaching and Learning Methods

At the beginning of the semester, students are informed of the course syllabus and information sources (related books, periodicals, university theses). The syllabus is distributed across the weeks of the semester, along with the assessment methods to be followed, as follows:

1. Preparation of lectures according to the sequence outlined in the course syllabus using the aforementioned information sources.
2. Informing students about the topic of the upcoming lecture for preparation purposes.
3. Requesting students to submit papers on one or more of the topics under study.

Assessment Methods

1. Conducting two mid-semester exams: the first after the fifth week of the semester and the second after the eleventh week. Each exam considers cognitive levels (recall, application, exploration). Assessment contributes 40% of the total achievement, taking into account student attendance and daily participation.
2. End-of-semester exam accounting for 60% of achievement according to ministry timings. When setting questions, comprehensiveness of the course content and cognitive levels (recall, application, exploration) are considered.

C. Affective and Value Objectives

The student should be able to:

- C1- Define differentiation and its properties
- C2- Define the rules of differentiation
- C3- Define differentiation of trigonometric, exponential, and logarithmic functions
- C4- Graph functions

Teaching and Learning Methods

The direct instruction method is typically used, where skills are taught directly and explicitly, reinforced with examples from mathematics for basic education levels.

Assessment Methods

These are included within the course assessment processes conducted during and at the end of the semester.

D. General and Transferable Qualification Skills (Other Skills Related to Employability and Personal Development)

D1- Employ acquired skills in teaching mathematical knowledge to basic education students.

D2- Select examples from the basic education mathematics curriculum, each with skills addressed in the course.

D3- Evaluate the extent to which basic education students acquire application skills.

D4- Construct tests specific to mathematical thinking areas for basic education students.

Course Structure

Week	Hours	Required Learning Outcomes	Unit/Topic Name	Teaching Method	Assessment Method
1	4	Concept of real numbers and their properties with examples	Concept of real numbers and their properties with examples	Discussion and Questioning	Formative Assessment
2	4	Inequalities and their solutions with examples	Inequalities and their solutions with examples	Discussion and Questioning	Formative Assessment
3	4	Concept of function, domain and range with examples	Concept of function, domain and range with examples	Discussion and Questioning	Formative Assessment
4	4	Continuity and uniform continuity with examples	Continuity and uniform continuity with examples	Discussion and Questioning	Formative Assessment
5	4	Local minima and maxima with examples	Local minima and maxima with examples	Discussion and Questioning	Formative Assessment
6	4	Monthly Exam	Monthly Exam	-	Formative Assessment
7	4	Concept of differentiation and some fundamental theorems	Concept of differentiation and some fundamental theorems	Discussion and Questioning	Formative Assessment
8	4	Composition of functions and higher-order derivatives	Composition of functions and higher-order derivatives	Discussion and Questioning	Formative Assessment

Week	Hours	Required Learning Outcomes	Unit/Topic Name	Teaching Method	Assessment Method
9	4	Rolle's Theorem and the Mean Value Theorem	Rolle's Theorem and the Mean Value Theorem	Discussion and Questioning	Formative Assessment
10	4	Derivatives of trigonometric functions with examples	Derivatives of trigonometric functions with examples	Discussion and Questioning	Formative Assessment
11	4	Monthly Exam	Monthly Exam	-	Formative Assessment
12	4	Derivatives of exponential and logarithmic functions	Derivatives of exponential and logarithmic functions	Discussion and Questioning	Formative Assessment
13	4	Using differentiation concepts to obtain maxima	Using differentiation concepts to obtain maxima	Discussion and Questioning	Formative Assessment
14	4	Graphing functions	Graphing functions	Discussion and Questioning	Formative Assessment

Infrastructure

1	Required Prescribed Books	None
2	Main References (Sources)	- Calculus of Integration and Differentiation. Translated by Dr. Ali Aziz and others - Calculus of Differentiation and Integration. Authored by Dr. Ada Ghassan Naoum and Dr. Basil Al-Hashimi
a	Recommended Books and References (Scientific Journals, Reports, etc.)	- Calculus: Thomas, Jr., ... - Utilizing periodicals and sources related to the course
b	Electronic References, Internet Sites, etc.	Utilizing the Internet as a known source of information

Course Development Plan

1. The course is developed according to requirements that emerge from curriculum development in basic education stages.
2. The course is developed according to requirements that emerge from curriculum development in the global system.

