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

Academic Program and Course Description Guide

2024

Introduction:

The educational program is a well-planned set of courses that include procedures and experiences arranged in the form of an academic syllabus. Its main goal is to improve and build graduates' skills so they are ready for the job market. The program is reviewed and evaluated every year through internal or external audit procedures and programs like the External Examiner Program.

The academic program description is a short summary of the main features of the program and its courses. It shows what skills students are working to develop based on the program's goals. This description is very important because it is the main part of getting the program accredited, and it is written by the teaching staff together under the supervision of scientific committees in the scientific departments.

This guide, in its second version, includes a description of the academic program after updating the subjects and paragraphs of the previous guide in light of the updates and developments of the educational system in Iraq, which included the description of the academic program in its traditional form (annual, quarterly), as well as the adoption of the academic program description circulated according to the letter of the Department of Studies T 3/2906 on 3/5/2023 regarding the programs that adopt the Bologna Process as the basis for their work.

In this regard, we can only emphasize the importance of writing an academic programs and course description to ensure the proper functioning of the educational process.

Concepts and terminology:

Academic Program Description: The academic program description provides a brief summary of its vision, mission and objectives, including an accurate description of the targeted learning outcomes according to specific learning strategies.

Course Description: Provides a brief summary of the most important characteristics of the course and the learning outcomes expected of the students to achieve, proving whether they have made the most of the available learning opportunities. It is derived from the program description.

Program Vision: An ambitious picture for the future of the academic program to be sophisticated, inspiring, stimulating, realistic and applicable.

Program Mission: Briefly outlines the objectives and activities necessary to achieve them and defines the program's development paths and directions.

Program Objectives: They are statements that describe what the academic program intends to achieve within a specific period of time and are measurable and observable.

Curriculum Structure: All courses / subjects included in the academic program according to the approved learning system (quarterly, annual, Bologna Process) whether it is a requirement (ministry, university, college and scientific department) with the number of credit hours.

Learning Outcomes: A compatible set of knowledge, skills and values acquired by students after the successful completion of the academic program and must determine the learning outcomes of each course in a way that achieves the objectives of the program.

Teaching and learning strategies: They are the strategies used by the faculty members to develop students' teaching and learning, and they are plans that are followed to reach the learning goals. They describe all classroom and extra-curricular activities to achieve the learning outcomes of the program.

Academic Program Description Form

University Name: Al-Furat Al-Awsat Technical University

Faculty/Institute: Technical Collage of Management / Kufa

Scientific Department: Information Technology Management

Academic or Professional Program Name: Information Technology Management

Final Certificate Name: Information Technology Management

Academic System: Credit system

Description Preparation Date: 8 Feb. 2024

File Completion Date: 16 Feb. 2024

Signature:

Head of Department Name:

Lect. PhD. Ammar Wisam Al-Tahir

Date:

Signature:

Scientific Associate Name:

Prof. PhD. Asmaa Mahdi Al-Hashimy

Date:

The file is checked by:

Department of Quality Assurance and University Performance

Director of the Quality Assurance and University Performance Department:

Date: 20/2/2024 Jasim Ali Hassan

Signature:

Approval of the Dean

1. Program Vision

The vision of the Information Technology Management program is to empower students to develop and implement innovative and sustainable technological solutions. This is achieved by providing them with the necessary knowledge and technical and practical skills, building their personal and professional capacities, and promoting values of integrity and social responsibility.

2. Program Mission

The mission of the Information Technology Management program is to offer an exceptional educational program aimed at equipping students with the knowledge and skills necessary to succeed in the field of information technology management and development, enabling them to excel in the dynamic and evolving job market. The program also aims to inspire students to innovate and excel, develop their personal and professional capacities, and guide them towards achieving success in their careers with responsibility and ethics.

3. Program Objectives

1. **Understanding Information Technology:** Providing comprehensive training on the technologies and tools used in the field of information technology, such as database management systems, information security, software development, and computer networks.
2. **Technology Project Management:** Teaching students how to plan and execute information technology projects successfully, including resource management, scheduling, and cost management.

3. **Technology Strategies**: Enhancing the ability to analyze organizations' technology needs and develop strategies for effectively using technology to improve business performance and achieve competitiveness.
4. **Information Security**: Introducing students to the concept of information security and applying best practices to protect data and sensitive information from security threats.
5. **Industry Engagement**: Encouraging communication and interaction with the industry and organizations through training programs, real-world training opportunities, and partnerships with companies.
6. **Leadership Development**: Enhancing leadership skills and strategic thinking for students, enabling them to take on leadership roles in the field of information technology.

4. Program Accreditation

Not found.

5. Other external influences

Not found.

6. Program Structure

Program Structure	Number of Courses	Credit hours	Percentage	Reviews*
Institution Requirements	12	24	15%	
College Requirements	7	21	13%	

Department Requirements	**39**	**116**	**72%**	
Summer Training	**2**	**0**		
Other				

* This can include notes whether the course is basic or optional.

7. Program Description

Year/Level	Course Code	Course Name	Credit Hours	
			theoretical	practical
The first	MCBA121	Principles of Statistics	1	2
The first	INT127	Advanced Statistics	1	2
The first	MTU100	Human rights and democracy	2	0
The first	INT129	Project management	1	2
The first	INT125	Mathematics	1	2
The first	INT128	Management information systems	1	2
The first	INT124	Programming in C++	1	2
The first	INT126	Object-oriented programming using C++	1	2
The first	MTU101	English 1	2	0
The first	MTU102	Computer principles 1	1	2
The first	MTU103	Computer principles 2	1	2
The first	MTU104	Arabic	2	0
The first	MTU105	Sports	1	1
The first	MCBA120	Management Principles	4	2
The first	MCBA122	Accounting principles	4	2
The first	MCBA123	Design Logic	2	2
The first	MTU200	English 2	2	0
The first	MTU201	Arabic	2	0
The first	MTU202	Crimes of Baath regime	2	0
The first	MCBA220	Summer training 1	0	0
The second	INT227	Software statistical packages	1	2
The second	INT224	Numerical Analysis	1	2
The second	INT220	Applications package	1	2
The second	INT225	Numerical analysis techniques	1	2

The second	INT221	Advanced Mathematics	1	2
The second	INT226	Information networks	1	2
The second	INT222	Data structures	1	2
The second	INT223	Advanced data structures	1	2
The second	INT228	Software engineering	2	1
The second	MTU300	English 3	2	0
The second	MCBA320	Summer training 2	0	0
The second	MCBA321	Research Methodology	3	0
The third	INT326	Electronic management	2	1
The third	INT322	Visual programming Fundamentals	2	2
The third	INT331	Digital forensic evidence	2	1
The third	INT330	Discrete mathematics	2	1
The third	INT323	Advanced visual programming	3	2
The third	INT324	Web application programming	2	2
The third	INT325	System analysis	3	0
The third	INT327	Databases	2	2
The third	INT328	Advanced databases	3	2
The third	INT332	Graphics	2	1
The third	INT329	Operating Systems	2	1
The third	INT333	Advanced Operating Systems	3	1
The fourth	INT427	Quantitative methods	2	1
The fourth	INT425	Multimedia	2	1
The fourth	INT422	Information security	2	1
The fourth	INT424	Operations Research	3	1
The fourth	INT421	Data mining	2	1
The fourth	INT420	Artificial intelligence	2	1
The fourth	INT429	Advanced artificial intelligence	2	1
The fourth	INT423	Image processing	2	1
The fourth	INT431	Modeling and simulation	2	1
The fourth	INT426	Data compression	2	1
The fourth	INT428	research project	2	1
The fourth	INT430	Decision support systems	2	1
The fourth	MTU400	English 4	2	0
The fourth	MTU401	Professional ethics	2	0

8. Expected learning outcomes of the program	
Knowledge	
1. Understanding Fundamentals of Information Technology: Students achieve a comprehensive understanding of the concepts and fundamentals of information technology, including database management systems, information security, and computer networks.	1. Empowering students to take on leadership roles and foster innovative thinking in the field of information technology, contributing to the development of innovative and effective technological solutions.
2. Application of Technical Project Management Skills: Empowering students to understand and apply technical project management skills, including planning, execution, and resource management.	2. Students can apply basic technical concepts in managing and developing systems and software applications.
3. Development of Technology Strategies: Enabling students to analyze organizational technology needs and develop effective strategies for technology utilization.	3. Students are capable of successfully executing information technology projects, achieving set goals and timelines.
4. Enhancement of Leadership and Innovation in IT: Enhancing students'	4. Students develop their abilities to strategically apply technology

leadership and innovation skills in the context of information technology.	to improve business performance and enhance competitiveness.
Skills	
1. Developing Communication and Collaboration Skills: Enhancing students' communication and collaboration skills through group projects and discussions.	1. Strengthening students' ability to communicate effectively and work collaboratively with teams in a work environment.
2. Enhancing Critical Thinking and Problem-Solving Skills: Developing students' abilities in critical thinking and problem-solving through analyzing technical challenges and finding effective solutions.	2. Enhancing students' capability to propose innovative and effective solutions to complex technical problems.
3. Developing Analysis and Evaluation Skills: Improving students' abilities in critical analysis and evaluation of technologies and information solutions.	3. Empowering students to make sound decisions and choose appropriate technologies to achieve business objectives.
4. Developing Leadership and Management Skills: Enhancing students' leadership and management skills through taking responsibility and making tough decisions.	4. Empowering students to lead technical teams and manage projects effectively and efficiently.

