

**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.

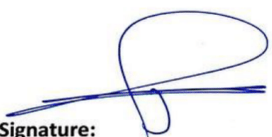
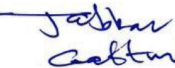
Learning Outcomes: A compatible set of knowledge, skills and values acquired by students after the successful completion of the academic program and must determine the learning outcomes of each course in a way that achieves the objectives of the program.

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. Khaden

Course description form

1. Course Name	
Control Theory I	
2. Course Code	
EP311	
3. Semester/Year	
Spring Semester/Third Year	
4. The date this description was prepared	
17 / 9 / 2023	
5. Available forms of attendance	
Face-to-Face theoretical lectures	
6. Number of study hours (total) / number of units (total)	
60/3	
7. Name of the course administrator	
Name: Assist. Prof. Dr. Zeyad A. Obaid Email: Zeyad.a.obaid@uodiyala.edu.iq	
8. Course objectives	
Objectives of the study subject	<ol style="list-style-type: none"> 1. Developing problem-solving skills, understanding the principles of control and control systems, and the method of analyzing the stability of control systems and modeling systems. 2. Understanding the types of response of time systems and how to analyze them. 3. Simplifying systems through diagrams and blocks for the purpose of reaching the main goal of the course, which is to extract the final systems equation for the purpose of analyzing and developing their stability.
9. Teaching and learning strategies	
The Strategy	<ul style="list-style-type: none"> <input type="checkbox"/> Weekly lectures included providing students with the basics and topics related to the pre-skills education outcomes to solve practical problems through presentation, lecture, or conducting experiments. <input type="checkbox"/> Solve a group of practical and applied examples by faculty members. <input type="checkbox"/> Through discussion, students participate in solving some practical problems. <input type="checkbox"/> Practical laboratories in the department are monitored by faculty members in the department.

□ Asking the student to visit the library and the international information network (the Internet) to obtain additional knowledge of academic subjects. Giving a seminar to the student in front of his fellow students to enhance his self-confidence.

10. Course structure

Week	Hours	Name of the unit or topic	Required learning outcomes	Learning method	Evaluation method
1	4	Basic Definition of Transfer functions of control systems, closed and open loop	A general definition of control systems in general and power systems in particular, explaining the types of control systems	Lectures Examples of field practical cases	Daily exams seminar Monthly exams
2	4	electrical system,	Study of transitional circuits for electrical systems and how to convert them into differential equations (part One)	Lectures Examples of field practical cases	Daily exams seminar Monthly exams
3	4	electrical system,	Study of transitional circuits for electrical systems and how to convert them into differential equations (The second part)	Lectures Examples of field practical cases	Daily exams seminar Monthly exams
4	4	mechanical system & servo system	Study of transitional circuits for mechanical systems and how to convert them into differential equations	Lectures Examples of field practical cases	Daily exams seminar Monthly exams
5	4	An in-person theoretical exam with a practical exam in the laboratory separate from the theoretical one	First month exam	Lectures Examples of field practical cases	Daily exams seminar Monthly exams
6	4	Block Diagram reduction rules	Studying the simplification of systems through the use of block simplification theory for the purpose of extracting the final equation of the system (part One)	Lectures Examples of field practical cases	Daily exams seminar Monthly exams

7	4	Block Diagram reduction rules	Studying the simplification of systems through the use of block simplification theory for the purpose of extracting the final equation of the system (part two)	Lectures Examples of field practical cases	Daily exams seminar Monthly exams
8	4	Signal flow graph & mason's rule	Studying the simplification of systems through the use of signal transmission diagram theory for the purpose of extracting the final equation of the system (part One)	Lectures Examples of field practical cases	Daily exams seminar Monthly exams
9	4	Signal flow graph & mason's rule	Studying the simplification of systems through the use of signal transmission diagram theory for the purpose of extracting the final equation of the system (part two)	Lectures Examples of field practical cases	Daily exams seminar Monthly exams
10	4	An in-person theoretical exam with a practical exam in the laboratory separate from the theoretical one	Second month exam	Lectures Examples of field practical cases	Daily exams seminar Monthly exams
11	4	The steady-state error due to step, ramp & parabolic inputs.	Studying the types of entries for systems	Lectures Examples of field practical cases	Daily exams seminar Monthly exams
12	4	Real industrial example of control system especially in power systems	Practical examples from industry of types of control and their uses in power systems	Lectures Examples of field practical cases	Daily exams seminar Monthly exams
13	4	Transient Response of Second Order Systems.	Study of the time response of second-order functions	Lectures Examples of field practical cases	Daily exams seminar Monthly exams
14	4		Third month exam	Lectures	Daily exams

		An in-person theoretical exam with a practical exam in the laboratory separate from the theoretical one		Examples of field practical cases	seminar Monthly exams
15	4	General discussion for the course output for each student to compare the grades and outcomes of both class and lab exams.	Discussing the course outcomes for each student and identifying weak points by comparing answers in exams, general assignments, and the laboratory	Lectures Examples of field practical cases	Daily exams seminar Monthly exams

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)	Modern control system by "OGATA. Advanced control system by 'ROLAND S.BURNS"
Main references (sources)	Modern control system by "OGATA. Advanced control system by 'ROLAND S.BURNS"
Recommended supporting books and references (scientific journals, reports....)	YouTube Channel for the Lecturer
Electronic references, Internet sites	Search by keywords: Control theory, Root locus, bode plot, control design, PID controller