

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

Academic Year: 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

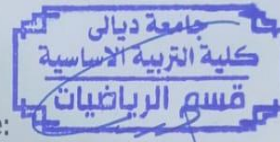
Signature:

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

Second Year – Third Semester Program Description

Year \ Level	Course Code	Course Name	Credit Hours		Total Hours	Number of Units
			Theoretical	Practical		
Second \ Third	MAB03AD211	Advanced Differential Calculus	2	2	4	3
	MAB03AP212	Advanced Probability	1	2	3	2
	MAB03LA213	Linear Algebra	2	2	4	3
	CURSE3	Curricula and Textbooks	1	2	3	2
	MAB03D226	Crimes of the Ba'ath Regime in Iraq	2	-	2	2
	ENGSE3	English Language	2	-	2	2
	ARBF12	Arabic Language	2	-	2	2
Total			12	8	20	16

Second Year – Fourth Semester Program Description

Year \ Level	Course Code	Course Name	Credit Hours		Total Hours	Number of Units
			Theoretical	Practical		
Second \ Fourth	MAB03AI221	Advanced Integral Calculus	2	2	4	3
	MAB03DT322	Graph Theory	2	-	2	2
	MAB03G222	Geometry	3	-	3	3
	MAB03MO227	Computer (MATLAB)	1	2	3	2
	MA03SE228	Psychology of Education and Classroom Thinking	2	2	4	3
	COMSE4	Computer (Internet, PowerPoint, Word)	1	2	3	2
	MAB03MT313	Mathematical Thinking	2	-	2	2
	EDPSE4	Educational Psychology	2	-	2	2
Total			15	8	23	19

Course Description Form

Field	Details
1. Course Name	Advanced Differential Calculus
2. Course Code	MAB03AD211
3. Available Attendance Modes	Mandatory (In-Person)
4. Semester / Year	Third / Second Year
5. Total Study Hours	60 hours / Number of Units: 3
6. Date of Description Preparation	1/10/2025
7. Course Coordinator	Asst. Prof. Dr. Hussein Abdul Hussein Abbas
Email	basicmathte@uodiyala.edu.iq

Course Objectives

- 1- Learn the rules of derivatives and add inverse trigonometric functions and their differentiation.
- 2- Learn a special study of the function $f(x,y)$ in R^2 , its laws, domain, and codomain.
- 3- Learn the study of continuity and limit of functions in R^2 .
- 4- Learn graphing the function $f(x,y)$.
- 5- Learn using (GeoGebra) for graphing functions of the type $y = \ln x$, $y = e^x$, $y = \sin x$, and other examples of quadratic and cubic variables.
- 6- Learn a special study of derivatives of $y = \sinh x$, $y = \cosh x$, $y = \operatorname{sech} x$, and others, along with some laws.

Course Outcomes, Teaching, Learning, and Assessment Methods

A. Knowledge Objectives

Code	Objective
A1	Knowledge and understanding.
A2	Enable students to acquire knowledge and understanding of the function $f(x,y)$ in R^2 , its laws, domain, and codomain.
A3	Enable students to acquire knowledge and understanding of continuity and limits of functions in R^2 .

Code	Objective
A4	Enable students to acquire knowledge and understanding of graphing the function $f(x,y)$.
A5	Enable students to acquire knowledge and understanding of using (GeoGebra) for graphing functions of the type $y = \ln x$, $y = e^x$, $y = \sin x$, and other examples of quadratic and cubic variables.

B. Skills Objectives of the Course

Code	Skill
B1	Skills in graphing the function $f(x,y)$.
B2	Skills in using (GeoGebra) for graphing functions of the type $y = \ln x$, $y = e^x$, $y = \sin x$, and other examples of quadratic and cubic variables.
B3	Skills in the special study of derivatives of $y = \sinh x$, $y = \cosh x$, $y = \operatorname{sech} x$, and others, along with some laws.

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

Code	Objective
C1	Appreciate the importance of studying the subject and its life applications.

Teaching and Learning Methods (Affective)

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

Assessment Methods (Affective)

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

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

Code	Skill
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	Quick review of differentiation rules	Quick review of differentiation rules and addition of inverse trigonometric functions and their differentiation	Lecture	Formative Assessment
2	4	Quick review	Quick review	Lecture	Formative

Week	Hours	Required Learning Outcomes	Unit / Topic Name	Teaching Method	Assessment Method
		of adding inverse trigonometric functions and their differentiation	of differentiation rules and addition of inverse trigonometric functions and their differentiation		Assessment
3	4	Special study of the function $f(x,y)$ in R^2	Special study of the function $f(x,y)$ in R^2 , its laws, domain, and codomain	Lecture	Formative Assessment
4	4	Special study of the laws of the function $f(x,y)$ in R^2 , its domain, and codomain	Special study of the function $f(x,y)$ in R^2 , its laws, domain, and codomain	Lecture	Formative Assessment
5	4	Learn continuity and limits of functions in R^2	Study of continuity and limits of functions in R^2	Lecture	Formative Assessment
6	4	First Month Exam – Various tests and problem-solving related to the topic			
7	4	Learn how to graph the function	How to graph the function $f(x,y)$	Lecture	Formative Assessment

Week	Hours	Required Learning Outcomes	Unit / Topic Name	Teaching Method	Assessment Method
		$f(x,y)$			
8	4	Learn using (GeoGebra) for graphing functions of the type $y = \ln x$	Using (GeoGebra) for graphing functions of the type $y = \ln x$, $y = e^x$, $y = \sin x$, and other examples of quadratic and cubic variables	Lecture	Formative Assessment
9	4	Using (GeoGebra) for graphing functions of the type $y = e^x$	Using (GeoGebra) for graphing functions of the type $y = \ln x$, $y = e^x$, $y = \sin x$, and other examples of quadratic and cubic variables	Lecture	Formative Assessment
10	4	Using (GeoGebra) for graphing functions of the type $y = \sin x$ and other examples of quadratic and cubic variables	Using (GeoGebra) for graphing functions of the type $y = \ln x$, $y = e^x$, $y = \sin x$, and other examples of quadratic and cubic variables	Lecture	Formative Assessment
11	4	Special study of derivatives of $y = \sinh x$	Special study of derivatives of $y = \sinh x$,	Lecture	Formative Assessment

Week	Hours	Required Learning Outcomes	Unit / Topic Name	Teaching Method	Assessment Method
			$y = \cosh x$, $y = \operatorname{sech} x$, and others, along with some laws		
12	4	Special study of derivatives of $y = \cosh x$	Special study of derivatives of $y = \sinh x$, $y = \cosh x$, $y = \operatorname{sech} x$, and others, along with some laws	Lecture	Formative Assessment
13	4	Special study of derivatives of $y = \operatorname{sech} x$ and others, along with some laws	Special study of derivatives of $y = \sinh x$, $y = \cosh x$, $y = \operatorname{sech} x$, and others, along with some laws	Lecture	Formative Assessment
14	4	Special study of derivatives of other laws	Special study of derivatives of $y = \sinh x$, $y = \cosh x$, $y = \operatorname{sech} x$, and others, along with some laws	Lecture	Formative Assessment
15	4	Second Month Exam – Objective tests and problem-solving			

Infrastructure

Category	Details
1. Required Prescribed Books	None
2. Main References (Sources)	Calculus. Thomas Jr. ...
a. Recommended Books and References (Scientific Journals, Reports, etc.)	Utilizing any sources related to the topic
b. Electronic References, Internet Sites, etc.	Seriyamath

Course Development Plan

Adherence to the sectoral framework.

Field	Details
Course Name	Advanced Probability
Course Code	MAB03AP212
Available Attendance Modes	Mandatory (In-Person)
Semester / Year	Third / Second Year
Total Study Hours	45 hours / Number of Units: 2
Date of Description Preparation	1/10/2025
Course Coordinator	Asst. Lect. Ghosoun Mohammed Hamadi
Email	basicmathte4@uodiyala.edu.iq

Course Description Form

Course Objectives

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

1. Understand the concept of random variables in detail.
2. Understand random variable distributions (discrete, continuous) and their applications.
3. Understand some important distributions.
4. Understand the binomial distribution and its applications.
5. Understand the Poisson distribution and its applications.

Course Outcomes, Teaching, Learning, and Assessment Methods

A. Knowledge Objectives

Code	Objective
A1	Learner's ability to understand random variables.
A2	Learner's ability to understand some random distributions.
A3	Write probability distributions according to rules.
A4	Deal in detail with some special discrete probability distributions.
A5	Deal in detail with some special continuous probability distributions.
A6	Represent probability distributions graphically.

B. Skills Objectives of the Course

Code	Skill
B1	Planning skills.
B2	Implementation skills.
B3	Evaluation skills.

Teaching and Learning Methods

- Lecture method (presentation).
- Dialogue and discussion method.

Assessment Methods

- Achievement exams (daily, monthly, semester).

C. Affective and Value Objectives

Code	Objective
C1	Understand the importance of random variables in daily life.
C2	Understand the beauty and consistency of probability topics.
C3	Understand the directions of the subject matter.
C4	Understand the aesthetic values of the subject matter.

Teaching and Learning Methods (Affective)

- Lecture method (presentation).
- Dialogue and discussion method.

Assessment Methods (Affective)

- Achievement exams (daily, monthly, semester).

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

Code	Skill
D1	Learner's ability to deal positively with the course material.
D2	Raise the scientific and practical level of the learner.
D3	Give the learner an opportunity to demonstrate their talent.
D4	Learner's ability to perform computational skills in dealing with the course material.

