Academic Program Description Form

University Name: Diyala

Faculty/Institute: Engineering

Scientific Department: Materials engineering

Academic or Professional Program Name: Bachelor of Materials engineering

Final Certificate Name: Bachelor of Materials engineering

Academic System: course

Description Preparation Date: 24-6-2024

File Completion Date: 24-6-2024

Signature:

Head of Department Name: Suha K. Shihab

Date: 25/6/2024

Signature:

Scientific Associate Name: Jabbar Gattmah

Date: 25/6/2024

The file is checked by: Salah N. Farhan

Department of Quality Assurance and University Performance

Director of the Quality Assurance and University Performance Department:

Date: 25/6/2024

Signature:

Approval of the Dean

Prof. Dr. Anees A. Khadom

Course: Examination of Materials

1. Program Vision

Preparing and qualifying engineers specialized in materials engineering sciences through diversification in learning and teaching methods and training students to apply the acquired knowledge and skills to solve real-life problems.

The department seeks to provide distinguished academic programs in the field of materials engineering sciences in both theoretical and applied aspects that comply with international standards of academic quality.

Encouraging and developing scientific research in the fields of materials engineering in terms of design, manufacturing and selection of materials, which include metal, ceramic, polymeric, composite materials, in addition to material recycling and manufacturing.

Providing a stimulating environment for faculty members to develop their educational and research capabilities and skills.

The department strives to improve the teaching staff by sending the department's affiliates for postgraduate studies inside and outside the country and creating the appropriate conditions for scientific research in order to obtain the required degrees. Providing students with the ability to learn, develop personally and work in the field

In groups

2. Program Mission

Exerting efforts to build, train and qualify capabilities with high professionalism, conduct applied research, provide specialized advisory services in materials engineering sciences and fields, and provide advanced and accredited engineering education to meet the needs of departments and institutions. The department seeks to graduate the first batch in 8102, where the first batch will support state departments and institutions in the province

3. Program Objectives

1Preparing and qualifying engineers specialized in materials engineering sciences through diversification in learning and teaching methods and training students to apply the acquired knowledge and skills to solve problems

Realistic.

2. The department seeks to provide distinguished academic programs in the field of

materials engineering sciences in both theoretical and applied aspects that comply with international standards of academic quality.
3- Encouraging and developing scientific research in the fields of materials engineering in terms of design, manufacture and selection of materials, which include metal, ceramic, polymeric, and composite materials.
In addition to recycling and manufacturing materials.
4. Provide a stimulating environment for faculty members to develop their educational and research capabilities and skills.
5- Providing students with the ability to self-learning, personal development and work in groups

4. Program Accreditation

The program is in the preparation stage for accreditation

5. Other external influences

The course is general and is supported by the Presidency of Diyala University

6. Program

هيكل البرنامج	عدد المقررات	وحدة دراسية	النسبة المئوية	ملاحظات *
متطلبات المؤسسة	5	6	4.24 %	
متطلبات الكلية	9	20	14.20 %	
متطلبات القسم				
التدريب الصيفي	-	-	-	Graduation Requirements
أخرى				

7. Program Description				
Credit Hours		Course Name	Course Code	Year/Level
	Theoretical and practical	Material Inspection	Maeg 131	Third

8. Expected Learning Outcomes of the Program	
	Knowledge
The subject of nanotechnology aims to learn during the academic year an idea of the nature of the examination of materials, their classification, methods of manufacture and basic properties, in addition to methods of testing these materials and engineering and biological applications. ***1During the academic year, the student learns an idea of what the examination of subjects is and its main principles .*** ***2Learn and understand the methods of material inspection, the difference between them and the advantages of each method*** ***3Learn and understand the methods of examining materials and the advantages of each method from the other.*** ***4Learn and understand the properties of engineering materials and the test properties of those materials*** ***5Identify scientific and engineering applications for material testing***	*Learning outcomes 1, 2 and 3*
– Organize the work well and avoid chaos that does not lead to harvesting its fruits. ***- Monitor work by providing a good system of supervision.***	*Skills*
	Values
Attention: Arousing the attention of students by implementing one of the applied programs on the display screen in the hall. Response: Follow up the student's interaction with the material displayed on the screen - Attention: Follow up the interest of the student who interacted more with the displayed material, by increasing this interaction by requesting other programs and applications to display it.	*Learning Outcomes 4*