Course Description Form

Course Name: Principles of Probability

Course Code: MAB03P113

Available Attendance Modes: Mandatory (In-Person)

Semester: First **Year:** First Year

Total Study Hours: 30 hours **Number of Units:** 2

Date of Description Preparation: 1/10/2025

Course Coordinator: Dr. Yasmin Masoud Abdul Hassan

Email: basicmah10te@uodiyala.edu.iq

Course Objectives

The student should be familiar with the following concepts:

1. Understanding the experiment, sample space, events and their types
2. Distinguishing permutations and combinations
3. Explaining the meaning of probability and its properties, laws of probability
4. Understanding conditional probability
5. Analyzing probability and combinatorial analysis
6. Applying Bayes' Theorem and its applications

Course Outcomes, Teaching, Learning, and Assessment Methods

A. Knowledge Objectives

A1- Knowledge and understanding

A2- Enable students to acquire knowledge and understanding of the meaning of experiment, sample space, events and their types.

A3- Enable students to acquire knowledge and understanding of topics in permutations and combinations.

A4- Enable students to acquire knowledge and understanding of the meaning of probability and its properties, laws of probability.

A5- Enable students to acquire knowledge and understanding of Bayes' Theorem and its applications.

B. Skills Objectives of the Course

- B1 – Enumerates types of events
- B2- Distinguishes between permutations and combinations
- B3- Comprehends the meaning of probability and its properties and laws
- B4 – Understands probability and combinatorial analysis
- B5- Distinguishes applications of Bayes' Theorem

Teaching and Learning Methods

- 1- Provide students with the fundamentals and topics related to principles of probability.
- 2- Clarify and explain the course material.
- 3- Require students to visit the library and review the material.
- 4- Improve students' skills through visiting electronic sites to gain additional knowledge of the course material.
- 5- Use lecture, presentation, questioning, and discussion methods in some topics that require discussion.

Assessment Methods

- 1- Daily tests with specific questions.
- 2- Assign grades for homework and class participation.
- 3- Assign students to complete research and reports on the course material.
- 4- Monthly exams with objective and essay questions.

C. Affective and Value Objectives

- C1- Appreciate the importance of studying the subject and its life applications.
- C2- Understand the importance of events and their types.

Teaching and Learning Methods

- 1- Use of presentation methods.
- 2- Drawing illustrative diagrams.
- 3- Brainstorming method.

Assessment Methods

- Analytical exam to measure the student's ability to think, analyze, and deduce.
- Request comparisons between types of events.
- Writing research on laws of probability.
- Daily exams with intellectual and deductive questions.

D. General and Transferable Qualification Skills (Other Skills Related to Employability and Personal Development)

- D1- Skills in using references and terminology.
D2- Skills in collecting and analyzing data on the topic.
D3- Skills in utilizing available resources.
D4- Skills in making comparisons on the topic.
D5- Skills in preparing specific concepts on the topic.

Course Structure

Week	Hours	Required Learning Outcomes	Unit/Topic Name	Teaching Method	Assessment Method
1	2	Defines the experiment and sample space	Experiment, Sample Space, Events and Their Types	Discussion and Questioning	Formative Assessment
2	2	Enumerates types of events	Experiment, Sample Space, Events and Their Types	Discussion and Questioning	Formative Assessment
3	2	Examples in permutations	Permutations and Combinations	Discussion and Questioning	Formative Assessment
4	2	Examples in combinations	Permutations and Combinations	Discussion and Questioning	Formative Assessment
5	2	First Month Exam - Various tests			
6	2	Defines probability	Meaning of Probability and its Properties, Laws of Probability	Discussion and Questioning	Formative Assessment
7	2	Enumerates properties of probability	Meaning of Probability and its Properties, Laws of Probability	Discussion and Questioning	Formative Assessment
8	2	Writes laws of probability	Meaning of Probability and its Properties, Laws of Probability	Discussion and Questioning	Formative Assessment
9	2	Provides	Conditional	Discussion	Formative

Week	Hours	Required Learning Outcomes	Unit/Topic Name	Teaching Method	Assessment Method
		examples in conditional probability	Probability	and Questioning	Assessment
10	2	Defines probability	Probability and Combinatorial Analysis	Discussion and Questioning	Formative Assessment
11	2	Defines combinatorial analysis	Probability and Combinatorial Analysis	Discussion and Questioning	Formative Assessment
12	2	Mentions examples of combinatorial analysis	Probability and Combinatorial Analysis	Discussion and Questioning	Formative Assessment
13	2	Discusses the foundations of Bayes' Theorem	Bayes' Theorem and Its Applications	Discussion and Questioning	Formative Assessment
14	2	Mentions applications of Bayes' Theorem	Bayes' Theorem and Its Applications	Discussion and Questioning	Formative Assessment
15	2	Second Month Exam - Objective tests			