Course Structure

Week	Hours	Required Learning Outcomes	Unit / Topic Name	Teaching Method	Assessment Method
1	4	Concept of probability distribution	Probability Distributions	Discussion and Questioning	Formative Assessment

Week	Hours	Required Learning Outcomes	Unit / Topic Name	Teaching Method	Assessment Method
		of a random variable (continuous and discrete) and probability distribution function		g	
2	4	Continuous probability distribution (definition + examples), Discrete probability distribution (definition + examples)	Probability Distributions (Continuous and Discrete)	Discussion and Questioning	Formative Assessment
3	4	Binomial distribution (definition + examples), Poisson distribution (definition + examples)	Some Discrete Distributions	Discussion and Questioning	Formative Assessment
4	4	Concept, definition, equation of the normal curve and some applications	The Normal Curve	Discussion and Questioning	Formative Assessment

Week	Hours	Required Learning Outcomes	Unit / Topic Name	Teaching Method	Assessment Method
5	4	Area under the normal curve with applied examples and use of statistical tables	Normal Distribution as an Example of Continuous Distributions	Discussion and Questioning	Formative Assessment
6	4	Monthly Exams (Essay + Objective)	Monthly Exam (Essay + Objective)	Discussion and Questioning	Formative Assessment
7	4	Concept of sample designs, sampling distribution of the mean of a single sample drawn from a normal population	Sampling Theory	Discussion and Questioning	Formative Assessment
8	4	Sampling distribution of the difference between two arithmetic means and testing the proportion for a single sample	Sampling Theory	Discussion and Questioning	Formative Assessment
9	4	Steps of hypothesis testing, tests related to means	Hypothesis Testing	Discussion and Questioning	Formative Assessment

Week	Hours	Required Learning Outcomes	Unit / Topic Name	Teaching Method	Assessment Method
		and proportions			
10	4	Concept of standard normal distribution (z), how to transform normal distribution to standard normal distribution (z)	Relationship between Normal Distribution and Standard Normal Distribution	Discussion and Questioning	Formative Assessment
11	4	Monthly Exam (Essay + Objective)	Monthly Exam (Essay + Objective)	Discussion and Questioning	Formative Assessment
12	4	Concept + definition + examples of z-test with the use of statistical tables	z-Test	Discussion and Questioning	Formative Assessment
13	4	Concept + definition + examples of t-test with the use of statistical tables	t-Distribution	Discussion and Questioning	Formative Assessment
14	4	Concept + definition + examples of χ^2 -test with the	Chi-Square Distribution (χ^2) and F-Distribution	Discussion and Questioning	Formative Assessment

Week	Hours	Required Learning Outcomes	Unit / Topic Name	Teaching Method	Assessment Method
		use of statistical tables, Concept + definition of f-test with the use of statistical tables			
15	4	End of Semester Exam (Essay + Objective)	End of Semester Exam (Essay + Objective)	Discussion and Questioning	Formative Assessment

Infrastructure

Category	Details
1. Required Prescribed Books	1. Principles of Probability Theory and Mathematical Statistics / Dr. Madani Desouki (1968). 2. Introduction to Statistics / Dr. Khash'a Mahmoud (2000, 1st Edition).
2. Main References (Sources)	1. Probabilities / Dr. Seymour Lipschutz (1974). 2. Experimental Statistics / Dr. Lutfi Hindi (1971).
a. Recommended Books and References (Scientific Journals, Reports, etc.)	Sources related to the course content.
b. Electronic References, Internet Sites, etc.	---

Course Development Plan

Expand the course syllabus in line with the cognitive development of the subject matter.

Course Description Form

Field	Details
Course Name	Linear Algebra
Course Code	MAB03LA213
Available Attendance Modes	Mandatory (In-Person)
Semester / Year	Third / Second Year
Total Study Hours	60 hours / Number of Units: 3
Date of Description Preparation	1/10/2025
Course Coordinator	Asst. Lect. Rusul Ismail Khalil
Email	basicmathte7@uodiyala.edu.iq

Course Objectives

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

- 1- Learn vector spaces and the meaning of fields, subspaces, linear independence, basis, dimension, and orthogonality.
- 2- Learn vector multiplication and dot product, the orthogonalization process (Gram-Schmidt).
- 3- Learn eigenvalues and eigenvectors.
- 4- Learn game theory, linear inequalities, and the simplex method.
- 5- Learn linear transformations.

Course Outcomes, Teaching, Learning, and Assessment Methods

A. Knowledge Objectives

Code	Objective
A1	Knowledge and understanding.
A2	Enable students to acquire knowledge and understanding of vector spaces and the meaning of fields, subspaces, linear independence, basis, dimension, and orthogonality.
A3	Enable students to acquire knowledge and understanding of vector multiplication and dot product, the orthogonalization process (Gram-Schmidt).

Code	Objective
A4	Enable students to acquire knowledge and understanding of eigenvalues and eigenvectors.
A5	Enable students to acquire knowledge and understanding of game theory, linear inequalities, and the simplex method.
A6	Enable students to acquire knowledge and understanding of linear transformations.

B. Skills Objectives of the Course

Code	Skill
B1	Skills in vector multiplication and dot product.
B2	Skills in linear transformations.

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

Code	Objective
C1	Appreciate the importance of studying the subject and its life applications.

Teaching and Learning Methods (Affective)

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

Assessment Methods (Affective)

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

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

Code	Skill
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 performing linear transformations.
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 vector spaces and the meaning of fields	Vector Spaces and the Meaning of Fields, Subspaces, Linear Independence, Basis, Dimension, Orthogonality	Lecture	Formative Assessment
2	4	Learn subspaces and linear independence	Vector Spaces and the Meaning of Fields, Subspaces, Linear Independence, Basis, Dimension, Orthogonality	Lecture	Formative Assessment
3	4	Learn basis, dimension, and	Vector Spaces and the Meaning of	Lecture	Formative Assessment

Week	Hours	Required Learning Outcomes	Unit / Topic Name	Teaching Method	Assessment Method
		orthogonality	Fields, Subspaces, Linear Independence, Basis, Dimension, Orthogonality		
4	4	Learn vector multiplication	Vector Multiplication and Dot Product, Orthogonalization Process (Gram-Schmidt)	Explanation and Clarification	Formative Assessment
5	4	Learn dot product	Vector Multiplication and Dot Product, Orthogonalization Process (Gram-Schmidt)	Explanation and Clarification	Formative Assessment
6	4	First Month Exam – Various tests and problem-solving related to the topic			
7	4	Learn the orthogonalization process (Gram-Schmidt)	Vector Multiplication and Dot Product, Orthogonalization Process (Gram-Schmidt)	Lecture	Formative Assessment
8	4	Learn eigenvalues	Eigenvalues and	Lecture	Formative Assessment

Week	Hours	Required Learning Outcomes	Unit / Topic Name	Teaching Method	Assessment Method
			Eigenvectors		
9	4	Learn eigenvectors	Eigenvalues and Eigenvectors	Lecture	Formative Assessment
10	4	Learn game theory	Game Theory, Linear Inequalities, Simplex Method	Lecture	Formative Assessment
11	4	Learn linear inequalities	Game Theory, Linear Inequalities, Simplex Method	Lecture	Formative Assessment
12	4	Learn the simplex method	Game Theory, Linear Inequalities, Simplex Method	Lecture	Formative Assessment
13	4	Learn linear transformations	Linear Transformations	Explanation and Clarification	Formative Assessment
14	4	Learn linear transformations	Linear Transformations	Explanation and Clarification	Formative Assessment
15	4	Second Month Exam – Objective tests and problem-solving			

Infrastructure

Category	Details
1. Required Prescribed Books	None
2. Main References (Sources)	Introduction to Linear Algebra. Authored by Bernard Kolman, translated by Dr. Adel Ghassan Naoum and Dr. Basil Atta Al-Hashimi.
a. Recommended Books and References (Scientific Journals, Reports, etc.)	Utilizing any sources related to the topic.
b. Electronic References, Internet Sites, etc.	Seriyamath

Course Development Plan

Adherence to the sectoral framework.

Course Description Form

Field	Details
Course Name	Curricula and Textbooks
Course Code	CURSE3
Available Attendance Modes	Mandatory (In-Person)
Semester / Year	Third / Second Year
Total Study Hours	45 hours / Number of Units: 2
Date of Description Preparation	1/10/2025
Course Coordinator	Asst. Lect. Shahd Thamer Jasim
Email	basicmathte9@uodiyala.edu.iq

Course Objectives

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

- Understand the concept of curricula, their characteristics, and importance.
- Analyze the foundations of curricula (philosophical foundation, social foundation, psychological foundation).
- Explain the elements of the school curriculum: educational objectives and educational content.
- Distinguish between types of curricula, including (separate subjects curriculum, correlated subjects curriculum, activity curriculum, core curriculum).
- Understand curriculum evaluation and its objectives.
- Understand curriculum evaluation standards, methods of curriculum evaluation, and objectives of curriculum evaluation.
- Understand how to develop curricula.
- Understand the textbook and its importance.
- Compare between printed books and electronic books.
- Understand how to evaluate and develop the textbook.

