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: University of Technology–Iraq

Faculty/Institute: Control and Systems Engineering Department

Scientific Department: Computer and Control Brunch

Academic or Professional Program Name: Bachelor of Computer and Control Engineering

Final Certificate Name: Bachelor of Science of Computer and Control Engineering

Academic System: Semesters

Description Preparation Date: 7/4/2024

File Completion Date: 7/4/2024

Signature:

Head of Department Name:
Asst. Prof. Dr. Firas A. Raheem

Date:

Signature:

Scientific Associate Name:
Prof. Dr. Abbas H. Issa

Date: 8/4/2024

The file is checked by:

Department of Quality Assurance and University Performance

Director of the Quality Assurance and University Performance Department:
Prof. Shaymaa M. Mahdi

Date:

Signature:

Approval of the Dean
Dr. Azad Raheem

1. Program Vision

The program should be distinguished by creativity and leadership in the field of computer and control engineering

2. Program Mission

Preparing specialized engineering cadres capable of serving society with high efficiency, contributing to technological development, and striving to obtain international accreditation.

3. Program Objectives

1. Providing students with basic knowledge in the disciplines of computer control engineering.
2. Developing students' analytical, creative, and professional capabilities.
3. Preparing qualified engineers commensurate with the responsibilities that await them at work sites.
4. Enhancing the practical aspect and field training for students.
5. Enhancing communication, communication and teamwork skills with others.
6. Motivating faculty and students towards scientific research to serve society.
7. Keeping pace with the scientific development taking place in the world through continuous updating of the study plan in a way that serves to achieve quality and then international accreditation.
8. Benefiting from feedback from students and graduates to achieve the department's goals.
9. Develop and expand graduate programs in the department's specializations to meet the needs of society and the labor market.

4. Program Accreditation

ABET

5. Other external influences

6. Program Structure

Program Structure	Number of Courses	Credit hours	Percentage	Reviews*
Institution Requirements	71	148	100 %	–
College Requirements	71	148	100 %	–
Department Requirements	71	148	100 %	–
Summer Training	yes	–	–	–
Other	–	–	–	–

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

7. Program Description

Year/Level	Course Code	Course Name	Credit Hours		
			Theoretical	Lab.	Practical
First Year	DCEC111	DC Electrical Circuits	3	2	-
	MATH112	Mathematics	theory: 4 tutorial :1	-	-
	COSC108	Computer	1	2	-
	ENDR114	Engineering Drawing	-	-	3
	ELPH115	Electronic Physics	3	-	-
	DEHR105	Democracy and Human Rights	2	-	-
	WSHE106	Workshops	-	-	6
	ACEC121	AC Electrical Circuits	3	2	-
	CALC122	Calculus	theory: 4 tutorial :1	-	-
	COPR123	Computer Programming	3	2	-
	CAED124	Computer Aided	-	-	3

		Engineering Drawing			
	ENLA107	English Language	2	-	-
	WSHE106	Workshops	-	-	6
Second Year	HRDE2201	Human Rights	2	-	-
	ELMA2202	DC Electrical Machines	2	-	-
	DASA2251	Data Structures and Algorithms	2	-	-
	ELCN2206	Electronics 1	3	-	-
	ELCN2259	Electronics 2	3	-	-
	DIMA2255	Discrete Mathematics	2	-	-
	EMAT2205	Engineering Mathematics 1	3	-	-
	EMAT2254	Engineering Mathematics 2	3	-	-
	COGR2258	Computer Graphics	2	-	-
	DAMS2203	Database Management Systems	2	-	-
	DISY2208	Digital Systems 1	2	-	-
	DISY2257	Digital Systems 2	2	-	-
	PRLA2204	Programming Language 1	3	-	-
	PRLA2253	Programming Language 2	2	-	-
	COTH2207	Control Theory 1	3	-	-
	COTH2256	Control Theory 2	3	-	-
	MINS2209	Measurement and Instrumentation 1	2	-	-
	MINS2252	Measurement and Instrumentation 2	2	-	-
	-	Baath Regime crimes in Iraq	2	-	-
	LABR2260	Laboratories	-	10	-
Third Year	EANA2301	Engineering Analysis	3	-	-
	NUAM2351	Numerical Analysis Using MATLAB	3	-	-
	ELCD2303	Electronic Circuits Design 1	2	-	-
	ELCD2354	Electronic Circuits Design 2	2	-	-
	FUCO2309	Fundamentals of Communications	2	-	-

