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: wasit university

Faculty/Institute: college of computer science and information technology

Scientific Department: software department

Academic or Professional Program Name:

Final Certificate Name:

Academic System:

Description Preparation Date:

File Completion Date:

Signature:

Head of Department Name: Ahmed Raad AL-Sadani

Date: 16/9/2024

الدكتور
احمد رعد عبد الحسين
رئيس قسم البرامجيات

Signature:

Scientific Associate Name: Dr. Ahmad Shaker Abdalrada
Assistant of Dean for Scientific Affairs

Date: 16/09/2024

The file is checked by:

Department of Quality Assurance and University Performance

Director of the Quality Assurance and University Performance Department: Ali Kereem jabbar

Date: 18/9/2024

Signature:

م. مهندس
علي كريم جبار

Approval of the Dean

16.9.2024

Asst. Prof. Dr
Sait Ali Alsaidi
Dean college of computer
4scenic & Information Technology

Course Description Form

1. Course Name:
Software engineering
2. Course Code:
3. Semester / Year:
First semester / 2024-2025
4. Description Preparation Date:
1/9/2024
5. Available Attendance Forms:
Class attendance
6. Number of Credit Hours / Number of Units
3 HOURS / 3 UNITS
7. Course administrator's name (mention all, if more than one name)
Ahmed raad abd-alhusain
8. Course Objectives
9. Teaching and Learning Strategies

10. Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1	3		Introduction	Lectures	Exam
2	3		Modeling principles	Lectures	Exam
3	3		Pre-condition, post-conditions, invariants, design by contract	Lectures	Exam

4	3		Introduction to mathematical models and formal notation	Lectures	Exam
5	3		Informal modeling	Lectures	Exam
6	3		Behavioral modeling	Lectures	Exam
7	3		Architectural modeling	Lectures	Exam
8	3		Domain modeling	Lectures	Exam
9	3		Enterprise modeling	Lectures	Exam
10	3		Modeling embedded systems	Lectures	Exam
11	3		Analyzing form	Lectures	Exam
12	3		Analyzing correctness	Lectures	Exam
13	3		Analyzing dependability	Lectures	Exam
14	3		Formal analysis	Lectures	Exam
15	3		Mid Exam		
11-Course Evaluation					
12-Teaching and learning resources					

Course Description Form

1. Course Name:

Computer architecture

2. Course Code:

3. Semester / Year:

First semester / third year

4. Description Preparation Date:

1/10/2024

5. Available Attendance Forms:

Class attendance

6. Number of Credit Hours / Number of Units

3 hours / 3 units

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

Dr. ali abd-almuneim

8. Course Objectives

This course introduces the concepts of computer architecture and organization and presents basic computer system features. The course will enable students to design and implement software that more efficiently utilizes a computer system and that accommodates its limitations.

9. Teaching and Learning Strategies

Education: give printed lecturer from modern variety of sources •Education: using smart blackboard to the goal of teaching students and explain the steps the solution and extraction results

•Education: resolving some questions, with intent to contain errors and make students extracting error

•Learning: asking questions and inquiries and make the student turn into a teaching explanation and solution on the blackboard at that point

•Learning: questions directly and gradually all students to learn the extent of interaction and the rest to be paid attention to

10. Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1	3		Introduction,		

			Classification of Computer Architecture, The main parts of the CPU		
2	3		Memory System Architecture, RAM:		
3	3		Memory System Architecture, ROM:		
4	3		Memory System Architecture, Cache memory:		
5	3		Exam 1		
6	3		Mapping Functions:		
7	3		Replacement Algorithm:		
8	3		Page Thrashing, Segmentation:		
9	3		Exam 2		
10	3		Direct Memory Access (DMA) , Essential Parts of DMA Controller, Types of DMA		
11	3		DMA Transfer,		
12	3		CPU, Register Organization, Control Unit		
13	3		Microinstruction, Multibus Organization:		
14	3		Branching, Parallelism in Microinstructions:		
15	3		Exam		

11-Cour3se Evaluation

12-Teaching and learning resources

Course Description Form

1. Course Name:

Compiler 1

2. Course Code:

3. Semester / Year:

First semester / 2024-2025

4. Description Preparation Date:

1/10/2024

5. Available Attendance Forms:

Class attendance

6. Number of Credit Hours / Number of Units

3 hours / 2 units

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

Huda majeed lafta

8. Course Objectives

9. Teaching and Learning Strategies

Translator Interpreter and how to deal with him Differences between translator and interpreter Division and derivation process of grammatical and grammatical sentences Repetition in the load Ambiguity NFA algorithms High-level programming languages, their advantages and disadvantages Low-level programming languages Input and output units and some of their types Grammatical procedures Types of errors Discovering and treating problems Evaluation methods

10. Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1-2	16		Introduction	Lectures/Lab	Questions & Discussion
3-6	16		Understanding how to work with translators,	Lectures/Lab	Questions & Discussion

			interpreters and programming languages		
7-9	28		Errors and their types	Lectures/Lab	Questions & Discussion
10-12	8		Structure of translators, explanation and required mechanisms	Lectures/Lab	Questions & Discussion
12-14	8		Ambiguity and repetition in grammar	Lectures/Lab	Questions & Discussion
15	24		Left facoter	Lectures/Lab	Questions & Discussion
11-Course Evaluation					
12-Teaching and learning resources					

Course Description Form

1. Course Name:
Computer Graphic
2. Course Code:
3. Semester / Year:
First semester / 2024-2025
4. Description Preparation Date:
1/10/2024
5. Available Attendance Forms:
Class attendance
6. Number of Credit Hours / Number of Units
3 hours / 4 units
7. Course administrator's name (mention all, if more than one name)
Maryam jawad kadhim alwan
8. Course Objectives
1-Highlight the student to known between contours computer and graphic computer, recognize the mathematical basics and algorithms applied in the computer. 2-Design software tools that it help computer graphics apply its and build a simple one that Simulate Computer graphic application, and addition that help to explain the cases in this aspect.
9. Teaching and Learning Strategies
Knowledge to the introduction of computer graphics and applications and also Known the principle of the Vectors, we can plot basic geometric shapes with forms design and Transformation figure (moving shapes and rotation and scaled and shearing figure). Knowledge of clipping operations within the display window and Mapping operation. Then go to 3D system and know the deal in the previous cases of Transformation with how ways representation 3D in the computer and plot it into the computer and represent its. And other subject is a curve spline such as: Bezier-Spline, B-Spline, Cubic-Spline.

10. Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1	5		Introduction{Computer Graphics, Cathode Ray Tube (CRT),Generating color on a RGB monitors, Coordinates system, Raster–can display, Frame Buffer, Scan conversion, Applications of computer graphics }	Lectures	Exams
2	5		Vectors {unit vector, measurement associated with vectors, manipulation vectors, negative vectors and subtracting vectors, scaling Vectors, multiplying vectors uses the "dot Product" & direction Cosine, "cross product" }	Lectures	Exams
3	5		Draw Line {Standard line +DDA+ Bresenham }	Lectures	Exams
4	5		Draw Circle{equation +Circle Polar, Bresenham }	Lectures	Exams
5	5		Draw ellipse {polynomial + polar}	Lectures	Exams
6	5		2D-Translate in point	Lectures	Exams
7	5		2D-Rotate in origin + 2D-Rotate in point	Lectures	Exams
8	5		2D-Scaling in origin +2D-Scaling in point	Lectures	Exams
9	5		2D-Reflect {X,Y,O}, 2D-Reflect{Y= X, Y= -X},point, Y=mx+b	Lectures	Exams

0	5		2D-Shear-X, 2D-Shear-Y and 2D-Shear-XY	Lectures	Exams
11	5		Matrix represent 2D-Transformation	Lectures	Exams
12	5		Mapping { Windowing and viewport}	Lectures	Exams
13	5		Clipping	Lectures	Exams
14	5		Polygon	Lectures	Exams
15	5		Mid Exam		

11-Course Evaluation

Homework and participation in daily preparation.
Granting the degree to students for some questions posed in the lecture.
Monthly exams

12-Teaching and learning resources

computer graphics mathematics first step, P. A. Egerto and W. S. Hall, 1998.
Visual Basic game Programming for teens, Jonathan S. Harboor, 2005
Riškus, "Approximation of a Cubic Bézier Curve by Circular Arcs and Vice Versa",
Juhász, "Approximating the helix with rational cubic

Course Description Form

1. Course Name:
Algorithms Design and Analysis
2. Course Code:
3. Semester / Year:
First semester / third year
4. Description Preparation Date:
1/10/2024
5. Available Attendance Forms:
Class attendance
6. Number of Credit Hours / Number of Units
2 hours / 3 units
7. Course administrator's name (mention all, if more than one name)
Thaaer faraj ali
8. Course Objectives
Enhancing the student's awareness in the field of logical thinking and analysis · Planning to solve complex problems and dividing them into small problems that simplify their solution
9. Teaching and Learning Strategies
The first strategy is to show how to identify the problem in the outside world and transfer it to the digital reality Encouraging the student to participate daily and develop the self-ability to enter into discussions and solutions for daily exams that address specific points, including knowing the level of understanding, linking the elements of the material presented in daily lectures, as well as evaluating listening, following, talking and reading the approved sources for the material. Adopting modern methods in presenting the material and presenting it in a way that makes it easy for the student to refer to the sequential titles in presenting the material is considered one of the most important strategies used in delivering the material

10. Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1	2		Introduction to Algorithms	Lectures	Exams
2	2		How to use algorithms	Lectures	Exams
3	2		Types of algorithms	Lectures	Exams
4	2		The importance of the analysis process	Lectures	Exams
5	2		Bubble	Lectures	Exams
6	2		Quick	Lectures	Exams
7	2		Selection	Lectures	Exams
8	2		Exam	Lectures	Exams
9	2		Insertion	Lectures	Exams
10	2		Binary	Lectures	Exams
11	2		Insertion	Lectures	Exams
12	2		Hash table	Lectures	Exams
13	2		Exam	Lectures	Exams
14	2		Merge	Lectures	Exams
15	2		Exam	Lectures	Exams

11-Course Evaluation

The grade is distributed according to the tasks assigned to the student, such as daily preparation, daily, oral and monthly exams.

12-Teaching and learning resources
Complete guide to learn C++

Course Description Form

1. Course Name:

Artificial intelligence

2. Course Code:

3. Semester / Year:

First semester / 2024-2025

4. Description Preparation Date:

1/10/2024

5. Available Attendance Forms:

Class attendance

6. Number of Credit Hours / Number of Units

2 hours / 3 units

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

Dr. dhyaa shaheed al-azawi

8. Course Objectives

9. Teaching and Learning Strategies

10. Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1	2		Introduction to AI	Lectures	Exams
2	2		Acknowledge representation	Lectures	Exams
3	2		Logical representation	Lectures	Exams
4	2		Resolution proof procedure	Lectures	Exams
5	2		Examples of Acknowledge representation	Lectures	Exams
6	2		State space	Lectures	Exams

	2		Search algorithm	Lectures	Exams
8	2		Heuristic search	Lectures	Exams
9	2		A_ search algorithm	Lectures	Exams
10	2		A*_ algorithm	Lectures	Exams
11	2		Expert system	Lectures	Exams
12	2		Acknowledge acquisition	Lectures	Exams
13	2		Introduction of neural network	Lectures	Exams
14	2		Design of neural network	Lectures	Exams
15	3		**Exam**	Lectures	Exams
11-Course Evaluation					
12-Teaching and learning resources					

Course Description Form

1. Course Name:

Visual application

2. Course Code:

3. Semester / Year:

First semester / third year

4. Description Preparation Date:

1/10/2024

5. Available Attendance Forms:

Class attendance

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

hours / units

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

Mustafa Aziz Khalaf

8. Course Objectives

9. Teaching and Learning Strategies

10. Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1	3		INTRODUCTIONS	Lectures	Exams
2	3		Designing the User Interface. Writing the Code		
3	3		Working with Controls		
4	3		Handling Images. Working with Data		

5	3		Creating Animation. Reading and Writing Text Files		
6	3		Using If…Then…Else		
7	3		Checkbox and Radio Button		
8	3		Using Timer		
9	3		امتحان		
10	3		Creating Graphics		
11	3		Creating Menu Bar and Toolbar		
12	3		Sub Procedures		
13	3		Databases		
14	3		Object Oriented Programming. publish Visual Basic applications		
15	3		Exams		

11-Course Evaluation

- Cups and participation in daily preparation.
- Awarding grades to students for some questions that are asked in the lecture and of a cognitive nature.
- Monthly exams.

12-Teaching and learning resources

Visual Basic 2017 Made Easy *By Dr.Liew*

Course Description Form

1. Course Name:
Data security
2. Course Code:
3. Semester / Year:
Semester
4. Description Preparation Date:
٢5/0٩/202٤
5. Available Attendance Forms:
My presence only
6. Number of Credit Hours (Total) / Number of Units (Total)
64 hours per semester. 4 hours per week
7. Course administrator's name (mention all, if more than one name)
Name: Msc. Ghaith Ali Hussain Alawady Email: galawady@uowasit.edu.iq
8. Course Objectives
1- Introducing students to the importance of data security and working to master rules and basics in order to access comprehensive scientific material. 2- Urging students to know the methodology of scientific research and know how create reports on data and its security. 3- Introducing students to the vocabulary of the scientific subject of data security. 4- Search for scientific sources related to the subject 5- Strengthening students' skills and building their academic personality 6-Working to consolidate the spirit of science and learning among students
9. Teaching and Learning Strategies

Strategy	1- Education strategy collaborative concept planning. 2- Brainstorming education strategy. 3- Education Strategy Notes Series .

10. Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
15	64	1- Knowing the basics of data and computer security and its types. 2- Know and understand the main steps that must be taken to protect data from various hacks 3- Students' knowledge and familiarity with all programs and programming languages that must be used in creating specific software systems according to the customer's need. 4- Identify and apply information	- What is meant by data security. - Introduction to data security -Information security elements -Operations related to information security - Threats and risks - Incidents, attacks and breaches - Software piracy And stealth - Theft and misappropriation of information - Information security means - Introduction to cryptography - Main data protection purposes. - Types of encryption - How to encrypt - Decryption and its types - Encryption and decryption features Encryption. - Using equations	Discussion, theoretical and scientific lecture, questioning and analysis Conclusion and brainstorming. Practical, electronic and theoretical lectures Reports and research Theoretical and practical lectures	Various achievement tests. Exams, tests and discussions Exams, tests, discussions and seminars

		technology concepts.	Mathematics in cryptography And decryption - Encryption and decryption messages using Special Fatih -Encryption and decryption Using different software algorithms		

11. Course Evaluation

The distribution is as follows: 20 marks for the first and second monthly exams, 10 marks for the practical exam in the first and second months, 10 marks for daily assignments, and a total of 40 marks for the semester's pursuit. 40 marks for the theoretical exam and 20 marks for the practical exam for the final exams. The total is 60.

12. Learning and Teaching Resources

Required textbooks (curricular books, if any)	Data and information security : book
Main references (sources)	1- Information security and encryption techniques. 2- Data and information security. 3- Encryption algorithms .
Recommended books and references (scientific journals, reports...)	- Cryptography or the history of writing ciphers, principles and basics. - Digital encryption .
Electronic References, Websites	https://ae.linkedin.com/pulseAA-muneer-abdeljaber . https://www.iasj.net/iasj/pdf/51b569f8c8bd04b7 .

Course Description Form

1. Course Name:
Simulation systems
2. Course Code:
3. Semester / Year:
First semester / 4
4. Description Preparation Date:
1/10/2024
5. Available Attendance Forms:
Class attendance
6. Number of Credit Hours (Total) / Number of Units (Total)
Hours 30 / units 3
7. Course administrator's name (mention all, if more than one name)
Dr. huda lafta majeed
8. Course Objectives
9. Teaching and Learning Strategies

10. Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1-4	12		Introduction	Lectures	Exams
5-8	3		Understanding how to work with translators, interpreters and programming languages		

9	3		Errors and their types		
10	3		Structure of translators, explanation and required mechanisms		
11	3		Ambiguity and repetition in grammar		
12	3		Left facoter		

11-Course Evaluation

12-Teaching and learning resources

Course Description Form

1. Course Name:

Operation systems

2. Course Code:

3. Semester / Year:

First semester / 4

4. Description Preparation Date:

1/10/2024

5. Available Attendance Forms:

Class attendance

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

hours / units

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

Ali husain muter

8. Course Objectives

9. Teaching and Learning Strategies

10. Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1	2		Scheduling Algorithm (FCFS and SJF)	Lectures	Exams
2	2		Scheduling Algorithm (Priority and Round Robin)		
3	2		Information Management (File System)		
4	2		Access Methods (Sequential, Direct access, and other access		

			Methods)		
5	2		Directory structure (Single level, and Two level Directories)		
6	2		Directory structure (Tree, and Acyclic Graph Directories)		
7	2		اختبار رقم ١		
8	2		Free-space list (Bit vector, and Linked List)		
9	2		Free-space list (Grouping, and Counting)		
10	2		Allocation methods (Contiguous, Linked, and Indexed)		
11	2		Deadlocks definition and Deadlock Necessary conditions		
12	2		Resources-Allocation Graph (RAG)		
13	2		Methods for Handling Deadlocks (prevention and Avoidance)		
14	2		Safe state, ARG Algorithm, and Banker's Algorithm		
15	2		اختبار رقم ٢		

11-Course Evaluation

12-Teaching and learning resources

Abraham Silberschatz, et al, "Operating System Concepts," 10th

Course Description Form

1. Course Name:

Networks

2. Course Code:

3. Semester / Year:

First semester / 4

4. Description Preparation Date:

1/10/2024

5. Available Attendance Forms:

Class attendance

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

hours 60/ units 4

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

Dr. Mustafa raheem

8. Course Objectives

9. Teaching and Learning Strategies

10. Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1-5	16		Introduction The four network protocol groups	Lectures	Exams
5-9	20		The last two layers of protocols - Understanding the process of multiplexing and identifying its first		

			type, frequency division, and the second type as well. - Data communications model		
11-15	24		-Analog signals - Bandwidth - Understanding the types of noise and how to measure it - Knowing how to calculate channel capacity		

11-Course Evaluation
Distribution as follows: 20 marks for the first and second monthly exams, 10 marks for the first and second monthly practical exam, 10 marks for daily and homework assignments, total 40 marks for the semester effort. 40 marks for the theoretical exam and 20 marks for the practical exam for the final exams, total 60.
12-Teaching and learning resources
Network management confidentiality