Teaching and Learning Strategies

- Interactive lecture
- Group discussion
- Cooperative learning
- Model analysis (curriculum and textbook models)
- Brainstorming
- Problem-based learning
- Student presentations
- Case studies

Course Structure

Week	Hours	Required Learning Outcomes	Unit / Topic Name	Teaching Method	Assessment Method
1	3	Understand the concept of curricula (old and modern)	Concept of Curricula	Lecture + Discussion	Oral Questions
2	3	Explain the characteristics of	Characteristics of Curricula, Importance of	Interactive Lecture	Class Participation

Week	Hours	Required Learning Outcomes	Unit / Topic Name	Teaching Method	Assessment Method
		curricula and their importance	Curricula		
3	3	Analyze the foundations of curricula	Philosophical (Intellectual), Social, Psychological (Developmental) Foundations	Group Discussion	Short Quiz
4	3	Analyze educational objectives and educational content	Elements of the School Curriculum	Presentation + Analysis	Analytical Assignment
5	3	First Month Exam			
6	3	Compare between types of curricula	Separate and Correlated Subjects Curriculum	Cooperative Learning	Student Presentation
7	3	Explain curriculum models, their advantages and disadvantages	Activity Curriculum and Core Curriculum	Discussion + Examples	Presentation Evaluation
8	3	Interpret the concept and objectives of evaluation	Concept and Objectives of Curriculum Evaluation	Lecture	Short Quiz
9	3	Apply evaluation	Standards, Methods, and	Case Study	Applied Assignment

Week	Hours	Required Learning Outcomes	Unit / Topic Name	Teaching Method	Assessment Method
		standards	Steps of Evaluation		
10	3	Explain curriculum development	Concept, Motivations, and Principles of Curriculum Development	Interactive Lecture	Short Quiz
11	3	Distinguish development models	Basic Models of Curriculum Development	Presentation + Discussion	Student Presentation
12	3	Define the textbook	Concept and Importance of the Textbook	Lecture	Oral Questions
13	3	Compare between types of books	Printed and Electronic Books	Discussion	Assignment
14	3	Explain the relationship between evaluation and the textbook and its development	Textbook Evaluation and Development	Textbook Model Analysis + Project-Based Learning	Report
15	3	Second Month Exam			

Assessment Methods

- 1- Monthly exams + daily tests + participation.
- 2- Class discussions.

Learning and Teaching Resources

Category	Details
1. Required Prescribed Books	None
2. Main References (Sources)	- Ibrahim Firas (2005) Teaching Methods, Tools, and Techniques, Jordan, Amman, Dar Osama for Publishing and Distribution. - Abu Al-Futouh, Radwan, The Textbook, Cairo, Anglo-Egyptian Library. - Abu George, Marwan (2006) Contemporary Educational Curricula - Concepts, Elements, Foundations - Basic Operations, Curriculum Problems, Development and Modernization, 2nd Edition, Jordan, Amman, Dar Al-Thaqafa for Publishing and Distribution.
a. Recommended Books and References (Scientific Journals, Reports, etc.)	Books on curricula and teaching methods. References on curriculum evaluation and development. Scientific research and articles in the field of curricula. Modern educational reports.
b. Electronic References, Internet Sites, etc.	(Google Scholar) Scientific databases. University and education college websites. E-learning platforms. Peer-reviewed educational journals.

Course Description Form

Field	Details
Course Name	Crimes of the Ba'ath Regime in Iraq
Course Code	MAB03D226
Available Attendance Modes	Mandatory (In-Person)
Semester / Year	Third / Second Year
Total Study Hours	30 hours / Number of Units: 2
Date of Description Preparation	1/10/2025

Field	Details
Course Coordinator	Asst. Lect. In'am Mohammed Mansour
Email	Basicchist31te@uodiyala.edu.iq

Course Objectives

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

- Define the concept of crime.
- Explain the divisions of crime.
- Explain the importance of the role of law in combating crime.
- Explain the reasons for the Ba'ath regime's commission of crimes against the Iraqi people.
- Explain the material and moral suffering endured by the Iraqi people during the Ba'ath regime's rule.
- Compare between the rights enjoyed by the Iraqi people and other peoples of the region during that era.
- Explain the crimes of the Ba'ath regime according to the documentation of the Iraqi High Criminal Court of 2005.
- Explain the types of international crimes.
- Explain the rulings issued by the Iraqi High Criminal Court.
- Interpret the psychological and social crimes, their effects, and the most prominent violations of the Ba'athist regime in Iraq.
- Explain the Ba'ath regime's position on religion.

Course Outcomes, Teaching, Learning, and Assessment Methods

A. Knowledge Objectives

Code	Objective
A2	Enable students to acquire knowledge and understanding of the term "crime" linguistically and terminologically.
A3	Enable students to acquire knowledge and understanding of the types of crimes.
A4	Enable students to acquire knowledge and understanding of the rulings issued by the Iraqi High Criminal Court in 2005.
A5	Enable students to acquire knowledge and understanding of the effects resulting from the psychological and social crimes committed by the Ba'ath

Code	Objective
	regime in Iraq.
A6	Enable students to acquire knowledge and understanding of the types of international crimes.
A7	Enable students to acquire knowledge and understanding of the term "militarization of society."
A8	Enable students to acquire knowledge and understanding of the violations of Iraqi laws by the Ba'ath regime.

B. Skills Objectives of the Course

Code	Skill
B1	Compare between definitions of crimes in various human sciences (sociology, law, psychology, Islamic jurisprudence, Arabic language).
B2	Explain the divisions of crimes.
B3	Analyze the term "crime."
B4	Collect information about the areas where crime spreads.
B5	Interpret the development of violations of Iraqi laws by the Ba'ath regime.
B6	Explain the extent of the Iraqi High Criminal Court's interest in punishing perpetrators of crimes in Iraq by the Ba'ath regime.
B7	Demonstrate the importance of awareness and knowledge of the rulings issued by the Iraqi High Criminal Court.

Teaching and Learning Methods

- 1- Provide students with the fundamentals and topics related to sustainable development.
- 2- Clarify and explain the course material.
- 3- Conduct daily tests for students to assess their understanding of the course material.
- 4- Improve students' skills by directing them to review international charters that emphasize the importance of punishing perpetrators of crimes of all types.
- 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.
- 4- Monthly exams with objective and essay questions.

C. Affective and Value Objectives

Code	Objective
C1	Understand the importance of holding perpetrators of crimes accountable.
C2	Appreciate the importance of the subject matter.
C3	Connect the topics of the course to daily life.
C4	Evaluate the course material on the ground.

Teaching and Learning Methods (Affective)

- Explanation method for the material.
- Providing illustrative examples.
- Brainstorming method.

Assessment Methods (Affective)

- Analytical exam to measure the student's ability to think, analyze, and deduce.
- Request comparisons of the course topics to see if they are achieved in Iraq and compare them with developed countries.
- Daily exams with intellectual and deductive questions.

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

Code	Skill
D1	Skills in using references and terminology.
D2	Skills in collecting additional information about the course material and analyzing it.
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	Understand the concept of crime and its definitions (in law, sociology, psychology, Arabic language, Islamic jurisprudence)	Concept of Crimes of the Ba'ath Regime in Iraq	Discussion and Questioning	Formative Assessment
2	2	Concept of crimes and their divisions	Divisions of Crimes	Discussion and Questioning	Formative Assessment
3	2	Rulings issued by the Iraqi High Criminal Court in 2005	Crimes of the Ba'ath Regime According to the Documentation of the Iraqi High Criminal Court	Discussion and Questioning	Formative Assessment
4	2	Psychological and social crimes in Iraq	Most Prominent Violations of the Ba'ath Regime in Iraq	Discussion and Questioning	Formative Assessment
5	2	Understanding the mechanisms of committing psychological crimes in Iraq	Psychological Crimes Committed by the Ba'ath Regime in Iraq	Discussion and Questioning	Formative Assessment

Week	Hours	Required Learning Outcomes	Unit / Topic Name	Teaching Method	Assessment Method
6	2	First Month Exam – Essay questions			
7	2	Understand the types of crimes committed in Iraq by the Ba'ath regime	Mechanisms of Committing Psychological and Social Crimes in Iraq	Discussion and Questioning	Formative Assessment
8	2	Understand the scorched earth policy adopted by the Ba'ath regime in Iraq	Environmental Crimes of the Ba'ath Regime in Iraq (War and Radiation Pollution – Destruction of Villages and Cities)	Discussion and Questioning	Formative Assessment
9	2	Understand how the marshes were drained	Policy of Burning Villages and Cities	Discussion and Questioning	Formative Assessment
10	2	Understand mass grave crimes	Events of Genocide Graves Committed by the Ba'ath Regime in Iraq	Discussion and Questioning	Formative Assessment
11	2	Understand the role of the Iraqi High Criminal Court in holding perpetrators of genocide	Crimes of the Ba'ath Regime According to the Documentation of the Iraqi High Criminal Court	Discussion and Questioning	Formative Assessment

Week	Hours	Required Learning Outcomes	Unit / Topic Name	Teaching Method	Assessment Method
		crimes in Iraq accountable			
12	2	Understand the rulings issued by the Iraqi High Criminal Court	Violations of Iraqi Laws by the Ba'ath Regime	Discussion and Questioning	Formative Assessment
13	2	Explain the chronological classification of genocide graves in Iraq from 1963–2003	Mass Grave Crimes in Iraq	Discussion and Questioning	Formative Assessment
14	2	Human rights violations by the Ba'ath regime	Images of Human Rights Violations and Crimes of the Authority	Discussion and Questioning	Formative Assessment
15	2	Second Month Exam – Essay questions			

Infrastructure

Category	Details
1. Required Prescribed Books	None
2. Main References (Sources)	Curriculum on Crimes of the Ba'ath Regime in Iraq
a. Recommended Books and References (Scientific Journals, Reports, etc.)	Reports issued by the Iraqi High Criminal Court and international declarations and charters concerning the punishment of perpetrators of crimes of all divisions

Category	Details
	and types.
b. Electronic References, Internet Sites, etc.	Quality lectures and hosting on electronic websites.

Course Development Plan

The course should cover the stages of defining crime linguistically and terminologically in law, sociology, psychology, and jurisprudence, divisions of crimes, types of international crimes, crimes of the Ba'ath regime according to the documentation of the Iraqi High Criminal Court in 2005, violations of Iraqi laws, and mass graves.

