

*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: Diyala
College: Engineering
Number Of Departments in The College:02
Date Of Form Completion:23/6/2023*

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
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Date :17/9/2023 Signature



Quality Assurance And University Performance Manager Date : /

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Signature

Signature

TEMPLATE FOR PROGRAM SPECIFICATION

HIGHER EDUCATION PERFORMANCE REVIEW: PROGRAM REVIEW

PROGRAM SPECIFICATION

This Program Specification provides a concise summary of the main features of the program 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 is supported by a specification for each course that contributes to the program.

1. Teaching Institution	University of Diyala
2. University Department/Centre	College of Engineering
3. Program Title	Electronic Engineering
4. Title of Final Award	BSc in Electronic Engineering
5. Modes of Attendance offered	Courses
6. Accreditation	N/A
7. Other external influences	None
8. Date of production/revision of this specification	23/06/2023
9. Aims of the Program	
	<ul style="list-style-type: none">• Preparing the student scientifically to work in the field of electronic engineering• Build and prepare the student psychologically to play his role as a reliable engineer in this field.• Building students capable of competing with other engineers for job opportunities and obtaining the required seats to complete postgraduate studies.• Ability to submit to external tests by local, regional or international bodies for the purpose of completing studies or appointment.• Urging the student to be creative and think about specialization projects and keep pace with developments in this field.• Providing students with scientific, practical and personal skills that enable them to solve practical problems and deal with them using scientific concepts.

10. Learning Outcomes, Teaching, Learning and Assessment Methods

- A. Cognitive goals
- A1- Teaching students the foundations of electrical and mathematical engineering related to electrical engineering.
 - A2- Enabling students to obtain knowledge and realization of the suitable way to work on modern electronic systems and how to analyze programs related to those systems.
 - A3- Enriching the student knowledge to understand the methods of generating electromagnetic waves and their propagation in various media along with the possibility of transporting them from one place to another as well as their impact on the performance of electronic devices.
 - A4- Enabling students to obtain knowledge and understanding of designing and implementing various electronic systems.
 - A5- Enabling students to obtain knowledge and understanding of diagnosing faults and maintaining various Electronic devices.
 - A6- Teaching the student the foundations of solving programming problems, computer networks, and communications.

B. The skills goals special to the program.

- B1 - Explanation of the topics of the foundations of electrical engineering and electronic physics by specialists and make sure of using mathematics as a basis for understanding and learning.
- B2 - Providing them with skills to solve practical problems related to various computer systems and computer programs for addressing and solving technical problems in various fields of computerized work.
- B3- Topics of wave propagation are presented along with topics of electromagnetic energy transfer, and emphasis is placed on mathematical topics, electrical circuits, and antenna topics together.
- B4: The focus is on the topics of design and analysis of electronic systems and their development with Artificial intelligence AI.
- B5- Providing students with skills in choosing a factory location, planning it, and classifying administrative levels according to the size of the factory.

Teaching and Learning Methods

- Providing students with the basics and additional topics related to previous educational outcomes and skills to solve practical problems.
- Solving a group of practical examples by the academic staff.
- Students participate during the lecture in solving some practical problems.
- The department's scientific laboratories are monitored by the academic staff.

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.
- Monthly exams for the curriculum in addition to the final exam.

C. Affective and value goals

- C1- Enabling students to think and analyze topics related to the engineering framework, such as various logical circuits.
- C2- Enabling students to think and analyze topics related to electronic systems related to the engineering framework.
- C3- Helping students to imagine the forms of electrical waves and their propagation in physical environments.
- C3- Enabling students to think and analyze topics related to solving practical problems.

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.

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.

D. General and Transferable Skills (other skills relevant to employability and personal development)

- D1- Enabling students to write reports and notes on various branches of Electronic engineering.
- D2- Enabling students to know how 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 hardware and software problems and how to deal with them.

Teaching and Learning Methods

- Through the Daily lectures by seminar and discussions
- Discussion circles during 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

Assessment Methods

- Evaluating the seminar and reports that submitted by students and providing them with the necessary feedback to improve their skills and self-confidence.

