Ministry of Higher Education and Scientific Research

Scientific Supervision and Evaluation Authority

Description of the academic program and curriculum for the undergraduate study in the Department of Mathematics

DEPARTMENT OF MATHEMATICS
COLLEGE OF BASIC EDUCATION

University of Babylon
College of Basic Education

PREPARED AND DESIGNED BY ENG.
MAYSOUN KHAZAL ABBAS

The introduction :

The Department of Mathematics in the College of Basic Education is one of the scientific and educational pillars established with the aim of preparing specialized teaching staff capable of raising the level of basic education in society. The department's academic program aligns with the college's mission and strategic objectives of preparing teachers who possess a comprehensive balance of in-depth mathematical knowledge, modern pedagogical skills, and solid professional values that qualify them to fulfill their role in building generations.

The academic program is based on combining specialized scientific aspects with applied educational aspects. During their years of study, students receive specialized courses in major branches of mathematics, such as algebra, mathematical analysis, geometry, statistics, and applied mathematics. They also receive educational and psychological courses that enhance their understanding of teaching methods, educational assessment tools, and learner characteristics. This integration aims to enable students to apply theoretical knowledge to practical applications within the educational environment..

The program also seeks to achieve clear learning outcomes that ensure students acquire the ability to interpret mathematical concepts and theories, employ modern educational technologies in teaching, develop critical thinking and problem-solving, and instill ethical and professional values. This is reinforced by field training, which represents a pivotal part of the program, providing students with practical opportunities to interact with educational realities and apply their acquired knowledge and skills in the field..

Believing in the importance of mathematics as a tool for developing scientific thinking and advancing society, the academic program in the Department of Mathematics contributes to preparing graduates capable of keeping pace with scientific and technological developments, contributing effectively to curriculum development, and enhancing the efficiency of the educational process. This program thus constitutes a qualitative addition to the educational system and supports the College of Basic Education's efforts to serve the community and build a solid scientific foundation for future generations.

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College of Basic Education / Department of Mathematics

University of Babylon	University name
College of Basic Education	College
Department of Mathematics	Scientific Department
Bachelor's	Name of academic or professional program
Bachelor of Basic Education, Mathematics Department	Final Certificate Name
Quarterly	The educational system
Curricula and syllabuses according to the ministry	Accredited program
Application in educational institutions	Other external influences
27\1\2025	Description preparation date
27\1\2025	Date of filling out the file

:

Check the file before
Director of the Quality and
University Performance
Division, Prof. Dr. Ibtisam Sahib

Department Liaison Member

M. Maysoun Khazal Abbas

:signature the
Scientific Assistant
:Name
Prof. Dr. Aref Hatem

: signature the
:Department Head Name
Asst. Prof. Dr. Lahib
Ibrahim Zidane

Approval of the Dean of the
College
Prof. Dr. Ali Jabbar Abdullah Al-
Jaheshi

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College of Basic Education / Department of Mathematics

1. Program vision

Excellence in preparing mathematics teachers and qualifying them educationally and scientifically in line with modern scientific and educational developments.

2. Program message

Preparing qualified science teachers who possess solid scientific knowledge and modern pedagogical skills, thus enhancing the quality of basic education and contributing to serving the community.Preparing specialized educational cadres in mathematics, who possess solid knowledge, advanced teaching skills, and solid professional values, capable of contributing to the development of basic education and serving the community.

3. Program objectives

1. Providing students with basic and advanced knowledge in various branches of mathematics.
2. Providing students with educational and technical skills that enhance their ability to teach effectively.
3. Developing students' abilities to think critically, solve problems, and employ mathematics in practical life.
4. Consolidating professional and educational values and enhancing commitment to the ethics of the teaching profession.
5. Developing scientific trends among students in the department and motivating them to complete their postgraduate studies in their field of specialization.
6. Activating the use of modern technology in the department, including educational techniques and others.
7. Using computers and artificial intelligence programs to help students develop their talents.

4. Program accreditation

It was completed presentation Accreditation request pending consent.

5. Other external influences

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market the job, Visits The process and Field For circles Government primary schools and Other institutes

6. Program structure				
Notes	percentage	Study unit	Number of courses	Program structure
	%25	26	13	Institutional requirements
	%23	33	12	College requirements
Basic course	%52	70	27	Department requirements
			In progress	Summer training
			Sports activities	Other
	100%	129	52	the total

7. Program Description					
Credit hours		Course name	Course code	Year/Level	
practical	theoretical				
0	2	Democracy and human rights	BEMADEM100	The first stage	First semester
2	1	computer	BEMACOM101		
0	3	developmental psychology	BEMAPSY102		
2	2	Differentiation	BEMACAL103		
0	2	Probability principles	BEMAPRI104		
2	2	Foundations of Mathematics 1	BEMAFOU105		
0	2	Number theory	BEMANUM106		
6	14	Total			

College of Basic Education / Department of Mathematics

Credit hours		Course name	Course code	Year/Level	
practical	theoretical				
0	2	Arabic	BEMAARA107	The first stage	Second semester
0	2	English language	BEMAENG108		
0	3	Principles of education	BEMAORI109		
0	2	Islamic Education/Civilization	BEMAISL110		
2	1	Computer (my specialty)	BEMACOMS111		
2	1	Foundations of Mathematics 2	BEMAFOU(2)112		
0	2	Matrices	BEMAMATR113		
2	2	Integration	BEMAINT114		
6	15	Total			

	First semester				
Credit hours		Course name	Course code	Year/Level	
practical	theoretical				
0	2	Arabic	BEMAARA201	The second stage	First semester
0	2	English language	BEMAENG202		
0	2	Baath regime crimes in Iraq	BEMACRIM203		
2	1	Curricula and textbooks	BEMACUR204		
2	2	Advanced differential calculus	BEMACAL205		
2	1	Advanced possibilities	BEMAPRO206		

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2	2	Linear algebra	BEMALALG207		
8	12		Total		

semesterthe second				
Credit hours		Course name	Course code	Year/Level
practical	theoretical			
2	1	computer	BEMACOM208	stageSecond
2	2	Psychology of Teaching Classroom Thinking	BEMAPSY209	
0	2	Educational Psychology	BEMAEPSY210	
2	2	Advanced integration	BEMAINT211	
0	3	Engineering	BEMAGEO212	
2	1	specialized computer	BEMACOMS213	
0	2	mathematical thinking	BEMATHI214	
0	2	Data Theory	BEMADATA215	
8	15	Total		

First semester				
Credit hours		Course name	Course code	Year/Level
practical	theoretical			practical
2	2	General teaching methods and their applications	BEMATEA301	stageThird
0	2	Guidance and education for people with special needs	BEMAGUI302	
0	2	Measurement and Evaluation	BEMAMEA303	
0	2	Educational leadership and	BEMALEA304	

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		management		
2	2	Advanced statistics	BEMASTA305	
2	2	differential equations	BEMAODE306	
2	1	Group theory	BEMAGRO307	
8	13	Total		

Second semester				
Credit hours		Course name	Course code	Year/Level
practical	theoretical			
0	2	sustainable development	BEMASUS308	Stage 3
2	1	Action research method	BEMAMETH309	
2	2	Educational technology and its applications	BEMATECH310	
2	1	Mathematical analysis	BEMAANA311	
2	1	Ring theory	BEMARING312	
2	2	numerical analysis	BEMANUME313	
2	1	specialized computer	BEMACOM314	
12	10	Total		

semesterthe first				
Credit hours		Course name	Course code	Year/Level
practical	theoretical			
0	2	Environment and Health	BEMAENV401	stageFourth
2	2	Specialized teaching methods	BEMASPE402	
0	2	Arabic literature	BEMALIT403	
0	2	Professional ethics	BEMAETH404	

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4	1	Observational practical education	BEMAPRA405	
2	1	Linear programming	BEMALIP406	
2	2	Topology	BEMATOP407	
2	2	Nodal analysis	BEMACOX408	
2	1	Artificial intelligence computers	BEMAART409	
2	0	Graduation research project	BEMAPROJ410	
16	15	Total		

Second semester				
Credit hours		Course name	Course code	Year/Level
practical	theoretical			
1		Graduation research project	BEMAPROJ411	Stage Four
12		Practical education (application)	BEMAAPP412	
13		Total		

8. Expected learning outcomes of the program	
A.knowledge	
Learning outcomes	Learning outcomes
explanationBasic mathematical concepts and theories and apply them in educational and life situations.	A-1.Explains the basic concepts and principles in the major branches of mathematics.. A-2.Explains educational and psychological theories and concepts related to mathematics education. A-3.Explains the role of mathematics in solving scientific and life problems. A-4.Describes the foundations of scientific research and its

	methods in the educational field
for.Skills	
Learning outcomes	**Learning outcomes**
employmentThe student uses effective teaching strategies and modern techniques in teaching mathematics.	B-1.Employs analytical and logical skills in solving mathematical problemsAnd B-2. Uses modern technological means and software in teaching mathematics.. B-3. Designs study plans and educational activities that take into account students' levels.. B-4.Analyzes statistical data and presents results in a scientific manner.
C.values	
Learning outcomes	**Learning outcomes**
Commitment toEducational ethics andshowProfessional responsibility towards the teaching professionM	A-1. He is committed to the ethics and values of the educational profession.**A** C-2.**Demonstrates a spirit of cooperation and teamwork within the educational environment.And**. C-3. Appreciates mathematics as a tool for developing critical and logical thinking.**And** C-4 Develops self-learning and continuous professional development skills.