- Formation of direction: meaning that the student is sympathetic to the presentation and may have an opinion towards the topic presented and defend it. - The formation of value behavior: in the sense that the student reaches the top of the emotional ladder so that he has a fixed level in the lesson and does not laze or fidget	
- Attention: Arousing the attention of students by implementing one of the applied programs on the display screen in the hall . - Response: Follow up on the student's interaction with the material displayed on the screen. - Interest: Follow up the interest of the student who interacted more with the presented material, by increasing this interaction by requesting other programs and applications to display it. - Formation of direction: meaning that the student is sympathetic to the presentation and may have an opinion towards the topic presented and defend it. C5- Formation of value behavior: meaning that the student reaches the top of the emotional ladder, so he has a fixed level in the lesson and does not laze or fidget	*Learning Outcomes 5*

9. Teaching and learning strategies

The usual theoretical presentation method using the writing board and depending on the style (how and why) of the subject and according to the teaching curriculum of the subject.

• The theoretical presentation method using the (data show) device and depending on the method (how and why) of the subject and according to the teaching curriculum of the material.

• Laboratory presentation method using special devices to measure the different properties of the material under experiment

10. Evaluation methods

Direct questions in a manner (how and why) of the topic during the theoretical and practical lecture.

• Sudden exams during the theoretical and practical lecture.

• Semester exams for the theoretical and practical side.

• Final exams for the theoretical and practical side.

d. General and qualifying skills transferred (other skills related to

employability and personal development).
D1- Developing the student's ability to perform duties and deliver them on time.
D2- Logical and programmatic thinking to find software solutions to various problems.
D3- Developing the student's ability to dialogue and discussion.
D4- Developing the student's ability to deal with modern technology, especially the Internet.

11. Faculty					
Faculty Members					
Preparation of the teaching staff		**Special requirements/skills if any**	**Specialization**		**Academic Rank**
lecturer	**angel**		**special**	**year**	
	angel			**year**	**Assistant Lecturer**

Professional Development
Orientation of new faculty members
In addition to passing the courses of teaching methods and language safety, the department works on development courses and workshops to prepare and guide new teaching members
Professional development for faculty members
Using learning platforms and electronic methods to display lectures, seminars and reports, display educational videos and conduct lectures accompanied by practical application.

12. Acceptance Criterion
Central Admission

13. The most important sources of information about the program
Ibet

14. Program Development Plan
It included updating the curricula and creating the medical materials branch

مخطط مهارات البرنامج															
Learning outcomes required from the program															
القيم				المهارات				المعرفة				اساسي أم اختياري	Course Name	Course Code	Year/Level
4C	3C	2c	1C	4b	3b	2b	1b	A4	A 3	A 2	A 1				
•	•	•	•			•	•		•	•	•	Essential	Materials Inspection	Maeg 131	Third

- **Please tick the boxes corresponding to the individual learning outcomes from the program subject to evaluation**

Course Description Form

1. Course Name	
Material Inspection	
2. Course Code	
Maeg 131	
3. Semester / Year	
Chapter One	
4. Date of preparation of the description	
9-8-2024	
5. Available attendance formats	
Came	
6. Number of Hours (Total) / Number of Units (Total)	
Two theoretical hours + two practical hours / number of units 3	
7. The name of the course administrator (if more than one name is mentioned	
Name : Eng. Samah Rasheed Hassan Email: ***semah_raesheed_eng@uodiyala.edu.iq***	
8. Course Objectives	
d. General and qualifying skills transferred (other skills related to employability and personal development). D1- Application of mathematical skills in practical problems D2- Skills in oral and written communication, use of information and communicate effectively. D3- Control time and resources and work in one team Published sources D4 - The ability to design and practical in analyzing problems and extracting information from	Course Objectives
9. Teaching and Learning Strategies	
	Strategy