Infrastructure

1	Required Prescribed Books	None
2	Main References (Sources)	Introduction to Statistics. Authored by Dr. Khash'a Mahmoud Al-Rawi. 2000, 2nd Edition
a	Recommended Books and References (Scientific Journals, Reports, etc.)	Theory and Problems in Probability. Dr. Seymour Lipschutz
b	Electronic References, Internet Sites, etc.	Mathematics-related websites

Course Development Plan

Adherence to the sectoral framework.

Course Description Form

Course Name: Foundations of Mathematics 1

Course Code: MAB03M112

Available Attendance Modes: Mandatory (In-Person)

Semester: First **Year:** First Year

Total Study Hours: 60 hours **Number of Units:** 3

Date of Description Preparation: 1/10/2025

Course Coordinator: Asst. Lect. Yusuf Wathiq Amin

Email: basicmath13te@uodiyala.edu.iq

Course Objectives

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

- 1- Learn the principles of mathematical logic, propositions, truth tables, logical equivalence, algebra of propositions, mathematical converses, quantifiers, Hilbert's execution on open expressions.
- 2- Learn sets, operations on sets, and some theorems.
- 3- Learn relations and the Cartesian product.

Course Outcomes, Teaching, Learning, and Assessment Methods

A. Knowledge Objectives

- A1- Knowledge and understanding.
- A2- Enable students to acquire knowledge and understanding of the principles of mathematical logic.
- A3- Enable students to acquire knowledge and understanding of operations on sets.
- A4- Enable students to acquire knowledge and understanding of relations.
- A5- Enable students to acquire knowledge and understanding of applications of the Cartesian product.

B. Skills Objectives of the Course

- B1 – Skills in principles of logic.
- B2- Skills in operations on sets.
- B3- Skills in relations and interpretation of theorems.
- B4 – Skills in applications of the Cartesian product.

Teaching and Learning Methods

- 1- Clarify and explain the course material.
- 2- Model presentation method.
- 3- Lecture method.
- 4- Self-learning method.

Assessment Methods

- 1- Daily tests with specific questions.
- 2- Assign grades for homework and class participation.
- 3- Assign students to complete research and reports on the course material.
- 4- Monthly exams with objective and essay questions.

C. Affective and Value Objectives

- C1- Appreciate the importance of studying the subject and its life applications.
C2- Understand the importance of operations on sets.

Teaching and Learning Methods

- 1- Explanation and clarification.
- 2- Model presentation method.
- 3- Self-learning method.

Assessment Methods

- 1- Theoretical tests.
- 2- Reports and studies.

D. General and Transferable Qualification Skills (Other Skills Related to Employability and Personal Development)

- D1- Skills in using references and terminology.
D2- Skills in collecting and analyzing data on the topic.
D3- Skills in interpreting theorems.
D4- Skills in making comparisons.
D5- Skills in preparing specific concepts on the topic.

Course Structure

Week	Hours	Required Learning Outcomes	Unit/Topic Name	Teaching Method	Assessment Method
1	4	Learn propositions	Principles of Mathematical	Lecture	Formative Assessment

Week	Hours	Required Learning Outcomes	Unit/Topic Name	Teaching Method	Assessment Method
			Logic		
2	4	Learn truth tables	Principles of Mathematical Logic	Lecture	Formative Assessment
3	4	Learn logical equivalence	Principles of Mathematical Logic	Lecture	Formative Assessment
4	4	Learn algebra of propositions	Principles of Mathematical Logic	Lecture	Formative Assessment
5	4	Learn mathematical converses	Principles of Mathematical Logic	Lecture	Formative Assessment
6	4	First Month Exam - Various tests			
7	4	Operations on sets	Sets, Operations on Sets, and Some Theorems	Lecture	Formative Assessment
8	4	Operations on sets	Sets, Operations on Sets, and Some Theorems	Lecture	Formative Assessment
9	4	Operations on sets	Sets, Operations on Sets, and Some Theorems	Lecture	Formative Assessment
10	4	Theorems	Sets, Operations on Sets, and Some Theorems	Lecture	Formative Assessment
11	4	Theorems	Sets, Operations on Sets, and Some Theorems	Lecture	Formative Assessment
12	4	Relations	Relations and the Cartesian Product	Lecture	Formative Assessment
13	4	Relations	Relations and the Cartesian Product	Lecture	Formative Assessment
14	4	Cartesian product	Relations and the	Lecture	Formative

