

**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: **University of Baghdad**

Faculty/Institute: **AL-Khwarizmi College of Engineering**

Scientific Department: **Mechatronics Engineering**

Academic or Professional Program Name: **B.Sc**

Final Certificate Name:

Academic System: **Quarterly**

Description Preparation Date: **28/3/2024**

File Completion Date: **28/3/2024**

Signature:

Head of Department Name:

Date:

Signature:

Scientific Associate Name:

Date:

The file is checked by:

Department of Quality Assurance and University Performance

Director of the Quality Assurance and University Performance Department:

Date:

Signature:

Approval of the Dean

1. Program Vision

The scientific department seeks to present academically, scientifically, and even practically in the local and international arena. The reliability of scientific laboratories is within national standards first and international standards second. Apply advanced studying and teaching systems and keeping updated with the latest developments in this field, especially e-learning. Furthermore, studying recent experiences in education and working on apply them in line with the changing standards of scientific and practical requirements. Planning to build postgraduate studies with high standard quality by preparing material requirements from laboratories and others and the scientific needs of researchers, in addition to researchers and supervisors who own a distinguished research line and global scientific publication.

2. Program Mission

The primary goal of the Mechatronics Engineering Department is to train and develop the most highly skilled engineers and leaders in the engineering field of that field. It also aims to balance knowledge in scientific research to benefit the local, regional, and global community. Additionally, the department trains and sharpens students' scientific and cognitive skills while highlighting social and cultural values and meeting local market demands. This objective necessitates adapting and developing the curricula to the various factors, ranging from the shifting demands to the various technological advancements in the scientific domains. A department's desire to realize its vision is what drives it to communicate with the outside world about the most recent advancements in science by attending international conferences and seminars, in addition to hosting many workshops and student events.

3. Program Objectives

Providing graduate engineers with the information and abilities needed for mechatronics system development and design, including applications of mechanical, electrical, electronic, control, and computer engineering. Furthermore, he will possess unique expertise that enables him to create, build, maintain, and use contemporary systems and equipment in a way that advances science. He will also be able to research issues of mechatronics. Graduate an engineer skilled in the application of sophisticated ideas linked to contemporary engineering methods in the field of mechatronics. preparing engineering personnel with a solid background so they can interact with all community members and improve and enrich the needs in Iraq. supplying information and skills that industries and businesses in the domains of robotics, industrial automation, smart systems, medical devices, and other technical and industrial applications require to prepare engineers for the labor market. Developing a scientific engineering personality that can interact with the demands of the government or the private sector of the job market.

4. Program Accreditation

N/A

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5. Other external influences

N/A

6. Program Structure

Program Structure	Number of Courses	Credit hours	Percentage	Reviews*
Institution Requirements				
College Requirements				
Department Requirements				
Summer Training				
Other				

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

7. Program Description

Year/Level	Course Code	Course Name	Credit Hours	
2023-2024 / First	MCT126	Foundation of Programming	theoretical	practical
			30	30

8. Expected learning outcomes of the program

Knowledge

Learning Outcomes 1 • Teach students skills that will be relevant many years in the future.

	<ul style="list-style-type: none"> • To know the fundamentals concepts of computers resources hardware, software and data. • To know the principles and the basics of flowcharting and programming. • Students will learn programming terminology and will obtain a solid grasp of the basic mechanics of programming.
Skills	
Learning Outcomes 2	<ul style="list-style-type: none"> • Enabling students to solve problems related to the intellectual framework of operating system problems. • Enabling students to solve problems in building advanced operating systems
Ethics	
Learning Outcomes 3	<ul style="list-style-type: none"> • The student's knowledge in the field of computer leadership. • Knowledge of methods of dealing with computers. • The student learns new skills and new methods

9. Teaching and Learning Strategies

- Classroom lectures, assignments, examples, tutorials, exercises, and home works.
- Lab experiments and discussions.
- Text books and problems solutions.
- Projects.

10. Evaluation methods

Mid-term exam, Quizzes, class and home assignments, lab reports and seminars.

11. Faculty

Faculty Members

Academic Rank	Specialization		Special Requirements/Skills (if applicable)	Number of the teaching staff	
	General	Special		Staff	Lecturer

Lecturer	Information Technology	Management Information Systems			yes	
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Professional Development
Mentoring new faculty members
Professional development of faculty members
12. Acceptance Criterion

13. The most important sources of information about the program
<ul style="list-style-type: none"> • A First Book of C++, Fourth Edition. Gary Bronson. Cengage Learning. • Programming in C++ for Engineering and Scienc. Larry Nyhof. CRC Press.