10. Course Structure

Week	Watches	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1	4	Classifies types of scan Destructive and non-destructive screening. Determine the importance of tests Destructive and non-destructive Destructive	Introduction to Engineering Materials Testing	A theoretical lecture presented in the form of Power point	Questions & Discussion
2	4	The teacher clarifies the principle of	Principle of NonDestructive Inspection	A theoretical lecture presented in	Daily exam

	the form of Power point		Examination of examinations Non-destructive		
Unannounced discussion and exam	A theoretical lecture presented in the form of Power point	Principle properties of Visual Inspection	Learn about the principles Main properties Visual inspection	4	3
Unannounced discussion and exam	A theoretical lecture presented in the form of Power point	Defects types and their sources	Identify defects and its most important sources	4	4
Written exam	A theoretical lecture presented in the form of Power point Reports	Liquid penetration testing	Learn how Examination with window fluids	4	5
Unannounced discussion and exam	A theoretical lecture presented in the form of Power point Reports	Behavior of liquid penetrants Testing	Recognize the behavior of Window fluids	4	6
Unannounced discussion and exam	A theoretical lecture presented in the form of Power point Reports	physical Principles of Magnetic Particles Testing	Physical principles For examination in minutes Magnetism	4	7
Unannounced exam and presentation and discussion of reports	A theoretical lecture presented in the form of Power point Reports	Principles Ultra Sonic Testing	Recognize the basic characteristics of ultrasound scanning	4	8
Unannounced exam and presentation and discussion of reports	A theoretical lecture presented in the form of Power point Reports	Characterization of X-Ray and X-Ray Diffraction	X-ray examination to identify the characteristics of the X-ray	4	9

Unannounced exam and presentation and discussion of reports	A theoretical lecture presented in the form of Power point Reports	Techniques forScanning Electron Microscope Testing	To learn about the scan BThe electron microscope razer	4	10
Written exam	A theoretical lecture presented in the form of Power point Reports	Transmission electron microscopy [TEM]	RF on electron microscopy Window	4	11
Unannounced exam and presentation and discussion of reports	A theoretical lecture presented in the form of Power point Reports	Synthesis methods for Eddy Currents Testing	Checking by currents Identification Methods Whirlpool	4	12
Unannounced exam and presentation and discussion of reports	A theoretical lecture presented in the form of Power point Reports	Applications of Destructive Inspection	Learn about apps Scientific Examinations Damage	4	13
Unannounced exam and presentation and discussion of reports	A theoretical lecture presented in the form of Power point Reports	Principles and Applications Fatigue teste	Learn the basics and scan applications BThe fatigue test	4	14
Written exam	A theoretical lecture presented in the form of Power point Reports	Principles and Applications of Tensile Test	Learn the basics and scan applications BThe tensile test	4	15

11.Course Evaluation	
Daily preparation score and attendance5% Daily exam score 10% Monthly exam score 20% Seminar and reporting score 5%	
12.Learning and Teaching Resources	
There are no textbooks for the subject	Required textbooks (methodology, if any)
✓ College Library for Additional Curriculum Resources Tuition. ✓ ✓ View scientific websites to view Recent developments in the article	Main references (sources)
• A A.J.Wilbyand D.P. Neale,"Defects Introduced Into Metals During Fabrication And Service", British Energy Ltd., Gloucester, UK. • International Atomic Energy Agency, "Training Guidelines In Nondestructive Testing Techniques: Manual For Visual Testing At Level 2", ISSN 1018-5518, 2013	Recommended supporting books and references (journals, reports..)
• Liquid Penetrant and Magnetic Particles Testing at Level 2"Manual for the Syllabi Contained in IAEA –TECDOC "Training Guidelines in Non-Destructive Inspection techniques International Atomic Energy Agency, 2000	Electronic References, Websites