Course Description Form

Field	Details
Course Name	English Language
Course Code	ENGSE3
Available Attendance Modes	Mandatory (In-Person)
Semester / Year	Third / Second Year
Total Study Hours	30 hours / Number of Units: 2
Date of Description Preparation	1/10/2025
Course Coordinator	Asst. Lect. Ahmed Riyad Adeeb
Email	basic_ahmadadyb@uodiyala.edu.iq

Course Objectives

The student should be familiar with the following concepts:

- Enable students to speak English fluently and communicate with each other, and also enable students to master the four skills (listening, speaking, reading, and writing).
- This curriculum will help students listen, speak, read, and write correctly using the English language.
- Enable students to watch movie videos or games to be able to discuss them after viewing.

Teaching and Learning Strategies

- Lecture and discussion.
- Brainstorming and asking questions that develop critical thinking.
- Interactive groups.
- Using the communicative approach.

Course Structure

Week	Hours	Required Learning Outcomes	Unit / Topic Name	Teaching Method	Assessment Method
1	2	This curriculum will help students listen, speak, read, and write correctly using the English language. Enable students to watch movie videos or games to be able to discuss them after viewing.	Tenses (present, past), Questions (WH questions), Reading: The Great Communicators	Communicative	Oral and Written Tests
2	2		Unit 2: The Way We Live / Present Continuous / Have got / Has got		
3	2		Describing Countries / Collocation / Reading: Living in		

Week	Hours	Required Learning Outcomes	Unit / Topic Name	Teaching Method	Assessment Method
			USA		
4	2		Unit 3: All Went Wrong / Past Tenses / What did you do last night?		
5	2	First Month Exam			
6	2		Irregular verbs, Past continuous, Making negatives		
7	2		Time expressions (on, at, in), Unit 4: Let's Go Shopping (Quantity: many, much, some)		
8	2		Buying things (eggs, bread, a cola...), Articles (a, an, the)		
9	2		Reading: The Burglars' Friends, Linking words (while, when, as, ...)		
10	2		What do you want to do? Verb patterns		

Week	Hours	Required Learning Outcomes	Unit / Topic Name	Teaching Method	Assessment Method
			(want, hope to do)		
11	2		Future intention (going to)		
12	2		They are going to see a football match. I'll pick up for you. Reading: Hollywood Kids		
13	2		Good things and bad things in your country		
14	2		Exam Review		
15	2	Second Month Exam			

Assessment Methods

- 1- Monthly exams + daily tests + participation.
- 2- Class discussions.
- 3- Preparing reports.

Learning and Teaching Resources

Category	Details
1. Required Prescribed Books	1. New Headway Plus (Pre-Intermediate Student's Book, Cambridge: CUP) by John and Liz Soars. 2. Oxford University Press, 4th Edition, 2015. English Grammar In Use / Murphy / Oxford University Press / 2012.

Category	Details
2. Main References (Sources)	
a. Recommended Books and References (Scientific Journals, Reports, etc.)	
b. Electronic References, Internet Sites, etc.	

Course Description Form

Field	Details
Course Name	Arabic Language
Course Code	ARBFI2
Available Attendance Modes	Mandatory (In-Person)
Semester / Year	Third / Second Year
Total Study Hours	30 hours / Number of Units: 2
Date of Description Preparation	1/10/2025
Course Coordinator	Dr. Marwa Hashim Hassan
Email	basica49te@uodiyala.edu.iq

Course Objectives

The student should be able to:

1. Learn the parts of speech.
2. Learn the types of definite nouns.
3. Learn singular, dual, and plural.
4. Learn literature (explanation and analysis of the following poems and memorization, Qur'anic verses from Surat Al-Qamar, the Prophet's sermon to the Ansar after the Battle

of Hunayn, the 'Ainiyyah of Abu Dhu'ayb Al-Hudhali, the Nuniyyah of Ibn Zaydun, and the poem of Ahmed Shawqi).

Course Outcomes, Teaching, Learning, and Assessment Methods

A. Knowledge Objectives

Code	Objective
A1	Knowledge and understanding.
A2	Enable students to acquire knowledge and understanding of the parts of speech.
A3	Enable students to acquire knowledge and understanding of the types of definite nouns.
A4	Enable students to acquire knowledge and understanding of singular, dual, and plural.
A5	Enable students to acquire knowledge and understanding of literature.

B. Skills Objectives of the Course

Code	Skill
B1	Skills in explaining and analyzing the following poems and memorizing them.
B2	Skills related to lesson topics.

Teaching and Learning Methods

- Clarify and explain the course material.
- Model presentation method.
- Lecture method.
- 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

Code	Objective
C1	Appreciate the importance of studying the subject and its life applications.
C2	Understand the importance of the influence of the doctrine of monotheism in life.

Teaching and Learning Methods (Affective)

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

Assessment Methods (Affective)

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

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

Code	Skill
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	2	Learn the noun: definition and	Grammar	Lecture	Formative Assessment

Week	Hours	Required Learning Outcomes	Unit / Topic Name	Teaching Method	Assessment Method
		markers			
2	2	Learn proper nouns, pronouns, demonstrative pronouns, relative pronouns, defined by (Al-), and defined by annexation	Grammar	Lecture	Formative Assessment
3	2	Learn the dual and its declension	Grammar	Lecture	Formative Assessment
4	2	Sound masculine plural, its conditions and declension; Sound feminine plural, its conditions and declension; Broken plural and some of its patterns, plurals of small number and large number	Grammar	Lecture	Formative Assessment
5	2	Learn the five nouns	Grammar	Lecture	Formative Assessment
6	2	First Month Exam – Various tests and exercises related to the topic			
7	2	Explanation and	Literature	Lecture	Formative

Week	Hours	Required Learning Outcomes	Unit / Topic Name	Teaching Method	Assessment Method
		analysis of the following poem with memorization: The Mu'allaqah of Zuhair bin Abi Sulma, beginning with: "Is it from Ummi Awfa, a ruin that did not speak, at Hawmanat Al-Daraj, so Al-Muthallam?"			Assessment
8	2	Qur'anic verses (from Surat Al-Qamar)	Literature	Lecture	Formative Assessment
9	2	The Prophet's sermon to the Ansar after the Battle of Hunayn	Literature	Lecture	Formative Assessment
10	2	The 'Ainiyyah of Abu Dhu'ayb Al-Hudhali	Literature	Lecture	Formative Assessment
11	2	The Nuniyyah of Ibn Zaydun	Literature	Lecture	Formative Assessment
12	2	The poem of Ahmed Shawqi	Literature	Lecture	Formative Assessment
13	2	"Wulida Al-Huda Fa Al-Ka'inatu Diya" (The light of guidance was born, so all existence became light)	Literature	Lecture	Formative Assessment

Week	Hours	Required Learning Outcomes	Unit / Topic Name	Teaching Method	Assessment Method
14	2	Literature review	Literature	Lecture	Formative Assessment
15	2	Second Month Exam – Objective tests			

Infrastructure

Category	Details
1. Required Prescribed Books	None
2. Main References (Sources)	1. Explanation of Qatr Al-Nada wa Ball Al-Sada, by Ibn Hisham. 2. Al-Nahw Al-Wafi, by Abbas Hassan.
a. Recommended Books and References (Scientific Journals, Reports, etc.)	1. Books of the early grammarians. 2. Jami' Al-Durus Al-Arabiyyah, by Mustafa Al-Ghalayini. 3. Journal of the Iraqi Scientific Academy.
b. Electronic References, Internet Sites, etc.	1. Lisan Al-Arab Blog. 2. Al-Maktaba Al-Shamila. 3. Al-Majlis Al-Ilmi website. 4. Al-Faseeh Network.

Course Description Form

Field	Details
Course Name	Geometry
Course Code	MAB03G222
Available Attendance Modes	Mandatory (In-Person)
Semester / Year	Fourth / Second Year

Field	Details
Total Study Hours	45 hours / Number of Units: 2
Date of Description Preparation	1/10/2025
Course Coordinator	Dr. Yasmin Masoud
Email	basicmath10te@uodiyala.edu.iq

Course Objectives

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

- 1- Learn the axiomatic system.
- 2- Learn Euclidean geometry, the parallel postulate, and some attempts to prove the parallel postulate.
- 3- Learn the emergence of non-Euclidean geometry (hyperbolic geometry, elliptic geometry).
- 4- Compare between geometries (Euclidean and non-Euclidean).

Course Outcomes, Teaching, Learning, and Assessment Methods

A. Knowledge Objectives

Code	Objective
A1	Knowledge and understanding.
A2	Enable students to acquire knowledge and understanding of the axiomatic system.
A3	Enable students to acquire knowledge and understanding of Euclidean geometry.
A4	Enable students to acquire knowledge and understanding of the emergence of non-Euclidean geometry.
A5	Enable students to acquire knowledge and understanding of comparisons between geometries.

B. Skills Objectives of the Course

Code	Skill
B1	Skills in the axiomatic system.
B2	Skills in Euclidean geometry.
B3	Skills in the emergence of non-Euclidean geometry.
B4	Skills in comparing between geometries.

