

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 Galtman

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:

Signature:

25/6/2024
[Signature]

دقق الملف من قبل

شعبة ضمان الجودة والأداء الجامعي

اسم مدير شعبة ضمان الجودة والأداء الجامعي:

التاريخ

Approval of the Dean
التوقيع

4

Prof. Dr. Anees A. Khadim

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 recycling and manufacturing materials .

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

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 real problems.

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

4. Program Accreditation

5. Other external influences

* ممكن ان تتضمن الملاحظات فيما اذا كان المقرر أساسي او اختياري .

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
<i>practical</i>	<i>theoretical</i>	<i>Corrosion Engineering</i>	MAE328	<i>Third</i>

8. Expected Learning Outcomes of the Program	
	<i>Knowledge</i>
<ul style="list-style-type: none"> - Study the concept of corrosion engineering in its general concept, its definition, the basics of corrosion, and the types of corrosion. - Identify the losses and damages resulting from corrosion . - Identify methods of measuring the rate of corrosion. 	<i>Learning outcomes 1, 2 and 3</i>
<ul style="list-style-type: none"> - Organize the work well and avoid chaos that does not lead to harvesting its fruits. - Monitor work by providing a good system of supervision. 	<i>Skills</i>
	<i>Values</i>
<p><i>Attention: Arousing the attention of students by implementing one of the applied programs on the display screen in the hall.</i></p> <p><i>Response: Monitor the student's interaction with the on-screen material</i></p> <ul style="list-style-type: none"> - <i>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.</i> - <i>Formation of direction: meaning that the student is sympathetic to the presentation and may have an opinion towards the topic presented and defend it.</i> - <i>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</i> 	<i>Learning Outcomes 4</i>
<ul style="list-style-type: none"> - 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 	<i>Learning Outcomes 5</i>

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*

10. Evaluation methods

For direct questions in a way (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	Lecturer Doctor

Professional Development

Orientation of new faculty members

In addition to passing the courses of teaching methods and language safety, the department works on the work of development courses and workshops to prepare and guide the new teaching members

Professional development of faculty members

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

12. Acceptance Criterion

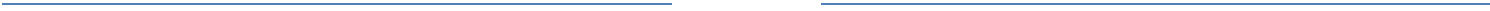
13. The most important sources of information about the program

14. Program Development Plan

مخطط مهارات البرنامج

مخطط مهارات البرنامج												اساسي أم اختياري	Course Name	Course Code	Year/Level
Learning outcomes required from the program				المهارات				المعرفة							
4C	3C	2c	1C	4b	3b	2b	1b	A4	A3	A2	A1				
	●	●	●			●	●		●	●	●				

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



Course Description Form

1. Course Name					
Corrosion Engineering I					
2. Course Code					
E401					
3. Semester / Year					
Chapter One					
4. Date of preparation of the description					
10-8-2024					
5. Available attendance formats					
Came					
6. Number of Hours (Total) / Number of Units (Total)					
60 hours /3					
7. Name of the course administrator (if more than one name is mentioned)					
Name : Dr. Iyad Nassif Jassim Email :ayad.naseef@uodiyala.edu.iq					
8. Course Objectives					
<p>d. General and qualifying skills transferred (other skills related to employability and personal development).</p> <p>D1- Application of mathematical skills in practical problems</p> <p>D2- Skills in oral and written communication, use of information and communicate effectively.</p> <p>D3- Control time and resources and work in one team</p> <p>Published sources D4 - The ability to design and practical in analyzing problems and extracting information from</p>			Course Objectives		
9. Teaching and Learning Strategies					
					Strategy
10. Course Structure					
Evaluation method	Learning method	Unit or subject name	Required Learning Outcomes	Hours	Week
Unannounced exams and self-assessment during the lecture	A theoretical lecture presented in the form of Power Point	Introduction Definition of corrosion , Cost of corrosion	Introduction to corrosion, definition of corrosion, cost of corrosion	4	First Lecture1
Unannounced exams and self-assessment during the lecture	A theoretical lecture presented in the form of Power Point	corrosion damage , Classification of corrosion	definition Of Corrosion Damage, Corrosion classification	4	Second Lecture2
Unannounced exams and self-assessment during the lecture	A theoretical lecture presented in the form of Power Point	Corrosion Principles, Polarization, Types of polarization ,	Definition of basic concepts Corrosion, polarization Types of polarization	4	Third Lecture3
Unannounced exams	A theoretical lecture presented	Passivity, Electrochemical	Identify inertness of	4	Fourth Lecture4

