

**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 Baghdad

Faculty/Institute: Al_khawarizmi College of Engineering

Scientific Department: Mechatronics Engineering

Academic or Professional Program Name: B.Sc in Mechatronics sys

Final Certificate Name: B.Sc in Mechatronics sys

Description Preparation Date: 4.4.2024

File Completion Date: 4.4.2024

Signature:

Head of Department Name:

Furat Ibraheem

Date:

Signature:

Scientific Associate Name:

Hisham Hasan

Date:

The file is checked by:

Department of Quality Assurance and University Performance

Director of the Quality Assurance and University Performance Department:

Date:

Signature:

Approval of the Dean

1. Program Vision

The scientific department seeks to present academically, scientifically, and even practically in the local and international arena. The reliability of scientific laboratories is within national standards first and international standards second. Apply advanced studying and teaching systems and keeping updated with the latest developments in this field, especially e-learning. Furthermore, studying recent experiences in education and working on apply them in line with the changing standards of scientific and practical requirements. Planning to build postgraduate studies with high standard quality by preparing material requirements from laboratories and others and the scientific needs of researchers, in addition to researchers and supervisors who own a distinguished research line and global scientific publication.

2. Program Mission

The primary goal of the Mechatronics Engineering Department is to train and develop the most highly skilled engineers and leaders in the engineering field of that field. It also aims to balance knowledge in scientific research to benefit the local, regional, and global community. Additionally, the department trains and sharpens students' scientific and cognitive skills while highlighting social and cultural values and meeting local market demands. This objective necessitates adapting and developing the curricula to the various factors, ranging from the shifting demands to the various technological advancements in the scientific domains. A department's desire to realize its vision is what drives it to communicate with the outside world about the most recent advancements in science by attending international conferences and seminars, in addition to hosting many workshops and student events.

3. Program Objectives

Providing graduate engineers with the information and abilities needed for mechatronics system development and design, including applications of mechanical, electrical, electronic, control, and computer engineering. Furthermore, he will possess unique expertise that enables him to create, build, maintain, and use contemporary systems and equipment in a way that advances science. He will also be able to research issues of mechatronics. Graduate an engineer skilled in the application of sophisticated ideas linked to contemporary engineering methods in the field of mechatronics. preparing engineering personnel with a solid background so they can interact with all community members and improve and enrich the needs in Iraq. supplying information and skills that industries and businesses in the domains of robotics, industrial automation, smart systems, medical devices, and other technical and industrial applications require to prepare engineers for the labor market. Developing a scientific engineering personality that can interact with the demands of the government or the private sector of the job market.

4. Program Accreditation

N/A

5. Other external influences

N/A

6. Program Structure

Program Structure	Number of Courses	Credit hours	Percentage	Reviews*
Institution Requirements				
College Requirements				
Department Requirements				
Summer Training				
Other				

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

7. Program Description

Year/Level	Course Code	Course Name	Credit Hours	
			theoretical	practical
First grade		Electrical Circuits	30	30

8. Expected learning outcomes of the program

Knowledge

Learning Outcomes

- Expresses resistance, current, voltage, Ohm law, electrical work, power, and efficiency.
- Defines Ohm law.
- Describes relationship between power and work, and explains electrical work.

	<ul style="list-style-type: none"> • Recognize how electricity works in electrical circuits. • List the various terms associated with electrical circuits. • Summarize what is meant by a basic electric circuit. • Describe electrical power, charge, and current. • Define Ohm's law. • Identify the basic circuit elements and their applications. • Discuss the various properties of resistors and kinds of sources. • Explain the two Kirchoff's laws used in circuit analysis. <p>Students will be able to analyze DC circuits by using the laws of electric circuits and employing various techniques such as Mesh analysis, Nodal analysis along with theorems such as Superposition, Thevenin's, and Norton's theorems.</p>
Skills	
Learning Outcomes 2	<ol style="list-style-type: none"> 1. To develop problem solving skills and understanding of circuit theory through the application of techniques. 2. To understand voltage, current and power from a given circuit. 3. This course deals with the basic concept of electrical circuits. 4. This is the basic subject for all electrical and electronic circuits. 5. To understand Kirchoff's current and voltage Laws problems. 6. To perform mesh and Nodal analysis.
Ethics	
Learning Outcomes 4	Gaining knowledge of the legal and ethical requirements that come with working in the field of Electrical circuit, and it's applications in any field.