14. Program Development Plan
<ul style="list-style-type: none"> • Follow scientific development by contacting international universities via the Internet. • Participation in scientific conferences inside and outside the country. • Participation in scientific workshops and seminars inside and outside the country • Field visits to industrial projects, state institutions, and private sector companies.

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
First	MCT126	Foundation of Programming	Basic	x				x				x			

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

Course Description Form

1. Course Name:	
Foundation of Programming	
2. Course Code:	
MCT126	
3. Semester / Year:	
Second semester / 2024	
4. Description Preparation Date:	
5. Available Attendance Forms:	
6. Number of Credit Hours (Total) / Number of Units (Total)	
Weekly 4 hours (Total 63 hours)/ 3 units	
7. Course administrator's name (mention all, if more than one name)	
Name: Dr. Ayhem Tariq Ismail Al-Nuaimi Email: Ayhem.t@kecbu.uobaghdad.edu.iq	
8. Course Objectives	
Course Objectives	<ul style="list-style-type: none"> • Teach students skills that will be relevant many years in the future. • To know the fundamentals concepts of computers resources hardware, software and data. • To know the principles and the basics of flowcharting and programming. • Students will learn programming terminology and will obtain a solid grasp of the basic mechanics of programming.
9. Teaching and Learning Strategies	
Strategy	<ul style="list-style-type: none"> • Library and other information resources. • Individual and group problem solving activity. <p style="text-align: center;">Assessment methods</p> <ul style="list-style-type: none"> • Examinations answers, class assignment, and homework. • Oral presentations.
10. Course Structure	

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
Course1					
1	4		Introduction to computer systems, computer functions, general classification, basic computer operations, some basic definitions, overview of a computer system, computers advantages and basic resources of computers to operate	<ul style="list-style-type: none"> • Face to face lectures • Power point • Videos • Lab 	<ul style="list-style-type: none"> • Exam • Quiz • Google form • Report
2	4		Computers Resources: Hardware and computer lab.	<ul style="list-style-type: none"> • Face to face lectures • Power point • Videos • Lab 	<ul style="list-style-type: none"> • Exam • Quiz • Google form • Report
3	4		Computers Resources: Software and computer lab	<ul style="list-style-type: none"> • Face to face lectures • Power point • Videos • Lab 	<ul style="list-style-type: none"> • Exam • Quiz • Google form • Report
4			Windows 10	<ul style="list-style-type: none"> • Face to face lectures • Power point • Videos • Lab 	<ul style="list-style-type: none"> • Exam • Quiz • Google form • Report
5	4		All tools in Windows 10	<ul style="list-style-type: none"> • Face to face lectures • Power point • Videos • Lab • Face to face lectures • Power point • Videos • Lab 	<ul style="list-style-type: none"> • Exam • Quiz • Google form • Report
6	4		Mid Exam	<ul style="list-style-type: none"> • Face to face lectures • Power point • Videos • Lab 	<ul style="list-style-type: none"> • Exam • Quiz • Google form • Report

7	4		Microsoft office Word	<ul style="list-style-type: none"> • Face to face lectures • Power point • Videos • Lab 	<ul style="list-style-type: none"> • Exam • Quiz • Google form • Report
8	4		Microsoft office Word	<ul style="list-style-type: none"> • Face to face lectures • Power point • Videos • Lab 	<ul style="list-style-type: none"> • Exam • Quiz • Google form • Report
9	4		Microsoft office Excel	<ul style="list-style-type: none"> • Face to face lectures • Power point • Videos • Lab 	<ul style="list-style-type: none"> • Exam • Quiz • Google form • Report
10	4		Microsoft office Excel	<ul style="list-style-type: none"> • Face to face lectures • Power point • Videos • Lab 	<ul style="list-style-type: none"> • Exam • Quiz • Google form • Report
11	4		Microsoft office Excel	<ul style="list-style-type: none"> • Face to face lectures • Power point • Videos • Lab 	<ul style="list-style-type: none"> • Exam • Quiz • Google form • Report
12	4		Mid Exam	<ul style="list-style-type: none"> • Face to face lectures • Power point • Videos • Lab 	<ul style="list-style-type: none"> • Exam • Quiz • Google form • Report
13	4		Microsoft office Power Point	<ul style="list-style-type: none"> • Face to face lectures • Power point • Videos • Lab 	<ul style="list-style-type: none"> • Exam • Quiz • Google form • Report

