Academic Program Description Form

University Name: University of Babylon

Faculty/Institute: College of Materials Engineering

Scientific Department: Department of Ceramic and Building Materials Engineering

Academic or Professional Program Name: Bachelor's degree in Ceramic and Building Materials Engineering

Final Certificate Name: Bachelor's degree in Ceramic and Building Materials Engineering

Academic System: Courses System

Description Preparation Date: 27/2/2025

File Completion Date: 27/2/2025

Signature:

Head of Department Name: Assist. Prof. Dr. Firas Jabbar Hamood

Date: 19/3/2025

Signature:

Scientific Associate Name: Prof. Dr. Auda Jabbar Braihi

Date:

The file is checked by:

Department of Quality Assurance and University Performance

Director of the Quality Assurance and University Performance Department: Raed Hussein Alwun

Date:

Signature:

University of Babylon
College Of Materials Engineering

Approval of the Dean

Prof. Dr. Abdul Raheem K. Abid Ali

19/3/2025

1. Program Vision

We are working and striving for the Department of Ceramic and Building Materials Engineering to become one of the premier scientific engineering departments within the College of Materials Engineering, the University of Babylon, and across the country. Our goal is for the University of Babylon to be ranked among the world's top accredited universities. We aim to achieve this by enhancing the quality of our teaching staff, improving our laboratories and libraries with valuable books, and developing curricula that align with industry standards and labor market. We aspire to be a guiding light for students nationwide, preparing a new generation of male and female engineers with bachelor's degrees in ceramic engineering and building materials science. Furthermore, we aim to contribute to society by producing a significant number of graduates who pursue postgraduate studies, including master's and doctoral degrees in building materials sciences. Our efforts are aligned with the vision and objectives of the Ministry of Higher Education and Scientific Research, Initial requirements as well as the government's program.

2. Program Mission

We aim to develop our studies both quantitatively and qualitatively, aligning them with the core objectives of the college and university. This includes creating new pathways and opportunities in both undergraduate and postgraduate studies that reflect modern technological advancements. Our goal is for specializations and research to keep pace with the scientific development of the country and the world, incorporating the latest discoveries and rapid progress in science and technology to benefit all aspects of contemporary human life and activities.

3. Program Objectives

The objectives of the Department of Ceramic and Building Materials Engineering are considered an extension of the objectives of the College of Materials Engineering and the University of Babylon, which are:

The objectives of the Department of Ceramic and Building Materials Engineering align with those of the College of Materials Engineering and the University of Babylon, which include:

1. General goal: Prepare engineering cadres in ceramic engineering and building materials to contribute to the nation's development in line with its needs.
2. Instill Moral values, national, and human values in the new generation and cultivate future leaders in ceramic engineering and building materials.
3. Educate a generation grounded in science, using it as a foundation for transformative change and applying scientific thinking and analysis to achieve goals.
4. Improve graduate studies, diversify them, and meet the country's needs.
5. Enhance the college and university's role as a cultural center that promotes social values.
6. Working to deepen the balance between the progress of theoretical sciences and their applied aspects.
7. Guide students, expand their activities, and foster innovation within sustainable development plans and national needs.
8. Link graduate studies with the country's sustainable development plan and offer scientific solutions to problems.
9. Integrate modern teaching methods to enhance students' creativity.
10. Strengthen the university's relationship with society through advisory work, training, cadre development, and specialized courses.

4. Program Accreditation

In the process of applying for it

5. Other external influences

1- Field visits
2- The practical part
3- Scientific consultations
4- Libraries and the Internet
5- Social media platforms
6- Labor market need

6. Program Structure

Program Structure	Number of Courses	Credit hours	Percentage	Reviews*
Enterprise requirements	٥	١٠	٪١٢	___
Department requirements	٥٤	١١٥	٪٩٠	___
summer training	١	___	___	___
Other	___	___	___	___

