Ministry of Higher Education and Scientific Research Scientific Supervision and Evaluation Authority Department of Quality Assurance and Academic Accreditation Accreditation Department



Academic Program and Course Description Guide

2023-2024

Introduction:

The educational program is a coordinated and organized package of courses that include procedures and experiences organized in the form of academic vocabulary whose main purpose is to build and refine the skills of graduates, making them qualified to meet the requirements of the labor market, which is reviewed and evaluated annually through internal or external audit procedures and programs such as the external examiner program.

The description of the academic program provides a brief summary of the main features of the program and its courses, indicating the skills that are being worked on to acquire for students based on the objectives of the academic program, and the importance of this description is evident because it represents the cornerstone in obtaining program accreditation and is written jointly by the teaching staff under the supervision of the scientific committees in the scientific departments.

This guide, in its second version, includes a description of the academic program after updating the vocabulary and paragraphs of the previous guide in light of the developments 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 description of the academic program circulated according to the letter of the Department of Studies T 3/2906 on 3/5/2023 regarding the programs that adopt the Bologna track as the basis for their work.

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In this regard, we can only emphasize the importance of writing a description of academic programs and courses to ensure the proper functioning of the educational process.

Concepts and Terminology:

<u>Academic Program Description:</u> The description of the educational program provides a 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 student to achieve, proving whether he has made the most of the available learning opportunities. It is derived from the description of the program.

<u>Program Vision</u>: An ambitious picture for the future of the academic program to be a sophisticated, inspiring, stimulating, realistic, and applicable program.

<u>Program Mission</u>: 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.

<u>Curriculum Structure</u>: All courses/subjects included in the academic program according to the approved learning system (semester, yearly, Bologna track) whether it is a requirement (ministry, university, college, and scientific department) with the number of study units.

Learning Outcomes: A compatible set of knowledge, skills, and values acquired by the student 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.

<u>Teaching and learning strategies</u>: They are the strategies used by the faculty member to develop the student's teaching and learning, and they are plans that are followed to reach the learning goals-describe classroom and extra-curricular activities to achieve the program's learning outcomes.

Academic Program Description Form

University Name: Al-Furat Al-Awsat Technical University Faculty/Institute: Technical Engineering College of Najaf Scientific Department: Department of Laser and optoelectronics Technical Engineering. Academic or Professional Program Name: Bachelor of Laser and Optoelectronic Technologies Engineering Final Certificate Name: Bachelor of Laser and Optoelectronics Technical Engineering School System: Semester System Date of preparation of the description: 20/2/2024 File filling date: 20/2/2024



Scientific Associate Name: Dr. Bassel Nouri Abd Date:

Signature : Head of department: Dr. Abdullah Ali Qasim Date:

Check the file before Division of Quality Assurance and University Performance Signature



Name of the Director of the Quality Assurance and University Performance Division:

Date

Approval of the Dean

1. Program Vision

The Department of Laser and Electro-Optics Engineering at the Al-Furat Al-Awsat Technical University / Technical Engineering College / Najaf seeks to be a key tributary in the preparation of specialized cadres with high efficiency in the engineering of laser and electro-optics technologies, which will cover wide sectors of work in the industrial, engineering and medical fields in the public and private sectors The vision of the program has been reviewed by communicating with employers and identifying the needs of the labor market in the private sector in particular and state departments in a way Year.

2. Program Mission

Preparing distinguished engineers in the fields of laser and electro-optical engineering techniques to help build and develop graduates and emerging engineering cadres in the same field in the future and contribute to providing the community with applied scientific research and studies that serve to try to solve developmental and development issues, as well as seeking to enhance the role of the college in building institutions and developing engineering work in order to achieve the concept of comprehensive development within the framework of human and scientific engineering values and concepts.Finally, building and consolidating cooperation relations with all parties working in the engineering and medical fields, which are in harmony with the aspirations of the labor market locally and globally.

3. Program Objectives

- 1. The department seeks to graduate qualified engineers in the disciplines of laser and optoelectronics who can design, analyze, and find appropriate solutions to practical problems and deal with advanced technology with high skill.
- 2. Preparing qualified graduates to participate in conferences, workshops, and development seminars inside and outside Iraq, and work in research centers.
- 3. Engage in the preparation of practical research in the field of laser and electro-optics to develop a solution to practical problems and contribute to community service by involving graduates in the labor market and refining their practical skills according to local requirements.
- 4. Active participation in community development and upgrading the organization of conferences and seminars, as well as continuing education in the field of technical engineering and the adoption of a methodology for continuous improvement in all activities.

4. **Program Accreditation**

All of it

5. Other external influences

There is no third party sponsor of the study program. The only official sponsor of the program is only the AI–Furat AI–Awsat Technical University, a public university and one of the formations of the Iraqi Ministry of Higher Education and Scientific Research.