	COAR2306	Computer Architecture 1	3	-	-
	COAR2352	Computer Architecture 2	3	-	-
	MITE2302	Microprocessor Techniques 1	3	-	-
	MITE2355	Microprocessor Techniques 2	3	-	-
	DSPR2353	Digital Signal Processing	2	-	-
	LABR2310	Laboratories 1	-	6	-
	LABR2359	Laboratories 2	-	6	-
	PLCO2308	Programmable Logic Controller 1	2	-	-
	PLCO2357	Programmable Logic Controller 2	2	-	-
	SOEN2356	Software Engineering	2	-	-
	SOCO2305	Soft Computing	3	-	-
	DIPR2304	Digital Image Processing	2	-	-
	DISD2307	Advanced Digital Systems Design 1	2	-	-
	DISD2358	Advanced Digital Systems Design 2	2	-	-
Fourth Year	INEN1401	Industrial Engineering	2	-	-
	NANO2401	Nanotechnology	2	-	-
	JAVA2401	Java programming	2	-	-
	DICO2404	Digital control 1	2	-	-
	DICO2451	Digital control 2	2	-	-
	ACOA2408	Advanced Computer Architecture 1	2	-	-
	ACOA2458	Advanced Computer Architecture 2	2	-	-
	CONE2405	Computer Networks 1	2	-	-
	CONE2452	Computer Networks 2	2	-	-
	OPSY2402	Operating Systems	2	-	-
	RETS2407	Real-Time Systems	2	-	-

	EMSY2401	Embedded Systems and Applications	2	-	-
	REAV2456	Reliability and Availability	2	-	-
	COIN2457	Computer Interfacing	2	-	-
	COSD2403	Computer Systems Design 1	1	2	-
	COSD2453	Computer Systems Design 2	1	2	-
	LABR2409	Laboratories 1	-	3	-
	LABR2459	Laboratories 2	-	2	-
	GRPR2401	Project	1	3	-

8. **Expected learning outcomes of the program**	
Knowledge	
A. Knowledge and Understanding	A1: Introduce the student to the basics of computer and control engineering. A2: Familiarize students with applications related to computer and control engineering. A3: Enabling the student to find solutions to problems related to computer and control engineering applications. A4: Enabling the student to invent designs in the field of computer and control engineering applications.
Skills	
B. Subject-specific skills	B1: Define the problems of the topic. B2: Systems design to solve problems. B3: Implementation of designs and evaluation of results.
Ethics	
C. Thinking Skills	C1: The ability to innovate, create and develop individual skills and talents. C2: Competitiveness C3: Interact with the needs of the community and learn about its problems. C4: experience the work environment and instilling professional ethics and teamwork.
General and Transferable Skills (other skills relevant to employability and personal development)	
D. General and Transferable Skills	D1: Ability to work in teams to get a specific job done. D2: The ability to absorb and adopt scientific developments in the field of specialization. D3: The ability to keep pace with scientific and technical development.

	D4: Use of modern technologies and means of communication.

9. Teaching and Learning Strategies

• Participation in scientific seminars and conferences, scientific field visits, design and implementation of devices and projects to participate in scientific exhibitions.
• Solving Mathematical Problems.
• Preparing and implementing algorithms using a computer.
• Using modern software and means of communication such as the Internet for viewing and research.

10. Evaluation methods

Paper exams, oral discussions, homework, discussion, presentation of research and studies.

