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

2024-2025

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 Diyala

Faculty/Institute: College of Engineering

Scientific Department: Department of Computer Engineering

Academic or Professional Program Name: BSc in Computer Engineering

Final Certificate Name: BSc in Computer Engineering

Academic System: Courses

Description Preparation Date: 16 / 4 2025

File Completion Date: 16 / 4 2025

Signature:
Head of Department Name:
Assist. Prof. Dr. Ali N. Albu-Rghaif
Date: 16 / 4 / 2025

Signature:
Scientific Associate Name:
Prof. Dr. Jabbar Q. Jabbar
Date: 16 / 4 / 2025

The file is checked by: Assist. Prof. Dr. Salah N. Farhan

Department of Quality Assurance and University Performance

Director of the Quality Assurance and University Performance Department:

Date: 16 / 4 / 2025

Signature:

Approval of the Dean
Prof. Dr. Anees A. Khadom
16 / 4 / 2025

1. Program Vision

The computer engineering department is a "distinct" model for the production and development of engineering and technological knowledge to prepare qualified engineering cadres capable of supporting and developing the society in the fields of computing, information technology and software.

2. Program Mission

Develop the engineering cadres by providing them with modern technological knowledge in various branches of computer engineering sciences to enable them to carry out the various engineering projects efficiently and professionally with high accuracy and perfection as required by the labor market and to continue scientific and academic progress through keeping abreast of the accelerating global developments.

3. Program Objectives

1. **Developing specialized engineering programs that conform to international quality standards in the field of computers and software, through which they can provide engineering cadres able to prove their worth in the field of work.**
2. **Developing the abilities and skills of the teaching staff and the staff to improve the educational and research reality in the department.**
3. **Serving the local and international community through the development of applied and academic research to solve various problems in the industrial and engineering fields.**
4. **To provide an advanced learning and research environment suitable for the students of the department of students and cadres of engineering, engineering and teaching to produce high quality educational and engineering leaders.**

4. Program Accreditation

Not at the moment

5. Other external influences

No

6. Program Structure

Program Structure	Number of Courses	Credit hours	Percentage	Reviews*
University Requirements	**5**	**6**	**4.24%**	
College Requirements	**9**	**20**	**14.20%**	
Department Requirements	**46**	**115**	**81.56%**	
Summer Training				**Graduation Requirements**
Other				

7. Program Description

Year/Level	Course Code	Course Name	Credit Hours	
			Theoretical	Practical
2nd Year-1st Semester	E 201	Applied Mathematics I	3	-
2nd Year-1st Semester	CPE 201	Computer Architecture I	2	-
2nd Year-1st Semester	CPE 203	Electronics	2	2
2nd Year-1st Semester	CPE 205	Digital Logic Circuits II	3	2
2nd Year-1st Semester	CPE 207	Data Structures and Algorithms	2	2
2nd Year-1st Semester	CPE 209	Operating Systems I	2	-
2nd Year-1st Semester	CPE 211	Fundamentals of Communications	3	-
2nd Year-2nd Semester	E 202	Applied Mathematics II	3	-
2nd Year-2nd Semester	CPE 202	Computer Architecture II	2	-
2nd Year-2nd Semester	CPE 204	VLSI Circuit and Design	2	2
2nd Year-2nd Semester	CPE 206	Microprocessor Programming	2	2
2nd Year-2nd Semester	CPE 208	Database Systems	2	3

2nd Year-2nd Semester	CPE 210	Software Engineering	2	2
2nd Year-2nd Semester	CPE 212	Object Oriented Programming using Java	2	2
3rd Year-1st Semester	CPE 301	Engineering Analysis	3	-
3rd Year-1st Semester	CPE 303	Digital Signal Processing I	2	2
3rd Year-1st Semester	CPE 305	Digital System Design I	2	2
3rd Year-1st Semester	CPE 307	Digital Communications	2	2
3rd Year-1st Semester	CPE 309	Control Theory	2	2
3rd Year-1st Semester	CPE 311	Operating Systems II	2	2
3rd Year-1st Semester	CPE 313	Internet Web Site Design	2	2
3rd Year-2nd Semester	CPE 302	Numerical Analysis	3	-
3rd Year-2nd Semester	CPE 304	Digital Signal Processing II	2	2
3rd Year-2nd Semester	CPE 306	Digital System Design II	2	2
3rd Year-2nd Semester	CPE 308	Computer Networks I	3	-
3rd Year-2nd Semester	CPE 310	Computer Control	2	2
3rd Year-2nd Semester	CPE 312	Computer Interfacing	2	2
3rd Year-2nd Semester	CPE 314	Digital Image Processing	2	2
Fourth Year-1st Semester	E 402	Graduation Project	-	4
Fourth Year-1st Semester	E 401	Engineering Profession Ethics	2	-
Fourth Year-1st Semester	CPE 401	Computer Vision	2	-
Fourth Year-1st Semester	CPE 403	Cryptography and Network Security I	3	2
Fourth Year-1st Semester	CPE 405	GNSS Applications	2	2
Fourth Year-1st	CPE 407	Computer Networks II	2	2