14	4		Microsoft office Power Point	<ul style="list-style-type: none"> • Face to face lectures • Power point • Videos • Lab 	<ul style="list-style-type: none"> • Exam • Quiz • Google form • Report
15	4		Project Presentation	<ul style="list-style-type: none"> • Face to face lectures • Power point • Videos • Lab 	<ul style="list-style-type: none"> • Exam • Quiz • Google form • Report • Seminar • Project
Course2					
1	4		Programming Languages, Flowcharting, introduction and standard symbols, algorithms, flowcharts advantages, types of flowcharts, simple sequential flowchart.	<ul style="list-style-type: none"> • Face to face lectures • Power point • Videos • Lab 	<ul style="list-style-type: none"> • Exam • Quiz • Google form • Report
2	4		Branched flowchart, simple loop flowchart, nested Loop flowchart, Tutorials on flowcharting,	<ul style="list-style-type: none"> • Face to face lectures • Power point • Videos • Lab 	<ul style="list-style-type: none"> • Exam • Quiz • Google form • Report
3	4		Introduction to C++ programming	<ul style="list-style-type: none"> • Face to face lectures • Power point • Videos • Lab 	<ul style="list-style-type: none"> • Exam • Quiz • Google form • Report
4	4		Review to C++ Statements Operators, Input and output in C++	<ul style="list-style-type: none"> • Face to face lectures • Power point • Videos • Lab 	<ul style="list-style-type: none"> • Exam • Quiz • Google form • Report
5	4		Mid Exam	<ul style="list-style-type: none"> • Face to face lectures • Power point • Videos • Lab 	<ul style="list-style-type: none"> • Exam • Quiz • Google form • Report
6	4		Sequential statements	<ul style="list-style-type: none"> • Face to face lectures 	<ul style="list-style-type: none"> • Exam • Quiz

				<ul style="list-style-type: none"> • Power point • Videos • Lab 	<ul style="list-style-type: none"> • Google form • Report
7	4		Selection statements	<ul style="list-style-type: none"> • Face to face lectures • Power point • Videos • Lab 	<ul style="list-style-type: none"> • Exam • Quiz • Google form • Report
8	4		Selection statements	<ul style="list-style-type: none"> • Face to face lectures • Power point • Videos • Lab 	<ul style="list-style-type: none"> • Exam • Quiz • Google form • Report
9	4		Iteration Statements	<ul style="list-style-type: none"> • Face to face lectures • Power point • Videos • Lab 	<ul style="list-style-type: none"> • Exam • Quiz • Google form • Report
10	4		Iteration Statements	<ul style="list-style-type: none"> • Face to face lectures • Power point • Videos • Lab 	<ul style="list-style-type: none"> • Exam • Quiz • Google form • Report
11	4		Modularity Programming in C++	<ul style="list-style-type: none"> • Face to face lectures • Power point • Videos • Lab 	<ul style="list-style-type: none"> • Exam • Quiz • Google form • Report
12	4		Modularity Programming in C++	<ul style="list-style-type: none"> • Face to face lectures • Power point • Videos • Lab 	<ul style="list-style-type: none"> • Exam • Quiz • Google form • Report
13	4		Mid Exam	<ul style="list-style-type: none"> • Face to face lectures • Power point • Videos • Lab 	<ul style="list-style-type: none"> • Exam • Quiz • Google form • Report

14	4		Introduction to Arrays in C++	<ul style="list-style-type: none"> • Face to face lectures • Power point • Videos • Lab 	<ul style="list-style-type: none"> • Exam • Quiz • Google form • Report
15	4		Overloading in C++	<ul style="list-style-type: none"> • Face to face lectures • Power point • Videos • Lab 	<ul style="list-style-type: none"> • Exam • Quiz • Google form • Report • Seminar • Project

11. Course Evaluation

Mid-term exam, Quizzes, class and home assignments, lab reports and seminars

12. Learning and Teaching Resources

Required textbooks (curricular books, if any)	N/A
Main references (sources)	
Recommended books and references (scientific journals, reports...)	<ul style="list-style-type: none"> • A First Book of C++, Fourth Edition. Gary Bronson. Cengage Learning. Programming in C++ for Engineering and Scienc. Larry Nyhof. CRC Press.
Electronic References, Websites	