and self-assessment during the lecture	in the form of Power Point	reactions	electrochemical reactions		
Unannounced exams and self-assessment during the lecture	A theoretical lecture presented in the form of Power Point	Environmental Effects - Effect of Oxygen and Oxidizers - Effect of Temperature	Definition of the effects of the medium - the effect of oxygen and oxidants - Temperature effect	4	V Lecture5
Unannounced exams and self-assessment during the lecture	A theoretical lecture presented in the form of Power Point	- Effect of corrosive Concentrations - Effect of Galvanic Coupling	Definition of the effect of corrosion concentrations - Galvanic double effect	4	Sixth Lecture6
Unannounced exams and self-assessment during the lecture	A theoretical lecture presented in the form of Power Point	Forms (types) of corrosion	Definition of forms or types of corrosion	4	Seventh Lecture7
Unannounced exams and self-assessment during the lecture	A theoretical lecture presented in the form of Power Point	Uniform Corrosion Galvanic or Two Metal Corrosion -EMF and Galvanic Series -Environmental Effects -Distance Effect	Uniform wear Galvanic corrosion or bimetallic corrosion For the emf force	4	Eighth Lecture8
Unannounced exams and self-assessment during the lecture	A theoretical lecture presented in the form of Power Point	-Area Effect -Beneficial Application Crevice Corrosion - Environmental Factors -Combating Crevice Corrosion -Filiform Corrosion	-Space effect Useful applications Fractured corrosion - Environmental factors - Anti-corrosion cracks -Filamentous corrosion	4	Ninth Lecture9
Unannounced exams and self-assessment during the lecture	A theoretical lecture presented in the form of Power Point	Pitting Corrosion -Pit Shape and Growth - Autocatalytic Nature of Pitting -Evaluation of Pitting Damage	Definition of click erosion -Fossa shape and growth - The nature of self-stimulation of pitting -Assessment of drilling damage	4	X Lecture10
Unannounced exams and self-assessment during the lecture	A theoretical lecture presented in the form of Power Point	Intergranular Corrosion -Austenitic Stainless Steel -Welding Decay -Knife –Line Attack	Recognize corrosion between grains -Austenitic stainless steel - Welding dissolution - Knife line attack	4	Eleventh Lecture11

Unannounced exams and self-assessment during the lecture	A theoretical lecture presented in the form of Power Point	Selective Leaching - Dezincification: Characteristics' - Dezincification: Prevention - Graphitization	Selective decorrosion Zinc removal: properties - Zinc removal: prevention - Graphite removal	4	Twelfth Session 12
Unannounced exams and self-assessment during the lecture	A theoretical lecture presented in the form of Power Point	Erosion Corrosion -- Velocity - Fretting Corrosion	Corrosion by erosion - Speed - Corrosion by crushing	4	Thirteenth Session 12
Unannounced exams and self-assessment during the lecture	A theoretical lecture presented in the form of Power Point	Stress Corrosion - Stress Effects Hydrogen Embrittlement	Stress erosion - Effects of stress Hydrogen bombardment	4	Fourteenth Lecture 14
Unannounced exams and self-assessment during the lecture	A theoretical lecture presented in the form of Power Point	Corrosion Testing - Standard Expressions for Corrosion Rate -- In Vivo Corrosion	Corrosion Test - Standard expressions of wear rate - In vivo erosion	4	Fifteenth Lecture 15

11. Course Evaluation

Daily preparation score and attendance 5%
Daily exam score 10%
Monthly exam score 20%
Seminar and reporting score 5%
Practical degree (laboratory) 10%

12. Learning and Teaching Resources

Corrosion Engineering and Protection of Metal Surfaces / Dr. Hussein Baqarha Allah	Required textbooks (methodology, if any)
M.G. Fontana "Corrosion Engineering" 2d, (1978)	Main references (sources)
H.H. Uhlig and R.W. Revie, "Corrosion and Corrosion Control" 3rd ed, John Wiley & Sons, (1985)	Recommended supporting books and references (journals, reports..)
	Electronic References, Websites