Ethics	
1. Promoting Integrity and Ethics: Enhancing values of integrity and ethics in the context of technology use and information management.	1. Developing students' awareness of social responsibility and applying ethical principles in their personal and professional lives.
2. Promoting Social Interaction and Collaboration: Promoting social values such as cooperation, respect, and positive interaction in the learning environment.	2. Developing collaboration skills and building healthy and positive social relationships among students.
3. Promoting Cultural Awareness and Diversity: Promoting awareness of cultural diversity and respect for different cultures in the technology community.	3. Enhancing students' understanding of cultural diversity and applying values of respect and tolerance in their interactions with others.
4. Promoting Neutrality and Justice: Promoting neutrality and justice in decision-making and dealing with information and technology.	4. Developing students' ability to make decisions based on knowledge, ethical principles, and justice.

9. Teaching and Learning Strategies

1. **Theoretical lessons**: Interactive lectures and lessons that present basic concepts and theoretical knowledge. These lectures can be live in the classroom or via online platforms.
2. **Practical projects**: The program heavily relies on practical projects where students can apply theoretical concepts and skills in real-life projects, including developing software applications, managing technical projects, designing and implementing databases, and more.
3. **Workshop lessons**: Workshops can include hands-on experiments and training on specific tools and techniques—for example, workshops on information security or web application development.
4. **Discussions and active participation**: Students are encouraged to participate in discussions and interactive activities to exchange ideas and opinions on various topics in information technology.
5. **Teamwork**: Encourage teamwork on projects where students collaborate to solve complex technical problems and develop large technical projects.
6. **Self-learning and research**: Encouraging students to develop self-learning and research skills to explore new technical topics and follow developments in the field.
7. **Use of educational technologies**: Technology in teaching and learning, such as online education platforms and interactive tools.
8. **Field visits and practical training**: Students can visit IT institutions and participate in practical training to apply what they have learned in reality.

10. Evaluation methods

1. Daily tests
2. Scientific research.

3. Facilitating scientific discussions and seminars with students is an effective way to gauge the depth of their comprehension of the subject matter.

11. Faculty

Faculty Members

Academic Rank	Specialization		Special Requirements/Skills (if applicable)		Number of the teaching staff	
	General	Special			Staff	Lecturer
Assistant Professor	Mathematics	Mathematical statistics			1	
Lecturer	Computer science	Image processing			1	
Lecturer	Computer science	Multimedia security			1	
Lecturer	Computer science	Information systems			1	
Lecturer	Computer science				1	
Lecturer	Business management	Information systems/quality management			1	
Assistant Lecturer	English language	Linguistics			1	
Assistant Lecturer	Law				1	
Assistant Lecturer	Business management				1	
Assistant Lecturer	Accounting				1	
Assistant Lecturer	Computer science	computer science			5	
Assistant Lecturer	Sports				1	
Assistant Lecturer	Mathematics	Algebraic statistics			1	
Assistant Lecturer	Arabic language	the language			1	
Assistant Lecturer	Arabic language	Language and literature			1	

Assistant Lecturer	Computer engineering	Computer and electronic systems engineering			1	
Assistant Lecturer	Computer engineering	Information technology engineering			1	
Assistant Lecturer	Communication Engineering				1	
Assistant Lecturer	Communications technologies				1	
Assistant Lecturer	Geography				1	
Assistant Lecturer	Geography	environment			1	
Assistant Lecturer	Control and systems engineering	Mechatronics			1	

Professional Development

Mentoring new faculty members

- Introduction to the Institution and Department: Provide comprehensive information about the vision and objectives of the educational institution and the academic department, including educational programs, research, and service activities.
- Orientation to Policies and Procedures: Explain the institution's and department's policies and procedures, including academic ethics, research standards, and evaluation procedures.
- Resource and Support Orientation: Provide information about available resources for new faculty members, such as libraries, training centers, and technical support.
- Participation in Professional Development Programs: Encourage participation in professional development programs, such as workshops, seminars, and training courses, to enhance teaching and research skills.
- Encouragement for Communication and Collaboration: Foster communication and collaboration with other faculty members, students, and staff to exchange experiences and build academic and social networks.

- Performance Monitoring and Evaluation: Monitor the progress of new faculty members during training programs, and provide feedback and support to ensure the achievement of goals.

Professional development of faculty members

- Needs Assessment: Initiate the development process by assessing the needs of faculty members through surveys or individual meetings to identify areas requiring improvement.
- Setting Objectives and Measures: Based on the needs assessment, establish specific objectives for academic and professional development, and devise necessary measures and plans to achieve these objectives.
- Implementation of Training Programs: Conduct diverse and tailored training programs according to the needs of faculty members, such as workshops, training courses, and seminars.
- Monitoring and Evaluation of Performance: Monitor the progress of faculty members throughout the training programs, providing regular feedback and necessary support to ensure goal attainment.
- Application of Teaching Strategies: Include the implementation of innovative and effective teaching strategies as part of the development plan, such as active learning, cooperative learning, and continuous assessment.
- Research and Publication Development: Enhance faculty members' research and publication capabilities by supporting them in conducting research and disseminating findings in peer-reviewed journals.
- Participation in Service Activities: Encourage participation in community service activities, such as applied research projects and academic consultancy, to contribute to societal development.
- Continuous Evaluation and Improvement: Conduct regular evaluation of the effectiveness of development programs and utilize the results to improve processes and meet the ongoing needs of faculty members.

12. Acceptance Criterion

According to the instructions specified by the Ministry of Higher Education and Scientific Research through central admission, the admission controls are approved by the university and college, according to the student's desire to apply to the department.

13. The most important sources of information about the program

- Textbooks
- Teaching lectures

14. Program Development Plan

- By the college's scientific conference.
- The department's scientific symposium.
- Discussions for teachers and students.
- Workshops for teachers and students.

Program Skills Outline															
				Required program Learning outcomes											
Year/Level	Course Code	Course Name	Basic or optional	Knowledge				Skills				Ethics			
				A1	A2	A3	A4	B1	B2	B3	B4	C1	C2	C3	C4
	MCBA121	Principles of Statistics	Basic	1	1		1		1		1	1		1	
	INT127	Advanced Statistics	Basic	1		1		1	1			1			1
	MTU100	Human rights and democracy	Basic		1	1		1		1		1	1		
	INT129	Project managemen t	optional	1		1	1			1	1		1		1
	INT125	Mathematic s	Basic	1	1			1	1			1		1	

	INT128	Management information systems	optional	1			1			1		1	1		1
	INT124	Programming in C++	Basic			1		1		1	1		1	1	1
	INT126	Object-oriented programming using C++	Basic	1		1	1	1		1		1		1	1
	MTU101	English 1	Basic		1	1		1	1		1		1		1
	MTU102	Computer principles 1	Basic		1	1		1		1	1		1		1
	MTU103	Computer principles 2	Basic	1			1		1		1	1		1	
	MTU104	Arabic	optional	1	1	1			1				1		1

	MTU105	Sports	Optional		1	1		1				1	1	1	1
	MCBA120	Management Principles	Basic				1	1			1	1			
	MCBA122	Accounting principles	Basic	1	1	1	1		1	1			1	1	
	MCBA123	Design Logic	Basic		1	1	1		1	1	1				1
	MTU200	English 2	Basic				1	1	1			1	1	1	1
	MTU201	Arabic	Optional	1	1	1			1	1			1		
	MTU202	Crimes of Baath regime	Basic	1	1	1	1	1				1	1	1	1
	MCBA220	Summer training 1	Basic	1	1			1	1	1	1				1

	INT227	Software statistical packages	Optional	1	1	1				1	1			1	1
	INT224	Numerical Analysis	Basic	1	1			1	1				1	1	1
	INT220	Applications package	Basic	1	1	1		1	1	1	1				1
	INT225	Numerical analysis techniques	Basic	1	1	1		1	1	1	1	1	1	1	1
	INT221	Advanced Mathematics	Basic	1	1	1			1	1		1	1		1
	INT226	Information networks	Basic				1		1	1		1			
	INT222	Data structures	Basic		1	1				1		1		1	

	INT223	Advanced data structures	Basic	1	1	1	1	1	1			1	1	1	1
	INT228	Software engineering	optional	1	1	1				1	1		1	1	1
	MTU300	English 3	Basic	1	1		1	1	1	1	1		1	1	
	MCBA320	Summer training 2	Basic		1		1	1				1			1
	MCBA321	Research Methodology	Basic	1	1		1	1	1	1	1	1	1	1	1
	INT326	Electronic management	Basic	1	1	1	1	1	1	1	1	1	1		1
	INT322	Visual programming	Basic	1	1	1	1				1	1	1	1	1

