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

That the Computer Engineering Department be a "distinguished" model for producing and developing engineering and technological knowledge to prepare competent engineering cadres capable of supporting and developing society in the fields of computing, information technology, and software.

2. Program Mission

Developing engineering cadres by providing them with modern technological knowledge in various branches of computer engineering sciences to enable them to implement various engineering projects with high efficiency and professionalism, with accuracy and mastery, according to what the labor market requires, and to continue scientific and academic progress by keeping pace with rapid global developments by continuing purposeful and sober scientific research of high quality.

3. Program Objectives

١) Developing specialized engineering programs that conform to international quality standards in the field of computers and software, through which engineering cadres capable of proving their competence in the field of work can be provided.

٢) Developing the capabilities and skills of the teaching and functional staff to advance the educational and research reality in the department.

٣) Serving the local and international community by developing applied and academic research to solve various problems in the industrial and engineering fields.

٤) Providing an advanced and appropriate educational and research environment for the department's members, including students and technical, engineering and teaching staff, to produce high-quality educational and engineering leaders.

4. Program Accreditation

Does the program have software accreditation?From which side?
Not currently happening

5. Other external influences

There is 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	U 101	Human Rights and Democracy	2	-
2nd Year-1st Semester	CPE 101	Engineering Drawing Using Computer	-	3
2nd Year-1st Semester	E 103	Physics	2	-
2nd Year-1st Semester	E 106	Workshop Skills I	-	3
2nd Year-1st Semester	E 101	Mathematics I	2	-
2nd Year-1st Semester	CPE 102	Programming and Problem Solving Using C++ I	2	2
2nd Year-1st Semester	CPE 104	Fundamentals of Logic Systems	2	-
2nd Year-2nd Semester	CPE 106	Electrical Circuits I	2	2
2nd Year-2nd	U 102	Computer Science	1	2

Semester				
2nd Year-2nd Semester	U 103	English Language	1	-
2nd Year-2nd Semester	U 104	Arabic Language	1	-
2nd Year-2nd Semester	E 107	Workshop Skills II	-	3
2nd Year-2nd Semester	E 102	Mathematics II	2	-
2nd Year-2nd Semester	CPE 102	Programming and Problem Solving Using C++ II	2	2
3rd Year-1st Semester	CPE 105	Digital Logic Circuits I	2	2
3rd Year-1st Semester	CPE 107	Electrical Circuits II	2	2
3rd Year-1st Semester	E 201	Applied Mathematics I	3	-
3rd Year-1st Semester	CPE 201	Computer Architecture I	2	-
3rd Year-1st Semester	CPE 203	Electronics	2	2
3rd Year-1st Semester	CPE 205	Digital Logic Circuits II	3	2
3rd Year-1st Semester	CPE 207	Data Structures and Algorithms	2	2
3rd Year-2nd Semester	CPE 209	Operating Systems I	2	-
3rd Year-2nd Semester	CPE 211	Fundamentals of Communications	3	-
3rd Year-2nd Semester	E 202	Applied Mathematics II	3	-
3rd Year-2nd Semester	CPE 202	Computer Architecture II	2	-
3rd Year-2nd Semester	CPE 204	VLSI Circuit and Design	2	2
3rd Year-2nd Semester	CPE 206	Microprocessor Programming	2	2
3rd Year-2nd Semester	CPE 208	Database Systems	2	3
Fourth Year-1st Semester	CPE 210	Software Engineering	2	2
Fourth Year-1st Semester	CPE 212	Object Oriented Programming using Java	2	2
Fourth 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-1st 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
3rd Year-2nd Semester	E 402	Graduation Project	-	4
Fourth Year-1st Semester	E 401	Engineering Economy	2	-
Fourth Year-1st Semester	CPE 401	Soft Computing	2	-
Fourth Year-1st Semester	CPE 403	Cryptography and Network Security II	3	2

8. Expected learning outcomes of the program

Knowledge

١) Understand and teach the student the principles of computer operation and how to deal with computer algorithms.
٢) Enabling students to obtain knowledge and understanding in working on and designing electronic computers.
٣) The student's understanding of the methods of forming computer parts and their interconnection.
٤) Enabling students to obtain knowledge and understanding of designing everything related to computer microprocessors .
٥) Enabling students to obtain knowledge and understanding of diagnosing faults

and maintaining various computers. ٦) The student's understanding of the foundations of solving software problems, computer networks, and communications .	
Skills	
• Explanation of computer principles topics by subject specialists with emphasis on using mathematics as a basis for understanding and learning . • Provides them with the skills to solve practical problems related to various computer systems and computer programs for processing 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 different 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

1) Providing students with the basics and additional topics related to previous educational outcomes and skills for solving practical problems.
2) Solution to a set of practical examples by the academic staff .
3) During the lecture, students participate in solving some practical problems.
4) The department's scientific laboratories are followed up by the academic staff.