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

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

Teaching and Learning Methods (Affective)

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

Assessment Methods (Affective)

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

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

Code	Skill
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	Learn Young's and Fano's systems	Axiomatic System	Lecture	Formative Assessment
2	3	Learn properties of the axiomatic system	Axiomatic System	Lecture	Formative Assessment
3	3	Euclidean geometry	Euclidean Geometry, Parallel Postulate	Lecture	Formative Assessment
4	3	The parallel postulate	Euclidean Geometry,	Lecture	Formative Assessment

Week	Hours	Required Learning Outcomes	Unit / Topic Name	Teaching Method	Assessment Method
			Parallel Postulate		
5	3	Ptolemy's attempt	Some Attempts to Prove the Parallel Postulate	Lecture	Formative Assessment
6	3	First Month Exam – Various tests and problem-solving related to the topic			
7	3	Omar Al-Khayyam's proof	Some Attempts to Prove the Parallel Postulate	Lecture	Formative Assessment
8	3	Nasir Al-Din Al-Tusi's proof	Some Attempts to Prove the Parallel Postulate	Lecture	Formative Assessment
9	3	Proclus's attempt	Some Attempts to Prove the Parallel Postulate	Lecture	Formative Assessment
10	3	Athir Al-Din Al-Abhari's proof, Wallis's proof	Some Attempts to Prove the Parallel Postulate	Lecture	Formative Assessment
11	3	Hilbert's system –	Hilbert's System	Lecture	Formative Assessment

Week	Hours	Required Learning Outcomes	Unit / Topic Name	Teaching Method	Assessment Method
		definition and components			
12	3	Hyperbolic geometry	Emergence of Non-Euclidean Geometry	Lecture	Formative Assessment
13	3	Elliptic geometry	Emergence of Non-Euclidean Geometry	Lecture	Formative Assessment
14	3	Euclidean and non-Euclidean	Comparison between Geometries	Lecture	Formative Assessment
15	3	Second Month Exam – Objective tests and problem-solving			

Infrastructure

Category	Details
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.	

Course Development Plan

Adherence to the sectoral framework.

Course Description Form

Field	Details
Course Name	Mathematical Thinking
Course Code	MAB03MT313
Available Attendance Modes	Mandatory (In-Person)
Semester / Year	Fourth / Second Year
Total Study Hours	30 hours / Number of Units: 2
Date of Description Preparation	1/10/2025
Course Coordinator	Dr. Israa Amer Fleih
Email	basicmathte7te@uodiyala.edu.iq

Course Objectives

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

1. Define thinking, the meaning of thinking in the Qur'anic verses, the philosophical approach, and the psychological approach.
2. Enumerate the levels of thinking: learning how to learn, metacognitive controls, content-related thinking, reflective thinking.
3. Compare between types of thinking: critical, inductive, reflective, mathematical, cognitive, logical, deductive, scientific.
4. Define mathematical thinking.
5. Mention the most important objectives of mathematical thinking in basic education.
6. Enumerate the fields of mathematical thinking.
7. Define methods of developing mathematical thinking.
8. Develop thinking in students.
9. Develop mathematical thinking.

Course Outcomes, Teaching, Learning, and Assessment Methods

A. Knowledge Objectives

Code	Objective
A1	Define thinking as mentioned in the Qur'anic verses.
A2	Provide examples of levels of thinking.
A3	Enumerate types of thinking.
A4	Mention the objectives of mathematical thinking.
A5	Compare between mathematical thinking development programs.

B. Skills Objectives of the Course

Code	Skill
B1	Explain the objectives of thinking.
B2	Distinguish between levels of thinking.
B3	Compare between methods of developing mathematical thinking.
B4	Analyze using mathematical thinking.
B5	Apply by writing a paper or research on any topic in mathematical thinking.
B6	Collect information about mathematical thinking programs.

Teaching and Learning Methods

- 1- Provide students with the fundamentals and topics related to mathematical thinking.
- 2- Clarify and explain the course material.
- 3- Require students to visit the library and review sources.
- 4- Improve students' skills through visiting electronic sites to gain additional knowledge of mathematical thinking.
- 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 topics related to mathematical thinking.
- 4- Monthly exams with objective and essay questions.

C. Affective and Value Objectives

Code	Objective
C1	Understand the importance of studying the philosophical approach to mathematical thinking.
C2	Apply some methods of mathematical thinking.
C3	Evaluate some activities related to mathematical thinking.
C4	Compare between mathematical thinking development programs.

Teaching and Learning Methods (Affective)

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

Assessment Methods (Affective)

- Analytical exam to measure the student's ability to think, analyze, and deduce.
- Request comparisons between mental thinking programs.
- Writing research that includes skills for developing mathematical thinking.
- Daily exams with intellectual and deductive questions.

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

Code	Skill
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	Understand the meaning of thinking (definition – philosophical approach – psychological approach)	Mathematical Thinking in the Qur'anic Verses – Philosophical Approach	Discussion and Questioning	Formative Assessment
2	2	Understand the levels of thinking	How to Learn	Discussion and Questioning	Formative Assessment
3	2	Understand critical, reflective, and inductive thinking	Types of Thinking	Discussion and Questioning	Formative Assessment
4	2	Understand cognitive, deductive, and scientific thinking	Types of Thinking	Discussion and Questioning	Formative Assessment
5	2	First Month Exam – Essay test			
6	2	Define the meaning of mathematical thinking	Mathematical Thinking (Meaning – Definition)	Discussion and Questioning	Formative Assessment
7	2	Enumerate the objectives of mathematical thinking	Objectives of Mathematical Thinking in Basic Education	Discussion and Questioning	Formative Assessment

Week	Hours	Required Learning Outcomes	Unit / Topic Name	Teaching Method	Assessment Method
8	2	Compare between fields of mathematical thinking (induction, deduction, expression, generalization, abstraction)	Fields of Mathematical Thinking	Discussion and Questioning	Formative Assessment
9	2	Compare between fields of mathematical thinking (formal logic, investigation, proof, problem-solving)	Fields of Mathematical Thinking	Discussion and Questioning	Formative Assessment
10	2	Second Monthly Exam			
11	2	Understand methods of developing mathematical thinking	Methods of Developing Mathematical Thinking	Discussion and Questioning	Formative Assessment
12	2	Understand stages of developing thinking in children	Stages of Developing Thinking in Children	Discussion and Questioning	Formative Assessment
13	2	Understand stages of developing thinking in children	Stages of Developing Thinking in Children	Discussion and Questioning	Formative Assessment

Week	Hours	Required Learning Outcomes	Unit / Topic Name	Teaching Method	Assessment Method
14	2	Understand mathematical thinking development programs	Mathematical Thinking Development Programs	Discussion and Questioning	Formative Assessment
15	2	Understand mathematical thinking development programs	Mathematical Thinking Development Programs	Discussion and Questioning	Formative Assessment

Infrastructure

Category	Details
1. Required Prescribed Books	None
2. Main References (Sources)	
a. Recommended Books and References (Scientific Journals, Reports, etc.)	
b. Electronic References, Internet Sites, etc.	Lectures by experts in the field of mathematics teaching methods.

Course Description Form

Field	Details
Course Name	Computer (MATLAB)
Course Code	MAB03MO227

Field	Details
Available Attendance Modes	Mandatory (In-Person)
Semester / Year	Fourth / Second Year
Total Study Hours	45 hours / Number of Units: 2
Date of Description Preparation	1/10/2025
Course Coordinator	Asst. Lect. Haneen Abbas Saleh
Email	basicmathte6@uodiyala.edu.iq

Course Objectives

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

- 1- Learn an introduction to the MATLAB technical computing language.
- 2- Learn constants and variables.
- 3- Learn matrices and operations on matrices.
- 4- Learn symbolic strings.
- 5- Learn MATLAB data files.

Course Outcomes, Teaching, Learning, and Assessment Methods

A. Knowledge Objectives

Code	Objective
A1	Knowledge and understanding.
A2	Enable students to acquire knowledge and understanding of the MATLAB technical computing language.
A3	Enable students to acquire knowledge and understanding of constants and variables.
A4	Enable students to acquire knowledge and understanding of matrices and operations on matrices.
A5	Enable students to acquire knowledge and understanding of symbolic strings.

B. Skills Objectives of the Course

Code	Skill
B1	Skills in operations on matrices.
B2	Skills in input and output statements.
B3	Skills in set and bit instructions and basic instructions.
B4	Skills in graphing.

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 and applied problem-solving.

C. Affective and Value Objectives

Code	Objective
C1	Appreciate the importance of studying the subject and its life applications.

Teaching and Learning Methods (Affective)

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

Assessment Methods (Affective)

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

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

Code	Skill
D1	Skills in using references and terminology.

Code	Skill
D2	Skills in collecting and analyzing data on the topic.
D3	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 an introduction to the MATLAB technical computing language	Introduction to the MATLAB Technical Computing Language	Explanation and Clarification	Formative Assessment
2	3	Learn constants and variables	Constants and Variables	Explanation and Clarification	Formative Assessment
3	3	Learn matrices and operations on matrices	Matrices and Operations on Matrices	Explanation and Clarification	Formative Assessment
4	3	Learn multidimensional matrices	Multidimensional Matrices	Explanation and Clarification	Formative Assessment
5	3	Learn cell arrays	Cell Arrays	Explanation and Clarification	Formative Assessment
6	3	Learn symbolic strings	Symbolic Strings	Explanation and Clarification	Formative Assessment
7	3	First Periodic			

Week	Hours	Required Learning Outcomes	Unit / Topic Name	Teaching Method	Assessment Method
		Exam – Solving the exam and discussing errors with students			
8	3	Learn input and output statements	Input and Output Statements	Explanation and Clarification	Formative Assessment
9	3	Learn conditional statements	Conditional Statements	Explanation and Clarification	Formative Assessment
10	3	Learn loop and iteration statements	Loop and Iteration Statements	Explanation and Clarification	Formative Assessment
11	3	Learn MATLAB data files	MATLAB Data Files	Explanation and Clarification	Formative Assessment
12	3	Learn set and bit instructions and basic instructions	Set and Bit Instructions and Basic Instructions	Explanation and Clarification	Formative Assessment
13	3	Learn functions and subroutines	Functions and Subroutines	Explanation and Clarification	Formative Assessment
14	3	Learn graphing	Graphing	Explanation and Clarification	Formative Assessment
15	3	Second			

Week	Hours	Required Learning Outcomes	Unit / Topic Name	Teaching Method	Assessment Method
		Periodic Exam – Solving the exam and discussing errors with students			

Infrastructure

Category	Details
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.	