Teaching and learning strategies.9	
strategicallyTlearning	**Education strategies**
Divide students into small groups to work together on mathematical problems, which encourages them to exchange ideas and develop communication skills.. Students can exchange specialized lessons among	**cooperative learning**Divide students into small groups to solve problems and discuss mathematical ideas. **brainstorming**Encourage students to come up

themselves, which promotes mutual learning.. **Sports software:**likeGeoGebra**and Matlab**To represent geometric and graphic ideas. **E-lessons and videos**: Such as using platforms like Khan Academy and YouTube to illustrate lessons visually. Interactive Apps: Use apps that allow students to interact with concepts such as graphing and solving equations.	with multiple solutions to a single problem. **Project-based learning**Assign students mathematical projects related to everyday life, such as statistics or mathematical models. **Sports software**:such as GeoGebra, MATLAB, or Wolfram Alpha to display graphs and equations. **Blended learning**Combining in-person and online learning via educational platforms. **simulation**: Use applications that simulate mathematical phenomena (such as probability or statistics).
10. Evaluation	
Monthly and semester written exams (Quizzes) Quick exams (Homework)	

11. Faculty

Faculty members

Faculty preparation		Special Requirements/Skills (if any)	Specialization		Academic rank	Name	T
lecturer	tenured		private	general			
	tenured		Mathematics teaching methods	mathematics	Prof	Prof. Dr. Saeed Hussein Ali AL thalab	1
	tenured		Applied Mathematics	mathematics	Prof	Prof. Dr. Adi Sabry Abdel Razzaq	2
	tenured		General teaching methods	mathematics	Prof	Prof. Dr. Nisreen Hamza Abbas	3
	tenured		Applied Mathematics	mathematics	assistant professor	Prof.M. Dr. Lahib Ibrahim Zidane	4
	Tenured		Applied Mathematics	mathematics	assistant professor	Prof.M. Dr. Ahmed SabahAhmed	5
	tenured		Arabic teaching methods	Arabic	Mr.	Prof. M. Wissal Mu'ayyad Khader	6
	tenured		Applied Mathematics	mathematics	assistant professor	Prof .M. Abdul Hamid Qahtan Aboud	7
	tenured		Artificial intelligence	Calculators	assistant professor	Prof.M. Sabreen Ali Hussein	8
	tenured		Applied Mathemati	mathemati	teache	M. Dr. Sakina Abdullah Lilo	9

			cs	cs	r		
	tenured		Applied Mathematics	mathematics	teacher	M. Dr. Abdullah Yahya Jassim	10
	tenured		Contractual analysis	General Mathematics	teacher	M.Dr. Sarah Abdul-Ridha Rahman	11
	tenured		Dynamic systems	mathematics	teacher	M.Dr. Mohammed Kazim Mohsen	12
	tenured		Curricula and teaching methods	Curricula and teaching methods	teacher	M,Dr. Haider Kazim Abboud	13
	tenured		Artificial intelligence	information technology	teacher	M. Maysoon Khazaal Abbas Maroof	14
	tenured		Linear Algebra Mathematics	mathematics	teacher	M. Karim Abbas Laith	15
	tenured		networks	Calculators	teacher	M. Awfa Hassan Dakhil	16
			Image processing	Calculators	teacher	M. Wissam Lahmod Nadous	17
	tenured		networks	information technology	teacher	M. Shaima Abdul Hussein Shanin	18
	tenured		General Mathematics	sciencesmathematics	Assistant Professor	M.M. Sahab Mohsen Abboud.	19
	tenured		Modern literature	Arabic language and	Assistant Profes	M. Ali Hussein Wahid	20

				literature	sor		
	tenured		Arabic language teaching methods	Teaching methods	Assistant Professor	M.M. Sarah Hussein Abdul Aoun	21
	tenured		Groups	mathematics	Assistant Professor	M.M. Abdullah Hamad Salman	22
	tenured		Applied Mathematics	sciencesmathematics	Assistant Professor	M. Mohammed Qasim Taban	23
	tenured		Communications systems and computer networks	Calculators	Assistant Professor	M.M. Firas Abdul-KazemMohammed	24
	tenured		Statement theory	breedingmathematics	Assistant Professor	M.M. Sarah Nahed Abdel Abbas	25
	tenured		General Mathematics	mathematics	Assistant Professor	M.M. Mohammed Amer Shenior	26
	tenured		networks	Information Technology	Assistant Professor	M.M. Dalia Abdel Rahim is scary	27
	tenured		General Mathematics	mathematics	Assistant Professor	M.M. Mohammed Majed Najm	28
	tenured		reliability	breedingm	Assista	M.M. Ghufran Aziz Mazhar	29

				athematics	nt Profes sor		
	tenured		Statement theory	Mathemati cs Education	Assista nt Profes sor	M.M. Manar Makki Shaalan	30
	tenured		Social Studies Teaching Methods	Social Studies	Assista nt Profes sor	M.M. Dalia Abdel Rahim Mardan	31
	tenured		mathemat ics	Mathemati cs Education	Assist ant Profe ssor	M.M. Hoda Saleh Hamza	32
	tenured		geograph y	geography	Assist ant Profe ssor	M.M. Ahmed Aliwi Jawad	33
	tenured		Calculato rs	Computer Engineerin g	Assist ant Profe ssor	M.M. Mohammed Youssef	34
	tenured		count	count	Assist ant Profe ssor	M.M. Haider Abdul-Hayy Nasser	35

12. Professional development
Orientation of new faculty members
The orientation of new members aims to integrate them quickly and effectively into the academic environment and ensure their understanding of the college's policies and procedures. The orientation program includes: 1. Introduce new teachers to department policies, such as how grades are recorded, evaluation procedures, and how to handle complaints or academic inquiries. 2. Introduce them to technological tools, libraries, and any available academic support such as educational aids or training courses.

3. Guidance on how to present research or scientific projects, and how to deal with academic challenges and future professional development.
4. Direct them to use real-life mathematical problems, such as using statistics to analyze everyday life data or using Engineering To design realistic models.
5. Organizing meetings with senior faculty members to exchange experiences and knowledge.

Professional developmentFor membersFaculty

1.Continuing professional development aims to enhance the competence of faculty members and improve the quality of education and scientific research. It includes the following:
Providing workshops to teach scientific research skills, such as writing research, presenting at conferences, and publishing in academic journals.
2.Introducing faculty members to advanced aspects of mathematics, such as artificial intelligence, data analysis, and mathematical applications in other sciences.
3. Encourage faculty members to join interdisciplinary research teams with other departments. These activities can enhance the development of scientific research skills and a deeper understanding of other topics.
4.Providing training programs in the use of technology and modern educational methods.
5. Use peer feedback to improve teaching methods, through classroom observations or joint workshops.

13. Acceptance Criteria

Central acceptance

14. The most important sources of information about the program

- Ministry of Higher Education and Scientific Research
- Councils of Basic Education Colleges in Iraq
- Arab and international colleges of basic education

15. Program Development Plan

1.The use of modern technologies such as digital simulation and multimedia aims to improve the quality of teaching and learning, and enhance the efficiency of faculty members,
2.Providing an advanced educational environment that keeps pace with changes in science and technology.
3.This plan will improve curricula, assessment, and the use of technology.
4.Enhancing students' skills in mathematics.
5.Current program analysis

- Curriculum review: Study the current curriculum and identify aspects that need updating or modification based on student needs and modern trends in mathematics.
- Learning Outcome Analysis: Evaluating the extent to which the course's educational objectives have been achieved based on student outcomes and faculty performance.
- Student and faculty surveysConducting surveys and interviews to collect feedback on the course from students and faculty members.

6.Identify development needs, promote scientific research and student projects

- Focus on weak areas: Identify topics or areas in which students need additional support.
- Identify recent developments: Identify scientific developments in mathematics that should be included in the curriculum (e.g., artificial intelligence, data analysis, applied mathematics).)

7.Review and update courses

- Course content developmentUpdating the courses to include modern concepts in mathematics such as machine learning, applied mathematics, financial mathematics, and big data.
- Flexibility in the curriculum: Offering flexible educational paths that allow students to choose specialized fields according to their interests (such as theoretical mathematics, applied mathematics, or engineering mathematics).
- New coursesAdding new courses that keep pace with modern developments in mathematics.