		Fundamentals													
	INT331	Digital forensic evidence	optional		1	1	1		1	1	1	1	1		1
	INT330	Discrete mathematics	optional		1	1	1		1	1	1	1	1		1
	INT323	Advanced visual programming	Basic	1	1		1			1	1		1		
	INT324	Web application programming	Basic	1	1		1	1	1		1		1	1	1

	INT325	System analysis	optional		1	1	1				1	1	1	1	
	INT327	Databases	Basic		1	1					1	1	1	1	
	INT328	Advanced databases	Basic		1	1	1	1	1				1	1	1
	INT332	Graphics	optional	1			1		1		1	1	1		
	INT329	Operating Systems	Basic	1			1		1		1	1	1	1	1
	INT333	Advanced Operating Systems	Basic	1	1			1	1	1	1			1	
	INT427	Quantitative methods	Basic	1		1			1	1			1	1	
	INT425	Multimedia	Basic	1		1	1			1	1	1	1	1	
	INT422	Information security	Basic	1	1		1	1	1		1				1

	INT424	Operations Research	Basic			1						1	1	1	1
	INT421	Data mining	Basic			1		1			1	1		1	1
	INT420	Artificial intelligence	Basic	1	1	1		1		1	1		1		
	INT429	Advanced artificial intelligence	Choose	1	1	1				1	1		1	1	1
	INT423	Image processing	Basic	1	1					1	1	1	1	1	1
	INT431	Modeling and simulation	optional	1	1	1	1	1	1		1		1		1
	INT426	Data compressio n	Basic	1	1				1		1	1	1		

	INT428	research project	Basic			1	1	1					1	1	
	INT430	Decision support systems	optional	1	1	1			1	1			1		1
	MTU400	English 4	Basic		1	1	1	1	1	1	1	1	1	1	1
	MTU401	Professional ethics	Basic	1	1		1	1			1	1		1	

- **Please tick the boxes corresponding to the individual program learning outcomes under evaluation.**

Course Description Form

1. Course: Numerical Analysis

2. Course CodeNT2241 :

3. Semester / Year : Semester / Second

4. Date of preparation of this description 13-2-2024

5. Available Forms of Attendance: Weekly – Compulsory

6. Number of Credit Hours (Total) / Number of Units (Total): 45 Credit Hours

7. Course administrator's name (if more than one name)

Name: Prof. Mujtaba Zuhair Ali Email: mujtaba.z.ali@atu.edu.iq

8. Course Objectives

Course Objectives	• Possess the knowledge of ways to solve some problems in ways Numerical with the use of computers such as derivation, integration. • Be able to analyze the matrix and get used to using large-dimension matrices. • Apply numerical integration to calculate integrals that are not computable by the original functions. • Write algorithms to implement the solution of some problems using numerical methods by computer.

9. Teaching and Learning Strategies

Strategy	• Presentation of the topic through lectures. • Discussion during lectures. • Homework. • Interact with students and discuss them during lectures. • Encourage students to practice various software related to the course content.

10. Course Structure

The week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1	3	Introducing the student to relative and absolute error	Calculation of errors (estimation of	Blackboard & Screen	Duties on how to Using computers and writing programs to

			errors absolute error Relative error (rotation errors)		solve homework giving
2	3	Introducing the student to solving one-variable equations	Solving one-variable equations (isolating roots - graphical and analytical method)	Blackboard & Screen	=
3	3	Introducing the student to the method of repeated classification	Repeated classification method, algorithm breaker method and programming method	Blackboard & Screen	=
4	3	Introducing the student to the Newton Raphson method	Newton-Raphson method, fixed point	Blackboard & Screen	=
5	3	find eigenvalues and eigenvectors	Eigenvalues and Eigenvectors / Chebyshev Polynomials and Chebvshev Series	Blackboard & Screen	=
6	3	Numerical Solution of a System of Nonlinear Equations	Numerical Solution of a System of Nonlinear Equations	Blackboard & Screen	=
7	3	Solving a System of Linear Equations	System of linear equations Solving Homogeneous Linear Equations	Blackboard & Screen	=
8	3	Kramer Method,Gauss Method	Kramer Method,Gauss Method	Blackboard & Screen	=
9	3	Solve the Gauss method	The Gauss-Gordon method and the Kraut method	Blackboard & Screen	=
10	3	Solve exercises	Indirect methods for solving a system of linear	Blackboard & Screen	=

			equations - Jacobi method Kaos Seidel method		
11	3	Give examples	Internal interpolation and difference tables General method and Lakrang method	Blackboard & Screen	=
12	3	Know the differences	Finite differences Newton's front and rear method	Blackboard & Screen	=
13	3	General exercises	General Exercises / Using Computer Algebra Systems Economizing a Power Series	Blackboard & Screen	=
14	3	Solution Integrations	Numerical integration trapezoidal method/Simpson algorithm method	Blackboard & Screen	=
15	3	Solving Equations	Solving Differential Equations / Range-Cotta Method	Blackboard & Screen	=

11.
Distributing the score out of 100 according to the tasks assigned to the student such as daily preparation, daily, oral, monthly, written exams, reports .... etc

12. Learning and Teaching Resources	
Required textbooks (methodology, if any)	Dr. Mohammed Sobh / Dr. Saleh Manea (2006) Numerical analysis and numerical calculation methods. Al-Rasheed Library Kingdom of Saudi Arabia
Key references (sources)	Steven T. Karris Numerical Analysis 2007 Using MATLAB® and Excel®
Recommended books and references (scientific journals, reports...)	Jeffrey R. Chasnov2012 Introduction to Numerical Methods
Electronic References, Websites	Prof. R. Hiptmair, SAM, ETH Zurich 2016 Numerical Methods for Computational Science and Engineering

1. Course Name
Operations Research

2. Course Code
INT424
3. Semester / Year
Second Semester 2024
4. The history of preparation of this description
11/2/2024
5. Available Attendance Forms
Came
6. Number of Credit Hours (Total) / Number of Units (Total)
60 hours (4 hours per week) 4 units
7. Course administrator' s name (if more than one name)
Name: Dr. Mohammed Nabil Hadi Al-Haboubi Email: mohammed.haboobi@atu.edu.iq
8. Course Objectives

Course Objectives	• **Provide students with basic concepts related to operatic research and its applications in organizations.** • **Enable students to grasp the concept of operations research and the necessary information and skills that enable them to work in modern administrative fields.**
9. Teaching and Learning Strategies	
Strategy	The course follows an active learning strategy that relies on the active participation of students in the lecture, and includes activities such as group discussions, problem-solving exercises and case studies.

10. Course Structure

The week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1	4	Recognize the concept of linear programming	The concept of linear programming, its applications, and the conditions of linear programming.and the formulation of the mathematical model	Lecture style Case study method	Daily tests
2	4	Application of linear programming by graphical method	Methods of solving linear programming problems, graphical method	Lecture style Case study method	Daily tests
3	4	Application of linear	Simplex Method	Lecture style	Daily tests

		programming by the simplex method		Case study method	
4	4	Application of linear programming by the Big-M method	Big-m method	Lecture style Case study method	Daily tests
5	4	Application of linear programming in a two-stage way	Two-stage method	Lecture style Case study method	Daily tests
6	4	Application of linear programming by modified simplex method	modified simplex method revised simplex method	Lecture style Case study method	Daily tests
7	4	Application of linear programming by the correspondin g model method	The corresponding model (binary) and the formulation of the corresponding model. The simplex method of the corresponding model (dual simplex) and the relationship between the prototype and the opposite.	Lecture style Case study method	Daily tests
8	4	Recognize the concept of sensitivity analysis	Sensitivity analysis, adjustment at the right end of constraints, addition of new constraint, modification in target function	Lecture style Case study method	Daily tests
9	4	Recognize the concept of the transport problem	The problem of transportation, methods of finding the basic acceptable solution (less expensive method, northwest corner method, Vogel method)	Lecture style Case study method	Daily tests
10	4	Apply the solution to the transfer	Methods of finding the optimal solution (zigzag path method, moderate	Lecture style	Daily tests

		problem in the zigzag style	distribution method or multiplication factors) with reference to the formulation of the linear programming model.	Case study method	
11	4	Learn about the concept of customization models	Allocation models, methods of solving allocation models (Hungarian method, linear programming method) with examples of special cases in allocation.	Lecture style Case study method	Daily tests
12	4	Learn about the concept of business networks	Business networks, business network graphing, methods of calculating the critical path of the network, CPM method and pert method .	Lecture style Case study method	Daily tests
13	4	PERT Networking Solution	Pert method	Lecture style Case study method	Daily tests
14	4	Recognize the concept of game theory	Match theory, general concepts, types of matches, types of strategies (net, different) zero-sum matches, stability point,	Lecture style Case study method	Daily tests
15	4	Application of match solving	Methods of solving matches type 2xm and mx 2, graphical method, algebraic method (arithmetic) and linear programming method for formulating the model for matches of the type mxn	Lecture style Case study method	Daily tests