9. Teaching and Learning Strategies
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The main strategy that will be adopted in delivering this module is to encourage students' participation in the exercises, while at the same time refining and expanding their critical thinking skills. This will be achieved through classes, interactive examples and by considering types of simple experiments involving some sampling activities that are interesting to the students.

10. Evaluation methods

Mid-term exam, Quizzes, class and home assignments, lab reports, seminars, and projects.

11. Faculty

Faculty Members

Academic Rank	Specialization		Special Requirements/Skills (if applicable)		Number of the teaching staff	
	General	Special			Staff	Lecturer
Tech.Asst	Mechatronics	Mechatronics				

Professional Development

Mentoring new faculty members

Briefly describes the process used to mentor new, visiting, full-time, and part-time faculty at the institution and department level.

Professional development of faculty members

Briefly describe the academic and professional development plan and arrangements for faculty such as teaching and learning strategies, assessment of learning outcomes, professional development, etc.

12. Acceptance Criterion

(Setting regulations related to enrollment in the college or institute, whether central admission or others)

13. The most important sources of information about the program

Fundamentals of Electric Circuits, C.K. Alexander and M.N.O Sadiku, McGraw-Hill Education

14. Program Development Plan

Staying updated with the latest devices in the circuit lab. Furthermore, Using modern technologies in teaching, which have the potential to transform teaching and learning by providing new ways to engage students, individualize instruction, and improve educational outcomes.

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
First year	MCT114	Electrical Circuits		*				*				*			

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

Course Description Form

1. Course Name: Electrical Circuits	
2. Course Code: MCT114	
3. Semester / Year: First semester / 2024	
4. Description Preparation Date:	
5. Available Attendance Forms:	
6. Number of Credit Hours (Total) / Number of Units (Total)	
Total 150 hours	
7. Course administrator's name (mention all, if more than one name)	
Name: Mohammad Yahya Almuhanha	
Email: mohammad.yahya@kecbu.uobaghdad.edu.iq	
8. Course Objectives	
Course Objectives	<ul style="list-style-type: none">• To develop problem solving skills and understanding of circuit theory through the application of techniques.• To understand voltage, current and power from a given circuit.• This course deals with the basic concept of electrical circuits.• This is the basic subject for all electrical and electronic circuits.• To understand Kirchhoff's current and voltage Laws problems.• To perform mesh and Nodal analysis.
9. Teaching and Learning Strategies	

Strategy	The main strategy that will be adopted in delivering this module is to encourage students' participation in the exercises, while at the same time refining and expanding their critical thinking skills. This will be achieved through classes, interactive examples and by considering types of simple experiments involving some sampling activities that are interesting to the students.
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10. Course Structure

Delivery Plan (Weekly Syllabus)	
	Material Covered
Week 1	Introduction - Difference between Circuit Theory and Field Theory
Week 2	Basics of Network Elements
Week 3	Resistance and Resistivity, Ohm's Law.
Week 4	Series and parallel connections in DC circuit.
Week 5	Types of sources.
Week 6	Kirchhoff's Laws.
Week 7	Mid-term Exam + Circuit Analysis - Nodal.
Week 8	Circuit Analysis – Nodal(continue).
Week 9	Circuit Analysis – Mesh.
Week 10	Source Transformations.
Week 11	Delta star conversion.
Week 12	Norton Equivalents.
Week 13	Thévenin Equivalents.
Week 14	Superposition theorem.
Week 15	Maximum Power Transfer Theorem
Week 16	Preparatory week before the final Exam

11. Course Evaluation

Course Evaluation					
		Time/Number	Weight (Marks)	Week Due	Relevant Learning Outcome(per week)
Formative assessment	Quizzes	2	10% (10)	5 and 10	LO #1, #4 and #5, #8, #9
	Assignments	2	10% (10)	2 and 12	LO #3, #4 and #6, #7
	Projects & Report / Lab.	1	10% (10)	Continuous	All
	Classwork	2	10% (10)	13	LO #1, #4 and #5, #8, #9
Summative assessment	Midterm Exam	2hr	10% (10)	7	LO #1 - #7
	Final Exam	3hr	50% (50)	16	All
Total assessment			100% (100 Marks)		

12. Learning and Teaching Resources

Required textbooks (curricular books, if any)	Fundamentals of Electric Circuits, C.K. Alexander M.N.O Sadiku, McGraw-Hill Education
Main references (sources)	
Recommended books and references (scientific journals, reports...)	DC Electrical Circuit Analysis: A Practical Approach Copyright Year: 2020, dissidents.
Electronic References, Websites	https://www.coursera.org/browse/physical-science-and-engineering/electrical-engineering