College of Basic Education / Department of Mathematics

مخطط مهارات البرنامج

Required learning outcomes of the program														
values				Skills				knowledge				Essential or optional?	Course name	Course code	year/ Level
4c	3C	2C	1c	4b	3b	2b	1b	4A	3A	2A	1A				
*		*	*	*				*				essential	Democracy and human rights	BEMADEM100	
*	*				*	*		*	*			essential	computer	BEMACOM101	
*		*	*	*	*	*		*		*		essential	developmental psychology	BEMAPSY102	
*	*			*		*	*	*	*		*	essential	Differentiation	BEMACAL103	
*	*			*		*	*	*	*		*	essential	Probability principles	BEMAPRI104	
*	*			*		*	*	*	*		*	essential	Foundations of Mathematics 1	BEMAFOU105	**First**
*	*			*		*	*	*	*		*	essential	Number theory	BEMANUM106	**First semester**
*		*	*	*		*				*		essential	Arabic	BEMAARA107	**First**
*		*	*	*		*				*		essential	English	BEMAENG108	**Second semester**

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													language		
*		*	*	*	*	*		*		*		essential	Principles of education	BEMAORI109	
*		*	*	*		*				*		essential	Islamic Education/Civilization	BEMAISL110	
*	*				*	*		*	*			essential	Computer (my specialty)	BEMACOMS111	
*	*			*		*	*	*	*		*	essential	Foundations of Mathematics 2	BEMAFOU(2)112	
*	*			*		*	*	*	*		*	essential	Matrices	BEMAMATR113	
*	*			*		*	*	*	*		*	essential	Integration	BEMAINT114	
*		*	*	*		*				*		essential	Arabic	BEMAARA201	
*		*	*	*		*				*		essential	English language	BEMAENG202	
*		*	*	*		*				*		essential	Baath regime crimes in Iraq	BEMACRIM203	
*		*	*	*	*	*		*		*		essential	Curricula and textbooks	BEMACUR204	**Second**
*	*			*		*	*	*	*		*	essential	Advanced differential	BEMACAL205	**First semester**

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													calculus	
*	*			*		*	*	*	*		*	essential	Advanced possibilities	BEMAPRO206
*	*			*		*	*	*	*		*	essential	Linear algebra	BEMALALG207
*	*				*	*		*	*			essential	computer	BEMACOM208
*		*	*	*	*	*		*		*		essential	Psychology of Teaching Classroom Thinking	BEMAPSY209
*		*	*	*	*	*		*		*		essential	Educational Psychology	BEMAEPSY210
*		*	*	*		*		*		*	*	essential	Advanced integration	BEMAINT211
*		*	*	*		*		*		*	*	essential	Engineering	BEMAGEO212
*		*	*	*		*		*		*	*	essential	specialized computer	BEMACOMS213
*		*	*	*		*		*		*	*	essential	mathematical thinking	BEMATHI214
*		*	*	*		*		*		*	*	essential	Data Theory	BEMADATA215
*		*	*	*	*	*		*		*		essential	General teaching	BEMATEA301

Second

Second semester

Third

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													methods and their applications		**First semester**
*		*	*	*	*	*		*		*		essential	Guidance and education for people with special needs	BEMAGUI302	
*		*	*	*	*	*		*		*		essential	Measurement and Evaluation	BEMAMEA303	
*		*	*	*	*	*		*		*		essential	Educational leadership and management	BEMALEA304	
*		*	*	*		*		*		*	*	essential	Advanced statistics	BEMASTA305	
*		*	*	*		*		*		*	*	essential	differential equations	BEMAODE306	
*		*	*	*		*		*		*	*	essential	Group theory	BEMAGRO307	
*		*	*	*	*	*		*		*		essential	sustainable development	BEMASUS308	**Third Second semester**
*		*	*	*	*	*		*		*		essential	Action research method	BEMAMETH310	
*		*	*	*	*	*		*		*		essential	Educational	BEMATECH309	

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													technology and its applications		
*		*	*	*		*		*		*	*	essential	Mathematical analysis	BEMAANA311	
*		*	*	*		*		*		*	*	essential	Ring theory	BEMARING312	
*		*	*	*		*		*		*	*	essential	numerical analysis	BEMANUME313	
*		*	*	*		*		*		*	*	essential	specialized computer	BEMACOM314	
*		*	*	*	*	*		*		*		essential	Environment and Health	BEMAENV401	
*		*	*	*	*	*		*		*		essential	Specialized teaching methods	BEMASPE402	
*		*	*	*	*	*		*		*		essential	Arabic literature	BEMALIT403	
*		*	*	*	*	*		*		*		essential	Professional ethics	BEMAETH404	
*		*	*	*	*	*		*		*	*	essential	Observational practical education	BEMAPRA405	**Fourth** **First semester**

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*		*	*	*		*		*		*	*	essential	Linear programming	BEMALIP406	
*		*	*	*		*		*		*	*	essential	Topology	BEMATOP407	
*		*	*	*		*		*		*	*	essential	Nodal analysis	BEMACOX408	
*		*	*	*		*		*		*	*	essential	Artificial intelligence computers	BEMAART409	
*		*	*	*	*	*		*		*	*	essential	Graduation research project	BEMAPROJ410	
*		*	*	*	*	*		*		*	*	essential	Graduation research project	BEMAPROJ411	**Fourth** **Second semester**
*		*	*	*	*	*		*		*	*	essential	Practical education application	BEMAAPP412	

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modelCourse Description

name Curriculum
Foundations of Mathematics
Course code
the chapterAcademic/first/ year2024—2025
Preparation dateThis description16-9-2024
Forms AttendanceRAvailable
1- My attendance in classrooms **2- Through electronic platforms such as:Classroom Google** **3- A special channel for the course via the programTelegram**
number watches Academic kidney3hours number Units/(3 units)
name responsible The decisionAcademic(if more from name It is mentioned
Dr. Mohammed Kazim Mohsen

Course objectives

• Principles of Mathematical Logic, Expressions • Truth tables • logical equivalence • algebra expressions • Mathematical dialogues • The walls • Hilbert's procedure on open expression • Groups • Operations on groups • Some theorems for operations on sets • Relations and the Cartesian product • Types of relationships and equivalence classes	**Study material**

Teaching and learning strategies

1. Lectures **2. discussion** 3. **Homework and short exam**	**Strategy**

4. Investigation and others 5. Quick and short tests	

Curriculum structure					
Evaluation method	**Learning method**	**Topic name**	**Required learning outcomes**	**watches**	**week**
Asking short questionsintellectual	roadExplanation and detailing of the lecture material in person in the classroom and Discussion	Principles of Mathematical Logic, Expressions	AWe knowThe student Principles of Mathematical Logic, Expressions	3	1
Asking short, intellectual questions Different examples in the subtraction	AFor lecture and demonstration of examples Discussion method	Truth tables	The student should be able to knowAnd design truth tables	3	2
Direct questions with assignments And the test	Lectures, Discussion method brainstorming	logical equivalence	The student should be able toachieving logical equivalence	3	3
Examples withthe solution And ask different questions	Lectures, Discussion method	algebra expressions	thatAppliesThe studentalgebra expressions	3	4
Present various examples during the lecture.	Lectures, Discussion method	Mathematical dialogues	The student should be able to conduct mathematical dialogues.	3	5
Students solve examples during the lecture after the topic has been explained.	Presentation and mathematical detail of the material	The walls	thatHe knowsThe studentThe walls	3	6
		First month exam		3	7
Solve examples and exercises on the topic	Lectures, Discussion method	Hilbert's procedure on open expression	The student should understand Hilbert's procedure for open expression.	3	8
Various practical examples with the	Lecture and detailed	Groups	thatThe student knows Groups	3	9

solution method	explanation				
Practical examples And exercises with various demands	Lectures, Discussion method	Operations on groups	For the student to get to knowOperations on groups	3	10
Ask questions with some solved examples.	Lectures, Discussion method	Operations on groups	thatAppliesThe studentOperations on groups	3	11
Provide different examples and questions as homework.	Lectures, Discussion methodAnd the explanation	Theorems on operations on sets	thatHe knowsThe studentTheorems on operations on sets	3	12
		Second month exam		3	13
Various examples on the topic	Discussion methodAnd the explanation	Cartesian product relations	The student will learn about relationships and the Cartesian product.	3	14
Homework exercises	Lecture and discussion	Types of relationships and equivalence classes	The student should know the types of relationships and equivalence classes.	3	15
		Review the material before the end of the semester			

Course Evaluation

Grade distribution from50According to the tasks assigned to the student, such as daily preparation, daily, oral and monthly exams.
Editorial and reportingThe annual effort for the subject and the final exam is (50 points) and thus the final grade is (100) .

