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: Al-Nahrain University

Faculty/Institute: College of information Engineering

Scientific Department: Information and Communication Engineering Department

Academic or Professional Program Name: Information and Communication Engineering

Final Certificate Name: Master of Science (M.Sc.) in Information and communication Engineering

Academic System: Courses System

Description Preparation Date: 22/4/2025

File Completion Date: 22/4/2025

Signature:
Head of Department Name:
Asst. Prof. Dr. Hamsa A. Abdullah
Date: 2/6/2025

Signature:
Scientific Associate Name:
Date: 2/6/2025

جامعة النهرين
كلية هندسة المعلومات - ضمان الجودة والاداء الجامعي

The file is checked by: Dr. Mohammed A. Jabbar Hamed
Department of Quality Assurance and University Performance
Director of the Quality Assurance and University Performance Department:
Date: 3/6/2025
Signature:

Al-Nahrain University
College of information Engineering - Dean Office

Approval of the Dean

Hikmat
3/6/2025

Prof. Dr. Hikmat N. Abdullah

1. Program Vision

To be a leading and distinguished Master's program in Information and Communication Engineering, recognized for excellence in research, innovation, and advanced technological development, graduating highly qualified professionals and researchers capable of generating knowledge, leading cutting-edge projects, and meeting the needs of local, regional, and global markets.

2. Program Mission

To provide high-quality education and research in Information and Communication Engineering, integrating theoretical depth with applied innovation, and preparing highly skilled researchers and professionals capable of developing advanced technological solutions, contributing to knowledge creation and dissemination, and strengthening collaboration with industry and academia to serve society locally, regionally, and globally.

3. Program Objectives

1- Provide advanced education and research opportunities in information and communication engineering.

2- Prepare highly qualified researchers and professionals capable of innovation and leadership.

3- Contribute to knowledge creation and address technological challenges in collaboration with industry and academia.

4- Equip graduates with global competencies to meet the evolving needs of society and the job market.

4. Program Accreditation

Not Yet

5. Other external influences

Ministry of Higher Education & Scientific Research

6. Program Structure

Program Structure	Number of Courses	Credit hours	Percentage	Reviews*
Department Requirements	12	24	66.7%	
Research	1	12	33.3%	
Summer Training				
Other				

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

7. Program Description

Basic				
Year/Level	Course Code	Course Name	Credit Hours	
			theoretical	practical
2024/2025		Network and communication protocols	2	
		Information Security	2	
		English Language	2	
		Computer Vision	2	
		Wireless Communications	2	

		Scientific Research Methodology	**2**	
optional				
2024/2025		Modern Antenna Design	**2**	
		Embedded Systems	**2**	
		Advanced Image Processing	**2**	
		DSP and Applications	**2**	
		Machine Learning	**2**	
		Wireless Sensor Networks and IoT	**2**	

8. Expected learning outcomes of the program

Knowledge	
A1	Ability to identify, formulate, and solve complex engineering problems by applying principles of engineering, science, and mathematics.
A2	Ability to perform mathematical analysis and apply programming skills to support system modeling and analysis.
A3	Ability to apply fundamental principles of management and design to relevant equipment, related software, and system validation.
Skills	
B1	Ability to foster brainstorming, organize tasks systematically, and understand the evolving state of knowledge in a rapidly developing field.
B2	Ability to develop personal skills, perform self-assessment, and identify ongoing educational needs.
B3	Ability to utilize available resources, apply theoretical engineering principles in practical settings, and evaluate risks in engineering practices.
B4	Ability to communicate effectively, both orally and in writing, with diverse audiences.
B5	Ability to prepare and write reports on projects or assignments, and deliver oral presentations in relevant fields.
Ethics	
C1	Ability to work effectively within a team and collaborate in an inclusive environment, set goals, plan and accomplish tasks, manage time, and exercise leadership when needed.

C2	Ability to act responsibly, ethically, professionally, and legally in public and engineering contexts, and make sound professional decisions.

9. Teaching and Learning Strategies

- **Lectures (Traditional & Online):** To introduce core concepts, theories, and frameworks.
- **Project- and Problem-Based Learning:** To develop critical thinking and problem-solving skills.
- **Case Studies and Simulations:** For understanding complex systems and analyzing results.
- **Presentations and Report Writing:** To enhance communication and academic writing skills.

10. Evaluation methods

- **Theoretical Exams (Quarterly and final exams):** To evaluate knowledge and mathematical analysis.
- **Practical and Applied Projects:** To assess problem-solving and application skills.
- **Research and Academic Reports:** To assess writing skills and analytical abilities.
- **Oral Presentations:** To evaluate communication and explanation skills

11. Faculty

Faculty Members

Academic Rank	Specialization		Special Requirements/Skills (if applicable)		Number of the teaching staff	
	General	Special			Staff	Lecturer
Professor	Electrical Engineering	Communication Engineering			1	

Professor	Electronic and Electronic Engineering	Electronic and communication Engineering			2	
Professor	Physic	Image processing			1	
Professor	Electrical and Communications Engineering	Communication and Multimedia			1	
Assistant Prof	Information Engineering	Information and communication Engineering			1	
Assistant Prof	Computer Engineering	Computer Eng. and Mobile networks			1	
Assistant Prof	Electronic and Electronic Engineering	Communication Engineering			1	
Assistant Prof	Electrical Engineering	Electronics and Communications Engineering			1	

Professional Development

Mentoring new faculty members

The College and the Department of Information and Communication Engineering are committed to fostering academic excellence and professional development through a structured faculty mentoring program. This process supports new, visiting, full-time, and part-time faculty members in their integration into the academic environment and in achieving teaching, research, and service excellence.