Semester				
Fourth Year-2nd Semester	E 402	Graduation Project	-	4
Fourth Year-2nd Semester	E 404	Engineering Economy	2	-
Fourth Year-2nd Semester		Soft Computing	2	-
Fourth Year-2nd Semester		Cryptography and Network Security II	3	2

8. Expected learning outcomes of the program

Knowledge	
1. Teaching the student, the principles of how computers work and how to deal with computer algorithms. 2. Enabling students to obtain knowledge and understanding in working on and designing electronic computers. 3. Teaching the student, the methods of forming computer parts and their interconnection. 4. Enabling students to obtain knowledge and understanding of designing everything related to computer microprocessors. 5. Enabling students to obtain knowledge and understanding of diagnosing faults and maintaining various computer devices. 6. Teaching the student the foundations of solving programming problems, computer networks, and communications.	Learning Outcomes Statement 1
Skills	
• Explanation of computer principles topics by specialists in the subject, with an emphasis on the use of mathematics as a basis for understanding and learning.	
• Providing them with skills to solve practical problems related to various computer systems and computer programs for addressing and solving technical problems in various fields of computerized work.	
Ethics	
• Enabling students to think and analyze topics related to the engineering framework, such as various logical circuits.	
• Enabling students to think and analyze topics related to computer systems related to the engineering framework.	
• Enabling students to think and analyze topics related to solving practical problems.	

9. Teaching and Learning Strategies

- Providing students with the basics and additional topics related to previous educational outcomes and skills to solve practical problems.
- Solving a group of practical examples by the academic staff.
- Students participate during the lecture in solving some practical problems.
- The department's scientific laboratories are monitored by the academic staff.

10. Evaluation methods

- Daily exams with practical and scientific questions.
- Participation marks for difficult competition questions among students.
- Assigning grades to homework assignments and reports assigned to them.
- Monthly exams for the curriculum in addition to the final exam.

11. Faculty

Faculty Members

Academic Rank	Specialization		Special Requirements/Sk (if applicable)		Number of the teaching staff	
	General	Special			Staff	Lecturer
Prof.	Electric Eng.	Electronic Eng.			1	
Asst. Prof.	Computer Eng.	Machine Learning			1	
Asst. Prof.	Computer Eng.	A.I.			1	
Asst. Prof.	Computer Eng.	Comp. Architecture			1	
Asst. Prof.	Electric & Electronic Eng.	Control			1	
Asst. Prof.	Computer Science	Simulation			1	
Asst. Prof.	Computer Science	Comp. Vision			1	
Asst. Prof.	Computer Science	A.I.			1	
Asst. Prof.	Computer Science	Data Compression			1	
Asst. Prof.	Computer Eng.	Wireless Net.			1	
LECT.	Computer Eng.	Comp. Net.			2	
LECT.	Electric Eng.	Control & Comp.			1	
LECT.	Computer Science	Complex modeling			1	
LECT.	Computer Science	Software			1	
LECT.	Computer Eng.	I.T.			3	
LECT.	Computer Eng.	Information Secuirty			1	
LECT.	Computer	Comp. Vision			1	

	Eng.					
LECT.	Computer Eng.	Science & Eng. Comp.			1	
LECT.	Computer Eng.	Software			1	
LECT.	Electric Eng.	Electrical Power			1	
LECT.	Electric Eng.	Electronic & Communicatio n			1	
LECT.	Computer Science	I.T.			2	
LECT.	Computer Eng.	Computer Eng.			2	
Asst. LECT.	Computer Eng.	Nano Electronic			1	
Asst. LECT.	Computer Eng.	Comp. Net.			1	
Asst. LECT.	Electronic Eng.	mechatronics			1	
Asst. LECT.	Electric Eng.	Electronic & Communicatio n			1	
Asst. LECT.	Arabic Language	Arabic Language			1	

Professional Development
Mentoring new faculty members
Faculty members are instructed to hold regular meetings and review questionnaires received from students with the Scientific Committee.
Professional development of faculty members
The teaching staff undergoes development through training, workshops, and seminars. Progress is evaluated by subject performance.