11. Course Evaluation

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

Participation and discussion within the lecture 10 marks Practical assignment 10 marks First month exam 15 points Second month exam 15 points Final Exam - Practical Side 10 marks Final Exam – Theoretical 40 Points Total 100 degrees	
12. Learning and Teaching Resources	
Required textbooks (methodology, if any	1. Abdel Salam Al-Maghraoui (Operations Research in the fields of investment, production, transport and storage) Dar Al-Sharq Press 1991. 2. Ahmed Rafiq Qasim ((Introduction to Operations Research)) University of Aleppo 1990
Main references (sources)	1. Abed Diab Jazaa ((Operations Research)) Second Edition 1988 2. Dr. Mohamed Abdel Aal Al-Nuaimi, Ahmed Shehab (Introduction to Operations Research) First Edition 1999.
Recommended books and references (scientific journals, reports…)	Hamdy, A.,Taha "Operation Rsearch" 6th .,Coller MacMillian,1997.
Electronic References, Websites	

1. Course Name	
Electronic Management	
2. Course Code	
INT326	
3. Semester / Year	
Second Semester 2024	
4. The history of preparation of this description	
11/2/2024	
5. Available Attendance Forms	
Came	
6. Number of Credit Hours (Total) / Number of Units (Total)	
45 hours (three hours weekly) 3 units	
7. Course administrator' s name (if more than one name)	
Name: Dr. Mohammed Nabil Hadi Al-Haboubi Email: mohammed.haboobi@atu.edu.iq	
8. Course Objectives	
Course Objectives	• **Provide students with basic concepts related to electronic management and its applications in organizations.**

	• **Enable students to understand the concept of electronic management and the necessary information and skills that enable them to work in modern administrative fields.**

9. Teaching and Learning Strategies

Strategy	The course follows an active learning strategy that relies on the active participation of students in the lecture, and includes activities such as group discussions, problem-solving exercises and case studies.

10. Course Structure

The week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1	3	Understand the difference between traditional management and e-management	Introduction to electronic management / definition / its relationship to the concepts of approach / emergence and development / remote management and its methods / the most important methods of modern electronic management / its benefits / the obstacles it faces	Lecture style Case study method	Daily tests
2	3	Understand the work steps of e-management	Steps to introduce electronic management / stages of transformation to electronic management / workflow steps in electronic administration / patterns of electronic management / objectives of electronic management / success factors of electronic management / elements of electronic management	Lecture style Case study method	Daily tests
3	3	Knowledge of electronic management functions	Electronic Management/Digital Planning/Digital Organization/Electronic Leadership/Electronic Control Jobs	Lecture style Case study method	Daily tests
4	3	Understand the relationship between	Electronic Management and Information Systems / Office Information	Lecture style	Daily tests

		electronic management and information systems	Systems / Meeting Systems / Video Conferencing / Desktop Publisher System	Case study method	
5	3	Awareness of the security dimension and privacy when applying electronic management	Introduction and Concepts/ Privacy Threats/ Privacy Technologies and Solutions/ Security Threats/ Security Technologies and Solutions	Lecture style Case study method	Daily tests
6	3	Learn about electronic payment systems	Electronic payment systems in electronic business / electronic payment methods / electronic payment and security technologies	Lecture style Case study method	Daily tests
7	3	Understand the mechanism of e-government implementation	The concept of e-government / benefits and steps of applying e-government / stages of e-government	Lecture style Case study method	Daily tests
8	3	Aware of the challenges of applying electronic management	Requirements for the success of e-government implementation/ E-government obstacles/ E-government opportunities at the community and organizational levels/ Technical and non-technical challenges facing e-government	Lecture style Case study method	Daily tests
9	3	Understand how e-commerce works	The concept of e-commerce / classifications of e-commerce / the importance of e-commerce and its benefits / the drawback on e-commerce	Lecture style Case study method	Daily tests
10	3	Understanding the challenges of implementing e-commerce	Effects of organizations ignoring e-commerce / legal, ethical and social effects of e-commerce / challenges facing e-commerce	Lecture style Case study method	Daily tests

11	3	Learn about the concepts of the digital economy	Electronic or digital economy / from industrial economy to digital economy / the concept of digital economy / the new foundations of the digital economy	Lecture style Case study method	Daily tests
12	3	Learn about the concept of the digital economy	Digital or virtual organization / concept / characteristics / origin and development / systems and features of work / advantages / takeaway	Lecture style Case study method	Daily tests
13	3	Learn about the concept of e-learning	E-learning / concept and nature / elements of e-learning / pros and cons of e-learning / comparison between traditional education and e-learning	Lecture style Case study method	Daily tests
14	3	Ability to deal with the Moodle platform	Moodle Program / Introduction to the program and the advantages of the program / the main elements that make up the program	Lecture style Case study method	Daily tests
15	3	Organizing courses on the Moodle platform	Program Courses / Program Registration Method	Lecture style Case study method	Daily tests

11. Course Evaluation

Distributing the score out of 100 according to the tasks assigned to the student such as daily preparation, daily, oral, monthly, written exams, reports .... etc
Participation and discussion within the lecture 10 marks
Practical assignment 10 marks
First month exam 15 points
Second month exam 15 points
Final Exam - Practical Side 10 marks
Final Exam – Theoretical 40 Points
Total 100 degrees

12. Learning and Teaching Resources

Required textbooks (methodology, if any)	1- Ahmed, Mohammed Samir, (2009), Electronic Management, 1st Edition, (Amman: Dar Al-Masara)

	2- Bassiouni, Abdel Hamid, (2008), e-Government, 1st Edition, (Cairo: Dar Al-Kutub Al-Ilmiyya)
Main references (sources)	1- Al-Jadayah, Mohammed Noor Saleh and Khalaf, Sana Jawdat, (2009), E-Commerce, (Amman: Dar Al-Hamid) 2- Hegazy, Abdel Fattah Bayoumi, (2008), E-Government between Reality and Ambition, 1st Edition, (Alexandria: Dar Al-Fikr Al-Jamia)
Recommended books and references (scientific journals, reports…)	Slyke, Craig Van & Belanger, France, (2003), E- Business Technologies, (Danvers, MA: john Wiley & sons)
Electronic References, Websites	

1. Course Title: Numerical Analysis Techniques	
2. Course Code	
3. Semester / Year : Semester / Second	
4. Date of preparation of this description 13-2-2024	
5. Available Forms of Attendance: Weekly – Compulsory	
6. Number of Credit Hours (Total) / Number of Units (Total): 45 Credit Hours	
7. Course administrator's name (if more than one name)	
Name: Prof. Mujtaba Zuhair Ali Email: mujtaba.z.ali@atu.edu.iq	
8. Course Objectives	
Course Objectives	• Possess the knowledge of ways to solve some problems in ways Numerical with the use of computers such as derivation, integration. • Be able to analyze the matrix and get used to using large-dimension matrices. • Apply numerical integration to calculate integrals that are not computable by the original functions. • Write algorithms to implement the solution of some problems using numerical methods by computer.
9. Teaching and Learning Strategies	
Strategy	• Presentation of the topic through lectures. • Discussion during lectures. • Homework. • Interact with students and discuss them during lectures.

	• Encourage students to practice various software related to the course content.

10. Course Structure

The week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1	3	Student Definition of Programming Language	Introduction to the language used to find, program and manage files in numerical analysis	Blackboard & Screen	Duties on how to Using computers and writing programs to solve homework giving
2	3	Introducing the student to the most important functions required	Learn about the set of instructions and functions for solving mathematical methods	Blackboard & Screen	=
3	3	Introduce the student to how to program and build matrices	programming the construction of functions and matrices	Blackboard & Screen	=
4	3	Student definition of comments, input and output phrases	Comment, input and output phrases / arithmetic operators with logical operators / loops and conditional tools	Blackboard & Screen	=
5	3	Programming and writing the breaker method code	Programming the repetitive classification method, programming the incisor method (strings)	Blackboard & Screen	=
6	3	Programming Newton's method	Newton-Raphson method programming, fixed-point programming	Blackboard & Screen	=

7	3	Solving a System of Linear Equations	Linear Equation System Programming	Blackboard & Screen	=
8	3	Kramer Method,Gauss Method	Programming Kramer Method, Programming Gauss Method	Blackboard & Screen	=
9	3	Solve the Gauss method	Programming the Gauss Jordan Method - Kraut Method Programming	Blackboard & Screen	=
10	3	Solve exercises	Programming of indirect methods for solving a system of linear equations - Jacobi method Programming the Kaus-Seidel method	Blackboard & Screen	=
11	3	Give examples	Programming internal interpolation methods and spreads tables General method	Blackboard & Screen	=
12	3	Know the differences	Lakrang method programming Newton's method front and rear	Blackboard & Screen	=
13	3	General exercises	Numerical differential programming	Blackboard & Screen	=
14	3	Solution Integrations	Programming numerical integration - the trapezoid method and the Simpson method	Blackboard & Screen	=
15	3	Programming and giving an example	Programming the Euler method and the Tyler method	Blackboard & Screen	=

11.