Program Structure				
Level Year/ 1 st semester	Course or Module Code	Course or Module Title	Credit hours	
			Theoretical	practical
1 st Year/ 1 st Sem.	E101	Mathematics –I	3	-
1 st Year/ 1 st Sem.	EE107	Electronic Physics I	2	-
1 st Year/ 1 st Sem.	E106	Workshop Skills- I	-	2
1 st Year/ 1 st Sem.	EE101	Digital Technique I	2	2
1 st Year/ 1 st Sem.	EE103	Electrical Engineering Fundamentals I	3	2
1 st Year/ 1 st Sem.	U101	Human Rights	1	-
1 st Year/ 1 st Sem.	U105	Arabic Language	1	-
1 st Year/ 1 st Sem.	E104	Engineering Drawing I (Basic)	1	2
1 st Year/ 1 st Sem.	U103	Computer Science	1	2
1 st Year/ 1 st Sem.	EE105	Engineering Mechanics-I (Statics)	2	-
1 st Year/ 2 nd Sem.	E102	Mathematics- II	3	-
1 st Year/ 2 nd Sem.	EE108	Electronic Physics II	2	-
1 st Year/ 2 nd Sem.	EE102	Digital Technique II	3	2
1 st Year/ 2 nd Sem.	EE104	Electrical Engineering Fundamentals II	4	2
1 st Year/ 2 nd Sem.	U102	Human Rights	1	-
1 st Year/ 2 nd Sem.	U104	English Language	2	-
1 st Year/ 2 nd Sem.	E105	Engineering Drawing-II(AutoCAD)	2	2
1 st Year/ 2 nd Sem.	E107	Advance Programming	3	2
1 st Year/ 2 nd Sem.	EE106	Engineering Mechanics-II (Dynamics)	2	-
2 nd Year-1 st Sem.	E201	Advance Mathematics –I	3	-
2 nd Year-1 st Sem.	EE 201	Electronics I	2	2
2 nd Year-1 st Sem.	EE 203	Electric Circuits Analysis I	2	-
2 nd Year-1 st Sem.	EE 205	Advanced Programming	1	2
2 nd Year-1 st Sem.	EE 208	Electro-Magnetics I	2	-
2 nd Year-1 st Sem.	EE 210	Digital Electronic I	2	2
2 nd Year-1 st Sem.	EE 206	Machines (DC)	2	2
2 nd Year-2 nd Sem.	E202	Advance Mathematics- II	3	-
2 nd Year-2 nd Sem.	EE 202	Electronics II	2	2
2 nd Year-2 nd Sem.	EE 204	Electric Circuits Analysis II	2	-
2 nd Year-2 nd Sem.	EE 212	Measurement & Instruments	2	-
2 nd Year-2 nd Sem.	EE 209	Electro-Magnetics II	2	-
2 nd Year-2 nd Sem.	EE 211	Digital Electronic II	2	2
2 nd Year-2 nd Sem.	EE 207	Power and AC Machines	3	2
2 nd Year-2 nd Sem.	EE 213	University Culture Activity	-	1
3 rd Year-1 st Sem.	EE 301	Digital Signal Processing I	2	-
3 rd Year-1 st Sem.	EE 309	Advanced Electronics I	2	2

3 rd Year-1 st Sem.	EE 303	Communication Systems I	2	2
3 rd Year-1 st Sem.	EE 305	Microprocessor and Microcontroller: Hardware	2	2
3 rd Year-1 st Sem.	EE 307	Engineering Analysis I	2	-
3 rd Year-1 st Sem.	EE 311	Antenna	2	2
3 rd Year-1 st Sem.	EE 312	Engineering Administration	2	-
3 rd Year-2 nd Sem.	EE 302	Digital Signal Processing II	2	-
3 rd Year-2 nd Sem.	EE 310	Advanced Electronics II	2	2
3 rd Year-2 nd Sem.	EE 304	Communication Systems II	2	2
3 rd Year-2 nd Sem.	EE 306	Microprocessor-Based System: Programming	2	2
3 rd Year-2 nd Sem.	EE 308	Engineering Analysis II	2	-
3 rd Year-2 nd Sem.	EE 313	Optoelectronics	2	-
4 th Year-1 st Sem.	EE 401	Microelectronic I	2	-
4 th Year-1 st Sem.	EE 403	Power Electronics I	2	2
4 th Year-1 st Sem.	EE405	Control System I	2	2
4 th Year-1 st Sem.	EE407	Digital System Design	3	-
4 th Year-1 st Sem.	EE 409	Information Theory	3	-
4 th Year-1 st Sem.	EE411	Hardware Description Language	2	2
4 th Year-1 st Sem.	EE 413	Introduction to AI	2	-
4 th Year-1 st Sem.	E402	Eng. Graduation Project I	-	4
4 th Year-2 nd Sem.	EE402	Microelectronic II	2	-
4 th Year-2 nd Sem.	EE404	Power Electronics II	2	2
4 th Year-2 nd Sem.	EE406	Control System II	2	2
4 th Year-2 nd Sem.	EE408	Advanced Digital System Design	3	-
4 th Year-2 nd Sem.	EE410	Microwave	2	-
4 th Year-2 nd Sem.	E401	Engineering Profession Ethics	2	-
4 th Year-2 nd Sem.	EE412	Digital Image Processing	2	-
4 th Year-2 nd Sem.	E403	Eng. Graduation Project II	-	4

13. 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.

