Republic of Iraq
Ministry of Higher Education & Scientific
Research Supervision and Scientific Evaluation
Directorate Quality Assurance and Academic
Accreditation International Accreditation Dept.

Academic Program Specification Form for The Academic

University name: Diyala University...
College/Institute: College of...Engineering...
Scientific Department: Department of .....Electronic Engineering.....
Name of the academic or professional program: Bachelor of Electronic Engineering
Name of final degree: Bachelor of Electronic Engineering
Academic system: semester
Description preparation date: 3/7/2024
Date of filling the file: 3/7/2024

Prof. Dr. Anees A. Khadom
The Dean
Date :17/9/2023
Signature

Assist. prof. Dr. Jabbar Q. Jabbar
Dean's Assistant for Scientific Affairs
Date :17/9/2023
Signature

Assist. prof. Dr. Salah N Farhan
The College Quality Assurance and University Performance Manager
Date :17/9/2023
Signature

Quality Assurance And University Performance Manager Date : / /
Signature

TEMPLATE FOR PROGRAMME SPECIFICATION

1- vision
The basic vision of the Department of Electronic Engineering is to make the department one of the leading engineering departments in the field of contemporary scientific and technological development. Therefore, the department strives to develop modern scientific curricula in the field of electronic engineering, in addition to completing all requirements for the department's laboratories. And improving the teaching staff, to provide society with engineering cadres capable of contributing to technological growth.

2- mission
The department offers a high level of knowledge in the field of electronic engineering and its various applications by integrating theoretical knowledge with practical experience. The department strives to advance the process of scientific, engineering and technological research, and to encourage research creativity. The department also provides valuable information to students in their field of specialization, which makes their thinking and ability to solve various technological and scientific problems and meet the needs of society, whether at the public or private sector level, serve our dear country.

3- Aims of the Program
• Train specialized engineers in the field of electronic engineering, with a focus on professional ethics, and prepare them to be distinguished scientifically and practically.
• The department supports scientific research to advance knowledge and technology in the field of electronic engineering and its applications.
• The department provides a comprehensive training program to equip graduate students with the basic skills needed to be fully prepared to work in community institutions.
• Collaborating with all scientific and industrial entities to enhance the engineering education process at the college and elevate its global ranking.

4- Programmatic accreditation
N/A

5- Other external Supports
N/A

6- Program Structure				
Program Structure	Number of Courses Study	of Courses Study	Percentage Notes	Notes
Institution requirements	5	6	3.9	متطلبات المؤسسة
College requirements	9	29	18.7	متطلبات الكلية
Requirements of Section	49	120	77.4	متطلبات القسم
Summer Training			يوجد	There is a summer course

7- Program Structure				12. Awards and Credits
Level/Year	Course or Module Code	Course or Module Title	Credit rating	
1st Year-1st Semester	E 101	Mathematics 1	6	Bachelor Degree Requires (155) credits
1st Year-1st Semester	EE 101	Electrical Engineering Fundamentals 1	8	
1st Year-1st Semester	EE 107	Electronic Physics	6	
1st Year-1st Semester	EE 106	Engineering Drawing	4	
1st Year-1st Semester	U 103	Computer Skills	4	
1st Year-1st Semester	U 104	English Language	2	

1st Year-2nd Semester	E 102	Mathematics 2	6
1st Year-2nd Semester	EE 102	Electrical Engineering Fundamentals 2	8
1st Year-2nd Semester	EE 103	Digital techniques	7
1st Year-2nd Semester	EE 105	C++ Programming	4
1st Year-2nd Semester	EE 104	Workshops skills	3
1st Year-2nd Semester	U 101	Human Rights and Democracy	2
2nd Year-1st Semester	E201	Advance Mathematics –I	3
2nd Year-1st Semester	EE 201	Electronics I	2
2nd Year-1st Semester	EE 203	Electric Circuits Analysis I	2
2nd Year-1st Semester	EE 205	Advanced Programming	1
2nd Year-1st Semester	EE 208	Electro-Magnetics I	2
2nd Year-1st Semester	EE 210	Digital Electronic I	2
2nd Year-1st Semester	EE 206	Machines (DC)	2
2nd Year-2nd Semester	E202	Advance Mathematics- II	3
2nd Year-2nd Semester	EE 202	Electronics II	3
2nd Year-2nd Semester	EE 204	Electric Circuits Analysis II	2
2nd Year-2nd Semester	EE 212	Measurement &Instruments	2
2nd Year-2nd Semester	EE 209	Electro-Magnetics II	2
2nd Year-2nd Semester	EE 211	Digital Electronic II	3
2nd Year-2nd Semester	EE 207	Power and AC Machines	4
2nd Year-2nd Semester	EE 213	University Culture Activity	-
3rd Year-1st Semester	EE 301	Digital Signal Processing I	2

