

## 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

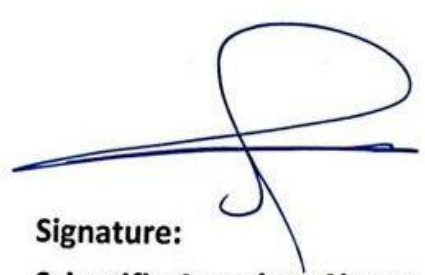
**File Completion Date:** 24-6-2024

**Signature:** 

**Head of Department Name:**

Suha K. Shihaeb

**Date:** 25/6/2024

**Signature:** 

**Scientific Associate Name:**

Jabbar Galtman

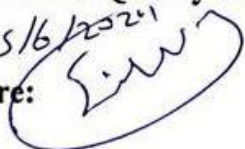
**Date:** 25/6/2024

**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:** 25/6/2024

**Signature:** 

**Approval of the Dean**

  
Prof. Dr. Anees A. Khadun

## 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

## 4. Program Accreditation

## 5. Other external influences

6. Program				
ملاحظات *	النسبة المئوية	وحدة دراسية	عدد المقررات	هيكل البرنامج
	4.24 %	6	5	متطلبات المؤسسة
	14.20 %	20	9	متطلبات الكلية

				متطلبات القسم
Graduation Requirements	-	-	-	التدريب الصيفي
				أخرى

7. Program Description				
Credit Hours		Course Name	Course Code	Year/Level
	<b>Theoretical only</b>	Selection and design of materials 2	----	Fourth

8. Expected Learning Outcomes of the Program	
	<i>Knowledge</i>
<ol style="list-style-type: none"> <li>1. <i>During the academic year, the student learns an idea of what the choice of materials is and the main principles of design .</i></li> <li>2. <i>Learn and understand the classifications of methods of manufacturing engineering materials, the difference between them and the advantages of each</i></li> <li>3. <i>Learn and understand design considerations for different engineering designs used in the industrial sector</i></li> <li>4. <i>Conducting design calculations for various engineering applications</i></li> </ol>	<i>Learning outcomes 1, 2 and 3</i>
<p><b>- Organize the work well and avoid chaos that does not lead to harvesting its fruits.</b></p> <p><b>- Monitor work by providing a good system of supervision.</b></p>	<i>Skills</i>
	<i>Values</i>
<p>Attention: Arousing the attention of students by implementing one of the applied programs on the display screen in the hall.</p> <p>Response: Follow up the student's interaction with the material displayed on the screen</p> <ul style="list-style-type: none"> <li>- 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.</li> <li>- Formation of direction: meaning that the student is sympathetic to the presentation and may have an opinion towards the topic presented and defend it.</li> <li>- 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</li> </ul>	<i>Learning Outcomes 4</i>
<ul style="list-style-type: none"> <li>- Attention: Arousing the attention of students by implementing one of the applied programs on the display screen in the hall</li> <li>- Response: Follow up on the student's interaction with the material displayed on the screen.</li> <li>- 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.</li> <li>- Formation of direction: meaning that the student is sympathetic to the presentation and may have an opinion</li> </ul>	<i>Learning Outcomes 5</i>

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

## 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	professor

<b>Professional Development</b>
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<b>Orientation of new faculty members</b>
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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
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<b>Professional development for faculty members</b>
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Using learning platforms and electronic methods to display lectures, seminars and reports, display educational videos and conduct lectures accompanied by practical application.
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## 12. Acceptance Criterion

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

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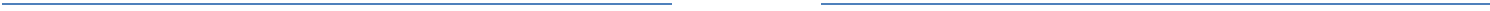
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## 14. Program Development Plan

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				
•	•	•	•			•	•		•	•	•	Essential	Selection and design of materials 2	MAE401	Fourth