11. Faculty

Faculty Members

Academic Rank	Specialization		Special Requirements/Skills (if applicable)		Number of the teaching staff	
	General	Special			Staff	Lecturer
Assist. Prof. Dr. Firas Abdulrazzaq Raheem	Control and Systems Engineering	Mechatronics Engineering			Staff	
Prof. Dr. Ashwaq Talib Hashim	Computer Science	Information Security			Staff	
Prof. Dr. Muayad Sadik Croock	Computer Engineering	Software Engineering			Staff	
Assist. Prof. Dr. Ahmed Alaa Oglah	Electrical Engineering	Control and Computer Engineering			Staff	
Assist. Prof. Dr. Muna Mohammed	Computer Science	Artificial Intelligence and			Staff	

		Network Management				
Assist. Prof. Dr. Hamid Musa Hassan	Electrical Engineering	Computer Engineering			Staff	
Assist. Prof. Dr. Ekhlas Kadhum Hamza	Electrical Engineering	Communications Engineering			Staff	
Assist. Prof. Dr. Ahmed Mudher Hasan	Computer Systems Engineering	Artificial Intelligence			Staff	
Assist. Prof. Dr. Ali Majeed Mahmood	Computer Engineering	Wireless Computer Networks			Staff	
Assist. Prof. Dr. Ahmed Raoof Nasser	Computer Engineering	Artificial Intelligence			Staff	
Lec. Dr. Waleed Fawaz Shareef	Computer Engineering	Wireless Networks			Staff	
Lec. Dr. Sherine Sadiq Jumaa	Computer Engineering	Artificial Intelligence			Staff	
Lec. Dr. Amer Kais Obaid	Control and Systems Engineering	Electrical and Computer Engineering			Staff	
Lec. Dr. Wissam Kamel Mazloum	Information Engineering and Systems Techniques				Staff	
Assist. Prof. Seerwan Waleed Jarjees	Control and Systems Engineering	Computer Engineering			Staff	
Assist. Prof. Farah Flaeeh Hassan	Computer Engineering	Computer Systems Engineering			Staff	
Lec. Akdas Safaaldeen Rasheed	Law	Private Law			Staff	
Lec. Luay Thamir Rasheed	Control and Systems Engineering	Mechatronics Engineering			Staff	

Lec. Noor Ayad Yousif	Control and Systems Engineering	Computer Engineering			Staff	
Lec. Russul Haitham Hadi	Control and Systems Engineering	Computer Engineering			Staff	
Lec. Noor Qasim Yousif	Control and Systems Engineering	Mechatronics Engineering			Staff	
Assist. Lec. Reem Majeed Ibrahim	Computer Science	Pattern Recognition			Staff	
Assist. Lec. Bahaa Dhiaa Jalil	Computer Engineering	Computer Systems Engineering			Staff	
Assist. Lec. Karam Samir Khalid	Control and Systems Engineering	Computer Engineering			Staff	
Assist. Lec. Marwa Fadhel Jassim	Control and Systems Engineering	Computer Engineering			Staff	
Assist. Lec. Ali Hamki Mahdi	Law	Commercial Law			Staff	
Assist. Lec. Rusul Sadiq Jaafar	Physics	Laser and Semiconductors			Staff	
Assist. Lec. Nibrass Zair Salih	Control and Systems Engineering	Computer Engineering			Staff	
Assist. Lec. Omer Ali Dheyab	Communications Systems	Communications Engineering			Staff	
Lec. Mohsin Hasan Challoob	Control and Systems Engineering	Electronic Engineering			Staff	

Professional Development
Mentoring new faculty members
1. Enter the class with previous two faculties for two months as observer.
2. Contribute to publishing research in local, regional and international journals for the purpose

of fulfilling the requirements for scientific promotion.

3. Encouraging new faculty members to complete their higher studies within their specialty.
4. Developing the faculty member's skills in teaching, learning, and managing the educational process.
5. Participation in scientific conferences, seminars, workshops and scientific exhibitions.