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

12. Learning and Teaching Resources

Required textbooks (methodology, if any)	Dr. Mohammed Sobh / Dr. Saleh Manea (2006) Numerical analysis and numerical calculation methods. Al-Rasheed Library Kingdom of Saudi Arabia
Key references (sources)	Steven T. Karris Numerical Analysis 2007 Using MATLAB® and Excel®
Recommended books and references (scientific journals, reports...)	Jeffrey R. Chasnov2012 Introduction to Numerical Methods
Electronic References, Websites	Prof. R. Hiptmair, SAM, ETH Zurich 2016 Numerical Methods for Computational Science and Engineering

1. Course Name
Discrete mathematics
2. Course Code
3. Semester / Year
Second Semester – Year 2024
4. The history of preparation of this description
2024/2/13
5. Available Attendance Forms
Weekly / Compulsory
6. Number of Credit Hours (Total) / Number of Units (Total)
Number of Units (3)
7. Course administrator' s name (if more than one name)
Name: Nour Al-Huda Salim Email:
8. Course Objectives

Course Objectives	• **The student learns about the basics of computer logic** • **Recognizes discrete mathematics** • **The student acquires theoretical skill through the use of the laws of**

9. Teaching and Learning Strategies	
Strategy	• Interactive Lecture • Dialogue and discussion • Brainstorming • Problem solving • Simulations and scientific presentations • Practicality • Self-education • Cooperative Education • Exchange of experiences between colleagues

10. Course Structure

The week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1	**3**	Computer logic, definition of	**Linguistic phrase**	• **Lecture**	• **Short exams**

2 **3** **4** **5** **6** **7** **8** **9** **10**	**3** **3** **3** **3** **3** **3** **3** **3** **3**	discrete mathematics 0 , linguistic phrase, sentence (statement), symbolic, simple and compound sentence. Miscellaneous examples , exercises , discussion . Mathematical logic tools, And, Or, pure tools, etc., real value tables, conditional statements and logical equivalence, miscellaneous examples. De Morgan's Low Laws, Mathematical Logic (Laws of Distribution), Generalization of De Morcan's Laws of Logic, Laws of Distribution, Laws of Correlation and Exchange Processes Examples, Exercises, Discussion.	**Mathematical logic tools** **Demorken Laws** **Phrases** **Proof** **Conclusion** **Sports**	• **Discussion and dialogue** • **Various examples of basic concepts of discrete mathematics** • **Presentations**	• **Duties** • **Short Report Writing** • **Research** • **Midterm exam** • **Final Exam**

11 **12** **13** **14** **15**	**3** **3** **3** **3** **3**	Estimated phrases (Quantifiers) Elements that make sentences wrong, open sentences (non-estimated), (predicates) comprehensive estimators and existing estimators**, exercises, discussion.** examples of estimated sentences and logical tools, Proof: , Conclusion against reality and truth, **direct proof.** Math Induction, proof of inequalities by mathematical deduction, examples, exercises, discussion. Application of mathematical deduction in computer science, iterative algorithms in arithmetic, exercises, discussion	**Groups** **Operations on groups** **Sequential** **Series** **Functions**		

		Sets, group description, equal sets, subsets, real and equal sets, **examples, miscellaneous exercises, discussion.** Group operations, union, intersection and complement of the group **(Unions and Intersections),** **Theorems, miscellaneous examples, exercises, discussion.** Difference between two groups, Venn diagrams (Venn Diagram), relationship between groups, group operations and logical tools, miscellaneous examples and exercises, discussion**.** Sequence , summation of finite sequences, series,	**Boolean algebra**		

		arithmetic series, texts, exercises, discussion. **Infinite series, definition, neutrians, Taylor series expansion, McLaurin series, miscellaneous examples, exercises, discussion.** Functions and Relation, the idea of a relationship, the symmetric relationship, **Specifies the scope and range of the relationship, relationship diagram, examples, exercises, discussion** Function, function symbols, properties of functions, structure and inverse of functions, inverse functions, graph of the inverse function, examples, exercises, discussion.			

		Boolean Algebra, Boolean algebra for sentences**, Boolean algebra for groups, theories, examples, exercises, discussion**			

11. Course Evaluation	
Distributing the score out of 100 according to the tasks assigned to the student such as daily preparation, daily, oral, monthly, written exams, reports .... etc	
12. Learning and Teaching Resources	
Required textbooks (methodology, if any)	Discrete Mathematics in Computer Science, Gulnar Muhammad Hadi and Nasser Hussein Salman, Wael Publishing House, Jordan - Amman, First Edition, 2008
Main references (sources)	Advanced Mathematics for Engineers and Scientists, Murray R. Spiegel, translated by Dr. Saad Kazem Ahmed, Ain Shams University, Egypt, 1982.
Recommended books and references (scientific journals, reports…)	Discrete mathematics and its application. Sixth edition , Kenneth H. Rosen, printed in Singapore, 2007
Electronic References, Websites	

13. Course Name
Advanced Mathematics
14. Course Code
15. Semester / Year
Second Semester – Year 2024
16. The history of preparation of this description
2024/2/13
17. Available Attendance Forms
Weekly / Compulsory
18. Number of Credit Hours (Total) / Number of Units (Total)
Total Credit Hours 45/Number of Units (3)
19. Course administrator' s name (if more than one name)

Name: Nour Al-Huda Salim Email:					
20. Course Objectives					
Course Objectives	• **The student learns about the basics and rules calculus** • **Application in solving scientific problems** • **The student is introduced to the applications of integration and their use in the field of various sciences**				
21. Teaching and Learning Strategies					
Strategy	• Interactive Lecture • Dialogue and discussion • Brainstorming • Problem solving • Simulations and scientific presentations • Practicality • Self-education • Cooperative Education • Exchange of experiences between colleagues				
22. Course Structure					
The week	**Hours**	**Required Learning Outcomes**	**Unit or subject name**	**Learning method**	**Evaluation method**
1 2	3 3	**Differentiation, Differentiation, Differentiation Laws, Derivative by definition, , Derivative as a rate of change, solving**	**Calculus** **Derivation**	• **Lecture** • **Discussion and dialogue** • **Various examples of basic concepts of discrete mathematics**	• **Short exams** • **Duties** • **Short Report Writing** • **Research** • **Midterm exam**

		various examples of the definition method, exercises and discussion.		• Presentations	• Final Exam
3	3	Tangent and derivative line, tangent slope to curve, tangent equation and			
4	3	column equation, derivative of algebraic functions, derivative rules of			
5	3	algebraic functions, solving miscellaneous examples,			
6	3	exercises, discussion of exercises.			
7	3	Derivative of exponential and logarithmic			

8	3	functions , laws of exponential and logarithmic function , miscellaneous examples , solving exercises , discussion	Integration		
9	3	derivative of homosexual functions , theorems of,derivative of homosexual functions , derivative of homosexual functions raised to powers of n,	Differential equations		
10	3	miscellaneous examples , exercises , discussion			
11	3	Derivative of inverse trigonometric functions, various			

		applications, examples, exercises, discussion.			
12	3	Derivative of compound functions (chain rule),	Applications on integration		
13	3	Derivative of the implicit function, miscellaneous applications, examples, exercises, discussion.			
14	3	Higher order derivatives, solving various examples of higher derivatives,			
15	3	solving various exercises about the derivative of functions of all kinds, exercises, discussion.			

		Integrals, indefinite integrals, indefinite integration rules, integration of algebraic functions, solving examples, exercises, discussion. **Differential equations, definition, solution of differential equation with initial condition, solution of differential equation by separation of variables, examples, exercises, discussion.** **Integration of exponential and**			

		logarithmic functions, solving various examples, exercises, discussion. **Integration of trigonometric functions (Trigonometric Integrals), integration of trigonometric functions raised to different powers, proofs, solving various examples, exercises, discussion.** **Definite Integrals, definition of definite integral, properties of definite integration, examples,**			

		exercises, discussion. **Applications on integration, subcurved space, shape area between two curves, examples, exercises, discussion.** **Integration Methods, Integration by Parts, Trigonometric Substitutions, Solving Various Examples of Integration Methods, Exercises, Discussion** **Integration by partial fractions method,**			

		probability of integration by partial fractions, different examples and special cases of integration by partial fraction method, examples, exercises, discussion.			

23. Course Evaluation	
Distributing the score out of 100 according to the tasks assigned to the student such as daily preparation, daily, oral, monthly, written exams, reports .... etc	
24. Learning and Teaching Resources	
Required textbooks (methodology, if any)	Calculus and analytic geometry. Author Thomas translated by Dr. Mowaffaq Daaboul - Dr. Ali Balanhar - 1984.
Main references (sources)	Mathematics and its applications in economics - commerce and administrative sciences - the author Howell Joel translated by Dr. Ahmed Al-Alawneh and others-1983.
Recommended books and references (scientific journals, reports…)	Calculus, Dr. Sabri Redif Al-Ani, Dr. Saeed Mohsen Al-Khuzaie, Dr. Basil Atta Al-Hashemi, University of Baghdad, Department of Mathematics, 1981.
Electronic References, Websites	Advanced Mathematics for Engineers and Scientists, Murray R. Spiegel, translated by Dr. Saad Kazem Ahmed, Ain Shams University, Egypt, 1982.