Educational resources

1- Required textbooks (methodology), if any.
2- Main References (Sources) Foundations of Mathematics, authored by Dr. Hadi Jaber Mustafa, Dr. Nader George, Dr. Riad Shaker Naoum.
3- Electronic references and websites.

modelCourse Description

name Curriculum
Calculators
Course code
the chapterAcademic/first/ year2024—2025
Preparation dateThis description16-9-2024
Forms AttendanceRAvailable
4- My attendance in classrooms 5- Through electronic platforms such as:Classroom Google 6- A special channel for the course via the programTelegram
number watches Academic kidney/3hours number

Units/ (2 units)					
name responsible The decisionAcademic(if more from name It is mentioned					
Teacher: Shaima Abdul Hussein Shanin					
Course objectives					
			Study material		
Teaching and learning strategies					
6. Lectures **7. discussion** 8. **Homework and short exam** 9. Investigation and others 10. Quick and short tests				**Strategy**	
Curriculum structure					
Evaluation method	**Learning method**	**Topic name**	**Required learning outcomes**	**watches**	**week**
Asking short questions	roadExplanation and detailing of the lecture material in person in the classroom and Discussion	MATLAB's Power of Computational Mathematics.	The student understands the subject	4	1
Oral exams	AFor lecture and demonstration of examples Discussion method	ENVIRONMENT.	The student understands the subject	4	2
Oral exams	Lectures, Discussion method brainstorming	BASIC SYNTAX.	The student understands the subject	4	3
Oral exams	Lectures, Discussion method	BASIC SYNTAX.	The student understands the subject	4	4
Oral exams	Lectures, Discussion	VARIABLES.	The student understands the	4	5

	method		subject		
Oral exams	Lecture and detailed explanation	M-FILES The M Files Creating and Running Script File.	The student understands the subject	4	6
Oral exams	Lecture and detailed explanation	DATA TYPES.	The student understands the subject	4	7
Oral exams	Lectures, Discussion method	OPERATORS.	The student understands the subject	4	8
Oral exams	Lecture and detailed explanation	LOOP TYPES.	The student understands the subject	4	9
Oral exams	Lectures, Discussion method	VECTORS.	The student understands the subject	4	10
Oral exams	Lectures, Discussion method	MATRIX.	The student understands the subject	4	11
Oral exams	Lectures, Discussion methodAnd the explanation	Referencing the Elements of a Matrix.	The student understands the subject	4	12
Oral exams	Lecture and discussion	ARRAYS.	The student understands the subject	4	13
Oral exams	Lecture and discussion	Plotting	The student understands the subject	4	14
Oral exams	Lecture and discussion	Plotting	The student understands the subject	4	15

Course Evaluation

Grade distribution from50According to the tasks assigned to the student, such as daily preparation, daily, oral and monthly exams.
Editorial and reportingIt is distributed into (34) theoretical points and (16) practical points, and represents the annual effort for the subject, and the final exam is (34) theoretical points and (16) practical points, and thus the final grade is out of (100). .

Educational resources

1.Matlab numerical computing tutorial
2.INTRODUCTION TO MATLAB FOR ENGINEERING STUDENTS David Houcque Northwestern University (version 1.2, August 2005)

model a
descriptionThe
decision

name The decision Study
Differentiation advanced
Course code
BEMACAL205
the chapter The study/ the first / year 2024-2025
Tari••••kh numbersThis description2024-9-16
Forms Available attendance
-1 My presence F Halls Academic -2 on road PlatformsThe electronic rabbinic likeClassroom Google -3 channel especiallyAccording to the decision Lord of the program Telegram
number watches Academic The to4/hours Units/) 3 Units(
name responsible The decision The study S (if I am bored from name It is mentioned
teacher doctor pleasant slave satisfaction Rahman
Course objectives

• Recognition on principles differentiation Advanced • DerivationOn the move Rain Wak irrigation from I am not Rain • Vectors • preparation The truth • derivative Partial and its applications • Sequences • convergence And distancing For sequences And the chains • fee Vectors Three RTh Dimensions And the ball • The vector The one :Th • solution Examples onDifferentiation and solving exercises • Formula Polarity and its transfers	Curriculum

S Repetitions education and learning

.1 erased ˙Dhat **.2 discussion** .3 **Duties And exam He told for** .4 Investigation And Reha .5 Tests Fast And the story Raya	**The Ace Rabatige**

brown••••••••••• The M•• ... Study••••••••••y

road Evaluation	road learning	Topic name	Outputs learning Required	watches	week
directingShort questionsRa ya intellectual	road Nominate And detail The material of the eraser bruiseIn person in the hall Academic and Discussion	Sequences	that He knows The student Sequences	4	1
directingShort questionsRa ya intellectual Examples Different RF the proposal	The eraser bruiseAnd the show Explanation H For examplesDiscuss ion method	convergence And distancing For sequences	thatThe student will be able to identify the types of sequences and the method of convergence and divergence of sequences.	4	2
directingQuestions with assignments and test	The interviews, road DiscussionBrai nstorming	Vectors	thatThe student is able to identify vectors.	4	3
ExamplesWith the solution and asking various questions	The interviews, road Discussion	Find distance for R irrigation Vectors	that Applies The student solution Vectors	4	4
Show various examples duringlecturer	The interviews, road Discussion	fee Vectors	thatThe student will be able to draw three-dimensional space.	4	5
solution Examples from before Students RF time The eraser bruise after FinishWho	the offer And the detailsRiyadh for the material	Vectors	thatThe student solves exercises about vectors.	4	6

nominated the topic?					
		First month exam		4	7
solutionExamples and exercises on the topic	The interviews, road Discussion	The vectorThe one.Th and values Subjectivity	thatThe student realizes with the vector ring the self.Thand intrinsic values	4	8
ExamplesDifferent application by solution method	lecturer And Send it out in detail	Coordinates Polarity	The student should know the coordinatesPolarity and Transformations	4	9
ExamplesApplication and various exercises to meet its requirements	The interviews, road Discussion	exercises	thatSolve exercises on polar coordinates	4	10
directing Questions with some ExamplesThe solution	The interviews, road Discussion	derivative Partial	thatThe student knows the partial derivative and solves exercises on the topic.	4	11
Subtraction Examples different And questionsAs my duty: N	The interviews, road DiscussionA nd I will not leave	derivative Partial	To know the solution to exercises aboutpartial derivatives	4	12
Examples Miscellaneous on the topic	The eraser bruise and discussion	Chain rule	The student should know the ruleThe series and solve exercises about it	4	13
		exam month Tha RTh		4	14
Homework exercises with me : N	The eraser bruise and discussion	Sequences Real	thatThe student knows the real sequences.	4	15

		review For the material before an end the chapter Study			

vomitingv... TheM... ...

Tozi••••ADegree of50According to the tasks assigned to the student, such as preparingirrigation Today MDaily, oral and monthly examsand editorial and reports It represents The s A Annual For the material And the exam The end Th He is from 50) degree(And so degree Final Be from .(100)

Educational resources

-1 books The reporter Required)methodology(that I found.
-2 the reviewer Home Sources introduction RF differentiation Advanced.
-3 the reviewer The elk.June Sites now.I want to.

Course Description

This course description provides a concise summary of the main features of the course and the learning outcomes the student is expected to achieve, demonstrating whether he or she has made the most of the opportunities.learningAvailable. It must be linked to the program description.

Babylon / College of Basic Education	1. Educational institution
Mathematics and Computer	2. University Department/Center
numerical analysis	3. Course Name/Code
Bachelor's	4. Programs that include
weekly	5. Available attendance forms
quarterly	6. semester/year
4	7. Number of study hours(kidney)
1\3\2021	8. Date this description wa prepared

9. Learning outcomes, teaching and learning methods, and assessment

1. **The student will be able to identify the importance of numerical analysis and its applications.**
2. **The student should be able to identify the types of errors in numerical solutions.**
3. **The student will be able to find the roots of equations.**
4. **The student should be able to solve equations using programs. Or programming languages.**
5. **The student should be able to know the programs used to find numerical solutions.**

6. **The student should be able to solve equations mathematically.**
7. **The student should be able to excel and know the best ways to solve a specific equation.**
8. **The student should be able to know the difference between numerical solution methods.**
9. **The student should be able to solve using**Bisection method**.**
10. **The student should be able to solve using**False-position method**.**
11. **For the student to learn some basics.**
12. **The student should be able to solve using**Picard's method**.**
13. **The student should be able to solve using**Newton-Raphson method
14. **The student should be able to solve using**Trapezoidal method

The student should be able to solve using Simpson's methods

b- Subject-specific skills

1-For the student to learn**The importance of numerical analysis.**

2-The student learns the types of acceptable errors.

3- The student learns the best way to solve.

4- The student learns different methods of solving.

5- The student learns to solve linear equations.

6- The student learns to solve integral equations.

Teaching and learning methods

1- Discussion

2- Various exercises and examples

Evaluation methods

(Written test score

(

Homework and reports

10. Course structure

Evaluation method	Teaching method	Name of unit/course or topic	Required learning outcomes	watches	week
Asking short questions	Lecture method, Discussion method	Introduction to Numerical Analysis	- The student will be able to identify the importance of numerical analysis and its applications.	4	First week
Asking questions	Lectures, Discussion method	approximation	- The student should be able to identify the types of errors in numerical solutions. -	4	Second week
Asking questions	Lectures, Discussion method	Error and its types	- The student will be able to find the roots of equations. -	4	The third week
	Lectures, Discussion method	How to calculate errors	- The student should be able to solve equations using programs. Or programming languages. -	4	Week 4
Oral tests	Lectures, Discussion method	General formula for errors and exercises	- The student should be able to know the programs used to find numerical solutions. -	4	Week 5
Asking questions	Lectures, Discussion method	Bisection method	- The student should be able to solve equations mathematically. -	4	Week 6
Asking questions	Lectures, Discussion method	False-position method	- The student should be able to excel and know the best ways to solve a specific equation. -	4	Week 7
Asking questions	Lectures, Discussion method	Exercises and examples	- The student should be able to solve usingBisection method. -	4	Week 8
		exam	- The student should be able to solve usingFalse-position method. -	4	Week 9
Asking questions	Lectures, Discussion method	Newton-Raphson method	- For the student to learn some basics. -	4	Week 10
Asking questions	Lectures, Discussion method	Trapezoidal method	- The student should be able to solve usingIteration method. -	4	Week 11
Asking questions	Lectures, Discussion method	Simpson's methods 1/3	- The student should be able to solve usingNewton-Raphson method -	4	Twelfth week
Asking questions		exam	- The student should be able to solve usingTrapezoidal	4	thirteenth week

			method -		
Asking questions	Lectures, Discussion method	Simpson's methods 3/8	- The student should be able to solve usingSimpson's methods	4	Fourteenth week
Asking questions	Lectures, Discussion method	Picard's method	- The student should be able to solve usingPicard's method	4	Week 15

11. infrastructure	
INTRODUCTORY METHODS OF NUMERICAL ANALYSIS, Fifth Edition SS Sastry 2012 Analysis for Computer Scientists Foundations, Methods, and Algorithms Second Edition 2018 Michael Oberguggenberger Alexander Ostermann	Required readings: ▪ Basic Texts ▪ Course books ▪ Other
E-lectures via the university website	Special requirements (including, for example, workshops, periodicals, software, and websites)
	Social services (including, fo example, guest lectures, vocational training, and field studies)

12. Acceptance	central
	Prerequisites
30	least number of students
60	The largest number of students

table Typical For visit Field

1- He is table Visit Field Regular Prepared For a period of Two or three days. It includes meetings stomach pre-Located responsible Preparing for it And compatibility The model with circumstances on Shoulder Department of Quality Assurance and University Performance In institutions education High.