Professional development of faculty members

1. Contribute to publishing research in local, regional and international journals for the purpose of fulfilling the requirements for scientific promotion.
2. Encouraging new faculty members to complete their higher studies within their specialty.
3. Developing the faculty member's skills in teaching, learning, and managing the educational process.
4. Participation in scientific conferences, seminars, workshops and scientific exhibitions.

12. Acceptance Criterion

1- Central admission plan standard.
2- Accepting the first graduates to the institutes.

13. The most important sources of information about the program

Curriculum books, lectures by teachers that collected from various sources.

14. Program Development Plan

This is done through periodic reviews of curricula and reviews of scientific developments in the field of computer and control engineering.

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	D1	D2	D3	D4
First Year	ENLA107	English Language	Basic										X						
	MATH112	Mathematics	Basic	X	X				X			X	X					X	
	CALC122	Calculus	Basic	X	X				X			X	X					X	
	DCEC111	DC Electrical Circuits	Basic	X	X	X			X	X		X	X				X		
	ACEC121	AC Electrical Circuits	Basic	X	X	X			X	X		X	X				X		
	ELPH115	Electronic Physics	Basic	X				X					X					X	
	DEHR105	Democracy and Human Rights	Basic									X	X						
	ENDR114	Engineering Drawing	Basic			X				X			X					X	
	CAED124	Computer Aided Engineering Drawing	Basic			X				X			X					X	
	COSC108	Computer	Basic		X	X			X	X		X	X				X	X	
	COPR123	Computer Programming	Basic		X	X			X	X		X	X				X	X	

	WSHE106	Workshops	Basic		**X**				**X**			**X**	**X**		**X**	**X**			
			Basic																
Second Year	HRDE2201	Human Rights	Basic									**X**	**X**						
	ELMA2202	DC Electrical Machines	Basic		**X**					**X**									**X**
	DAMS2203	Database Management Systems	Basic	**X**		**X**		**X**	**X**	**X**		**X**	**X**	**X**				**X**	**X**
	DASA2251	Data Structures and Algorithms	Basic	**X**		**X**		**X**	**X**	**X**		**X**	**X**	**X**				**X**	**X**
	ELCN2206	Electronics 1	Basic	**X**	**X**				**X**			**X**	**X**						
	ELCN2259	Electronics 2	Basic	**X**	**X**				**X**			**X**	**X**						
	DIMA2255	Discrete Mathematics	Basic			**X**			**X**			**X**	**X**				**X**		
	EMAT2205	Engineering Mathematics 1	Basic			**X**			**X**			**X**	**X**				**X**		
	EMAT2254	Engineering Mathematics 2	Basic			**X**			**X**			**X**	**X**				**X**		
	DISY2208	Digital Systems 1	Basic	**X**	**X**			**X**	**X**			**X**	**X**					**X**	
	DISY2257	Digital Systems 2	Basic	**X**	**X**			**X**	**X**			**X**	**X**					**X**	
	PRLA2204	Programming Language 1	Basic			**X**				**X**		**X**	**X**					**X**	
	PRLA2253	Programming Language 2	Basic			**X**				**X**		**X**	**X**					**X**	
	COTH2207	Control Theory 1	Basic		**X**					**X**		**X**	**X**					**X**	

	COTH2256	Control Theory 2	Basic		X					X		X	X					X	
	MINS2209	Measurement and Instrumentation 1	Basic		X					X		X	X					X	
	MINS2252	Measurement and Instrumentation 2	Basic		X					X		X	X					X	
	COGR2258	Computer Graphics	Basic	X		X			X	X		X	X					X	
	-	Baath Regime crimes in Iraq	Basic									X	X						
	LABR2260	Laboratories	Basic	X		X		X	X	X		X	X		X	X			
Third Year	SOEN2356	Software Engineering	Basic	X		X			X	X		X	X					X	
	SOCO2305	Soft Computing	Basic	X		X			X	X		X	X					X	
	EANA2301	Engineering Analysis	Basic			X			X			X	X					X	
	NUAM2351	Numerical Analysis Using MATLAB	Basic			X			X			X	X					X	
	DIPR2304	Digital Image Processing	Basic		X					X		X	X					X	
	ELCD2303	Electronic Circuits Design 1	Basic	X	X				X			X	X						
	ELCD2354	Electronic Circuits Design 2	Basic	X	X				X			X	X						
	FUCO2309	Fundamentals of Communications	Basic	X	X				X			X	X						
	COAR2306	Computer	Basic	X		X			X	X		X	X					X	