7. Program Description

Year / level	Course Code	Course name	Credit hours	
			theoretical	practical
Third Year - First Semester	Me Cr Ena I 3 001 31 (3+0)	Engineering and Numerical Analysis	٣	__
Third Year - First Semester	Me Cr Ccm I 3 002 32 (2+0)	Ceramic Composite Materials	٢	٢
Third Year - First Semester	Me Cr Mcc I 3 003 33 (2+2)	Mechanical Characteristics of Ceramic Materials	٢	٢
Third Year - First Semester	Me Cr Ca I 3 004 34 (2+0)	Catalysts	٢	__
Third Year - First Semester	Me Cr Ccs I 3 005 35 (3+2)	Characteristics and Soil Composition	٣	٢
Third Year - First Semester	Me Cr Pdc I 3 006 36 (2+0)	Phase Diagrams of Ceramic Materials	٢	__
Third Year - First Semester	Me Cr El I 3 007 37 (2+0)	English Language I	٢	__
Third Year - second Semester	Me Cr Ptc II 3 008 38 (2+0)	Phase Transformations of Ceramic Materials	__	٢
Third Year - second Semester	Me Cr Fm II 3 009 39 (2+0)	Fracture Mechanics	__	٢
Third Year - second Semester	Me Cr Ecm II 3 010 40 (2+2)	Electronic Characteristics of Ceramic Materials	٢	٢
Third Year - second Semester	Me Cr Si II 3 011 41 (2+0)	Sintering	__	٢
Third Year - second Semester	Me Cr Ht II 3 012 42 (3+2)	Heat Transfer	٢	٣
Third Year - second Semester	Me Cr Tm II 3 013 43 (2+2)	Testing of Ceramic Materials	٢	٢

Third Year - second Semester	Me Cr El II 3 014 44 (2+0)	English Language II	__	٢
Fourth Year - First Semester	Me Cr Ac I 4 001 45 (2+0)	Advanced Ceramics	__	2
Fourth Year - First Semester	Me Cr Ie I 4 002 46 (3+0)	Industrial Engineering	__	٣
Fourth Year - First Semester	Me Cr Sm I 4 003 47 (2+0)	Selection of Engineering Materials	__	٢
Fourth Year - First Semester	Me Cr Se I 4 004 48 (2+0)	Surfaces Engineering I	__	٢
Fourth Year - First Semester	Me Cr Ce I 4 005 49 (2+2)	Cement	٢	٢
Fourth Year - First Semester	Me Cr El I 4 006 50 (2+0)	English Language I	__	٢
Fourth Year - First Semester	Me Cr Mi I 4 007 51 (2+2)	Microscopy	٢	٢
Fourth Year - second Semester	Me Cr Se II 4 008 52 (2+0)	Surfaces Engineering II	__	٢
Fourth Year - second Semester	Me Cr Ppa II 4 009 53 (2+2)	Preparation of Advanced Ceramic Powders	٢	٢
Fourth Year - second Semester	Me Cr Dm II 4 010 54 (2+0)	Design of Engineering Materials	__	٢
Fourth Year - second Semester	Me Cr Co II 4 011 55 (2+2)	Concrete	٢	٢
Fourth Year - second Semester	Me Cr Bi II 4 012 56 (2+0)	Bioceramics	__	٢
Fourth Year - second Semester	Me Cr El II 4 013 57 (2+0)	English Language II	__	٢
Fourth Year - second Semester	Me Cr Sp II 4 014 58 (2+2)	Spectroscopy	٢	٢
Fourth Year - second Semester	Me Cr Pe (2+4)	Engineering Project	٤	٢

8. Expected learning outcomes of the program

Knowledge

1- The student will be familiar with the structure of ceramic materials and building materials
2- The student should classify ceramic materials and building materials
3- To manufacture ceramic materials and building materials
4- That the student evaluates and examines ceramic materials according to the required engineering specifications