14. Admission criteria.

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

15. 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 Program Learning Outcomes are being assessed

				Program Learning Outcomes															
Year / Level	Course Code	Course Title	Core (C) Title or Option (O)	Knowledge and understanding				Subject-specific skills				Thinking Skills				General and Transferable Skills (or) Other skills relevant to employability and personal development			
				A1	A2	A3	A4	B1	B2	B3	B4	C1	C2	C3	C4	D1	D2	D3	D4
1 st Year-1 st Semester	E 103	Physics	C	√	√	√	√	√	√	√	√		√	√	√	√	√	√	√

TEMPLATE FOR COURSE SPECIFICATION

HIGHER EDUCATION PERFORMANCE REVIEW: PROGRAM 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. Teaching Institution	University of Diyala
2. University Department/Centre	College of Engineering
3. Course title/code	EE 107 / Advance Programming
4. Modes of Attendance offered	Class Lectures
5. Semester/Year	1 st Semester – 2 nd Year
6. Number of hours tuition (total)	45 hours + 15 practical
7. Date of production/revision of this specification	23/06/2023
8. Aims of the Course	The main goal of the course is to make student capable of using the most common features in MATLAB and to realize how to use MATLAB to solve engineering problems. The course is targeted at those with no prior knowledge of MATLAB in order to use it in various applications and topics of other subjects.

9- Learning Outcomes, Teaching ,Learning and Assessment Method:

A- Cognitive goals.

- A1- During the year, the student learns an idea about MATLAB programming.
- A2- Learn and understand MATLAB programming languages and programming methods.
- A2- Learn and understand how to create and write a program using MATLAB programming.
- A4- Learn and understand engineering applications of MATLAB programming.

B. The skills goals special to the course.

- B1- Familiarity with how does MATLAB programming languages work.
- C2- Familiarity with the method of writing simple and complex MATLAB programs.
- C3- Familiarity with important programs in the field of electronic engineering.

Teaching and Learning Methods

- The lecturer prepares lectures on the subject in paper and electronic form and presents them to the students.
- The lecturer delivers lectures in detail.
- The lecturer requests periodic reports and homework assignments on the basic topics of the subject.

Assessment methods

- Daily discussion to determine the extent of students' understanding of the material and to evaluate the daily contributions.
- Daily exams with various short scientific questions to understand the extent of their understanding of the material.
- Giving part of the semester's grade to homework assignments.
- Daily exams (Quiz) and monthly exams for the curriculum and the final exam

C. Affective and value goals

- C1- Urging the student to think about ways to write research.
- C2- Urging the student to think about the importance of MATLAB programming.
- C2- Urging the student to use modern programming.
- C4- Urging the student to think about choosing important programs in building solutions of engineering problems.

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.

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.

D. General and rehabilitative transferred skills (other skills relevant to employability and personal development)

D1- Enabling students to write reports on topics related to the programming subject.

D2- Enabling students to link theories to the practical reality of electrical circuits.

D2- Enabling students to pass professional tests organized by local or international bodies.

D4- Enabling students to continue self-development after graduation.

D5- Establishing special seminars for students for the purpose of self-development of their personalities.

Course Structure					
Week	Hrs	IOLs	Unit/Module or Topic Title	Teaching Method	Assessment Method
1	4		brief history / importance of MATLAB	Lectures Notes PDF, power point, and Video	Daily exams + monthly exams
2	4		Simple program of MATLAB		
3	4		Variable, numbers, operations of math in MATLAB		
4	4		Functions: introduction to built-in functions saved in MATLAB		
5	4		Functions: How to build your own function in MATLAB and how to recall it.		
6	4		Plotting in MATLAB: plots of points, axes label, and graph title.		
7	4		Control structures (part 1): selection for statement.		
8	4		Control structures (part 2): while , and do/while statements or loop statement.		
9	4		Control structures (part 3): for loop/ Nested for loop statements, and break and continue statement		
10	4		Introduction to ARRAYS		
11	4		Arrays: Introduction to arrays, declaring of 1-dimensional arrays, and examples using arrays.		
12	4		Arrays: Multidimensional arrays initialization declaration and application.		
13	4		Introduction to Simulink tools,		
14	4		Pointers : Introduction to pointers		
15	4		Files: Introduction to files.		

11. Infrastructure

1. Books Required reading:	<ul style="list-style-type: none"> • Keviczky, László, et al. "Introduction to MATLAB." Control Engineering: MATLAB Exercises (2019): 1-27.
2. Main references (sources)	<ul style="list-style-type: none"> • Lectures presented by the Lecturer • Books available in the college library
A- Recommended books and references (scientific journals, reports...).	<ul style="list-style-type: none"> • Lopez, Cesar. MATLAB Matrix Algebra. Apress, 2014.
B-Electronic references, Internet sites...	<ul style="list-style-type: none"> • https://www.mygreatlearning.com/academy/learn-for-free/courses/c-tutorial?gl_blog_id=74312 • https://www.programiz.com/cpp-programming/examples/print-sentence
<p>3- Providing computer laboratory with a multi-computers to give the opportunity for each student to implement the given programs during the practical laboratory period, which actually contributes to the student's self-reliance in his abilities and thus his level grows and develops.</p>	
12. The development of the curriculum plan	
<p>Enriching the advanced lectures in the course with practical examples of how to exploit MATLAB capabilities to address outstanding problems in various fields.</p>	