University of Technology

الجامعة التكنولوجية

Bachelor's degree (B.Sc.) – Ceramics and Building Materials Engineering

بكالوريوس هندسة السيراميك و مواد البناء

MATERIALS ENGINEERING DEPARTMENT

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1. Mission & Vision Statement

Vision Statement

The ceramic and building materials engineering branch is one of the branches of the Materials Engineering Department. This branch aims to prepare engineers specialized in the field of ceramic and building materials engineering with comprehensive knowledge of the basics of the production and manufacture of ceramic and building materials. The branch's presidency also looks forward to being a leader and distinguished at the national and international level in the curriculum and scientific sobriety by keeping pace with the development of scientific research and raising the level of participation in ceramic engineering and building materials research in international conferences and journals with sober universities and other academic research centres in advanced countries in ceramic engineering field.

Mission Statement

The mission of ceramic and building material engineering branch is to provide educational engineering with high specific quality, high-level research in the ceramic material field, and support the industries in our country. Besides, providing an engineering staff with the specialization of ceramic material engineering who is able to select materials and use them in design for different applications, which can be done through experimentation, contributes to the global development of the ceramic materials engineering field.

2. Program Specification

Program code:	BSc-MaEC	**ECTS**	240
Duration:	4 levels, 8 Semesters	**Method of Attendance:**	Full Time

The ceramic and building materials engineering branch emphasis on graduate engineers who have the ability to design, implement, and manage engineering projects, with other skills such as communication, teamwork, and the development of professional performance skills, as well as creative thinking, while ensuring the rooting of the values and ethics of the profession for graduates. This branch seeks to provide a good working environment for students and faculty members, focus on high academic and professional standards within the campus and outside, encourage the exchange of knowledge and teamwork, and train the engineers to analyze and solve engineering problems in the ceramics and building materials sectors.

Level 1 and 2 exposes students to the fundamentals of Materials Engineering, suitable for progression to all programs within the Engineering program group. Program specific core topics are covered at Level 3 and 4 preparing for research-led subject specialist modules at Levels 4. A graduate from all the branches of Materials Engineering Department is therefore trained to appreciate how research informs teaching, according to the University and School Mission statements.

At Levels 3 and 4 in Ceramics and Buliding Materials Engineering program, students are free to choose more than half of their module credits focusing on Ceramics and Buliding Materials, through design, develop, and manufacture new ceramics and building materilas with desired properties and performance ,and use of math and science in solving all the engineering problems related with this specification, to ensure the breadth of knowledge expected from a graduate with a B.Sc. degree in Ceramics and Building Materials Engineering. This allows students to develop their own wide-ranging interests in Materials Engineering. Decisions on what to study are made with input from personal tutors.

The research ethos is developed and fostered from the start via practicals, which are either embedded in lecture modules or taught in dedicated practical modules, research seminars and tutorials. There is a compulsory practical module (6 hrs.) in Level 1, which is workshop (WORK107) that students must pass in order to progress into Level 2. In Levels 2 there is also practical hours (4 hrs.) embedded within (MAPR211) and (MAPR221) modules. At Level 4 all students carry out an independent research project, which is (2hrs.) Class lecture and (4 hrs.) practical student workload. Academic tutorials are held at Levels 1, 2,3, and 4 with the same tutor, who is also the personal tutor, providing continuity and progressive guidance. Tutorials include a number of presentation skills, followed by assessed exercises, e.g., essays and talks, as opportunities to practice these skills in a subject-specific context.

3. Program Goals

The academic program is focused on the following objectives:

1. Learn how to use the empirical and analytical, statistical and mathematical tools for the exercise of the profession of engineering in the field of ceramics and building materials engineering.
2. Prepare cadres capable to work in multidisciplinary teams able to how to identify, formulate, and solve engineering problems with understanding of professional and ethical responsibility.
3. Engage in activities that promote lifelong learning and the life of graduate professional and provide the flexibility to respond to the changing needs professional and community.

4. Student Learning Outcomes

Materials Engineering/ Ceramics and Building Materials Engineering is the study of all Materials classification and processes in general and then specialize at level 3 & 4 in the Ceramics and Building Materials production, selection, manufacturing, and recycling. Graduates obtain information on the historical, technical, and social aspects of Ceramics and Building Materials Engineering and utilize basic knowledge toward realizing broader concepts. The Department offers a Bachelor of Science in Ceramics and Building Materials Engineering, additionally, the Department offers courses to many students from other departments and supports pre-professional programs.

Outcome 1

Identification of Complex Relationships

An ability to distinguish, identify, define, formulate, and solve engineering problems by applying principles of engineering, science and mathematics.

Outcome 2

Engineering Design

An ability to produce engineering designs that meet desired needs within certain constraints by applying both analysis and synthesis in the design process.

Outcome 3

Oral and Written Communication

An ability to skillfully communicate orally with a gathering of people and in writing with various managerial levels.

Outcome 4

Laboratory and Field Studies

An ability to create and carry out proper measurement and tests with quality assurance, analyze and interpret results, and utilize engineering judgment to make inferences.

Outcome 5

Scientific Knowledge and ethics

An ability to perceive ethical and professional responsibilities in engineering cases and make brilliant judgments taking into account the consequences in worldwide financial, ecological and societal considerations.