2- It begins Visits Field Usually when the hour 9 o'clock morning today the first. And it is done to set times Start of meetings stomach pre- Which no It takes usually more on hour one. no should that Be times The whole table meetings but rather It must from to leave field For activities Reviewers Experts Additional that Includes Preparation For meetings and updates Notes and records and formulation Paragraphs draft a report review The program.

Activity	the time	session
	First day	
Welcome and Acknowledgement: Review Summary (Purpose, Required Outcomes, Use of Evidence, and Self-Evaluation Report) - Program Team	9:00	1
Curriculum: Discussion with faculty members	9:30	2
Meeting with a group of students	11:00	3
Program Efficiency: A Tour of the Resources	12:30	4
Review Committee Meeting: Review of additional documents, including a sample of corrected student work.	14:00	5
Program Efficiency: Meeting with Faculty Members	15:00	6
Review Committee Meeting: Review evidence and any gaps or matters that need follow-up.	16:00	7
Meeting with relevant parties (sample of graduates, employers and partners)(others)	17:00	8
	Day 2	
Meeting with the review chair, coordinator, and program leader: Summary of the first day's findings, addressing gaps, and adjusting the second day's schedule if necessary.	8:45	9
Academic Standards for Graduates: Meeting with Faculty Members	9:00	10
Effectiveness of quality assurance and management processes: Meeting with members of the educational staff.	10:30	11
Review Committee Meeting: Review evidence and matters that need to be addressed.	12:00	12
Free time to follow up on new issues	14:00	13
Final Review Committee Meeting: Make decisions on findings and prepare verbal feedback.	14:30	14
The review chair provides verbal feedback to the review coordinator and members of the teaching staff.	14:30	15
Conclusion	15:00	16

a description The decision / ADr. Laheeb Ibrahim Zidane

Equationsnormal differential/phaseThird/to divideMathematics and Computer/collegeBasic education/universityBabylon(

He provides a description The decision this Briefly Requiring For the most important features The decision and outputs learning Expected from The student Proven verification About what if He was may Achieve benefit Maximum from Opportunities learning Available. It is necessary from Linking Among them And between Program description.

Babylon/ college Education Basic	.1 The institution educational
mathematics and the computer	.2 Department University / The Center
Equations differential Normal	.3 name / code The decision
Bachelor's	.4 Programs that Enters In it
weekly	.5 Available attendance forms
quarterly	.6 the chapter / year
4	.7Number of study hours(Total)
2021/9/1	.8 date numbers this Description

.9 Outputs learning and methods education and learning and evaluation

.1 thatThe student will be able to identify the importance of ordinary differential equations and their applications.. .2 thatThe student learns about the types of differential equations..
.3 thatThe student can know the rank and degree of the differential equation.. .4 thatHe can find the solution to the differential equation..
.5 that canThe student finds the general solution to the ordinary differential equation..
.6 thatThe student learns about first-degree equations and finding their general solution.. .7 The student should be able to identify the homogeneous equation.
.8 The student should be able to findintegration coefficient of the regular equation. .9 To be ableFinding the general solution to the homogeneous equation
.10 that can from Find the solution For the equation sin from degree First
.11thatThe student learns about linear and nonlinear differential equations.. .12The student should be able to solve the Riccati equation.
.13The student will be able to solve the Claritus equation. .14 The student should be able to solve Bernoulli's equation.
.15 that He is The student Able on solution The equation differential regularWith fixed variables.

for - Skills Private On the subject

-1 Analysis athlete -2

Analysis Engineering-3

Drawing

-4 Comparison

-5 Conclusion-6

Induction -7

Generalization-

8Applicatio

n

Methods education and learning

-1 Discussion-2

Interrogation -3

Lecture

-4 exercises Examples different

Methods Evaluation

-1 Duties Home and reports

-2 Testsoral-3 Written tests

skills thinking

-1 Creative thinking skills-2
skills thinking critic -3
problem-solving skills

General and transferable skills

-1 developmentStudent's ability to deal with technology. -2 developmentStudent's ability to use the Internet.
-3 development capacityStudent to deal with multiple media.
-4 development capacity The student on Dialogueand discussion.

10. Structure
The decision

road Evaluation	road education	Unit name/ Course or topic	Required learning outcomes	watches	week
directing QuestionsShort	roadGiving lectures, road Discussion	Introduction	make The studentAble to: - Knowing the history and importance of differential equations regular and its applications	4	week the first
directing Questions	roadGiving lectures, road Discussion	Differential equation	make The studentAble to: - Knowing the differential equation, its types and its solution	4	week the second
directing Questions	roadGiving lectures, road Discussion	ODE	make The studentAble to: - knowledge Equations differential regular	4	week the third
	roadGiving lectures, road Discussion	Solution of ODE	make The studentAble to: - solutionThe regular equation by separation of variables	4	week Fourth
Tests Oral	road Discussion	Homogeneous Equations	makeThe student is able to know: Equations homogeneous And solve it - .	4	Week 5
directing Questions	roadGiving the lecture, road Discussion	Finding general sol by IF	make The studentAble to: - FindThe general solution of the non-homogeneous equation by finding the constant of integration.	4	Week 6
directing Questions	roadGiving lectures, road Discussion	**General Solution of homo. D. E**	make The studentAble to: - Find the solution The yearFor the homogeneous equation	4	week Seventh
directing Questions	roadGiving lectures, education electronic	First Order Linear Diff Eq	make The studentAble to: -Finding the general solution of the first-order differential equation.	4	week The eighth
directing Questions	roadGiving lectures	Bernoulli's Eq	Make the student able toFinding the solution to Bernoulli's equation	4	week Ninth
		Exam	-	4	week tenth
directing Questions	roadGiving lectures, road Discussion	Ricatti's Eq	make The studentAble to: - Find solutionRiccati equation.	4	Week 11
directing Questions	Student groups	**Clairaut's Eq**	make The studentAble to: - Find solution equation Claritus.	4	week twelfth
directing Questions	education electronic, road Discussion	Homogeneous DE with constant coefficients	- make The student able onthat: - Find the solutionFor the homogeneous equation with constants	4	week thirteenth

directing Questions	Student groups	Complementary Solution	**-Make the student able to: -Find the complementary solution**	4	week fourteenth
		Exam	-	4	week Fifth ten

11.Structure Infrastructure	
Ordinary Differential Equation D.SoMASUNDARAM AN INTRODUCTION TO ORDINARY DIFFERENTIAL EQUATIONS JAMES C. ROBINSON Solutions Manual to Accompany Ordinary Differential Equations Michael D. Greenberg *Department of Mechanical Engineering* *University of Delaware* *Newark, DE*	Readings Required : ▪ Texts Basic ▪ books The decision ▪ Other
Lectures Electronic via location the university	requirementsespecially)These include, for example, workshops, periodicals, software, and websites.(
	ServicesSocial) and includesFor example, guest lectures, professional training, and field studies.(

centra l	12. Acceptanc e
	Requirements previous
30	less number from Students
60	greater number from Students

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directing Questions	roadGiving lectures, road Discussion	ODE	make The studentAble to: - knowledge Equations differential regular	4	week the third
	roadGiving lectures, road Discussion	Solution of ODE	make The studentAble to: - solutionThe regular equation by separation of variables	4	week Fourth
Tests Oral	road Discussion	Homogeneous Equations	makeThe student is able to know: Equations homogeneous And solve it - .	4	Week 5
directing Questions	roadGiving the lecture, road Discussion	Finding general sol by IF	make The studentAble to: - FindThe general solution of the non-homogeneous equation by finding the constant of integration.	4	Week 6
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directing Questions	roadGiving lectures, education electronic	First Order Linear Diff Eq	make The studentAble to: -Finding the general solution of the first-order differential equation.	4	week The eighth
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		Exam	-	4	week tenth
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directing Questions	Student groups	**Clairaut's Eq**	make The studentAble to: - Find solution equation Claritus.	4	week twelfth
directing Questions	education electronic, road Discussion	Homogeneous DE with constant coefficients	- make The student able onthat: - Find the solutionFor the homogeneous equation with constants	4	week thirteenth

directing Questions	**Student groups**	Complementary Solution	**-Make the student able to: -Find the complementary solution**	4	**week fourteenth**
		Exam	-	4	**week Fifth ten**