		Architecture 1																	
	COAR2352	Computer Architecture 2	Basic	**X**		**X**			**X**	**X**		**X**	**X**					**X**	
	MITE2302	Microprocessor Techniques 1	Basic	**X**		**X**			**X**	**X**		**X**	**X**					**X**	
	MITE2355	Microprocessor Techniques 2	Basic	**X**		**X**			**X**	**X**		**X**	**X**					**X**	
	DSPR2353	Digital Signal Processing	Basic			**X**		**X**	**X**			**X**	**X**						
	LABR2310	Laboratories 1	Basic	**X**		**X**		**X**	**X**	**X**		**X**	**X**		**X**	**X**			
	LABR2359	Laboratories 2	Basic	**X**		**X**		**X**	**X**	**X**		**X**	**X**		**X**	**X**			
	DISD2307	Advanced Digital Systems Design 1	Basic		**X**				**X**				**X**				**X**	**X**	**X**
	DISD2358	Advanced Digital Systems Design 2	Basic		**X**	**X**			**X**	**X**		**X**	**X**		**X**		**X**	**X**	**X**
	PLCO2308	Programmable Logic Controller 1	Basic		**X**			**X**	**X**			**X**	**X**	**X**			**X**	**X**	**X**
	PLCO2357	Programmable Logic Controller 2	Basic		**X**			**X**	**X**			**X**	**X**	**X**			**X**	**X**	**X**
Fourth Year	INEN1401	Industrial Engineering	Basic							**X**		**X**	**X**	**X**	**X**				
	NANO2401	Nanotechnology	Basic		**X**	**X**			**X**	**X**		**X**	**X**					**X**	

	JAVA2401	Java programming	Basic		X	X			X	X		X	X					X	
	DICO2404	Digital control 1	Basic	X		X			X	X		X	X				X	X	
	DICO2451	Digital control 2	Basic	X		X			X	X		X	X				X	X	X
	ACOA2408	Advanced Computer Architecture 1	Basic	X		X		X	X	X		X	X	X				X	X
	ACOA2458	Advanced Computer Architecture 2	Basic	X		X		X	X	X		X	X					X	X
	CONE2405	Computer Networks 1	Basic		X	X		X	X			X	X				X		
	CONE2452	Computer Networks 2	Basic		X	X		X	X			X	X	X	X	X	X	X	
	OPSY2402	Operating Systems	Basic		X	X		X	X	X		X	X	X	X	X	X	X	X
	RETS2407	Real-Time Systems	Basic	X		X		X	X	X		X	X		X	X			
	EMSY2401	Embedded Systems and Applications	Basic	X	X				X			X	X					X	
	REAV2456	Reliability and Availability	Basic	X	X				X			X	X					X	
	COIN2457	Computer Interfacing	Basic	X	X	X			X	X		X	X				X		
	COSD2403	Computer Systems Design 1	Basic	X	X	X			X	X		X	X				X		
	COSD2453	Computer Systems	Basic	X	X				X			X	X					X	

		Design 2																	
	LABR2409	Laboratories 1	Basic	**X**	**X**				**X**			**X**	**X**					**X**	
	LABR2459	Laboratories 2	Basic	**X**	**X**	**X**			**X**	**X**		**X**	**X**				**X**		
	GRPR2401	Project	Basic	**X**	**X**	**X**			**X**	**X**		**X**	**X**				**X**		

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