Outcome 6

Data Analyses

Graduates will be able to demonstrate scientific quantitative skills, such as the ability to conduct simple data analyses, also perceive the continual necessity for professional knowledge growth and how to find, assess, assemble, and apply it properly.

Outcome 7

Critical Thinking and Teamwork

Graduates will be able to use critical-thinking and problem-solving skills to develop a research project and/or paper. Also, the graduate should has the ability to work adequately on teams and to set up objectives, plan activities, meet due dates, and manage risk and uncertainty.

5. Academic Staff

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6. Credits, Grading and GPA

Credits

University of Technology is following the Bologna Process with the European Credit Transfer System (ECTS) credit system. The total degree program number of ECTS is 240, 30 ECTS per semester. 1 ECTS is equivalent to 25 hrs student workload, including structured and unstructured workload.

Grading

Before the evaluation, the results are divided into two subgroups: pass and fail. Therefore, the results are independent of the students who failed a course. The grading system is defined as follows:

GRADING SCHEME مخطط الدرجات				
Group	**Grade**	التقدير	**Marks (%)**	**Definition**
Success Group (50 - 100)	A - Excellent	امتياز	90 - 100	Outstanding Performance
	B - Very Good	جيد جدا	80 - 89	Above average with some errors
	C - Good	جيد	70 - 79	Sound work with notable errors
	D - Satisfactory	متوسط	60 - 69	Fair but with major shortcomings
	E - Sufficient	مقبول	50 - 59	Work meets minimum criteria
Fail Group (0 – 49)	FX – Fail	راسب - قيد المعالجة	(45-49)	More work required but credit awarded
	F – Fail	راسب	(0-44)	Considerable amount of work required
Note:				
Number Decimal places above or below 0.5 will be rounded to the higher or lower full mark (for example a mark of 54.5 will be rounded to 55, whereas a mark of 54.4 will be rounded to 54. The University has a policy NOT to condone "near-pass fails" so the only adjustment to marks awarded by the original marker(s) will be the automatic rounding outlined above.				

Calculation of the Cumulative Grade Point Average (CGPA)

1. The CGPA is calculated by the summation of each module score multiplied by its ECTS, all are divided by the program total ECTS.

   CGPA of a 4-year B.Sc. degree:

   CGPA = [(1st module score x ECTS) + (2nd module score x ECTS) + ……] / 240

7. Curriculum/Modules

Semester 1 | 30 ECTS | 1 ECTS = 25 hrs

Code	Module	SSWL	USSWL	ECTS	Type	Pre-request
STMA111	Structure of Materials	63	62	5.00	C	
ENDW112	Engineering Drawing	78	47	5.00	B	
MATH113	Mathematics-I	48	77	5.00	B	
ENMS114	Engineering Mechanics/Static	48	52	4.00	B	
DEHR105	Democracy and Human Rights	33	17	2.00	S	
WSHE106	Workshop	90	10	4.00	B	
ENLA107	English Language	33	17	2.00	S	
MACH118	Materials Chemistry	63	12	3.00	B	

Semester 2 | 30 ECTS | 1 ECTS = 25 hrs

Code	Module	SSWL	USSWL	ECTS	Type	Pre-request
PRMA121	Properties of Materials	63	87	6.00	C	
MEDW122	Mechanical Drawing	78	47	5.00	B	
MATH123	Mathematics- II	48	77	5.00	B	
ENMD124	Engineering Mechanics/Dynamic	48	52	4.00	B	
MAPH125	Materials Physics	33	42	3.00	B	
WSHE106	Workshop	90	10	4.00	B	
COMP108	Computer	48	27	3.00	S	

Semester 3 | 30 ECTS | 1 ECTS = 25 hrs

Code	Module	SSWL	USSWL	ECTS	Type	Pre-request
PRMP211	Principles of Manufacturing Processes	78	47	5.00	C	
MEEN212	Metallurigical Engineering	78	47	5.00	C	
CEEN213	Ceramic Engineering	33	92	5.00	C	
THER214	Thermodynamics	63	62	5.00	B	
STMA215	Strength of Materials- I	78	22	4.00	B	
APMA216	Applied Mathematics- I	48	52	4.00	B	
CBRI201	Crimes of the Baath Regime in Iraq	33	17	2.00	S	

Semester 4 | 30 ECTS | 1 ECTS = 25 hrs

Code	Module	SSWL	USSWL	ECTS	Type	Pre-request
MAPR221	Manufacturing Processes	78	47	5.00	C	
POEN222	Polymer Engineering	33	92	5.00	C	
INBI223	Introduction to Biomaterials	33	92	5.00	C	
HETR224	Heat Transfer	78	22	4.00	B	
STMA225	Strength of Materials- II	78	22	4.00	B	
APMA226	Applied Mathematics- II	48	52	4.00	B	
PRLA227	Programming Language	63	12	3.00	S	

Semester 5 | 30 ECTS | 1 ECTS = 25 hrs

Code	Module	SSWL	USSWL	ECTS	Type	Pre-request

Semester 6 | 30 ECTS | 1 ECTS = 25 hrs

Code	Module	SSWL	USSWL	ECTS	Type	Pre-request

Semester 7 | 30 ECTS | 1 ECTS = 25 hrs

Code	Module	SSWL	USSWL	ECTS	Type	Pre-request

Semester 8 | 30 ECTS | 1 ECTS = 25 hrs

Code	Module	SSWL	USSWL	ECTS	Type	Pre-request

8. Contact

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