3rd Year-1st Semester	EE 309	Advanced Electronics I	3
3rd Year-1st Semester	EE 303	Communication Systems I	3
3rd Year-1st Semester	EE 305	Microprocessor and Microcontroller: Hardware	3
3rd Year-1st Semester	EE 307	Engineering Analysis I	2
3rd Year-1st Semester	EE 311	Antenna	3
3rd Year-2nd Semester	EE 312	Engineering Administration	2
3rd Year-2nd Semester	EE 302	Digital Signal Processing II	3
3rd Year-2nd Semester	EE 310	Advanced Electronics II	3
3rd Year-2nd Semester	EE 304	Communication Systems II	3
3rd Year-2nd Semester	EE 306	Microprocessor-Based System: Programming	2
3rd Year-2nd Semester	EE 308	Engineering Analysis II	2
3rd Year-2nd Semester	EE 313	Optoelectronics	2
Fourth Year-1st Semester	EE 401	Microelectronic I	2
Fourth Year-1st Semester	EE 403	Power Electronics I	3
Fourth Year-1st Semester	EE405	Control System I	3
Fourth Year-1st Semester	EE407	Digital System Design	3
Fourth Year-1st Semester	EE 409	Information Theory	3
Fourth Year-1st Semester	EE411	Hardware Description Language (HDL) Programming	3
Fourth Year-2nd Semester	EE 413	Introduction to AI	2
Fourth Year-2nd Semester	E402	Eng. Graduation Project I	2
Fourth Year-2nd Semester	EE402	Microelectronic II	2
Fourth Year-2nd Semester	EE404	Power Electronics II	3

Fourth Year- 2nd Semester	EE406	Control System II	3
Fourth Year- 2nd Semester	EE408	Advanced Digital System Design	3
Fourth Year- 2nd Semester	EE410	Microwave	2
Fourth Year- 2nd Semester	E401	Engineering Profession Ethics	2
Fourth Year- 2nd Semester	EE412	Digital Image Processing	2
Fourth Year- 2nd Semester	E403	Eng. Graduation Project II	2

8- Learning Outcomes, Teaching, Learning and Assessment Methods

A. Cognitive goals

A1- The ability to have knowledge in the fields of mathematics and specialized sciences Engineering expertise in the application of electronic engineering.

A2 Preparing the student to continue self-learning and acquire technology And new skills in the field of electronic engineering.

A3- Enabling students to obtain knowledge and understanding of designing and implementing various electronic systems.

A4- The student will understand the foundations of creating, programming, and simulating electronic circuits in hardware languages and various engineering programs.

A5- Enabling the student to visualize project management and solve the problems he encounters in the factory.

B. The skills goals special to the program.

B1 - The ability to select and perform the required examinations and collect their locations. Review and analyze the results of the relevant tests.

B2 The ability to design and supervise the implementation of relevant systems In electronic engineering.

B3 The ability to derive and approach engineering problems in a Recognize and determine the appropriate method to address the emerging engineering problems. This.

B4 - Provides them with skills to solve practical problems related to various electronic systems and computer programs for those systems.

C. Affective and value goals

C1- Questioning: Searching for a new information and raising questions.

C 2 Inference and deduction: thinking about what is beyond the known available to fill the gaps in it

C 3 Comparison: Noticing the proportions and differences between things

C 4- Classification: Placing things into groups according to common characteristics.

9- Teaching and Learning Methods

- Providing students with the basics, additional topics, and field experiences related to the outcomes of thinking and analysis.
- Forming discussion circles during or outside lectures to discuss scientific engineering topics that require thinking and analysis.
- Asking students, a set of thinking questions during lectures, such as (what, how, when, why) for specific topics.
- Giving students homework and periodic reports.

10- Assessment 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.
- Semester exams for the curriculum in addition to the final exam.

11-Academic staff

Scientific degree	**Specialization**	Number of teaching staff
Prof	Electronic and communication	1
Asst. Prof	Electronic	5
Asst. Prof	Control	1

Lect.	Electronic and communication	5
Lect.	Electronic	3
Lect.	communication	1
Lect.	Power	1
Asst. LECT	Electronic and communication	5

12- Personal Development Planning

It is planned to develop the students' personalities by holding discussion circles with them and asking them for periodic reports and seminars throughout the four stages and on various topics to develop their personal development.

13- Admission criteria .