Week	Hours	Required Learning Outcomes	Unit/Topic Name	Teaching Method	Assessment Method
			Cartesian Product		Assessment
15	4	Second Month Exam - Objective tests and problem solving			

Infrastructure

1	Required Prescribed Books	None
2	Main References (Sources)	- Foundations of Mathematics. Dr. Hadi Jaber and others - Foundations of Mathematics. Dr. Adel Ghassan Naoum and Dr. Basil Al-Hashimi
a	Recommended Books and References (Scientific Journals, Reports, etc.)	Utilizing any sources related to the topic
b	Electronic References, Internet Sites, etc.	Mathematics-related websites

Course Development Plan

Adherence to the sectoral framework.

Course Description Form

Course Name: Number Theory

Course Code: MAB03NT123

Available Attendance Modes: Mandatory (In-Person)

Semester: First **Year:** First Year

Total Study Hours: 30 hours **Number of Units:** 2

Date of Description Preparation: 1/10/2025

Course Coordinator: Asst. Lect. Fatima Yasin Taha

Email: basicmathte8@uodiyala.edu.iq

Course Objectives

The student should be familiar with the following concepts:

- 1- Learn ancient numeral systems, natural numbers, mathematical induction.
- 2- Learn integers, properties of integer ordering, well-ordering, prime numbers.
- 3- Learn some divisibility algorithms, greatest common divisor, least common multiple, prime factorization.
- 4- Learn the Fundamental Theorem of Arithmetic, some special numbers (Pythagorean, abundant, deficient, perfect, amicable).

Course Outcomes, Teaching, Learning, and Assessment Methods

A. Knowledge Objectives

- A1- Knowledge and understanding.
- A2- Enable students to acquire knowledge and understanding of ancient numeral systems.
- A3- Enable students to acquire knowledge and understanding of integers.
- A4- Enable students to acquire knowledge and understanding of algorithms.
- A5- Enable students to acquire knowledge and understanding of the Fundamental Theorem of Arithmetic.

B. Skills Objectives of the Course

- B1 – Skills in ancient numeral systems.
- B2- Skills in properties of integers.
- B3- Skills in some algorithms.
- B4 – Skills in the Fundamental Theorem of Arithmetic.

Teaching and Learning Methods

- 1- Clarify and explain the course material.
- 2- Model presentation method.
- 3- Lecture method.
- 4- Self-learning method.

Assessment Methods

- 1- Daily tests with specific questions.
- 2- Assign grades for homework and class participation.
- 3- Assign students to complete research and reports on the course material.
- 4- Monthly exams with objective and essay questions.

C. Affective and Value Objectives

- C1- Appreciate the importance of studying the subject and its life applications.
C2- Understand the importance of mathematical induction.

Teaching and Learning Methods

- 1- Explanation and clarification.
- 2- Model presentation method.
- 3- Self-learning method.

Assessment Methods

- 1- Theoretical tests.
- 2- Reports and studies.

D. General and Transferable Qualification Skills (Other Skills Related to Employability and Personal Development)

- D1- Skills in using references and terminology.
D2- Skills in collecting and analyzing data on the topic.
D3- Skills in interpreting theorems.
D4- Skills in making comparisons.
D5- Skills in preparing specific concepts on the topic.

Course Structure

Week	Hours	Required Learning Outcomes	Unit/Topic Name	Teaching Method	Assessment Method
1	3	Natural numbers	Ancient Numeral Systems	Lecture	Formative Assessment
2	3	Mathematical induction	Ancient Numeral Systems	Lecture	Formative Assessment
3	3	Properties of integer ordering	Integers	Lecture	Formative Assessment
4	3	Well-ordering	Integers	Lecture	Formative Assessment
5	3	Prime numbers	Integers	Lecture	Formative Assessment
6	3	First Month Exam -			

Week	Hours	Required Learning Outcomes	Unit/Topic Name	Teaching Method	Assessment Method
		Various tests and problem solving related to the topic			
7	3	Divisibility of some algorithms	Algorithms	Lecture	Formative Assessment
8	3	Greatest common divisor	Algorithms	Lecture	Formative Assessment
9	3	Least common multiple	Algorithms	Lecture	Formative Assessment
10	3	Prime factorization	Algorithms	Lecture	Formative Assessment
11	3	Pythagorean	Fundamental Theorem of Arithmetic	Lecture	Formative Assessment
12	3	Abundant and deficient	Fundamental Theorem of Arithmetic	Lecture	Formative Assessment
13	3	Perfect	Fundamental Theorem of Arithmetic	Lecture	Formative Assessment
14	3	Amicable	Fundamental Theorem of Arithmetic	Lecture	Formative Assessment
15	3	Second Month Exam - Objective tests and problem solving			