10. Evaluation methods

1) Daily exams with practical and scientific questions .
2) Participation scores for difficult competition questions among students .
3) Setting grades for homework and reports assigned to them.
4) Quarterly exams for the curriculum, in addition to the mid-year exam and 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 Eng.	Comp. Vision			1	

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 directed to hold periodic meetings and reverse review by the Scientific Committee of the questionnaires obtained from students

Professional development of faculty members

The teaching staff is developed by holding training or specialized courses, practical workshops, and discussion panels with quarterly seminars. Development is reviewed by evaluating the results of academic subjects

12. Acceptance Criterion

Central acceptance from the Ministry of Higher Education and Scientific Research.

13. The most important sources of information about the program

- ✓ College website .
- ✓ Department website and email.

14. Program Development Plan

- ✓ Updating courses annually to keep pace with developments in the computer field
- ✓ Updating laboratories in accordance with academic curricula
- ✓ Open postgraduate programmers

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
4th Year-1st Semester	CPE 407	Computer Networks II	Basic	√	√	√	√	√	√	√	√	√	√	√	√

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

Course Description Form

1. Course Name:
Computer Networks II
2. Course Code:
CPE 407
3. Semester / Year: 1st Semester –
1st Semester – 4th Year
4. Description Preparation Date:
2/5/2024
5. Available Attendance Forms:
My presence (mandatory)
6. Number of Credit Hours (Total) / Number of Units (Total)
30 hours
7. Course administrator's name (mention all, if more than one name)
Name: ***Ali N. Kareem***   **Email:** ***ali.alburghaif@uodiyala.edu.iq***
8. Course Objectives

Course Objectives	Objectives of the study subject: The Computer Networks I curriculum aims to introduce the student to the skills and basics of computer networks and to focus on the models used in them, their components and protocols A- Cognitive objectives ..... A1- During the academic year, the student learns the basics of networking . A2- Understanding the types of computer networks and ways to connect them . A3- Learns how to think about how networks work and their applications. A4- The student learns the types of models used in networks, their components and functions . B- The skill objectives of the subject B1 - Learn how computer networks and their applications work . B2- Learn the types of computer networks and the advantages of each type . B3- Familiarity with the basic concepts of network types . B4- Familiarity with how the models and protocols used are made and installed

9. Teaching and Learning Strategies	
Strategy	The teacher prepares lectures on the subject in paper and electronic form and presents them to the students. ✓ The teacher delivers lectures in detail . The teacher requests periodic reports and homework on the basic topics of the subject . Evaluation methods

	✓ Daily discussion to determine the extent of students' understanding of the material and to evaluate daily contributions. ✓ Daily exams with various short scientific questions to understand the extent of their understanding of the subject. ✓ Giving part of the grade for each semester for homework. ✓ Daily exams (cases) and monthly exams for the curriculum and final exam C- Emotional and value goals C1- Urging the student to understand the purpose of studying the subject in general . C2- Urging the student to understand the operation of each function or code within the language . C2- Urging the student to think about how to develop himself in the field of computers. C4- Making the student able to deal with the calculator and how to use the programs . D - Transferred general and qualifying skills (other skills related to employability and personal development). D1- Enabling students to write reports on topics related to computer networks . D2- Enabling students to use the Internet to obtain important information . D3- Raising the student's self-confidence by linking theoretical material to practical reality. D4- Developing students' skills in how to deal with computer

10. Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
First-second-third-	9	The student learns an introduction to data communications, networks, and the Internet, in addition to protocol layers and service	Overview of Data communications and Networking Computer Networks and the Internet, General overview Protocol Layers and Service Models	Lectures Notes PDF power point Video	Daily exams + monthly exams
Fourth - sixth	9	The student learns the properties and functions of the application layer	Application Layer	Lectures Notes PDF power point Video	Daily exams + monthly exams

Seventh -ninth	9	The student learns the characteristics and functions of the transport layer	Transport Layer	Lectures Notes PDF power point Video	Daily exams + monthly exams
Tenth - twelveth	9	The student learns the properties and functions of the network layer	Network Layer	Lectures Notes PDF power point Video	Daily exams + monthly exams

11. Course Evaluation	
We have a proposal to add a practical laboratory to the subject so that the student can view the media and devices for connecting networks, in addition to preparing them to implement simulation programs	
12. Learning and Teaching Resources	
•James F. Kurose, Keith W. Ross, Computer networking: a top-down approach, 6th ed, 2013. (Chabters 1-6)	C- Recommended books and references (scientific journals, reports,.....)All reputable scientific journals related to computer networks .
B- Main references (sources) • Lectures given by the subject teacher •Books available in the college library	•Behrouz A Forouzan, Data Communications and networking, 4th ed. 2007.
•Andrew S. Tanenbaum, David J. Weatherall, Computer Networks, 5th ed, 2011	