11.Structure Infrastructure

Ordinary Differential Equation D. SoMASUNDARAM AN INTRODUCTION TO ORDINARY DIFFERENTIAL EQUATIONS JAMES C. ROBINSON Solutions Manual to Accompany Ordinary Differential Equations Michael D. Greenberg *Department of Mechanical Engineering* *University of Delaware* *Newark, DE*	Readings Required : ▪ Texts Basic ▪ books The decision ▪ Other
Lectures Electronic via location the university	requirementsespecially)These include, for example, workshops, periodicals, software, and websites.(
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centra l	12. Acceptanc e
	Requirements previous
30	less number from Students
60	greater number from Students

model a description The decision

name Curriculum
Curricula and textbooks
Course code
the chapter Academic/the second / year 2024—2025
date numbers this Description 21-5-2025
Forms AttendanceRAvailable
7- My attendance in classrooms 8- Through electronic platforms such as: Classroom Google 9- A special channel for the course via the programTelegram
number watches Academic kidney2hours number Units/(2Units)
name responsible The decision Academic
M.Dr. Haider Kazim Abboud Al-Hasnawi
Course objectives

• Preparing students scientifically in the field of curricula and school books. • Identify the different elements of the school curriculum. • Applying the concepts studied in scientific life. • Understand and apply the basic principles of	The importance of curriculum studies ies in their ability to provide students with the necessary educational knowledge and skills, which contributes to their qualification to

curriculum design and educational objective setting. • **Determine the learner's expected behavior after the learning process** • **Assists the teacher in planning lessons and determining teaching methods.** • **Helps the teacher choose appropriate educational activities to achieve them.** • **Helps the teacher choose appropriate assessment methods to measure learner growth.**	**become future teachers. The curriculum provides students with experience and knowledge about practical educational objectives, as well as how to formulate behavioral objectives in practical, applied procedural ways. This means that the objectives must be applicable.**

Teaching and learning strategies	
11. Cooperative education. **12. Brainstorming Education.** **13. discussion.** **14. Lectures.** **15. Quick and short tests.** 16. **E-learning powerpoint projector.**	**Strategy**

Curriculum structure

Evaluation method	Learning method	Topic name	Required learning outcomes	watches	week
Asking questionsshort intellectual	roadExplanation and detailing of the lecture material in person in the classroom and Discussion	The concept of curriculum	To know how to build and design the school curriculum effectively	2	1
Asking short, intellectual questions Different	Collaborative and Demonstrative Examples roadCooperation (Episodes)	Foundations of curriculum construction, philosophical foundations	thatThe student distinguishes between Islamic curricula and other curricula.	2	2
Direct questions with assignments And the test	Lectures, Discussion method brainstorming	Foundations of curriculum construction/cognitive, psychological, and social foundation.	To gain a comprehensive understanding of the educational process and provide a knowledge base for creating effective and flexible educational curricula.	2	3

Examples withthe solution And ask different questions With illustrations and answers	Lectures, Discussion methodPowerPoint projector	Curriculum elements	To know how to guide the process of curriculum design, evaluation and implementation, which helps in achieving effective educational goals.	2	4
Present various examples during the lecture.	Lectures, Discussion method rapid tests	Activities and teaching methods	Developing students' cognitive, social and emotional skills, and providing an interactive and stimulating learning environment	2	5
Explanation by students during the lecture after the topic has been explained	e-learning powerpoint projector Cooperative (episodes)	Curriculum theories	Providing students with knowledge and awareness of the theoretical foundations on which educational curricula are based	2	6
		First month exam/Second course		2	7
Discuss with students and ask questions about the topic.	Lectures, Discussion method brainstorming	Curriculum organization and design	Enabling students to understand how the curriculum is organized and coordinated	2	8
Select a group of students to form circles and exchange ideas among them.	Lecture and detailed explanation Cooperative PowerPoint projector	Curriculum design stages	Providing students with a deep understanding of the curriculum development process and how to link it to learning objectives, teaching methods, and assessment.M	2	9
Ask short, thoughtful questions about the topic.	Lectures, Discussion method Quick and short tests	Types of curricula	Providing students with the knowledge and skills necessary to understand the nature of different curricula, and how to design, implement and	2	10

			evaluate them.		
Ask questions with some solved examples. Asking different questions With illustrations and answers	Lectures, Discussion method PowerPoint projector	Curriculum evaluation	Empowering students with the knowledge and skills that help them understand their strengths and weaknesses and how to develop them to achieve goals.	2	11
Provide different examples and questions as homework.	Lectures, Discussion methodAnd the explanationAnd brainstormin g	Curriculum development	Preparing students to have the ability to analyze and design educational curricula effectively, which contributes to improving the quality of education and meeting their needs.	2	12
Examples withthe solution And ask different questions With illustrations and answers	Lectures, Discussion method Rapid tests	textbook	Providing students with basic information and concepts in the subject matter, facilitating the learning process, and developing reading, writing, and analysis skills.	2	13
Various examples on the topic	Discussion methodAnd the explanation PowerPoint projector	e–book	Improve the learning experience by making it more interactive and engaging and providing easy access to educational resources.	2	14
		Second month exam / second course		2	15
	Discussion methodAnd the explanation PowerPoint	Review of all lectures	The aim of the review is to strengthen understanding, knowledge and memory of previous lectures, as	2	16

	projector		well as increase self-confidence and reduce anxiety and stress.		

Course Evaluation

Grade distribution from50According to the tasks assigned to the student, such as daily preparation, daily, oral and monthly exams.
Editorial andFor research and representing the annual endeavor of the subject and the final exam is from(50degree)Thus, the final degree is(100) .

Educational resources

1- **Arabic Language Curricula and Teaching Methods: Contemporary Educational Ideas, 2020, Najm Abdullah Al-Mousawi and Raed Ramthan Al-Tamimi.**
2- **Curricula and Methods of Teaching the Arabic Language, 2018, Imran Jassim Al-Jabouri and Hamza Hashim Al-Sultani.**
3- **Modern Curricula and Teaching Methods, 2013, Mohsen Ali Attia.**
4- **E-Learning in University Teaching (Educational Technology), 2022, Haider Kazim Abboud Al-Hasnawi.**
5- **Curricula and Teaching Methods in the Balance of Teaching, 2015, Muhammad Hamid Al-Masoudi, Mashreq Muhammad Al-Jabouri, and Arif Hatem Al-Jabouri.**

Hwang, GJ Definition, framework and research issues of smart learning −1 environments- a context-aware ubiquitous learning perspective. Smart learning environments, 1 (1), 2014.

modelCourse Description

nameThe decision Foundations of Mathematics	.١
codeThe decision	.٢
the chapter / yearFirst course 2024-2025	.٣

Preparation dateThis description8\1\2025	.٤
.5 Forms the audience Available	
.6number watches Academic (Total/)Number of units(kidney)2/3	
.7 name responsible The decisionAcademic(If more than one name is mentioned)	
the name:M.M. Abdullah Hamad Salman Hamoud Email : bas342.abdullah.hamad@uobabylon.edu.iq	
٨. اهداف المقرر	
• ..... • ..... •	**اهداف المادة الدراسية** The objectives of teaching the subject of the foundations of mathematics are to acquireThe mathematical knowledge required for the prescribed subjects and an understanding of the meanings behind each mathematical concept, as well as developing an understanding of the nature of the subject of the foundations of mathematics as an integrated system of basic mathematical concepts, which will provide an important basis for understanding other mathematical disciplines, particularly the application of the steps for solving a mathematical problem through analyzing the problem, developing a solution plan, and implementing it.
٩. استراتيجيات التعليم والتعلم	
1- Discussion 2- Interrogation 3- The lecture 4- Various exercises and examples	**الاستراتيجية**

١٠. بنية المقرر

الأسبوع	الساعات	مخرجات التعلم المطلوبة	اسم الوحدة او الموضوع	طريقة التعلم	طريقة التقييم

Short questionsAnd daily exam Short questionsAnd daily exam Short questionsAnd daily exam Short questionsAnd daily exam Short questionsAnd daily exam Short questionsAnd daily exam Short questionsAnd daily exam Short questionsAnd daily exam Short questionsAnd daily exam Short questionsAnd daily exam Short questionsAnd daily exam Short questionsAnd daily exam Short questionsAnd daily exam Short questionsAnd	Lecture and discussion Lecture and discussion Lecture and discussion Lecture and discussion Lecture and discussion Lecture and discussion Lecture and discussion Lecture and discussion Lecture and discussion Lecture and discussion Lecture and discussion Lecture and discussion Lecture and discussion Lecture and discussion Lecture and discussion	Phrases and conjunctions algebra expressions open expressions logical equivalence necessity Surahs and dialogues monthly exam Group operations Equal groups Subsets Group algebra arranged pair concept Cartesian quotient Relationships exam		2 2 2 2 2 2 2 2 2 2 2 2 2 2 2	1 2 3 4 5 6 7 8 9 10 11 12 13 14 15

daily exam					

١١. تقييم المقرر

distribution degree from 011 on according to Tasks The person in charge With it The student like Preparation Daily and exams Daily and oral And monthly
and editorialand reports .... etc