Course Development Plan

Adherence to the sectoral framework.

Course Description Form

Field	Details
Course Name	Computer (Internet, PowerPoint, Word)
Course Code	COMSE4
Available Attendance Modes	Mandatory (In-Person)

Field	Details
Semester / Year	Fourth / Second Year
Total Study Hours	30 hours / Number of Units: 2
Date of Description Preparation	1/10/2025
Course Coordinator	Asst. Lect. Jaber Mohammed Jaber
Email	basicmat12te@uodiyala.edu.iq

Course Objectives

The student should be familiar with the following concepts:

- 1- Students should understand what networks are and be able to effectively perform search operations within the network.
- 2- Learn methods of downloading resources, programs, and images.
- 3- Learn methods of creating ready-made presentations.
- 4- Learn methods of saving and printing.
- 5- Learn methods of creating email and security and protection methods.

Course Outcomes, Teaching, Learning, and Assessment Methods

A. Knowledge Objectives

Code	Objective
A1	Enable students to acquire knowledge and understanding of the basics of the Internet.
A2	Enable students to acquire basics in PowerPoint.
A3	Increase students' awareness of the importance of using mathematics and its programs in general.
A4	Enable students to create their own email.
A5	Enable students to use PowerPoint slides.

B. Skills Objectives of the Course

Code	Skill
B1	Increase students' ability to use the Internet quickly.
B2	Increase students' ability to adapt to all programs and applications available on the network.
B3	Increase students' ability to learn special skills in network applications such as email.
B4	Increase students' ability to learn special skills in networks such as downloading resources and books.

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

Code	Objective
C1	Students understand the basic components of the Internet.
C2	Students understand how to deal with networks and their various applications.
C3	Students understand how to deal with the PowerPoint presentation program.
C4	Understand the World Wide Web and how to search, download resources, and

Code	Objective
	methods of downloading.

Teaching and Learning Methods (Affective)

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

Assessment Methods (Affective)

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)

Code	Skill
D1	Employ acquired skills in teaching knowledge to basic education students.
D2	Select examples from basic education curricula, each with skills addressed in the course.
D3	Evaluate the extent to which basic education students acquire application skills.
D4	Construct tests specific to thinking areas for basic education students.

Course Structure

Week	Hours	Required Learning Outcomes	Unit / Topic Name	Teaching Method	Assessment Method
1	2	Introduction to the Internet and web browsing	Introduction to the Internet and Web Browsing	Discussion and Questioning	Formative Assessment
2	2	Downloading resources,	Downloading Resources,	Discussion and	Formative Assessment

Week	Hours	Required Learning Outcomes	Unit / Topic Name	Teaching Method	Assessment Method
		programs, and images	Programs, and Images	Questioning	
3	2	Creating an email inbox and correspondence	Creating an Email Inbox and Correspondence	Discussion and Questioning	Formative Assessment
4	2	Security and protection	Security and Protection	Discussion and Questioning	Formative Assessment
5	2	Changing Internet settings	Changing Internet Settings	Discussion and Questioning	Formative Assessment
6	2	Monthly Exam	Monthly Exam		Formative Assessment
7	2	Starting PowerPoint and creating a new presentation	Starting PowerPoint and Creating a New Presentation	Discussion and Questioning	Formative Assessment
8	2	Creating presentations using design templates	Creating Presentations Using Design Templates	Discussion and Questioning	Formative Assessment
9	2	Opening a new presentation – Opening an existing presentation	Opening a New Presentation – Opening an Existing Presentation	Discussion and Questioning	Formative Assessment
10	2	Editing and arranging presentations	Editing and Arranging Presentations	Discussion and Questioning	Formative Assessment

Week	Hours	Required Learning Outcomes	Unit / Topic Name	Teaching Method	Assessment Method
11	2	Saving and printing	Saving and Printing	Discussion and Questioning	Formative Assessment
12	2	Changing the entire presentation design	Changing the Entire Presentation Design	Discussion and Questioning	Formative Assessment
13	2	Editing and moving text, adding artwork	Editing and Moving Text, Adding Artwork	Discussion and Questioning	Formative Assessment
14	2	Using speaker notes and exiting the program	Using Speaker Notes and Exiting the Program	Discussion and Questioning	Formative Assessment
15	2	Monthly Exam	Monthly Exam		Formative Assessment

Infrastructure

Category	Details
1. Required Prescribed Books	None
2. Main References (Sources)	Basics of the Internet, Basics of PowerPoint
a. Recommended Books and References (Scientific Journals, Reports, etc.)	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.
3. Reliance on curricula issued by the sectoral authority and what is proposed by colleges and universities.

Course Description Form

Field	Details
Course Name	Psychology of Education and Classroom Thinking
Course Code	MA03SE228
Available Attendance Modes	Mandatory (In-Person)
Semester / Year	Fourth / Second Year
Total Study Hours	60 hours (Theoretical: 30, Practical: 30) / Number of Units: 3
Date of Description Preparation	1/10/2025
Course Coordinator	Dr. Mohammed Waheeb Mahdi
Email	Mohammed.wheab@uodiyala.edu.iq

Course Objectives

- 1- Self-regulation of students in learning and teaching classroom thinking skills.
- 2- Enhance students' creative thinking skills.
- 3- Enhance students' critical thinking skills.
- 4- Confront difficult tasks and process information more deeply when they adopt mastery goals rather than performance goals.

Teaching and Learning Strategies

- Cooperative learning.
- Brainstorming.
- Free and guided discussions.
- Task analysis.
- Problem-solving.

Course Structure

Week	Hours	Required Learning Outcomes	Unit / Topic Name	Teaching Method	Assessment Method
1	4	Know, understand, apply, analyze, synthesize, evaluate, creative and critical thinking skills	Concept of Learning and Teaching	Active Learning	Short Tests
2	4	Know, understand, apply, analyze, synthesize, evaluate, creative and critical thinking skills	Classroom Management	Cooperative Learning	Objective and Essay Written Tests
3	4	Know, understand, apply, analyze, synthesize, evaluate, creative and critical thinking skills	Concept of the Classroom as a Cognitive and Perceptual Field	Brainstorming	Writing Short Reports
4	4	Know,	Karl's Model	Free and	Portfolios

Week	Hours	Required Learning Outcomes	Unit / Topic Name	Teaching Method	Assessment Method
		understand, apply, analyze, synthesize, evaluate, creative and critical thinking skills	of Learning for Mastery, Ausubel's Model of Meaningful Learning	Guided Discussions	
5	4	First Month Exam			
6	4	Know, understand, apply, analyze, synthesize, evaluate, creative and critical thinking skills	Piaget's Model (Cognitive Learning)	Task Analysis	Short Tests
7	4	Know, understand, apply, analyze, synthesize, evaluate, creative and critical thinking skills	Importance of the Electronic Classroom	Problem-Solving	Objective and Essay Written Tests
8	4	Know, understand, apply, analyze, synthesize, evaluate, creative and critical	Enrichment Links of the Learning and Teaching Process	Traditional Learning	Short Tests

Week	Hours	Required Learning Outcomes	Unit / Topic Name	Teaching Method	Assessment Method
		thinking skills			
9	4	Know, understand, apply, analyze, synthesize, evaluate, creative and critical thinking skills	Teaching Thinking	Free and Guided Discussions	Portfolios
10	4	Know, understand, apply, analyze, synthesize, evaluate, creative and critical thinking skills	Importance of Teaching Thinking	Cooperative Learning	Objective and Essay Written Tests
11	4	Know, understand, apply, analyze, synthesize, evaluate, creative and critical thinking skills	Patterns of Thinking	Brainstorming	Writing Short Reports
12	4	Know, understand, apply, analyze, synthesize, evaluate, creative and critical	FourMAT Models	Active Learning	Short Tests

Week	Hours	Required Learning Outcomes	Unit / Topic Name	Teaching Method	Assessment Method
		thinking skills			
13	4	Know, understand, apply, analyze, synthesize, evaluate, creative and critical thinking skills	SCAMPER Model	Free and Guided Discussions	Portfolios
14	4	Know, understand, apply, analyze, synthesize, evaluate, creative and critical thinking skills	KOLb Model	Cooperative Learning	Writing Short Reports
15	4	Second Month Exam			

Assessment Methods

- 1- Monthly exams + daily tests + participation.
- 2- Class discussions.

Learning and Teaching Resources

Category	Details
1. Required Prescribed Books	Psychology of Education and Classroom Thinking
2. Main References	1. Al-Hassan, Ahmed (2020). Cognitive Learning Theories

Category	Details
(Sources)	and Their Applications in Modern Education, Amman: Dar Wael for Publishing. 2. Abdullah, Sarah (2021). Models of Teaching Thinking: Piaget, Kolb, SCAMBER, and FourMAT, Riyadh: Dar Al-Thaqafa Al-Haditha. 3. Al-Ghamri, Mohammed (2018). Teaching Thinking and Developing Higher-Order Thinking Skills for Students, Cairo: Dar Al-Fikr Al-Arabi.
a. Recommended Books and References (Scientific Journals, Reports, etc.)	Psychology of Learning and Teaching 2001, Salmi Mohammed Melhem.
b. Electronic References, Internet Sites, etc.	1. Learning Theories – Ed Tech Books (Online textbook). 2. The Experiential Learning Theory of David Kolb – Verywell.