Skills

1- Thinking skill according to the student's ability (the goal of this skill is for the student to believe in what is tangible (the student's abilities) and understand when, what and how he should think and work to improve the ability to think reasonably
2- High thinking skill (the goal of the skill) is to learn to think well before making the decision that determines the student's life
3- Critical thinking strategy in learning (critical thanking) is a term that symbolizes the highest levels of thinking, which aims to pose a problem and then analyze it logically to reach the desired solution.
4- The student's knowledge of the concept of ceramic engineering and building materials
5- The student's ability to evaluate the strength and durability of ceramic and building materials
6- Enable the student to analyze ceramic materials and building materials and determine whether they conform to the specifications or not
7- Enabling students to manufacture traditional and advanced ceramic materials and building materials

Ethics
1- Consolidating high ideals and strengthening the system of moral values in society. 2- Maintaining professional ethics and business secrets. 3- Using the English language to promote national culture. 4- Accept the positive aspects of other cultures.

9. Teaching and Learning Strategies

1- Thinking strategy according to the student's ability.
2- High thinking skill and brainstorming strategy.
3- Critical thinking strategy in learning.
4- Verbal communication (the ability to express thinking clearly and confidently in speech
5- Teamwork (work confidently within the group)
6- Analysis and investigation (collecting information systematically and scientifically to establish facts and principles for solving problems
7- Initiative (identifying opportunities and developing ideas and solutions)
8- Written communication (the ability to express yourself clearly in writing)
9- Planning and organizing (the ability to plan activities and implement them effectively)
10- Flexibility (successfully adapting to changing situations)
11- Manage time effectively, prioritize tasks, and be able to work within deadlines

10. Evaluation methods

1- Method of giving lectures
2- E-learning on campus
3- Scientific trips
4- Student center
5- Workshop Workshops
6- Student groups
7- Experiential learning
8- Education application

11. Faculty

Faculty Members

Name and Academic Rank	Specialization	Special Requirements/Skills (if applicable)		Number of the teaching staff	
	General and Special			Staff	Lecturer
Prof. Shaker Jahel Eddres	Ph.D. in Advanced ceramic materials	___	___	✓	___
Prof. Imad Ali Disher	Ph.D. in Material technology	___	___	✓	___
Prof. Elham Abdul majeed Ibrahim	Ph.D. in ceramic materials	___	___	✓	___

Prof. Samir Hamid Awad	Ph.D. in Surface materials engineering	___	___	✓	___
Prof. Mohammed Aasi Ahmed	Ph.D. in optimization	___	___	✓	___
Prof. Mohsin Abbas Aswad	Ph.D. in Powder and ceramic technology	___	___	✓	___
Prof. Hayder Kraidy Rashid	Ph.D. in Refractories and fluids	___	___	✓	___
Prof. Israa Kahtan Sabri	Ph.D. in Ceramic and glass engineering	___	___	✓	___
Prof. Shaima Jaber Karim	Ph.D. in Advanced ceramics	___	___	✓	___
Assist. Prof. Firas Jabbar Hamood	Ph.D. in ceramic technology	___	___	✓	___
Assist. Prof. Aseel Hadi Hamzah	Ph.D. in Ceramic engineering	___	___	✓	___
Assist. Prof. Dalia Hikmat Hamid	Ph.D. in Structural materials engineering	___	___	✓	___
Assist. Prof. Qutaiba Hussein Mohammed	Ph.D. in Ceramic	___	___	✓	___
Assist. Prof. Mohammed naji hasan	Ph.D. in Ceramic engineering	___	___	✓	___
Lect. Ahmed Hamad Yahia	Ph.D. in mechatronics	___	___	✓	___
Lect. Nofel Zuheir Wahib	Ph.D. in Material engineering	___	___	✓	___
Lect. Mohammed Sattar Radhi	Ph.D. in Ceramic engineering	___	___	✓	___
Lect. Sura Abdulzahra Mohsin	Ph.D. in minerals	___	___	✓	___
Lect. Amir Mohsen Hashim	MSc. Construction	___	___	✓	___
Assist. Prof. Sattar Hantosh Abo Soda	MSc. Advanced manufacturing systems	___	___	✓	___
Lect. Ola Saleh Mahdi	MSc. Bioceramics	___	___	✓	___
Lect. Abeer Abdul Jabbar Abdul Abbas	MSc. Soil (eotechnical)	___	___	✓	___
Lect. wisam abdulkadhim hussein	MSc. Waste recycling	___	___	✓	___
Assist. Lect. Noora Kadhim Khuder	MSc. Computer Science	___	___	✓	___
Assist. Lect. Rawaa Jabbar Hussein	MSc. Building Materials	___	___	✓	___
Assist. Lect. mustafa abdul mahdi yaseen	MSc. Soil and foundation engineering	___	___	✓	___
Assist. Lect. Bassim Ali Nazum	MSc. polymer	___	___	✓	___
Assist. Lect. Saba Mohammed Badr	MSc. Ceramics and building materials	___	___	✓	___
Assist. Lect. Farqad Saleem Murad	MSc. Ceramics and building materials	___	___	✓	___
Assist. Lect. Batool Abdaladel Jabaar	MSc. Ceramics and building materials	___	___	✓	___
Assist. Lect. Rawaa Samir Kadhim	MSc. Ceramics and building materials	___	___	✓	___
Assist. Lect. Mustafa Aqeel Hamid	MSc. Criminal Law	___	___	✓	___