6. Program Structure										
Reviews*	Percentage	Unit of study	Number of	Program Structure						
			Courses							
fundamental	0.0166%	4	4	Requirements of the						
				institution						
elective	0.075%	18	4	College						
				Requirements						
	68.8%	164	32	Department						
				Requirements						
				Summer Training						
				Other						

 $\ast\,$ It can include notes whether the course is basic or optional.

7. Program	n Description				
Credit	Hours		Course or		
practical	theoretical	Course Name	Course	Year/Level	
			Code		
-	3	Mathematics (1)	LOT 101		
2	2	University Physics	LOT 102	•	
2	2	Electrical circuits (AC+DC)	LOT 103		
-	2	Engineering Mechanics	LOT 104		
2	1	Engineering drawing	LOT 105		
2	1	Calculators	LOT 106	First Year	
4	-	workshops	LOT 107		
-	1	English	LOT 108		
-	1	Human Rights	LOT 109		
-	1	Environment	LOT 110	-	
Number	of Hours		Course		
practical	theoretical	Course Name	Code		
-	3	Mathematics (2)	LOT 201		
_	9	Instruments &	LOT 202		
		Measurements		Second Year	
2	2	Electronic I	LOT 203		
2	2	Engineering Optics	LOT 204		
-	2	Thermodynamic	LOT 205		
2	2	Laser Principles	LOT 206		

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-	2	Flectromagnetic fields	IAT 208	
	2	Wave propagation	LOT 200	
		Calculator (Visual	LOT 200	
2	1	Basic)	101 209	
-	2	Engineering and numerical analyses	LOT 301	
-	2	Laser Physics	LOT 302	
2	2	Wireless Communications II and Electronic	LOT 303	
-	2	Capability Electronics	LOT 304	Third Year
-	2	Semiconductors	LOT 305	
-	2	Spectra and materials	LOT 306	
-	2	Quantitative Mechanics	LOT 307	
2	2	Microprocessor	LOT 308	
2	1	Calculator Applications	LOT 309	
2	2	Laser Applications	LOT 401	
2	2	Advanced Laser Systems	LOT 402	
2	-	Optical connections	LOT 403	
2	-	Digital Signal Processor (DSP)	LOT 404	
2	2	Optoelectronics and light embedding	LOT 405	Fourth Year
2	-	Laser Design	LOT 406	
2	-	Control	LOT 407	
2	-	Solid	LOT 408	
-	4	Graduation project for the fourth stage	LOT 409	

3. Expected learning outcomes of the program									
Knowledge									
Learning Outcomes 1									
Learning Outcomes 2									
Learning Outcomes 3									

r		
-	Training students on the correct way to turn the problem	
	at hand into a logical problem and sound thinking to	
	solve the logical problems presented.	
Values		
-	Increasing students' cognitive awareness and supporting	Learning Outcomes 4
	it in the mechanisms used to evaluate the results and	
	determine their cognitive level.	
-	Training teaching and technical staff on the approach	
	followed and effective mechanisms in the success of	
	knowledge outputs.	
-	Enable students to work under high pressure and	Learning Outcomes 5
	brainstorming conditions while maintaining the required	
	calm in the educational process.	
-	Enabling teaching staff to work under high pressure	
	conditions and adopting accurate scientific and	
	educational output for them.	

9. Teaching and Learning Strategies

- Using modern means, which are renewed in the amount required by the presidency of the scientific department and the deanship of the college according to the available material resources.
- Using the traditional classical method in the educational process and according to what some teachers see as well as according to the requirements of the knowledge material (pen and blackboard style).
- Using brainstorming, sudden question and improvised answer to train the student to solve the problems presented in front of him and thus be able to make a quick decision with a minimum error rate.

10. Evaluation methods

Several methods are used in evaluating students, including:

- Surprise exam method.
- The style of daily duties.

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- The method of periodic weekly reports.
- The method of presenting lectures by students to assess their level of comprehension and comprehension.
- Simplified explanation style.
- Method of solving examples on the board.

11. Faculty									
Faculty I	Members								
Preparation	of the teaching staff	Special Requirem (if applica	ents/Skills able)	Specialization	Academic Rank				
lecturer	A permanent employee			special	year				
Yes				Optical Communications	Laser Engineering				
	Yes			Laser and Nanotechnology Applications	Laser Physics Technologies	teacher			
	Yes			Microcommunication	Telecom Engineering				
	Yes			Plasma	Laser Physics	Assistant Lecturer			
	Yes			Optical Communications	Laser Applications				
	Yes			Wave motion and plasmon	Electro-optics				
	Yes			Micro connections	Communication Technologies				
	Yes			Solid state	physics				

Yes		Theoretical physics	physics	

Professional Development

Mentoring new faculty members

The teaching staff is directed to the staff of the department (staff, lecturers and permanent contracts) through several axes:

The first axis: guidance in the sessions of the department council. Where periodic sessions are held for the department council, through which the teaching staff are introduced to the required guidance and informed of ways to apply it.