Infrastructure

- | | | |
|---|---|--|
| 1 | Required Prescribed Books | None |
| 2 | Main References (Sources) | Introduction to Number Theory by Faleh bin Imran bin Abdul Hassan Al-Duwaisiri, Al-Nazariyat Library |
| a | Recommended Books and References (Scientific Journals, Reports, etc.) | Utilizing any sources related to the topic |

1	Required Prescribed Books	None
b	Electronic References, Internet Sites, etc.	Seriyamath

Course Development Plan

Adherence to the sectoral framework.

Course Description Form

Course Name: Computer

Course Code: MAB03MO1110

Available Attendance Modes: Mandatory (In-Person)

Semester: First **Year:** First Year

Total Study Hours: 45 hours **Number of Units:** 2

Date of Description Preparation: 1/10/2025

Course Coordinator: Dr. Jasib Hassan Abboud

Email: Chasibhassan@uodiyala.edu.iq

Course Objectives

- 1- Learn the basic elements in Visual Basic.
- 2- Learn Form design – concept of properties and how to adjust them.
- 3- Learn using writing tools.
- 4- Learn variables and constants.
- 5- Learn Branching – IF-THEN, Select Case statements.
- 6- Learn databases and their definition – Table-Records-Fields.
- 7- Learn Menu Editor definition and design, and modification of some properties.
- 8- Learn dealing with images and shapes.

Course Outcomes, Teaching, Learning, and Assessment Methods

A. Knowledge Objectives

A1- Knowledge and understanding.

A2- Enable students to acquire knowledge and understanding of basic elements in Visual Basic.

A3- Enable students to acquire knowledge and understanding of variables and constants.

A4- Enable students to acquire knowledge and understanding of databases and their definition – Table-Records-Fields.

A5- Enable students to acquire knowledge and understanding of dealing with images and shapes.

B. Skills Objectives of the Course

- B1 – Skills in Form design.
- B2- Skills in using writing tools.
- B3- Skills in dialog boxes.
- B4 – Skills in data entry validation.

Teaching and Learning Methods

- 1- Clarify and explain the course material.
- 2- Model presentation method.
- 3- Lecture method.
- 4- Self-learning method.

Assessment Methods

- 1- Daily tests with specific questions.
- 2- Assign grades for homework and class participation.
- 3- Assign students to complete research and reports on the course material.
- 4- Monthly exams with objective and essay questions.

C. Affective and Value Objectives

- C1- Appreciate the importance of studying the subject and its life applications.
- C2- Importance of how to use Visual Basic technology.

Teaching and Learning Methods

- 1- Explanation and clarification.
- 2- Model presentation method.
- 3- Self-learning method.

Assessment Methods

- 1- Theoretical tests.
- 2- Reports and studies.

D. General and Transferable Qualification Skills (Other Skills Related to Employability and Personal Development)

- D1- Skills in using references and terminology.
- D2- Skills in collecting and analyzing data on the topic.
- D3- Skills in interpreting theorems.
- D4- Skills in preparing specific concepts on the topic.

Course Structure

Week	Hours	Required Learning Outcomes	Unit/Topic Name	Teaching Method	Assessment Method
1	3	Learn design time and execution time – event-driven programming – using Help – how to enter and exit	Basic Elements in Visual Basic	Explanation and Clarification	Formative Assessment
2	3	Illustrative examples – writing Code – saving and retrieving project – practical project	Form Design – Concept of Properties and How to Adjust Them	Explanation and Clarification	Formative Assessment
3	3	Displaying messages – difference between (Hide/Show) – (Load/Unload) – adding new form – how to call the form	Using Writing Tools	Explanation and Clarification	Formative Assessment
4	3	Using Public Variables – ability to add Standard Module to the current project to store procedures	Variables and Constants	Explanation and Clarification	Formative Assessment
5	3	IF-THEN, Select Case statements and their uses – FOR-NEXT, DO-LOOP statements and giving applied projects and examples	Branching	Explanation and Clarification	Formative Assessment
6	3	Definition of Client/Server systems – using Data Control	Databases and their definition – Table-Records-Fields	Explanation and Clarification	Formative Assessment
7	3	First Periodic Exam - Solving the exam and discussing errors with students			
8	3	Dialog Boxes – definition and types	Dialog Boxes	Explanation and	Formative Assessment