1. Course Name
Quantitative methods
2. Course Code
1503407
3. Semester / Year

First Semester – Year 2024					
4. The history of preparation of this description					
2024/2/13					
5. Available Attendance Forms					
Weekly / Compulsory					
6. Number of Credit Hours (Total) / Number of Units (Total)					
Total Credit Hours 45/Number of Units (3)					
7. Course administrator' s name (if more than one name)					
Name: Nour Al-Huda Salim Email:					
8. Course Objectives					
Course Objectives	• **The student knows what are mathematical and stochatic models** • **The student recognizes the types of analysis and their application in the spss program** • **Estimate and predict models**				
9. Teaching and Learning Strategies					
Strategy	• Interactive Lecture • Dialogue and discussion • Brainstorming • Problem solving • Simulations and scientific presentations • Practicality • Self-education • Cooperative Education • Exchange of experiences between colleagues				
10. Course Structure					
The week	**Hours**	**Required Learning Outcomes**	**Unit or subject name**	**Learning method**	**Evaluation method**

1	3	Introduction to mathematical and stochatic models	**Introduction to the topic**	• **Lecture** • **Discussion and dialogue** • **Various examples of basic concepts of discrete mathematics** • **Presentations**	• **Short exams** • **Duties** • **Short Report Writing** • **Research** • **Midterm exam** • **Final Exam**
2	3	Simple linear correlation analysis (Pearson and Kendal)	**Correlation analysis and types**		
3	3	Correlation coefficient for ordinal data and coupling coefficient			
4	3	Partial correlation analysis			
5	3	Multilink analysis			
6	3	Track analysis	**Track analysis**		
7	3	Simple linear regression analysis	**Regression analysis and types**		
8	3	Multiple linear			
9	3				
10	3				

11 12 13 14 15	3 3 3 3 3	regression analysis Nonlinear Regression Analysis Time Series Analysis and ARIMA Models Box-Jinx methodology and diagnosis of ARIMA models Estimating ARIMA models forecasting Spectroscopy Estimating the Spectrum Function	**Time Series Analysis** **forecasting** **Spectrum Analysis**		

11. Course Evaluation
Distributing the score out of 100 according to the tasks assigned to the student such as daily preparation, daily, oral, monthly, written exams, reports .... etc
12. Learning and Teaching Resources

Required textbooks (methodology any)	1- Paolella M." Linear Models and Time-Series Analysis Regression, ANOVA, ARMA and GARCH" John-Wiley & Sons Ltd.2019

	2- Anderson, T.W. "The Statistical Analysis of Time Series". John-Wiley & Sons, New York.1971
Main references (sources)	3. Shumway, R. H. and Stoffer, D. S." Time Series Analysis and Its Applications". Springer, New York. 2000
Recommended books and references (scientific journals, reports…)	4- Graybill, F. A. and Iyer, H. K. "Regression Analysis: Concepts and Applications". Duxbury, Wadsworth, Belmont, CA.1994
Electronic References, Websites	5-Wei. W,." Time Series Analysis Univariate and Multivariate Methods " Pearson.2005

1. Course Name
English Language
2. Course Code
English Language
3. Semester / Year
/2023-2024
4. The history of preparation of this description
12/2/2024
5. Available Attendance Forms
Weekly
6. Number of Credit Hours (Total) / Number of Units (Total)
30/30
7. Course administrator' s name (if more than one name)
Name: Mohammed Kazem Wadaa Email:
8. Course Objectives

Course Objectives	**Introducing the student to the importar of the English language in daily life…… The student learned skills in the ability formulate and speak English sentences……**
9. Teaching and Learning Strategies	
Strategy	• The impact of educational goals on learners • Clarifying the direct learning environment which the most advanced education is base the cognitive skills that the student discover the concepts that affect education.

10. Course Structure

The week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method

11. Course Evaluation

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

12. Learning and Teaching Resources

Required textbooks (methodology, if any)	New head way for stag
Main references (sources)	Internet and som of dictionaries.
Recommended books and references (scientific journals, reports…)	
Electronic References, Websites	

Second stage	Theoretical vocabulary
Week	Vocabulary details
1	Getting to know you Right: word, wrong word. Tenses Present, past, future
2	Verbs of similar meaning do/make speak/talk Adjectives and nouns that go together important person/meeting
3	Whatever makes you happy: Present Simple: She works in clubs. Present Continuous She's making a single. pl4
4	have/ have got She has silver hair. They've got so much energy. pl4
5	What's in the news? Tenses Past Simple: How far did he walk? The journey began in 2008. P22
6	Past Continuous: 1 was working in the forest when I met Ed. p23
7	Eat, drink, and be merry!

8	Much and Many: How much milk? How many eggs? some and any some apples, any bananas Much and many / a few. a little, a lot/ lots of p30
9	Looking forward: verb pattern "want /hope to do/ doing/ enjoy doing / forward to doing / would like to do p38
10	phrasal verbs literal: *take off your coot / grow up* in a *village* Idiomatic: give up my job / fall out with my boyfriend p4
11	Future form: going to. will and Present Continuous :I'm going to stay with a friend. I'll give! You a ring. what are you doing this evening? P40
12	The way I see it: What ... l like! / What's she like? She's really nice. p46
13	Comparative and superlative adjectives: big, bigger, biggest / good, better, best p47 as.....as: It isn't as hot as Dubai. p47
14	Living History p54
15	Present perfect: Unfinished past with for and since/ I'vt lived here for three years. We've been married since 2010. P54 Indefinite past: She's written several books. I've been to China. P56 Ever and never/ Have you ever been in danger? P56

Third stage	**Theoretical vocabulary**
Week	**Vocabulary details**
1	It's a wonderful world. Auxiliary verbs: do / be/ have/ Naming Tenses Present, past, future
2	How to make questions and negatives: what did you do last night
3	Getting to know you: Present tense: simple present/ do/ does/ s/es Does she work in the bank?
4	simple or continuose: she usually drives to work, but today she isn't. she is walking
5	Telling tales: past tense- past and continuous / was/were
6	Past Continuous: 1 was working in the forest when I met Ed. p23
7	Doing the right thing: model verbs: obligation and permission. have (got) to can.
8	Nationality words: Iraq Iraqi , Japan, Japanese

9	On the move: Future form: going to and will. He is going to study master. . I'll give You a ring. What are you doing this evening?
10	The weather: it is funny. It's very hot.
11	Just love it! Questions with ''like''. what is she like? What does she like?
12	Verbs patterns: I enjoyed meeting your friend.
13	The world of work: present perfect: have/has+ pp. past simple. did/ed
14	phrasal verbs literal or Idiomatic: take off your coot / grow up in a village give up my job / fall out with my boyfriend.
15	Just imagine! conditional: first , if I see Ann, I 'll tell her. second, third. Making suggestions: let's go shopping.

Fourth stage	**Theoretical vocabulary**
Week	**Vocabulary details**
1	Home and away! The tense system: Simple, continuous, perfect, active and passive p6 Spoken English: Missing words
2	Compound words lifestyle, home town, house-proud p 12
3	Been there, got the T-shirt! Present Perfect Simple and Continuous He's raised thousands of pounds for Water Aid. He's been staying in cheap hostels. P 14
4	Hot verbs - make, do make life easier, do away with 1 could do with a cup of tea. He made the whole story up. P20
5	News and views: Narrative tenses Past Simple, Past Continuous, Past Perfect, active and passive p22
6	Spoken English: Giving and receiving news Did you hear about? You're kidding! I don't believe it. P24
7	The naked truth: Questions and negatives : Who gave you that? Haven't 1 told you before? Who with? I don't think you're right. I hope not. p30
8	Spoken English The question How come? How come you don't eat meat? P32
9	Looking ahead: Future forms: will, going to, shall is staying leaves will be doing will have done p38

10	Spoken English: The word thing. How are things? The thing is,. p4I
11	Hitting the big time: Expressions of quantity a few, a little, plenty of, hardly any p46
12	Spoken English: Expressing quantity: loads of, masses of p48
13	Getting along: Modals and related verbs Hot verb - get The generation who refuse to can, able to, manage to, allowed to. We get on well. grow up p54 have to, bound to, supposed to pS4 get started, get in touch, The Peter Pan generation
14	Spoken English get out of doing the An article about the Declarative questions washing-up p60 generation who refuse to Your father arranged your marriage? grow up pS8 Questions expressing surprise You paid how much? pS?
15	How remarkable! Relative clauses Adverb collocations Happy ending in New York that, who, what, whose, which p62 Adverbs and adjectives Tarzan of Central Park p62 Participles very cold, absolutely An article about a woman standing next to him freezing, quite nice p65 handsome, young man a game played by Jour people p63 who lived in the treetops Spoken English for eight years p66 Adding a comment with which He gave me a lift home, which was nice. p68