The second axis: personal guidance. In this axis, and based on the results of the analysis of the data obtained through the questionnaires of students or through the personal review of the head of the department in his usual tours or through field tours conducted by the Dean of the College and the Assistant Dean for Scientific Affairs, Graduate Studies and Student Affairs and the Head of the Department.

Professional development of faculty members

The faculty members in the department are developed on two axes:

Vertical axis: where the teaching and training skills are raised for them by involving them in the various courses held by the Continuing Education Center in the Presidency of the University or the Continuing Education Unit in the college to build a scientific teaching base according to the correct scientific foundations based on the latest rules in the teaching and learning processes acquired by the old teachers in the department and transferred to the new teachers.

Horizontal axis: In this axis, teaching staff are asked to increase their personal scientific space by publishing scientific research in reputable international journals, providing them with all means of moral support, increasing their access to modern software and keeping pace with developments.

12. Acceptance Criterion

The admission system in the department follows the regulations and strategies followed by the Iraqi Ministry of Higher Education by following the regulations and laws that are published in the Central Admission Guide. And the application of the legal regulations for this and to the various categories of students and multiple admission channels, and these instructions, rules and regulations are followed on the morning and evening study programs alike.

13. The most important sources of information about the program

Procedures followed by the Iraqi Ministry of Higher Education and Scientific Research. And the Quality Assurance Council for Iraqi Technical Education and the procedures issued by the Scientific Supervision and Evaluation Authority / Department of Quality Assurance and Academic Accreditation – Accreditation Department. As well as the presidency of the AI-Furat AI-Awsat Technical University / Department of Quality Assurance and University Performance.

14. **Program Development Plan**

Updating the study program in line with practical knowledge that is in line with the requirements of the labor market.

Training the technical staff in the department to increase scientific, cultural and psychological awareness so that the educational process is adjusted in a consistent manner with the outputs of science and learning.

Increase cultural awareness and brainstorming of students.

Start involving teaching staff in intensive courses to increase cognitive awareness about brainstorming mechanisms.

								Pre	ogran	n Skill	s Out	line			
]	Learnii	ng outco	omes re	equire	ed fro	m the	prog	ram						
Values				Skills				Kno	wledg	е		Basic or	Course Name	Course Code	Year/Level
C4	C 3	C2	C1	B4	B 3	B2	B1	A4	A3	A2	A1	optional		Goue	
								٠				fundamen tal	Math	ATU15011	
			•			•			•			elective	Computer Principles	ATU15012	
		•					•				•	elective	Technology Workshops	ATU15013	
•				•				•				Specialist	DC Electrical Circuits	ATU15014	
			•				•				•	fundamen tal	Democracy and Human Rights	ATU15015	
•								•				Specialist	Laser foundations	ATU15016	
						•					•	fundamen tal	English language	ATU15017	

•			•			•			fundamen tal	Principles of Mathematics	ATU15021	
•			•			•			Specialist	Principles of digitalization and logic	ATU15022	
•			•			•			Specialist	AC electrical circuits	ATU15023	
•			•			•			Specialist	Laser Physics	ATU15024	
		•		•				•	fundamen tal	Arabic Language	ATU15025	
	٠				•	•			elective	Engineering Drawing	ATU15026	

• Please tick the boxes corresponding to the individual learning outcomes from the program under evaluation.

	Course Description Form									
1. Course	e Name									
2. Course Code										
3. Semester / Year										
	·									
4. The hi	story of prepa	aration of th	nis descr	iption						
5. Availa	ble Attendance	e Forms								
6. Numbe	er of Credit Ho	ours (Total)	/ Number	r of Units (Total)						
7. Cours	e administrat	or's name ((if more	than one name)						
Name:	Email :									
8. Course	e Obiectives									
•			Course C	Diectives						
•										
•										
9. Teachi	ng and Learni	ng Strategie	S							
					Stra	itegy				
10. Course S	Structure									
Evaluation	Learning	Unit or subj	ect	Required Learning	Hours	The				
method	method	name		Outcomes		week				
		<u> </u>		<u> </u>						
		1E								

11. Course Evaluation										
Distributing the score 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)							
			Main r	eferences	(sources)					
			Recon	nmended	books	and i	eferences			
			(scient	tific journal	s, reports)				
			Electro	onic Refere	ences, Webs	sites				