١٢. مصادر التعلم والتدريس

الكتب المقررة المطلوبة (المنهجية ان وجدت)	Discrete Mathematics and Its Applications" by Kenneth H. Rosen, 2007.
المراجع الرئيسة (المصادر)	Discrete Mathematics Demystified" by Steven G. Krantz, 2009.
الكتب والمراجع الساندة التي يوصى بها (المجلات العلمية، التقارير....)	Fundamental Concepts of Modern Mathematics" by Max D. Larsen.
المراجع الالكترونية ، مواقع الانترنيت	Discrete Mathematics- Schaum's Outline" by S. Lipschutz and M. Lipson, 2007

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Course Description Form

1. Course Name: Complex Analysis
2. Course Code:
3. Semester / Year: First /2024-2025
4. Description Preparation Date: 1/7/2024
5.Available Attendance Forms:
6. Number of Credit Hours (Total) / Number of Units (Total): 4/3.5
7. Course administrator's name (mention all, if more than one name) Dr. Sukaina Al-Bairmani- sukaina.albairmani@uobbylon.edu.iq
8. Course Objectives

Course Objectives	•
1. That the student be able to diagnose the importance of the complex number system and its applications.	•
2. This course aims to generalize the concepts of variables and different functions to complex numbers, point and directional multiplication, and other algebraic operations, while identifying the different applications.	•
3. Identifying polar and Euler's formulas, their properties and benefits, and their geometric representation and analysis of complex numbers.	
4. Identifying the purpose and continuity of its properties, finding it, its theories and other topics related to these concepts.	

9. Teaching and Learning Strategies

Strategy	Discussion -1 The interrogation -2 The lecture -3 Various exercises and examples -4

10. Course Structure					
Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1	4		**Complex Number System**	Lecture and discussion	Short questions Quiz
2			**Fundamental Operations with Complex Numbers, Absolute Value, Axiomatic Foundation of the Complex Number System**	Lecture and discussion	Short questions or Quiz
3	4		**Graphical representation of complex numbers**	Lecture and discussion	Short questions or Quiz
4	4		**Polar Form of Complex Numbers, De Moivre's Theorem, Roots of Complex Numbers**	Lecture and discussion	Short questions or Quiz
5	4		**Euler's Formula, Polynomial Equations, ThenThe Roots of Unity**	Lecture and discussion	Short questions or Quiz
6	4		**Dot and Cross Product, Complex Conjugate Coordinates**	Lecture and discussion	Short questions or Quiz
7	4		**SOLVED PROBLEMS, SUPPLEMENTARY PROBLEMS**	Lecture and discussion	Short questions or Quiz
8	4		**Variables and Functions**	Lecture and discussion	Short questions or Quiz
9	4		**Single and Multiple-Valued Functions**	Lecture and discussion	Short questions or Quiz
10	4		**Inverse Functions, Curvilinear Coordinates**	Lecture and discussion	Short questions or Quiz

11	4		**The Elementary Functions**	Lecture and discussion	Short questions or Quiz
12	4		**Branch Points and Branch Lines**	Lecture and discussion	Short questions or Quiz
13	4		**Limits, Theorems on Limits, Infinity**	Lecture and discussion	Short questions or Quiz
14			**Continuity,Continuity in a Region,Uniform Continuity**	Lecture and discussion	Short questions or Quiz
15	4		**SOLVED PROBLEMS, SUPPLEMENTARY PROBLEMS**	Lecture and discussion	Short questions or Quiz

Description Form

1.	Course Name:Advanced Integration
2.	Course Code: BEMAINT211

3. Semester / Year: 2024, second semester

4. Description Preparation Date: 02-15-2024

5. Available Attendance Forms: Present

6. Number of Credit Hours (Total) / Number of Units (Total) = 4/3

7. Course administrator's name (mention all, if more than one name)
Dr. Sukaina Al-Bairmani /Email:sukaina.albairmani@uobayylon.edu.iq

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8. Course Objectives

Course Objectives	That the student be able to identify cylindrical and spherical coordinates - functions in two variables - functions in three variables - binary integration and its applications - binary integration in polar coordinates - triple integration and its applications - triple integration in cylindrical and spherical coordinates - infinite sequences and series - convergence tests Representation of functions by series Powers - Taylor - Maclaurin and Binomial Series.

9. Teaching and Learning Strategies

Strategy	1. Paper lecture 2. Reports on results

10. Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1	4	**Functions of several Variables**		Lecture and discussion	Short questions Quiz
2	4	**Double Integrals**		Lecture and discussion	Short questions
3	4	**Area, Moments, and Centers of Mass**		Lecture and discussion	Quiz

4	4	**Polarcoordinates Polar coordinates**		Lecture and discussion	Short questions
5	4	**Double Integrals in Polar Form**		Lecture and discussion	Quiz
6	4	**Triple Integrals in Rectangular Coordinates**		Lecture and discussion	Short questions
7	4	**Cylindrical and Spherical Coordinates**		Lecture and discussion	Quiz
8	4	**Triple Integrals in Cylindrical and Spherical Coordinates**		Lecture and discussion	Short questions
9	4	**Substitutions in Multiple Integrals**		Lecture and discussion	Quiz
10	4	**Sequences and Infinite Series**		Lecture and discussion	Short questions
11	4	**Comparison Tests, Ratio and Root Test**		Lecture and discussion	Quiz
12	4	**Alternating Series Absolute and Conditional Convergence**		Lecture and discussion	Short questions
13	4	**Power Series, Taylor and Maclaurin Series**		Lecture and discussion	Quiz
14	4	**Convergence of Taylor Series; Error estimates**		Lecture and discussion	Short questions
15		**Applications of Power Series and Fourier Series**		Lecture and discussion	Quiz

11. Course Evaluation

Distributing the score out of 100 according to the tasks assigned to the student such as daily etc.....Preparation, daily oral, monthly, or written exams, reports

12. Learning and Teaching Resources

Required textbooks (curricular books, if any)	
Main references (sources)	
references Recommended books and (scientific journals, reports…)	
Electronic References, Websites	

George_B._Thomas,_Maurice_D._Weir,_Joel_Hass,_Fra(b-ok.xyz), 11th,2005.
2-H. Anton, Calculus with Analytical Geometry, 4th edition, John Wiley & sons, New York, 1992.
Thomas. GB, Calculus and Analytic Geomatry, -3 4th, 1984.
Durfee. WH, Calculus and Analytic Geometric, -4 New York, 1971.
Dovermann. KHApplied Calculus -5 math2151999.

name Curriculum
Calculators
Course code
the chapterAcademic/first/ year2024—2025
Preparation dateThis description1-11-2024
Forms AttendanceRAvailable
10- My attendance in classrooms **11- Through electronic platforms such as:Classroom Google** **12- A special channel for the course via the programTelegram**
number watches Academic kidney/3hours number Units/ (2 units)
name responsible The decisionAcademic(if more from name It is mentioned
Teacher: Shaima Abdul Hussein Shanin
Course objectives

1-that recognize The student on concept sciences Calculators • **2 -that recognize The student on computer Personal** • **3 -that recognize The student on the difference The relationship between Software and parts materialism inside computer** • **4 -that recognize The student on importance Use computer** • **5 -that recognize The student on How to a job parts computer Interior** • **6 -that recognize The student on concept Information that Deals With her computer And its classification** • **7 -that recognize The student on How to entrance And exit Information to And computer** • **8 -that recognize The student on some Systems Operation** • **9 -that recognize The student on relationship between Systems Operation and gear** • **10 -that can The student from maintenance some**	**Study material**

parts computer • **11 -that recognize The student on benefits computer in His life Public** • **12 -that can The student from knowledge parts computer Interior In the picture concrete** • **13 -identification The student In theories Concepts and strategies Private I work computer** • **14 -that recognize The student on ethics Use computer** • **15 -acquisition The student Skills necessary To deal with computer And achieve needs Information Technology specific** **16 -that can The student from Use computer in His specialty practical**	

Teaching and learning strategies

17. Lectures **18. discussion** 19. **Homework and short exam** 20. Investigation and others 21. Quick and short tests	**Strategy**

Curriculum structure

Evaluation method	Learning method	Topic name	Required learning outcomes	watches	week
Asking short questions	roadExplanation and detailing of the lecture material in person in the classroom and Discussion	basics computer	knowledge And understand basics computer	3	1
Oral exams	AFor lecture and demonstration of examples Discussion method	Computer generations	knowledge And understand Evolution in Generations	3	2
Oral exams	Lectures, Discussion method brainstorming	Types of computers	knowledge And understand a reason Diversity in Computer shapes	3	3
Oral exams	Lectures, Discussion method	Central Processing Unit	knowledge And understand lonliness	3	4

			Treatment Central		
Oral exams	Lectures, Discussion method	Computer components	Knowing and understanding computer components	3	5
Oral exams		Operating systems	knowledge And understand better Operating systems	3	6
Oral exams		Operations Basic For computer	knowledge And understand Operations Input And the output	3	7
Oral exams		basics Interface system Operation Windows	knowledge And understand basics Interface system Operation	3	8
Oral exams	Lecture and detailed explanation	keyboard	Knowing and understanding the most important keyboard shortcuts	3	9
Oral exams	Lectures, Discussion method	computer viruses	knowledge And understand security computer and viruses that It hits him	3	10
Oral exams	Lectures, Discussion method	Word program	knowledge And understand program roses And the method currency	3	11
Oral exams	Lectures, Discussion methodAnd the explanation	Lists program roses	knowledge And understand Lists program roses	3	12

Oral exams	Lecture and discussion	program Excel	knowledge And understand program Excel	3	13
Oral exams	Lecture and discussion	Excel lists	Excel lists	3	14
	Lecture and discussion	application practical For the program Excel	knowledge And understand How to a job table It is calculated total And the rate	3	15
		Review the material before the end of the semester			

Course Evaluation

Grade distribution from50According to the tasks assigned to the student, such as daily preparation, daily, oral and monthly exams.
Editorial and reportingIt is distributed into (34) theoretical points and (16) practical points, and represents the annual effort for the subject, and the final exam is (34) theoretical points and (16) practical points, and thus the final score is out of (100). .