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





## Course Description Form

1. Course Title :					
<b>Selection and design of materials 2</b>					
2. Course Code:					
<b>MAE401</b>					
3. Semester / Year:					
<b>First/Fourth</b>					
4. Date of preparation of the description:					
<b>8/8/2024</b>					
5. Available attendance formats:					
<b>My presence (mandatory)</b>					
6. Number of Hours (Total) / Number of Units (Total):					
<b>30 hours / 2 units</b>					
7. Name of the course administrator (if more than one name is mentioned):					
Name : <b>Prof. Dr Ahmed Faleh Hassan</b>			Email: <a href="mailto:ahmed_hasan_eng@uodiyala.edu.iq">ahmed_hasan_eng@uodiyala.edu.iq</a>		
8. Course Objectives					
<ol style="list-style-type: none"> <li>1. <i>During the academic year, the student learns an idea of what the choice of materials is and the main principles of design .</i></li> <li>2. <i>Learn and understand the classifications of methods of manufacturing engineering materials, the difference between them and the advantages of each</i></li> <li>3. <i>Learn and understand design considerations for different engineering designs used in the industrial sector</i></li> <li>4. <i>Conducting design calculations for various engineering applications</i></li> </ol>				Course Objectives	
9. Teaching and Learning Strategies					
<ul style="list-style-type: none"> <li>✓ The teacher prepares lectures on the subject in electronic form and presents them to students.</li> <li>✓ The teacher gives lectures in detail.</li> <li>✓ The teacher requests periodic reports and homework on the basic topics of the subject</li> </ul>					Strategy
10. Course Structure					
Evaluation method	Learning method	Unit or subject name	Required Learning Outcomes	Hours	Week
Daily exams + monthly exams	Lectures PDF Power Point Video	An Introduction to Materials design.	The lecturer demonstrates the introduction to the design and selection of materials	2	First
Daily exams + monthly exams	Lectures PDF Power Point Video	Case Study Bases and Mechanical Properties Case Study The Lightest STIFF Beam • Case Study The	Identify the state of a design based on mechanical properties Recognize the status of a design based on the sensor Recognize the	6	II-IV

		Lightest STIFF Tie Rod Case Study Materials for Oars	status of a design based on the sensor Identify the status of the design of the paddle of a boat, mathematical relations related to its calculations		
Daily exams + monthly exams	Lectures PDF Power Point Video	Case Study Materials for Slender Oars considering cost and weight	Identify the status of its design and the most important mathematical relationships related to its accounts Identify the status of its design and the most important mathematical relationships related to its calculations - cost and density considerations	4	V-VI
Oral assessment	Lectures displayed in PowerPoint format	Seminar	Discussion of Sumner for each student or group of students	2	Seventh
Daily exams + monthly exams	Lectures PDF Power Point Video	Manufacturing Processes selection	Learn about the choice of manufacturing methods	4	VIII-IX
Daily exams + monthly exams	Lectures PDF Power Point Video	Table Legs: Material Indices	Recognize the criterion for choosing table legs	4	Tenth-Eleventh
Daily exams + practical experiences + monthly exams	Lectures displayed in PowerPoint format	Heat-Storing Wall: Material Indices	Refractory wall selection criterion	6	Twelfth – Fourteenth
Daily exams + practical experiences + monthly exams	Lectures displayed in PowerPoint format	Cases study review	Review and resolve previous design case exercises	2	Fifteenth

11. Course Evaluation
Distribution of the grade out of 100 according to the tasks assigned to the student such as daily

preparation and daily, oral and monthly exams  
editorial and reports .... etc

## 12. Learning and Teaching Resources

There are no textbooks for the subject	Required textbooks (methodology, if any)
College library for additional curriculum resources. Access to scientific websites to see the latest developments in the article .	Main references (sources)
William Bolton , Engineering Materials Technology, 2nd Edition , eBook SBN: 9781483141077, 1993. M.F. Ashby, Materials Selection in Mechanical Design, 4th Edition, Elsevier, San Francisco, 2011; ISBN 978-1- 85617-663-7. Cambridge Engineering Selector (CES EduPack), Granta Design Limited, Cambridge, UK, 2010, www.grantadesign.com	Recommended supporting books and references (journals, reports..)
<a href="http://www-g.eng.cam.ac.uk/125/now/ces.html">http://www- g.eng.cam.ac.uk/125/now/ces.html</a>	Electronic References, Websites