Professional Development

Mentoring new faculty members

Preparing seminars, courses, and introductory workshops, testing the teaching suitability of new teachers, holding periodic meetings to familiarize them with work contexts, daily guidance and supervision, continuous follow-up, giving advice and directions, and urging them to write scientific research and participate in specialized conferences to develop them scientifically and academically.

Professional development of faculty members

١- Providing the necessary environment and resources to develop the faculty member's skills to achieve the highest levels of quality in academic performance
2- Participation in workshops, continuing education courses, and specialized training courses
3- Developing the faculty member's skills in the field of student evaluation and relying on effective alternatives in this regard
4- Developing the faculty member's skills in relying on modern technology and innovating new alternatives in learning and teaching
5- Raising the skill level of the faculty member in the field of scientific and professional research, administration and community service
6- Exchanging experiences between faculty members in the scientific department and other corresponding departments locally and internationally
7- Developing the faculty member's multiple administrative skills, such as working as a team or decision-making skills in academic and administrative work.
8- Developing the faculty member's skills to deal with the challenges he faces in performing his job and academic duties by overcoming potential job difficultie

12. Acceptance Criterion

Central admission is through direct application to the Ministry of Higher Education and Scientific Research based on the student's grades in sixth grade after filling out the form for central admission in Iraqi universities

13. The most important sources of information about the program

1- The website of the Ministry of Higher Education and Scientific Research
2- The website of the university, college and department
3- Student guide

١٤. program development plan

1. Adhering to the recommendations of the Ministry and the University regarding developing the department's academic program.
2. Evaluation and review by the periodic scientific committee of the academic program and the resulting recommendations or proposals specific to the program, based on the annual reports of the programs and course descriptions.
3. Developing the performance of the scientific and administrative staff in the department through annual performance evaluation files that reveal strengths and weaknesses
4. Conducting evaluation studies related to developing and improving the performance of faculty members, employees, and workers in the department
5. Attending seminars, discussions, and specialized scientific seminars