Course Description Form

Field	Details
Course Name	Graph Theory
Course Code	MAB03DT322
Available Attendance Modes	Mandatory (In-Person)
Semester / Year	Fourth / Second Year
Total Study Hours	30 hours / Number of Units: 2
Date of Description Preparation	1/10/2025
Course Coordinator	Asst. Prof. Dr. Hussein Abdul Hussein
Email	basicmatte@uodiyala.edu.iq

Course Objectives

The student should be familiar with the following concepts:

1. Concept of graph, degree of a graph, definition of vertices and edges.
2. Concept of directed and undirected graphs and subgraphs.
3. Knowledge of the incidence matrix of vertices and the incidence matrix of graphs.
4. The Handshaking Theorem.
5. Paths, circuits, connectivity, disconnection, Hamiltonian graphs, trees and their characteristics.
6. Graph coloring, Kuratowski's theorem, the Four Color Theorem and its applications.

Course Outcomes, Teaching, Learning, and Assessment Methods

A. Knowledge Objectives

Code	Objective
A1	The student should understand the concept of graph, degree of a graph, definition of vertices and edges.
A2	The student should know the concept of directed and undirected graphs and subgraphs.
A3	The student should know the incidence matrix of vertices and the incidence matrix of graphs.
A4	The student should know the Handshaking Theorem.
A5	Paths, circuits, connectivity, disconnection, Hamiltonian graphs, trees and their characteristics.
A6	The student should know the concept of graph coloring, Kuratowski's theorem, the Four Color Theorem and its applications.

B. Skills Objectives of the Course

The student should develop skills in the following concepts:

Code	Skill
B1	Graph and its types.
B2	Incidence matrix of vertices and incidence matrix of graphs.
B3	Handshaking Theorem.
B4	Paths, circuits, connectivity, disconnection, Hamiltonian graphs, trees and

Code	Skill
	their characteristics.
B5	Graph coloring, Kuratowski's theorem, the Four Color Theorem and its applications.

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:

Code	Objective
C1	Define graphs and their types.
C2	Define the incidence matrix of vertices and the incidence matrix of graphs.
C3	The Handshaking Theorem.
C4	Graph coloring, Kuratowski's theorem, the Four Color Theorem and its applications.

Teaching and Learning Methods (Affective)

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 (Affective)

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)

Code	Skill
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	3	Concept of graph, degree, vertices, and edges	Concept of Graph, Degree, Vertices, and Edges	Discussion and Questioning	Formative Assessment
2	3	Examples of graphs	Examples of Graphs	Discussion and Questioning	Formative Assessment
3	3	Directed and undirected graphs with examples	Directed and Undirected Graphs with Examples	Discussion and Questioning	Formative Assessment

Week	Hours	Required Learning Outcomes	Unit / Topic Name	Teaching Method	Assessment Method
4	3	Subgraphs with examples	Subgraphs with Examples	Discussion and Questioning	Formative Assessment
5	3	Handshaking Theorem	Handshaking Theorem	Discussion and Questioning	Formative Assessment
6	3	Monthly Exam	Monthly Exam	-	Formative Assessment
7	3	Incidence matrix of vertices with examples	Incidence Matrix of Vertices with Examples	Discussion and Questioning	Formative Assessment
8	3	Incidence matrix of graphs with examples	Incidence Matrix of Graphs with Examples	Discussion and Questioning	Formative Assessment
9	3	Paths, circuits, connectivity, and disconnection	Paths, Circuits, Connectivity, and Disconnection	Discussion and Questioning	Formative Assessment
10	3	Trees and their characteristics with examples	Trees and Their Characteristics with Examples	Discussion and Questioning	Formative Assessment
11	3	Monthly Exam	Monthly Exam	-	Formative Assessment
12	3	Hamiltonian graphs	Hamiltonian Graphs	Discussion and Questioning	Formative Assessment

Week	Hours	Required Learning Outcomes	Unit / Topic Name	Teaching Method	Assessment Method
13	3	Graph coloring, Kuratowski's theorem	Graph Coloring, Kuratowski's Theorem	Discussion and Questioning	Formative Assessment
14	3	The Four Color Theorem with applications	The Four Color Theorem with Applications	Discussion and Questioning	Formative Assessment
15	3	Final Exam	Final Exam	Discussion and Questioning	Formative Assessment

Infrastructure

Category	Details
1. Required Prescribed Books	None
2. Main References (Sources)	Introduction to Graph Theory. Dr. Ali Aziz Ali.
a. Recommended Books and References (Scientific Journals, Reports, etc.)	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

Field	Details
Course Name	Educational Psychology
Course Code	EDPSE4
Available Attendance Modes	Mandatory (In-Person)
Semester / Year	Fourth / Second Year
Total Study Hours	30 hours / Number of Units: 2
Date of Description Preparation	1/10/2025
Course Coordinator	Dr. Yusra Khalaf Mohammed
Email	basicsci42@uodiyala.edu.iq

Course Objectives

- Understand the phenomena of learning and teaching and the factors affecting them, and interpret the outcomes of events that occur within the relationship between learning and teaching and between teacher and learner.
- Increase the teacher's ability to see from a distance the educational changes occurring in students and to plan to meet their expectations of changes in educational events.
- Organize and formulate knowledge, use it, and apply it in educational situations.

Course Outcomes, Teaching, Learning, and Assessment Methods

A. Knowledge Objectives

The student should be able to:

Code	Objective
A1	Define the concept of educational psychology.
A2	Explain the importance of educational psychology.
A3	Identify the objectives of educational psychology.
A4	Distinguish between the theoretical and practical objectives of educational psychology.

Code	Objective
A5	Explain the characteristics of the teaching profession.
A6	Explain the relationship between educational psychology and other sciences.
A7	Identify the desirable characteristics of the teacher's personality.
A8	Enumerate the functions of educational psychology.
A9	Justify the importance of the axes of educational process effectiveness.
A10	Identify the factors affecting educational process effectiveness.
A11	Define motivation.
A12	Explain the relationship between motivation and learning.
A13	Identify the educational functions of motivation.
A14	Define the concept of memory.
A15	Explain the mechanism of memory function.
A16	Define the sequential processing strategy.
A17	Define the parallel processing strategy.
A18	Explain the importance of studying memory.
A19	Compare between sequential and parallel processing strategies.
A20	Enumerate types of memory.
A21	Explain the relationship between memory and learning.
A22	Explain the most important contemporary theories that explained memory.
A23	Define cognitive theory.
A24	Explain the mechanism of memory function according to cognitive theory.
A25	Define behavioral theory.
A26	Explain the mechanism of memory function according to behavioral theory.

Code	Objective
A27	Define Gestalt theory.
A28	Explain the mechanism of memory function according to Gestalt theory.
A29	Discuss the mechanism of memory function.
A30	Explain the most important factors affecting the recall process.
A31	Identify the most important ways to improve the recall process.
A32	Define the concept of forgetting.
A33	Define interference theory.
A34	Explain the mechanism of forgetting through interference theory.
A35	Identify the most important factors affecting forgetting.
A36	Define transfer of training effect.
A37	Explain the importance of studying transfer of training effect.
A38	Explain the dimensions of transfer of training effect.
A39	Enumerate the types of transfer of training effect.
A40	Compare between positive and negative transfer of training effect.
A41	Identify modern theories of transfer of training effect.
A42	Compare between theories of transfer of training effect.
A43	Define feedback.
A44	Explain the dimensions of feedback.
A45	Identify the types of feedback.
A46	Define learning.
A47	Explain the conditions of good learning.
A48	Explain the effect of learning on language acquisition.

Code	Objective
A49	Explain the effect of learning on the acquisition of motor skills.
A50	Explain the most important learning theories and their laws.
A51	Explain the relationship between discovery and learning.

B. Skills Objectives of the Course

Code	Skill
B1	Determine the mechanism of transferring theoretical knowledge to the applied (practical) side within the classroom.
B2	Apply strategies for stimulating motivation within the classroom.
B3	Apply appropriate methods to reduce the effect of forgetting.
B4	Design educational situations that facilitate transfer of training effect (learning).
B5	Apply learning theories in educational situations.
B6	Propose appropriate solutions to educational problems based on the principles of educational psychology.

Teaching and Learning Methods

- Modified lecture – Discussion – Questioning – Brainstorming – Stimulating questions.

Assessment Methods

- Continuous assessment of student work (reports), assigned homework, participation, and interaction with peers and the instructor, pop quizzes (weekly).
- Formative assessment through written exams (two exams during the semester).
- Summative assessment through the final exam.

C. Affective and Value Objectives

Code	Objective
C1	Understand the impact of knowledge and scholars on the development of educational psychology.
C2	Demonstrate active interest in studying educational psychology.
C3	Develop positive attitudes toward the learning process.

Code	Objective
C4	Modify negative attitudes toward the learning process.

Teaching and Learning Methods (Affective)

- Brainstorming – Discussion – Branching questions.

Assessment Methods (Affective)

- Reports, summaries, and worksheets.
- Observation and follow-up.
- Group discussion during the lecture.

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

Code	Skill
D1	Ability to solve various problems using scientific methods and apply what has been studied to real-world problems.
D2	Apply the principles of educational psychology in studying real-world problems.
D3	Develop cooperative learning skills.
D4	Graphing skills for different learning curves.