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

14- Key sources of information about the program

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

Curriculum Skills Map																
please tick in the relevant boxes where individual Programme Learning Outcomes are being assessed																
				Programme Learning Outcomes												
Year / Level	Course Code	Course Title	Core (C) Title or Option (O)	Knowledge and understanding					Subject-specific skills				Thinking Skills			
				A 1	**A2**	**A3**	**A4**	**A5**	**B1**	**B2**	**B3**	**B4**	**C2**	**C3**	**C4**	
3rd Year-2nd Semester	**EE 313**	optoelectronics	C	√	√	√		√	√	√	√	√	√	√	√	

TEMPLATE FOR COURSE SPECIFICATION

HIGHER EDUCATION PERFORMANCE REVIEW: PROGRAMME REVIEW

COURSE SPECIFICATION

This Course Specification provides a concise summary of the main features of the course and the learning outcomes that a typical student might reasonably be expected to achieve and demonstrate if he/she takes full advantage of the learning opportunities that are provided. It should be cross-referenced with the program specification.

1. Course title	Optoelectronics
2. Course code	EE 313
3. Semester/Year	2nd Semester – 3rd Year
4. Date of production/revision of this specification	March 2024
5. Modes of Attendance offered	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)	Ali Mohammed Salih Mohammed Kadhim Ali.Kadhim@uodiyala.edu.iq
8. Aims of the Course	
The subject of Optoelectronics aims for the student to learn during the academic year how to utilize the electronics to generate, process, and how to receive optical signals through the optical communications systems. The student also learns information about LED, Laser diode, optical fiber, and Optical signal modulation. During this subject, the student deals with Optical signals and applies all techniques practically using the **Optisystem** program.	

A- Cognitive goals.

A1- the student learns how to deal with the optical signal statistically.

A2- Learn and understand the process of converting analogue signals into optical data.

A3- Learn and understand the foundations of the information process with high optical transmission capacity.

A4- Learn and understand the foundations of detection and correction errors.

B. The skills goals special to the course.

B1 - Learn how to deal with signal and statistics

B2- Learn about the information.

B3- Familiarity with the basic concepts of the types of optical networks.

C. Affective and value goals

C1- Urging the student to make a profit from statistics.

C2- Urging the student to think about the importance of dealing with optical data.

C3- Urging the student to think and understand trans formatively in an alternative way to optical signal.

C4- Urging the student to develop the current engineering system with optical techniques .

C5- Urging the student to think about choosing, leading and contributing optical communications departments .

9- Teaching and Learning Methods

- Providing students with the basics, additional topics, and field experiences related to the outcomes of thinking and analysis.
- Forming discussion seminars during or outside lectures to discuss scientific engineering topics that require thinking and analysis.
- Asking students, a set of thinking questions during lectures, such as (what, how, when, why) for specific topics.

10- course strategy

Week	Hours	Unit/Module or Topic Title	Teaching Method	Assessment Method
Week 1	3	Introduction and basic information about Optoelectonics	Lectures Notes PDF power point Video	Daily exams + monthly exams
Week 2	3	Differences between microwave and optical communications and components	Lectures Notes PDF power point Video	Daily exams + monthly exams
Week 4	3	Light Emitting Diode and Laser Diode	Lectures Notes PDF power point Video	Daily exams + monthly exams
Week 5	3	Photodiode and Avalanche photodiode	Lectures Notes	Daily exams +

			PDF power point Video	monthly exams
Week 6	3	Optical Free Space communications	Lectures Notes PDF power point Video	Daily exams + monthly exams
Week 7	3	Optical fiber construction and principles	Lectures Notes PDF power point Video	Daily exams + monthly exams
Week 8	3	Optical fiber types and properties	Lectures Notes PDF power point Video	Daily exams + monthly exams
Week 9	3	OptiSystem Program lecture	Lectures Notes PDF power point Video	Daily exams + monthly exams
Week 10	3	Attenuation calculations In optical fiber	Lectures Notes PDF power point Video	Daily exams + monthly exams
Week 1 1	3	Dispersion calculations In optical fiber	Lectures Notes PDF power point Video	Daily exams + monthly exams
Week 1 2	3	Optical Splitters and couplers	Lectures Notes PDF power point Video	Daily exams + monthly exams
Week 13	3	Optical multiplexers and Demultiplexers	Lectures Notes PDF power point Video	Daily exams + monthly exams
Week 14	3	Optical Signal Modulation Methods	Lectures Notes PDF power point Video	Daily exams + monthly exams
Week 15	3	Optical Fiber Networks	Lectures Notes PDF power point Video	Daily exams + monthly exams

11. Infrastructure	
1. Books Required reading:	Practical Optoelectronics by Valdimir Protopopov

2. Main references (sources)	• Lectures presented by the Lecturer • Books available in the college library
A- Recommended books and references (scientific journals, reports…).	
B-Electronic references, Internet sites…	Any other materials available on the web.