Program Skills Outline															
				Required program Learning outcomes											
Year/Level	CourseCode	CourseName	Basic or optional	Knowledge				Skills				Ethics			
				A1	A2	A3	A4	B1	B2	B3	B4	C1	C2	C3	C4
Third Year - First Semester	Me Cr Ena I 3 001 31 (3+0)	Engineering and Numerical Analysis	Basic	*	*	*	*	*	*	*	*	*	*	*	*
	Me Cr Ccm I 3 002 32 (2+0)	Ceramic Composite Materials	Basic	*	*	*	*	*	*	*	*	*	*	*	*
	Me Cr Mcc I 3 003 33 (2+2)	Mechanical Characteristics of Ceramic Materials	Basic	*	*	*	*	*	*	*	*	*	*	*	*
	Me Cr Ca I 3 004 34 (2+0)	Catalysts	Basic	*	*	*	*	*	*	*	*	*	*	*	*
	Me Cr Ccs I 3 005 35 (3+2)	Characteristics and Soil Composition	Basic	*	*	*	*	*	*	*	*	*	*	*	*
	Me Cr Pdc I 3 006 36 (2+0)	Phase Diagrams of Ceramic Materials	Basic	*	*	*	*	*	*	*	*	*	*	*	*
	Me Cr El I 3 007 37 (2+0)	English Language I	Basic	*	*	*	*	*	*	*	*	*	*	*	*
Third Year - second Semester	Me Cr Ptc II 3 008 38 (2+0)	Phase Transformations of Ceramic Materials	Basic	*	*	*	*	*	*	*	*	*	*	*	*
	Me Cr Fm II 3 009 39 (2+0)	Fracture Mechanics	Basic	*	*	*	*	*	*	*	*	*	*	*	*
	Me Cr Ecm II 3 010 40 (2+2)	Electronic Characteristics of Ceramic Materials	Basic	*	*	*	*	*	*	*	*	*	*	*	*
	Me Cr Si II 3 011 41 (2+0)	Sintering	Basic	*	*	*	*	*	*	*	*	*	*	*	*
	Me Cr Ht II 3 012 42 (3+2)	Heat Transfer	Basic	*	*	*	*	*	*	*	*	*	*	*	*
	Me Cr Tm II 3 013 43 (2+2)	Testing of Ceramic Materials	Basic	*	*	*	*	*	*	*	*	*	*	*	*
	Me Cr El II 3 014 44 (2+0)	English Language II	Basic	*	*	*	*	*	*	*	*	*	*	*	*
Fourth Year - First Semester	Me Cr Ac I 4 001 45 (2+0)	Advanced Ceramics	Basic	*	*	*	*	*	*	*	*	*	*	*	*
	Me Cr Ie I 4 002 46 (3+0)	Industrial Engineering	Basic	*	*	*	*	*	*	*	*	*	*	*	*
	Me Cr Sm I 4 003 47 (2+0)	Selection of Engineering Materials	Basic	*	*	*	*	*	*	*	*	*	*	*	*

	Me Cr Se I 4 004 48 (2+0)	Surfaces Engineering I	Basic	*	*	*	*	*	*	*	*	*	*	*	*
	Me Cr Ce I 4 005 49 (2+2)	Cement	Basic	*	*	*	*	*	*	*	*	*	*	*	*
	Me Cr El I 4 006 50 (2+0)	English Language I	Basic	*	*	*	*	*	*	*	*	*	*	*	*
	Me Cr Mi I 4 007 51 (2+2)	Microscopy	Basic	*	*	*	*	*	*	*	*	*	*	*	*
Fourth Year - second Semester	Me Cr Se II 4 008 52 (2+0)	Surfaces Engineering II	Basic	*	*	*	*	*	*	*	*	*	*	*	*
	Me Cr Ppa II 4 009 53 (2+2)	Preparation of Advanced Ceramic Powders	Basic	*	*	*	*	*	*	*	*	*	*	*	*
	Me Cr Dm II 4 010 54 (2+0)	Design of Engineering Materials	Basic	*	*	*	*	*	*	*	*	*	*	*	*
	Me Cr Co II 4 011 55 (2+2)	Concrete	Basic	*	*	*	*	*	*	*	*	*	*	*	*
	Me Cr Bi II 4 012 56 (2+0)	Bioceramics	Basic	*	*	*	*	*	*	*	*	*	*	*	*
	Me Cr El II 4 013 57 (2+0)	English Language II	Basic	*	*	*	*	*	*	*	*	*	*	*	*
	Me Cr Sp II 4 014 58 (2+2)	Spectroscopy	Basic	*	*	*	*	*	*	*	*	*	*	*	*
	Me Cr Pe (2+4)	Engineering Project	Basic	*	*	*	*	*	*	*	*	*	*	*	*