Week	Hours	Required Learning Outcomes	Unit/Topic Name	Teaching Method	Assessment Method
				Clarification	
9	3	Data entry validation – using Lost Focus methods	Data Entry Validation	Explanation and Clarification	Formative Assessment
10	3	Runtime Error Tracking – error tracking through Routines	Runtime Error Tracking	Explanation and Clarification	Formative Assessment
11	3	Menu Editor definition and design, modification of some properties – configuring Tool Bar – Linking Forms	Menu Editor	Explanation and Clarification	Formative Assessment
12	3	Dealing with images and shapes – some important commands for drawing geometric shapes – dealing with file, folder, and disk viewing tools	Dealing with Images and Shapes	Explanation and Clarification	Formative Assessment
13	3	Applied project and how to use Visual Basic technology	Applied Project	Explanation and Clarification	Formative Assessment
14	3	Second Periodic Exam - Solving the exam and discussing errors with students			
15	3	General Review			

Infrastructure

1	Required Prescribed Books	None
2	Main References (Sources)	
a	Recommended Books and References (Scientific Journals, Reports, etc.)	Utilizing any sources related to the topic
b	Electronic References, Internet Sites, etc.	Seriyamath, Al-Muhtarif, Computer

Course Development Plan

Adherence to the sectoral framework.

Course Description Form

Course Name: Matrices

Course Code: MAB03M128

Available Attendance Modes: Mandatory (In-Person)

Semester: Second **Year:** First Year

Total Study Hours: 30 hours **Number of Units:** 2

Date of Description Preparation: 1/10/2025

Course Coordinator: Prof. Dr. Mohammed Ali Murad

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Course Objectives

The student should be familiar with the following concepts:

1. Concept of matrix, definition with illustrative examples.
2. Types of matrices (diagonal, identity, scalar, zero) with illustrative examples.
3. Matrix addition, multiplication, subtraction with illustrative examples for each.
4. Linear systems, definition with illustrative examples.
5. Methods of solving linear systems (Gaussian elimination method, Cramer's rule, Gauss-Jordan method).
6. Determinant of a matrix and methods of extraction according to matrix type.
7. Transpose of a matrix, trace of a matrix, inverse of a matrix in terms of definition and examples.
8. Symmetric and skew-symmetric matrices with illustrative examples.
9. Properties of transpose, inverse, symmetry, and trace.
10. A set of theorems on the above topics.

Course Outcomes, Teaching, Learning, and Assessment Methods

A. Knowledge Objectives

- A1- The student should understand the meaning of a matrix.
- A2- The student should know the types of matrices (scalar, identity, zero, diagonal).
- A3- The student should know the properties of matrices.
- A4- The student should know operations on matrices.
- A5- The student should know linear systems and how to solve them using matrices.
- A6- The student should prove properties of matrices.

B. Skills Objectives of the Course

The student should develop skills in the following concepts:

- B1 – Matrices and their types.
- B2 – Trace, transpose, and inverse of a matrix.
- B3 – Operations on matrices.
- B4 – Matrices and their dimensions.
- B5 – Methods and techniques for solving systems.
- B6 – Linear systems through matrices.

Teaching and Learning Methods

At the beginning of the semester, students are informed of the course syllabus and information sources (related books, periodicals, university theses). The syllabus is distributed across the weeks of the semester, along with the assessment methods to be followed, as follows:

1. Preparation of lectures according to the sequence outlined in the course syllabus using the aforementioned information sources.
2. Informing students about the topic of the upcoming lecture for preparation purposes.
3. Requesting students to submit papers on one or more of the topics under study.

Assessment Methods

1. Conducting two mid-semester exams: the first after the fifth week of the semester and the second after the eleventh week. Each exam considers cognitive levels (recall, application, exploration). Assessment contributes 40% of the total achievement, taking into account student attendance and daily participation.
2. End-of-semester exam accounting for 60% of achievement according to ministry timings. When setting questions, comprehensiveness of the course content and cognitive levels (recall, application, exploration) are considered.

C. Affective and Value Objectives

The student should be able to:

- C1- Define the importance of matrices in life and connect them to reality.
- C2- Form positive attitudes toward the subject.
- C3- Develop a spirit of cooperation among students during homework solving.