1. Course Name
Computer Networks
2. Course Code
3. Semester / Year
Second Semester / Year 2023−2024
4. The history of preparation of this description
4/2/2024
5. Available Attendance Forms
Presence + Electronic
6. Number of Credit Hours (Total) / Number of Units (Total)
Number of hours = 1+2=3
7. Course administrator' s name (if more than one name)
Name: Eng. Kifah Taha Khudair Email: kifah @atu.edu.iq

8. Course Objectives

Course Objectives	• **Definition of networks / their types / importance / and the importance of connectivity** • **Types of means and requirements for connecting networks** • **Getting to know the Internet / its importance / specifications** • **and connect it**

9. Teaching and Learning Strategies	
Strategy	* Teaching strategies used (lecture strategy, discussion and problem solving in addition to Cooperative education, brainstorming and e-learning strategy) * Education strategies (recall information - study - conclusion - providing examples and coding Dual

10. Course Structure

The week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15	2		Introduction to Networking and it's u Data communication Networks Network types + Interconnection of networks topologies + Transmission Media Data & Signal OSI Model TCP/IP Suite Protocols Network device Ping tools IPV4 address IPV4 Windows server Mikrotik Os Case Study		

11. Course Evaluation

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

12. Learning and Teaching Resources	
Required textbooks (methodology, if any)	Computer Fundamentals and Of Applications / Part IV
Main references (sources)	
Recommended books and references (scientific journals, reports…)	Computer Networks / Author : Moham Abdel Qader Mohamed
Electronic References, Websites	

1. Course Name	
Information Security	
2. Course Code	
3. Semester / Year	
Second 2023-2024	
4. The history of preparation of this description	
5. Available Attendance Forms	
6. Number of Credit Hours (Total) / Number of Units (Total)	
Credit Hours 3	
7. Course administrator' s name (if more than one name)	
Name: Eng. Kifah Taha Khudair Email: kifah@atu.edu.iq	
8. Course Objectives	
Course Objectives	**- Introducing the student to the security of computers and information, the security of individuals and the surrounding environment, the security of communication networks, and the security of software and information…..** **- Providing the student with skills in how to put protection for computers and information and maintain that protection and the skills of security of communication networks, software and information**
9. Teaching and Learning Strategies	
Strategy	
10. Course Structure	
11. Course Evaluation	

Distributing the score out of 100 according to the tasks assigned to the student such as daily preparation, daily, oral, monthly, written exams, reports .... etc	
12. Learning and Teaching Resources	
Required textbooks (methodology, if any)	
Main references (sources)	
Recommended books and references (scientific journals, reports…)	
Electronic References, Websites	

Theoretical vocabulary	
Week	Vocabulary details
1	Security Trends, The OSI Security Architecture, Security Attacks, Security Services, Security Mechanisms, A Model for Network Security
2-3	**Classical Encryption Techniques** • **Symmetric Cipher Model** • **Substitution Techniques** • **Transposition Techniques**
4	**Rotor Machines, Steganography**
6-5	**Block Ciphers and the Data Encryption Standard** • **Block Cipher Principles** • **The Data Encryption Standard** • **The Strength of Des**
7	**Differential and Linear Cryptanalysis**
9-8	**Block Cipher Design Principles, Arithmetic equations**
10	**Advanced Encryption Standard**
11	**Public-Key Cryptography and RSA**
12	**Key Management; Other Public-Key Cryptosystems**
13	**IP Security Overview, Architecture, Authentication Header**
14	**Firewalls,** • **Firewall Design Principles** • **Firewall Characteristics** • **Types of Firewalls** • **Firewall Configurations**
15	**Electronic Crimes**

1. Course Title : Baath Party Crimes
2. Course Code
3. Semester / Year : First 2023-2024
4. Date of preparation of this description:11/2/2024
5. Available Forms of Attendance: Electronic and Physical
6. Number of Credit Hours (Total) / Number of Units (Total)
2
7. Course administrator' s name (if more than one name)
Name: Eng. Anwar Hamza Hassan Email : anwar.salman@atu.edu.iq
8. Course Objectives

Course Objectives	**1- The student is introduced to the concept of crime and its effects.** **2- The student's knowledge of the heinous crimes committed by the Baathist regime.** **2- The student learns about the reasons for the transformation of the Baathist regime into a dictatorship that oppresses people first and then begins to suppress their freedoms and ability to express.**

9. Teaching and Learning Strategies	
Strategy	Presentation, discussion, training and active learning and brainstorming. Collaborative learning.

10. Course Structure

The week	**Hours**	**Required Learning Outcomes**	**Unit or subject name**	**Learning method**	**Evaluation method**
The first	2	Introduction Baathist Crimes	The concept of crir and their divisions	theoretical	Discussion and questions
Second	2			theoretical	General
Third	2	Crimes of the Ba regime	Crime Sections Types of internatio	theoretical	General questions
Fourth	2	Crimes of the Ba regime according	crimes Types of decisions.	theoretical	(brainstorming) Oral test

V	2	the Criminal Co Law Decisions issued by	Mechanisms	theoretical	Individual report
Sixth	2	Criminal Court	psychological crime	theoretical	Oral questions (brainstorming)
Seventh	2	Psychological crin and their effects	Fighting religi	theoretical	Discussion and questions
Eighth	2		scholars	theoretical	General
Ninth	2	The position of Baathist regime on	Photos and decisi of violations of Ir	theoretical	Oral test
X	2	Religion. Violations of Ir	laws		Worksheets
atheist		laws	Places of Prisons a	theoretical	
ten	2	First month exam	Detention of the Ba Regime	theoretical	Daily exam
Second ten	2	Some decisions violations of Ir	War pollution a mine explosions	theoretical	Oral test
Third ten	2	laws Environmental crin	Destruction of tov and villages	theoretical	Individual report
Fourth ten	2	of the Baath regime	Bulldozing marsl and drying orchard		Oral questions
V ten		Environmental Crimes System Baath Mass graves Mass grave events Chronological classification of m grave events Second month exan	Types of mass grav Mass grave events Chronological classification of m grave events		General discussion

11. Course Evaluation (First Month 20) – (Second Month 20) – (Attendance + Report 10) (Final Exam 50)
Distributing the score out of 100 according to the tasks assigned to the student such as daily preparation, daily, oral, monthly, written exams, reports .... etc
12. Learning and Teaching Resources

Required textbooks (methodology, if any)	Crimes of the Baath regime
Main references (sources)	Archive of the Iraqi Center for Documenting Extremist Crimes at the Abbasid Holy Shrine Official website of the United Nations. Abbas AttiH. Al-Quraishi, Mass Graves: People Under the Soil, Publisher: Iraqi Center for Documenting Extremist Crimes, Dar Al-Kafeel Press, Holy Karbala, 2022
Recommended books and references (scientific journals, reports…)	Journal of Arab Humanities, Middle East Journal

	For scientific publishing.
Electronic References, Websites	https://uomustansiriyah.edu.iq

1. Course Title: Arabic Language
2. Course Code
3. Semester / Year : First 2023-2024
4. Date of preparation of this description:11/2/2024
5. Available Forms of Attendance: Electronic and Physical
6. Number of Credit Hours (Total) / Number of Units (Total)
2
7. Course administrator' s name (if more than one name)
Name: Eng. Anwar Hamza Hassan Email : anwar.salman@atu.edu.iq
8. Course Objectives

Course Objectives	**1- Enabling students to have Arabic language skills and issues at their phonetic and morphological levels , grammatical, semantic, stylistic and written.** **2- Developing students' skills in listening, reading and expression.** **3- Providing students with the skills of expression in Fusha.**

9. Teaching and Learning Strategies

Strategy	Presentation, discussion, training and active learning and brainstorming. Collaborative learning.