Educational resources

4- AComputer Basics and Office Applications Part TwoMicrosoft Office 2010 Ministry of Higher Education and Scientific Research A.M. Ziad Muhammad Abboud, A.Ghassan Hamid Abdul Majeed, Dr. Mustafa Diaa Al-Hasani

name Curriculum
Calculators
Course code
the chapterAcademic/first/ year2024—2025
Preparation dateThis description1-11-2024
Forms AttendanceRAvailable
13- My attendance in classrooms **14- Through electronic platforms such as:Classroom Google** **15- A special channel for the course via the programTelegram**
number watches Academic kidney/3hours number Units/ (2 units)
name responsible The decisionAcademic(if more from name It is mentioned
Teacher Maysoun Khazal Abbas Marouf
Course objectives

1-that recognize The student on concept sciences Calculators • **2 -that recognize The student on computer Personal** • **3 -that recognize The student on the difference The relationship between Software and parts materialism inside computer** • **4 -that recognize The student on importance Use computer** • **5 -that recognize The student on How to a job parts computer Interior** • **6 -that recognize The student on concept Information that Deals With her computer And its classification** • **7 -that recognize The student on How to entrance And exit Information to And computer** • **8 -that recognize The student on some Systems Operation** • **9 -that recognize The student on relationship between Systems Operation and gear** • **10 -that can The student from maintenance some**	**Study material**

parts computer • **11 -that recognize The student on benefits computer in His life Public** • **12 -that can The student from knowledge parts computer Interior In the picture concrete** • **13 -identification The student In theories Concepts and strategies Private I work computer** • **14 -that recognize The student on ethics Use computer** • **15 -acquisition The student Skills necessary To deal with computer And achieve needs Information Technology specific** **16 -that can The student from Use computer in His specialty practical**	

Teaching and learning strategies

22. Lectures **23. discussion** 24. **Homework and short exam** 25. Investigation and others 26. Quick and short tests	**Strategy**

Curriculum structure

Evaluation method	Learning method	Topic name	Required learning outcomes	watches	week
Asking short questions	roadExplanation and detailing of the lecture material in person in the classroom and Discussion	basics computer	knowledge And understand basics computer	3	1
Oral exams	AFor lecture and demonstration of examples Discussion method	Computer generations	knowledge And understand Evolution in Generations	3	2
Oral exams	Lectures, Discussion method brainstorming	Types of computers	knowledge And understand a reason Diversity in Computer shapes	3	3
Oral exams	Lectures, Discussion method	Central Processing Unit	knowledge And understand lonliness	3	4

			Treatment Central		
Oral exams	Lectures, Discussion method	Computer components	Knowing and understanding computer components	3	5
Oral exams		Operating systems	knowledge And understand better Operating systems	3	6
Oral exams		Operations Basic For computer	knowledge And understand Operations Input And the output	3	7
Oral exams		basics Interface system Operation Windows	knowledge And understand basics Interface system Operation	3	8
Oral exams	Lecture and detailed explanation	keyboard	Knowing and understanding the most important keyboard shortcuts	3	9
Oral exams	Lectures, Discussion method	computer viruses	knowledge And understand security computer and viruses that It hits him	3	10
Oral exams	Lectures, Discussion method	Word program	knowledge And understand program roses And the method currency	3	11
Oral exams	Lectures, Discussion methodAnd the explanation	Lists program roses	knowledge And understand Lists program roses	3	12

Oral exams	Lecture and discussion	program Excel	knowledge And understand program Excel	3	13
Oral exams	Lecture and discussion	Excel lists	Excel lists	3	14
	Lecture and discussion	application practical For the program Excel	knowledge And understand How to a job table It is calculated total And the rate	3	15
		Review the material before the end of the semester			

Course Evaluation

Grade distribution from50According to the tasks assigned to the student, such as daily preparation, daily, oral and monthly exams.
Editorial and reportingIt is distributed into (34) theoretical points and (16) practical points, and represents the annual effort for the subject, and the final exam is (34) theoretical points and (16) practical points, and thus the final score is out of (100). .

Educational resources

5- AComputer Basics and Office Applications Part TwoMicrosoft Office 2010 Ministry of Higher Education and Scientific Research A.M. Ziad Muhammad Abboud, A.Ghassan Hamid Abdul Majeed, Dr. Mustafa Diaa Al-Hasani

modelCourse Description

name Curriculum
Calculators
Course code
the chapterAcademic/first/ year2024—2025
Preparation dateThis description1-11-2024
Forms AttendanceRAvailable
16- My attendance in classrooms 17- Through electronic platforms such as:Classroom Google 18- A special channel for the course via the programTelegram
number watches Academic kidney/3hours number Units/ (2 units)
name responsible The decisionAcademic(if more from name It is mentioned
M.M. Dalia Abdel Rahim

Course objectives	
1-that recognize The student on concept sciences Calculators • 2 -that recognize The student on computer Personal • 3 -that recognize The student on the difference The relationship between Software and parts materialism inside computer • 4 -that recognize The student on importance Use computer • 5 -that recognize The student on How to a job parts computer Interior • 6 -that recognize The student on concept Information that Deals With her computer And its classification • 7 -that recognize The student on How to entrance And exit Information to And computer • 8 -that recognize The student on some Systems Operation • 9 -that recognize The student on relationship	Study material

between Systems Operation and gear • **10 -that can The student from maintenance some parts computer** • **11 -that recognize The student on benefits computer in His life Public** • **12 -that can The student from knowledge parts computer Interior In the picture concrete** • **13 -identification The student In theories Concepts and strategies Private I work computer** • **14 -that recognize The student on ethics Use computer** • **15 -acquisition The student Skills necessary To deal with computer And achieve needs Information Technology specific** **16 -that can The student from Use computer in His specialty practical**	

Teaching and learning strategies	
27. Lectures **28. discussion** 29. **Homework and short exam** 30. Investigation and others 31. Quick and short tests	**Strategy**

Curriculum structure

Evaluation method	Learning method	Topic name	Required learning outcomes	watches	week
Asking short questions	roadExplanation and detailing of the lecture material in person in the classroom and Discussion	basics computer	knowledge And understand basics computer	3	1
Oral exams	AFor lecture and demonstration of examples Discussion method	Computer generations	knowledge And understand Evolution in Generations	3	2
Oral exams	Lectures, Discussion method brainstorming	Types of computers	knowledge And understand a reason Diversity in Computer shapes	3	3
Oral exams	Lectures, Discussion	Central Processing	knowledge And	3	4

	method	Unit	understand lonliness Treatment Central		
Oral exams	Lectures, Discussion method	Computer components	Knowing and understanding computer components	3	5
Oral exams		Operating systems	knowledge And understand better Operating systems	3	6
Oral exams		Operations Basic For computer	knowledge And understand Operations Input And the output	3	7
Oral exams		basics Interface system Operation Windows	knowledge And understand basics Interface system Operation	3	8
Oral exams	Lecture and detailed explanation	keyboard	Knowing and understanding the most important keyboard shortcuts	3	9
Oral exams	Lectures, Discussion method	computer viruses	knowledge And understand security computer and viruses that It hits him	3	10
Oral exams	Lectures, Discussion method	Word program	knowledge And understand program roses And the method currency	3	11
Oral exams	Lectures, Discussion methodAnd the explanation	Lists program roses	knowledge And understand Lists program roses	3	12

Oral exams	Lecture and discussion	program Excel	knowledge And understand program Excel	3	13
Oral exams	Lecture and discussion	Excel lists	Excel lists	3	14
	Lecture and discussion	application practical For the program Excel	knowledge And understand How to a job table It is calculated total And the rate	3	15
		Review the material before the end of the semester			

Course Evaluation

Grade distribution from50According to the tasks assigned to the student, such as daily preparation, daily, oral and monthly exams.
Editorial and reportingIt is distributed into (34) theoretical points and (16) practical points, and represents the annual effort for the subject, and the final exam is (34) theoretical points and (16) practical points, and thus the final score is out of (100). .

Educational resources

6- AComputer Basics and Office Applications Part TwoMicrosoft Office 2010 Ministry of Higher Education and Scientific Research A.M. Ziad Muhammad Abboud, A.Ghassan Hamid Abdul Majeed, Dr. Mustafa Diaa Al-Hasani