12. Acceptance Criterion

According to the rules and regulations of Ministry of Higher Education and Scientific Research.

13. The most important sources of information about the program

- ✓ College website.
- ✓ The department's website and contact the department by email.

14. Program Development Plan

- ✓ The courses are updated annually to keep up with developments in computer science
- ✓ the laboratories are also updated under academic curricula.
- ✓ Additionally, postgraduate programs are now being offered.

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
3rd Year / 1st Semester	CPE 309	Control Theory	Core	√	√	√	√	√	√	√	√	√	√	√	√

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

Course Description Form

1. Course Name:	
Control Theory	
2. Course Code:	
CPE 309	
3. Semester / Year:	
1st Semester / 3rd Year	
4. Description Preparation Date:	
24/4/2024	
5. Available Attendance Forms:	
Class Lectures	
6. Number of Credit Hours (Total) / Number of Units (Total)	
45 hours / 3 units	
7. Course administrator's name (mention all, if more than one name)	
Name: Assistant Prof. Dr. Saad A. Salman Email: drsaad_eng@uodiyala.edu.iq	
8. Course Objectives	
Course Objectives	• During the semester, the student learns the basics of control theory. • Understanding the basics of analog control systems. • Learn how to think about determining the stability of analog control systems. • The student learns the concepts of embedded design for analog control systems.
9. Teaching and Learning Strategies	
Strategy	• The lecturer prepares lectures on the subject in the form of paper and electronic lectures and presents them to the students. • The lecturer delivers lectures in detail. • The lecturer requests periodic reports and homework assignments on the basic topics of the subject.

10. Course Structure					
Week	**Hours**	**Required Learning Outcomes**	**Unit or subject name**	**Learning method**	**Evaluation method**
Week 1 to Week 4	12	The student learns definitions of matter terms, the study of the transfer function, the mathematical representation of mechanical and electrical control systems, as well as the concept of the state space system for dynamic systems.	Basic Definitions and Transfer function Mathematical Representation of Control Systems: Mechanical and electrical systems. State-Space Representation of Dynamic System: Approach, Concept and Solution	Lectures Notes PDF power point Video	Daily exams + monthly exams
Week 5 to Week 8	12	The student learns how to find the closed transform function by simplifying the block diagram and the signal flow diagram method, in addition to studying the analysis of control systems in the time domain.	Block Diagram reduction Signal Flow Graph Time-Domain Analysis of Control System	Lectures Notes PDF power point Video	Daily exams + monthly exams
Week 9 to Week 13	١5	Learn the details and methods of controlling systems in the frequency domain	Stability of Control System Root-Locus Analysis Frequency Response Analysis	Lectures Notes PDF power point Video	Daily exams + monthly exams
Week 14 to Week 15	6	Learn how to design control systems using Root Locus	Control System Design by the Root-Locus Method	Lectures Notes PDF power point Video	Daily exams + monthly exams

11. Course Evaluation	
Distributing the score out of 100 according to the tasks assigned to the student sich as daily preparation, daily oral, monthly, or written exam, report … etc	
12. Learning and Teaching Resources	
Books Required reading:	• Katsuhiko Ogata **,** " *Modern Control Engineering* ", Fifth edition, Prentice Hall, 2010
Main references (sources)	• Lectures presented by the Lecturer. • Chi-Tsong Chen , " Analog And Digital Control System Design ", Saunders College Publishing, 2005. • John J. D'Azzo, Constantine H. Houpis " Linear Control System Analysis and Design with MATLAB ", fifth edition, Marcel Dekker Inc., 2003.
Recommended books and references (scientific journals, reports…).	• All major scientific journals related to the principles of analog control.
Electronic references, Internet sites…	• Any other materials available on the web.