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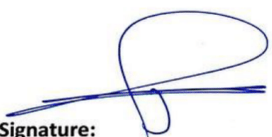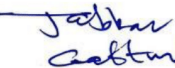
Learning Outcomes: A compatible set of knowledge, skills and values acquired by students after the successful completion of the academic program and must determine the learning outcomes of each course in a way that achieves the objectives of the program.

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: Diyala
Faculty/Institute: College of Engineering
Scientific Department: Department of Electrical Power and Machines Engineering
Academic or Professional Program Name: Bachelor

Final Certificate Name: Bachelor of science in Electrical Power and Machines Engineering

Academic System:Course
Description Preparation Date: 13/8/2024

Completion Date: 13/8/2024

Signature:

Head of Department Name:
Asst. prof. Dr. Balasim M. Hussein

Date: 13/8/2024

Signature:

Scientific Associate Name:
ASSt prof. Dr.

Date:13/8/2024

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

Prof. Dr. Anees A. Khadom

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Course description form

1. Course Name
Advanced Programming

2. Course Code
EP205

3. Semester/Year
2n'd Semester/Third Year

4. The date this description was prepared
2023 / 9 / 17

5. Available forms of attendance
Face-to-Face theoretical lectures

6. Number of study hours (total) / number of units (total)
45/2

7. Name of the course administrator
Name: Lect. Hayder Salim Hameed Email: haydersalim@uodiyala.edu.iq

8. Course objectives	
Objectives of the study subject	1. Providing the student with basic information about the various well-known engineering programs. 2. Familiarity with the famous mathematical and engineering analysis program (MATLAB). 3. The student's knowledge of the programming statements of the MATLAB language and how to benefit from them in writing programs to solve mathematical problems of the basics of electrical engineering for which there are no programs in ready-made systems. 4. Obtain sufficient information about using the program in mathematical analysis, programming, and the use of matrices, as well as solving and drawing complex mathematical

	equations.
9. Solution of non-linear equations and root findings.	
The Strategy	• The student is directed in the practical laboratory and is tasked with analyzing and programming a simple engineering system or application using MATLAB codes and programming expressions and presenting the results of the analysis and programming. • Important notes about the importance of programming in our lives and the extent of progress of some countries in the field of software. Important programs in our lives are also reviewed and widely used such as medical or agricultural applications and other applications programmed by engineers, analysts and programmers. • Through discussion, students participate in solving some practical problems. • Asking the student to visit the library and the international information network (the Internet) to obtain additional knowledge of the academic subjects. • Presenting a seminar to the student in front of his fellow students to enhance his self-confidence..

		10. Numerical integration and differentiation.			
Week	**Hours**	**Name of the unit or topic**	**Required learning outcomes**	**Learning method**	Interpolation and solving differential equations.
1	3	Starting with MATLAB	Teach the student how to	Whiteboard and Data show	Daily, oral, monthly, written

			get started with Matlab.		examinations and reports
2	3	DEFINING SCALAR VARIABLES	Introducing the student to how to define variables.	Whiteboard and Data show	Daily, oral, monthly, written examinations and reports
3	3	**Creating Arrays**	Introducing the student to creating a one-dimensional matrix.	Whiteboard and Data show	Daily, oral, monthly, written examinations and reports
4	3	USING A COLON : IN ADDRESSING ARRAYS	Introducing the student to the use of colons in the matrix title.	Whiteboard and Data show	Daily, oral, monthly, written examinations and reports
5	3	**Mathematical Operations with Arrays**	Introducing the student to explaining mathematical operations on the matrix.	Whiteboard and Data show	Daily, oral, monthly, written examinations and reports
6	3	BUILT-IN FUNCTIONS FOR ANALYZING ARRAYS.	Introducing the student to explaining the built-in function for matrix analysis.	Whiteboard and Data show	Daily, oral, monthly, written examinations and reports
7	3	INPUT TO A SCRIPT FILE , OUTPUT COMMANDS.	Introducing the student to explain how to access the file to write the program	Whiteboard and Data show	Daily, oral, monthly, written examinations and reports
8	3	**Two-Dimensional Plots**.	Introducing the student to the explanation of two-dimensional drawing.	Whiteboard and Data show	Daily, oral, monthly, written examinations and reports
9	3	`PUTTING MULTIPLE PLOTS ON THE SAME PAGE`	Introducing the student to how to place several drawings on the same page	Whiteboard and Data show	Daily, oral, monthly, written examinations and reports
10	3	`FORMATTING A PLOT .`	Introducing the student to how to adjust drawing settings.	Whiteboard and Data show	Daily, oral, monthly, written examinations and reports
11	3	`RELATIONAL AND LOGICAL`	Introducing the student to the	Whiteboard and Data show	Daily, oral, monthly, written

		OPERATORS	concept of processing relational and logical operators.		examinations and reports
12	3	CONDITIONAL STATEMENTS	Introducing the student to the concept of conditional statements.	Whiteboard and Data show	Daily, oral, monthly, written examinations and reports
13	3	LOOPS(for-end Loops , while-end Loops , NESTED LOOPS AND NESTED CONDITIONAL STATEMENTS.	Introducing the student to the concept of iterative loops and the tools used to program them.	Whiteboard and Data show	Daily, oral, monthly, written examinations and reports
14	3	User-Defined Functions and Function	Introducing the student to how to deal with constructing unavailable functions and how to program them.	Whiteboard and Data show	Daily, oral, monthly, written examinations and reports
15	3	- SAVING A FUNCTION FILE, USING A USER-DEFINED FUNCTION - EXAMPLES OF MATLAB APPLICATIONS	Explain how functions and files are stored, and illustrate examples of Matlab applications	Whiteboard and Data show	Daily, oral, monthly, written examinations and reports

11. Course Evaluation

Distribution of the grade 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)	MATLAB Programming for Engineers
Main references (sources)	1- MATLAB An Introduction with Applications **2- ELECTRONICS and CIRCUIT ANALYSIS using MATLAB**
Recommended supporting books and references (scientific journals, reports....)	All solid scientific journals that are related to the broad concept of programming using MATLAB.
Electronic references, Internet sites	**https://www.mathworks.com/**