Course Structure

Week	Hours	Required Learning Outcomes	Unit / Topic Name	Teaching Method	Assessment Method
1	3	Define the concept of educational psychology, explain its importance, identify its objectives, distinguish between	1. Definition of Educational Psychology 2. Importance of Educational Psychology 3. Objectives of Educational Psychology 4. Relationship	Modified Lecture – Discussion	Continuous Assessment (Participation – Reports – Homework – Interaction)

Week	Hours	Required Learning Outcomes	Unit / Topic Name	Teaching Method	Assessment Method
		theoretical and practical objectives, determine the mechanism of transferring theoretical knowledge to practice within the classroom	of Educational Psychology to Other Sciences		
2	3	Identify desirable teacher personality characteristics, enumerate the functions of educational psychology	1. Desirable Teacher Personality Characteristics (Psychological – Physical – Mental – Social) 2. Functions of Educational Psychology	Discussion – Brainstorming	Continuous Assessment (Daily Quiz – Participation – Reports – Homework – Interaction)
3	3	Justify the importance of educational process effectiveness axes, identify factors affecting educational process effectiveness	1. Interpretation of the Educational Process 2. Educational Process and Educational Psychology (Axes of Effectiveness) 3. Factors Affecting Educational Process Effectiveness	Discussion – Modified Lecture	Continuous Assessment (Participation – Reports – Homework – Interaction)
4	3	Define motivation, explain the relationship	1. Definition of Motivation 2. Educational Functions of	Discussion – Modified Lecture	Continuous Assessment (Pop Quiz – Participation –

Week	Hours	Required Learning Outcomes	Unit / Topic Name	Teaching Method	Assessment Method
		between motivation and learning, identify educational functions of motivation	Motivation (Excitatory – Anticipatory – Inducing – Disciplinary)		Reports – Homework – Interaction)
5	3	Apply strategies for stimulating motivation within the classroom	1. Strategies for Stimulating Student Motivation Toward Learning	Discussion – Brainstorming	Continuous Assessment (Participation – Reports – Homework – Interaction)
6	3	Define the concept of memory, explain its mechanism, explain the importance of studying memory, compare between sequential and parallel processing strategies	1. Definition of Memory 2. Importance of Studying Memory	Discussion – Brainstorming	Continuous Assessment (Participation – Reports – Homework – Interaction)
7	3	First Month Exam			Formative Assessment (Written Exam)
8	3	Enumerate types of memory, explain the relationship between memory and	1. Contemporary Perspectives in Explaining Memory and Its Models (Cognitive –	Brainstorming – Stimulating Questions	Continuous Assessment (Participation – Reports – Homework – Interaction)

Week	Hours	Required Learning Outcomes	Unit / Topic Name	Teaching Method	Assessment Method
		learning, explain contemporary theories of memory, explain cognitive, behavioral, and Gestalt perspectives	Behavioral – Gestalt)		
9	3	Discuss the mechanism of memory, explain factors affecting recall, identify ways to improve recall	1. Mechanisms of Memory Function 2. Factors Affecting Recall 3. Ways to Improve Recall	Brainstorming – Stimulating Questions	Continuous Assessment (Pop Quiz – Participation – Reports – Homework – Interaction)
10	3	Define forgetting, explain its mechanism through interference theory, identify factors affecting forgetting	1. Causes of Forgetting 2. Theories of Forgetting (Proactive and Retroactive Interference)	Brainstorming – Stimulating Questions	Continuous Assessment (Pop Quiz – Participation – Reports – Homework – Interaction)
11	3	Define transfer of training effect, explain its importance	1. Importance of Studying Transfer of Training Effect 2. Definition of Transfer of Training Effect	Brainstorming – Stimulating Questions	Continuous Assessment (Participation – Reports – Homework – Interaction)

Week	Hours	Required Learning Outcomes	Unit / Topic Name	Teaching Method	Assessment Method
12	3	Explain dimensions of transfer of training effect, compare between theories, design educational situations that facilitate transfer	1. Dimensions of Transfer of Training Effect 2. Theories of Transfer of Training Effect	Problem-Solving – Discussion	Continuous Assessment (Participation – Reports – Homework – Interaction)
13	3	Define feedback, explain its dimensions, identify its types	1. Definition of Feedback 2. Dimensions of Feedback 3. Types of Feedback	Problem-Solving – Discussion	Continuous Assessment (Pop Quiz – Participation – Reports – Homework – Interaction)
14	3	Define learning, explain conditions of good learning, explain the effect of learning on language and motor skills acquisition	1. Definition of Learning 2. Conditions of Good Learning 3. Learning and Acquisition (Language – Motor Skills)	Brainstorming – Branching Questions	Continuous Assessment (Pop Quiz – Participation – Reports – Homework – Interaction)
15	3	Explain learning theories and their laws, explain the relationship between discovery and learning, graphing skills for learning	1. Learning Theories and Their Laws 2. Discovery and Learning 3. Learning Curves	Problem-Solving – Discussion	Continuous Assessment (Pop Quiz – Participation – Reports – Homework – Interaction)

Week	Hours	Required Learning Outcomes	Unit / Topic Name	Teaching Method	Assessment Method
		curves			
16	3	Second Month Exam			Formative Assessment (Written Exam)

Infrastructure

Category	Details
1. Required Prescribed Books	None
2. Main References (Sources)	Fadel Mohsen Al-Azirjawi, Foundations of Educational Psychology. Emad Abdul Rahim Al-Zughoul, Principles of Educational Psychology. Fouad Abu Hatab, Dictionary of Psychology and Education. Saleh Mohammed Ali Abu Jado, Educational Psychology, 2nd Edition. Mahmoud Abdul Halim Mansi, Introduction to Educational Psychology. Izzat Jaradat, Introduction to Education.
a. Recommended Books and References (Scientific Journals, Reports, etc.)	Recommended research, theses, and dissertations related to the course topics.
b. Electronic References, Internet Sites, etc.	University of Babylon website through e-learning lecture service: http://repository.uobabylon.edu.iq/elearning/elearning2012.aspx . College of Basic Education, University of Diyala: http://www.basicedu.uodiyala.edu.iq/ . Iraqi Academic Journals website: http://www.iasj.net/iasj .

Course Development Plan

1- Enrich the course with applied aspects related to the teaching profession.

Course Description Form

Field	Details
Course Name	Advanced Integral Calculus
Course Code	MAB03AI221
Available Attendance Modes	Mandatory (In-Person)
Semester / Year	Fourth / Second Year
Total Study Hours	60 hours / Number of Units: 3
Date of Description Preparation	1/10/2025
Course Coordinator	Asst. Lect. Fatima Yasin Taha
Email	basicmathte8@uodiyala.edu.iq

Course Objectives

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

- 1- Learn some theorems used for double integrals with the concept of functions of two variables $f(x,y)$.
- 2- Learn finding volumes using single integrals by Shell, Washer, and Disk methods.
- 3- Learn finding arc length and plane areas.

Course Outcomes, Teaching, Learning, and Assessment Methods

A. Knowledge Objectives

Code	Objective
A1	Knowledge and understanding.
A2	Enable students to acquire knowledge and understanding of some theorems for double integrals.

Code	Objective
A3	Enable students to acquire knowledge and understanding of finding volumes using single integrals.
A4	Enable students to acquire knowledge and understanding of finding arc length and plane areas.

B. Skills Objectives of the Course

Code	Skill
B1	Skills in finding volumes using double integrals with the concept of functions of two variables $f(x,y)$.
B2	Skills in finding volumes using single integrals by Shell, Washer, and Disk methods.
B3	Skills in finding arc length and plane areas.

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 and multiple problem-solving.

C. Affective and Value Objectives

Code	Objective
C1	Appreciate the importance of studying the subject and its life applications.

Teaching and Learning Methods (Affective)

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

Assessment Methods (Affective)

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

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

Code	Skill
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	Graphing curves from definite integrals / areas / addition	Review of Integration Methods	Explanation and Clarification	Formative Assessment
2	4	Integration of inverse trigonometric functions	Review of Integration Methods	Explanation and Clarification	Formative Assessment
3	4	Theorems in double integrals	Some Theorems Used for Double Integrals with the	Explanation and Clarification	Formative Assessment

Week	Hours	Required Learning Outcomes	Unit / Topic Name	Teaching Method	Assessment Method
			Concept of Functions of Two Variables $f(x,y)$		
4	4	Theorems used for double integrals with the concept of functions of two variables $f(x,y)$	Some Theorems Used for Double Integrals with the Concept of Functions of Two Variables $f(x,y)$	Explanation and Clarification	Formative Assessment
5	4	Theorems used for double integrals with the concept of functions of two variables $f(x,y)$	Some Theorems Used for Double Integrals with the Concept of Functions of Two Variables $f(x,y)$	Explanation and Clarification	Formative Assessment
6	4	First Month Exam – Various tests and problem-solving related to the topic			
7	4	Finding volumes using single	Finding Volumes Using	Explanation and Clarification	Formative Assessment

Week	Hours	Required Learning Outcomes	Unit / Topic Name	Teaching Method	Assessment Method
		integrals by Washer method	Single Integrals		
8	4	Finding volumes using single integrals by Shell method	Finding Volumes Using Single Integrals	Explanation and Clarification	Formative Assessment
9	4	Finding volumes using single integrals by Disk method	Finding Volumes Using Single Integrals	Explanation and Clarification	Formative Assessment
10	4	Finding arc length and plane areas	Finding Arc Length and Plane Areas	Explanation and Clarification	Formative Assessment
11	4	Finding arc length and plane areas	Finding Arc Length and Plane Areas	Explanation and Clarification	Formative Assessment
12	4	Finding arc length and plane areas	Finding Arc Length and Plane Areas	Explanation and Clarification	Formative Assessment
13	4	Finding arc length and plane areas	Finding Arc Length and Plane Areas	Explanation and Clarification	Formative Assessment
14	4	Finding arc length and plane areas	Finding Arc Length and Plane	Explanation and Clarification	Formative Assessment

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

Infrastructure

Category	Details
1. Required Prescribed Books	None
2. Main References (Sources)	Calculus. Thomas Jr. ...
a. Recommended Books and References (Scientific Journals, Reports, etc.)	Utilizing any sources related to the topic.
b. Electronic References, Internet Sites, etc.	www.inmath.com