Institutional-Level Support:

Orientation Programs: New faculty attend university-wide orientations that introduce institutional policies, academic expectations, and available resources.

Professional Development Workshops: Faculty are encouraged to participate in regular training on teaching strategies, assessment practices, and academic integrity.

Department-Level Support:

Teaching Methods Course Support: The department requires new faculty to complete a certified Teaching Methods Course. Support includes:

- Registration assistance and scheduling flexibility.
- Study resources and access to sample materials.

Classroom Observation & Feedback: New faculty are given opportunities to observe experienced instructors and receive feedback on their own teaching.

Regular Reviews & Check-ins: Periodic meetings are conducted to assess progress, provide feedback, and address any challenges in teaching or research.

Professional development of faculty members

The Department of Information and Communication Engineering is committed to continuous academic and professional growth of its faculty members. The department, in collaboration with the institution, has established a structured development plan that focuses on enhancing teaching effectiveness, research capabilities, and engagement with the academic community.

1. Teaching and Learning Strategies:

Workshops and seminars are conducted on curriculum development, classroom management, and inclusive teaching practices.

2. Assessment of Learning Outcomes:

Faculty receive guidance on the design and implementation of effective assessment tools aligned with course learning outcomes.

Training is provided in the use of rubrics, formative and summative assessments, and data analysis for outcome-based education.

The department reviews course and program outcomes periodically to ensure alignment with national and international academic standards.

3. Professional Development Activities:

Faculty are encouraged to attend and present at national and international conferences, workshops, and seminars.

Support is provided for pursuing higher academic qualifications, certifications, and specialized training in emerging areas of information and communication engineering.

Internal and external grant opportunities are promoted to support faculty research and innovation projects.

12. Acceptance Criterion

Competitive Exam

13. The most important sources of information about the program

https://coie-nahrain.edu.iq/en/

14. Program Development Plan

The Department of Information and Communication Engineering has recently transitioned from a traditional course system to the **Bologna Process (European Higher Education Area – EHEA)** framework. This strategic shift is part of a broader institutional effort to harmonize academic standards, enhance student mobility, and improve the quality of higher education.

Key Elements of the **Bologna-Based Program** Development Plan:

1. **Curriculum Alignment with Bologna Standards:**
   - Programs are restructured into clear cycles (Bachelor's) with defined learning outcomes and credit allocations based on the **European Credit Transfer and Accumulation System (ECTS)**.
   - Courses are modularized to support interdisciplinary learning and flexibility in program pathways.
   - Emphasis is placed on outcome-based education, student workload, and competency development.
2. **Quality Assurance and Accreditation:**
   - The department adheres to internal and external quality assurance mechanisms in line with Bologna principles.
   - Periodic reviews are conducted to ensure compliance with national and EHEA standards, with continuous improvement actions based on feedback from stakeholders.
3. **Teaching and Assessment Methods:**
   - Student-centered teaching strategies are prioritized, including problem-based learning, flipped classrooms, and collaborative projects.
   - Assessment methods are redesigned to evaluate competencies, including practical application, critical thinking, and soft skills.
4. **Curriculum Development:**
   - Curriculum development teams include academic to ensure relevance and quality.
5. **Mobility and Internationalization:**
   - Course structures are designed to facilitate academic mobility and credit recognition across EHEA institutions.
6. **Graduate Employability and Industry Linkages:**
   - Enhanced focus on practical skills, internships, and final-year projects aligned with real-world applications.
   - Industry advisory boards provide input to keep the curriculum aligned with current and future labor market needs.

This Bologna-aligned development plan strengthens the department's academic integrity, international compatibility, and commitment to producing globally competitive graduates in the field of Information and Communication Engineering.

Program Skills Outline													
Required program Learning outcomes													
Year/Level	**Course Code**	**Course Name**	**Basic or optional**	**Knowledge**			**Skills**					**Ethics**	
				A1	**A2**	**A3**	**B1**	**B2**	**B3**	**B4**	**B5**	**C1**	**C2**
2024/2025		Network and communication protocols	**Basic**	*	*	*			*		*		*
		Information Security	**Basic**	*	*	*	*	*	*		*		*
		English Language	**Basic**					*		*	*	*	
		Computer Vision	**Basic**	*	*	*	*	*	*		*		*
		Wireless Communications	**Basic**	*	*	*	*	*	*		*		*
		Scientific Research	**Basic**					*		*	*	*	*

		Methodology											
		Modern Antenna Design	**optional**	*	*	*	*		*		*		*
		Embedded Systems	**optional**	*	*	*	*		*		*		*
		Advanced Image Processing	**optional**	*	*	*	*				*		*
		DSP and Applications	**optional**	*	*	*	*				*		*
		Machine Learning	**optional**	*	*	*	*		*		*		*
		Wireless Sensor Networks and IoT	**optional**	*	*	*	*		*				*

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