10. Course Structure

The week	**Hours**	**Required Learning Outcomes**	**Unit or subject name**	**Learning method**	**Evaluation method**
(1-2) (3-4)	2 2	The concept of common linguistic errors and the rules of writing	Sections of linguis errors	theoretical theoretical	Discussion and questions General

		open Taa and Taa linked	distinguish between elongated alif and h		General questions
(5)	2		to write it	theoretical	(brainstorming) Oral test
(6-7)	2	1- The thousand elongated and the cabin. 2- Solar and lunar letters	The difference between them and solving exercises	theoretical	Daily exam
(8)	2	Al-Daad and Al-Zaa	Explanation and solution of	theoretical	Oral questions (brainstorming) Discussion and questions
(9)	2	1- Writing the hamza 2-	exercises	theoretical	General
(10)	2	Connecting and cutting 3- The middle hamza4-		theoretical	Oral test
(11-12)	2	The extreme hamza Punctuation	Types of punctuation and solving exercises	theoretical	Daily exam
(13)	2	Noun, verb and differentiation	Types of noun, types of verb and solution of	theoretical	Daily exam
(14)	2	Between them	exercises . Location and	theoretical	Oral test
(15)	2	Object 2-Absolute effect 3-Effect for him 4-Effect 5- Effect with him	syntax movement	theoretical	Daily exam
		Number	How to write a number and		General discussion
		1- The meanings of prepositions 2-	countable		General discussion
		The rule of the thousand difference 3- The rule of noun and tanween	The rule of a thousand difference and its positions		
		Formal aspects of administrative discourse	The correct way to write Administrative discourse		
		The language of administrative discourse	Basic rules for editing administrative letters		

11. Course Evaluation (First Month 20) – (Second Month 20) – (Attendance + Report 10) (Final Exam 50)

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

12. Learning and Teaching Resources

Required textbooks (methodology any)	Crimes of the Baath regime
Main references (sources)	1- Clear Dictation: Abdul Majeed Al-Nuaimi - Daham Al-Kayyal - Dar Al-Mutanabbi Library - Baghdad - 6th Edition - 1987. 2- Lessons in language, grammar and spelling for state employees: Ismail Hammoud Atwan and others, Ministry of Education Press No. (3), Baghdad, 2nd edition, 1984. 3- Arabic Language for the Third Intermediate Grade: Fatima Nazem Al-Attabi, and others, 1st Edition, 2018 AD. 4- General Arabic Language for Non-Specialization Departments: Abdul Qadir Hassan Amin and others, Ministry of Higher Education and Scientific Research, 2nd Edition, 2000. Inspired by Arabic literature: Haval Muhammad Amin - Al-Saadoun Press - Baghdad
Recommended books and references (scientific journals, reports…)	Journal of Arab Humanities, Middle East Journal For scientific publishing.
Electronic References, Websites	https://uomustansiriyah.edu.iq

1. Advanced Artificial Intelligence
2.
3. 2 / 2024
4. 1-1-2024
5. Came
6. Number of Credit Hours (4) / Number of Units (4)
7. Course administrator' s name (if more than one name)
Name: Eng. Ayman Saad Abdul Amir Al-Qarhagholi Email: aymen.abdalameer@atu.edu.iq
8. Course Objectives

Course Objectives	• **Providing the student with the necessary skills to understand, program and design artificial intelligence software** • **Providing the student with the necessary skills to keep pace with the labor market in the field of artificial intelligence systems**

9. Teaching and Learning Strategies

Strategy	Project-based learning: involves directing students to work on a long-term project that requires them to apply the concepts and skills acquired in specific topics, fostering critical thinking and innovation. Blended learning: combines a range of strategies and methods to enhance learning, such as explanatory lectures, group discussions, and practical applications.

10. Course Structure

The week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1 2 3-4 5-6 7 8 9 10 11-12 13 14-15			Introduction to Artificial Neural Networks Artificial Neuron Perceptron Activation Functions Making Networks Error Function Backpropagation Activation Function Hyperparameters CNN Models Examples of Popular CNNs	Project-based learning and blended learning	

11. Course Evaluation

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

12. Learning and Teaching Resources

Required textbooks (methodology, if any)	1. Luger, George F. Artificial intelligence: structures and strategies for complex problem solving / George F. Luger. - 6th ed.
Main references (sources)	2. Chollet F (2017) The keras blog. In: The Keras Blog ATOM. https://blog.keras.io/a-tenminute-introduction-to-sequence-to-sequence-learning-in-keras.html. Accessed 8 Oct 2021 3. Chonyy (2020) Apriori: Association rule mining in-depth explanation and python implementation. In: Medium. https://towardsdatascience.com/apriori-association-rulemining-explanation-and-python-implementation-290b42afdfc6. Accessed 8 Oct 2021 4. Dugar P (2021) Attention seq2seq models. In: Medium. https://towardsdatascience.com/day-1-2-attention-seq2seq-models-65df3f49e263. Accessed 8 Oct 2021 5. Yin L (2019) A summary of neural network layers. In: Medium. https://medium.com/machinelearning-for-li/different-convolutional-layers-43dc146f4d0e. Accessed 8 Oct 2021 Ivan Bratko,, Prolog Programming for Artificial Intelligence, Addison Wesley; 3rd edition, 2000.
Recommended books and references (scientific journals, reports…)	
Electronic References, Websites	

1. Course Title : Research Project
2. Course Code
3. Semester / Year II / 2023−2024
4. Date of preparation of this description 11−2−2024

5. Available Attendance Forms

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

7. Course administrator' s name (if more than one name)

Name: Dr. Essam Haider Majeed Email : essam.mageed@atu.edu.iq

8. Course Objectives

Course Objectives	• **Shows the concept of scientific research, its objectives, characteristics, and motives.** • **Enumerates the types of scientific research and its methods.** • **Distinguish between scientific research methods and methods** • **Lists the steps for preparing a scientific research plan.** • **Prepares a research plan for a subject in his field of scientific specialization.** • **Know the tools for collecting information, how to analyze it, and benefit from its results** • **It deals with sources of information and how to quote and document them**

9. Teaching and Learning Strategies

Strategy	

10. Course Structure

The week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1-3	9	• Knows knowledge • Enumerates sectic of knowledge • Enumerates source Knowledge • Knows science • Shows properties General information • Enumerates the gc of science • Differentiate betwe science and knowledge	Nature of scient research	Lecture method (Speech, News, Diction): Diction Scientific mate to be desired Teach it students and presented i style Tell me.	• Questions Directness • auditions The Snap

4-6	9	• Illustrates the conc of research Scientific • Enumerates properties Research • Enumerates characteristics the researcher	Types of scientific research and its methods		
7-10	12	• Classified types Scientific research • illustrates concept of Scientific Resea Methods • Classifies resea methods Scientific	Scientific Resea Plan		
11-12	4	• Multiple steps Research • Lists steps Preparing a scient research plan. • Shows procedures of eac Step by step plan Scientific research.	data collection and information		
13-15	9	• Designs a plan Scientific Researc According to steps Scientific researc • Multiplying tools Collection information. • Shows what it is Primary sources and secondary in Scientific research. • Questionnaire • Interview • Observation	Library Electronic The Internet a their role in scient research		

		• Shows the conc of The library and origins. • Enumerate kinds Libraries and th functions • illustrates concept of Library Electronic and advantages • Explains the steps Search Books Comprehensive Libra			

11. Course Evaluation
Distributing the score out of 100 according to the tasks assigned to the student such as daily preparation, daily, oral, monthly, written exams, reports .... etc

12. Learning and Teaching Resources	
Required textbooks (methodology, if any)	
Main references (sources)	• - Dr. Mahdi Al-Wahid, Writing reports and research, First Edition, 2000 • Ahmed Shibli, How to write a research or a letter, Third Edition, Al-Qahra, Al-Nahda Al-Masriya Library, 1993. • Prof. Dr. Mohamed Sarhan Ali Al-Mahmoudi, Curricula Scientific Research Republic of Yemen Sana'a Dar Al-Kutub Deposit No . 561 (2015)
Recommended books and references (scientific journals, reports…)	
Electronic References, Websites	

1. Course: Professional Ethics
2. Course Code

3. Semester / Year: Courses (Fourth)

4. Date of preparation of this description: 20/9/2023

5. Attendance forms available: Once a week

6. Number of Credit Hours (Total) / Number of Units (Total) 30 Hours

7. Course administrator' s name (if more than one name)

Name: Eng. Raed Mohammed Matar Email: raed.mutar@atu.edu.iq

8. Course Objectives

Course Objectives	• Identify the ethics of the profession and its importance • Shiites on good dealings with society and the workplace • Identify the importance of discipline and the system and application of the law

9. Teaching and Learning Strategies

Strategy	1: Display the subject through on-screen explanation and patience 2. Using PowerPoint software for illustration 3.The method of discussion in the lecture and asking questions 4. Interaction between orders. 5. Homework.

10. Course Structure

The	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1	2	Introducing the student to the ethics of the profession	Introduction to ethics and the definition of professional ethics and its importance	Presentation and discussion	Questions a homework
2	2		Introduction to ethics and the definition of professional ethics and its importance		
3	2		Distinguishing between professional ethics and rules of professional conduct		
4	2				
5	2				

6+7 8+9 10+ 11 12+ 13 14+ 15	2 2 2 2 2		Sources of professional ethics Sources of professional ethics General components of professional ethics Means of consolidating professional ethics Challenges and their impact on professional ethics Social Responsibility The basic pillars of professional ethics		

11. Course Evaluation	
Distributing the score out of 100 according to the tasks assigned to the student such as daily preparation, daily, oral, monthly, written exams, reports .... etc	
12. Learning and Teaching Resources	
Required textbooks (methodology, if any)	
Main references (sources)	Ethics in Islam theory and practice The moral theory of Hobcegent
Recommended books and references (scientific journals, reports…)	Lectures/Al-Mustansiriya University/Assoc. P Yamama Kashkool
Electronic References, Websites	https://basicedu.uodiyala.edu.iq/2023/01%d9%85%d9%87%d9%86%d8%a9