UNIVERSITY of TIKRIT
جامعة تكريت

Bachelor of Science in Mechanical Engineering

بكالوريوس هندسة - هندسة ميكانيكية

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1. Mission & Vision Statement

Vision Statement

Tikrit University's Mechanical Engineering Department aspires to be the preeminent public technological research university, committed to the pursuit of discovery, fostering creativity, and fostering innovation.

Our primary objective is to teach our graduates with a culture of curiosity, creativity, and unwavering confidence. As a result, they will possess the essential characteristics desired by global partners, who recognize our institution as the preeminent source of highly trained, talented, and entrepreneurial employees. We are committed to providing innovative research that stretches the boundaries of knowledge, as well as educational programs, products, and services that remain pertinent in a world that is constantly changing.

In addition, we aspire to be a center of technological innovation, continually generating innovative ideas and solutions to address the enormous challenges of our time. By actively pursuing collaboration with global partners, we strive to exchange knowledge, technology, and forward-thinking ideas that contribute to revolutionary advances.

Mission Statement

Our commitment resides in cultivating a rigorous, productive, and relevant academic learning environment within the mechanical engineering department. We continuously prioritize our primary missions of teaching, research, and service to provide students, faculty, and staff with a comprehensive educational experience.

Our primary objective is to provide students with a well-rounded education grounded in the fundamentals of mechanical engineering science and practice. We endeavor to cultivate their problem-solving skills in these disciplines so that they can creatively confront complex challenges. By imparting the necessary skills, we hope to cultivate competent, versatile, and productive professionals.

We place a strong emphasis on scholarship, advanced education, and the advancement of knowledge and skills in the conventional fields of mechanical engineering. In addition, we actively pursue interdisciplinary collaborations, crossing boundaries to establish ourselves as renowned pioneers in research, innovation, and discovery, garnering recognition from the local and international research and business communities.

We also uphold our commitment to serve our profession with distinction. This requires active engagement and participation in service activities within our professional communities at all levels, whether local, national, or international. In addition, we fulfill our responsibilities in campus and departmental governance, outreach initiatives, and service activities with diligence, ensuring that our contributions extend beyond academia.

2. Program Specification

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

Mechanical engineering is a wonderfully wide-ranging subject. The emphasis of the program is to create high quality mechanical engineers with global perspective and to inculcate in them professionalism and work ethics for building a stronger society. The degree is popular - for some it's the breadth of the subject that appeals, for others it's a path to specialization.

Level 1 exposes students to the fundamentals of Mechanical engineering, suitable for progression to all programs within the Mechanical program group. Program-specific core topics are covered at Level 2 preparing for research-led subject specialist modules at Levels 3 and 4.

At Levels 2, 3 and 4 students are free to choose more than half of their module credits with the proviso a range of modules are selected that train the student of the core subjects from strength of materials, through construction drawing, to populations to ensure the breadth of knowledge expected of a graduate with a civil engineering degree. This allows students to develop their

own wide-ranging interests in material science. Decisions on what to study are made with input from personal tutors.

The research ethos is developed and fostered from the start via practical's, which are either embedded in lecture modules or taught in dedicated practical modules, research seminars and tutorials. There is a compulsory field course in Level 1, which students must pass in order to progress into Level 2. At Level 4 all students carry out an independent research project, which may be a 2 credit for the first semester, and a 2 credit for second semester.

Industrial placements are also offered and individual needs are discussed with the appropriate tutor and accommodated wherever possible.

3. Program Goals

The mechanical engineering program aims are:

1. Prepare student to be successful as Mechanical Engineers;
2. Participate in service projects that emphasize the societal advantages of engineering concepts;
3. Be able to pursue graduate studies and dedicate to continuing professional growth and long-life learning through bridging engineering and non-engineering professions.

Student Learning Outcomes

The program strives to provide a personalized, inclusive, and world-class educational experience, in keeping with Tikrit University. It enables graduates to:

Professional: Attain a position solving real-world problems using mechanical engineering skills and principles developed while studying at Tikrit University;
Personal: Participate in ongoing personal and professional growth by actively seeking additional skills and experiences, for example engaging in continuing education and/or pursuing advanced degrees;
Societal: Contribute to society through creating collaborative and inclusive environments and using problem solving skills to make a more just world.

Outcome 1

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

Outcome 2

An ability to apply engineering design to produce solutions that meet specified needs with consideration of public health, safety, and welfare, as well as global, cultural, social, environmental, and economic factors.

Outcome 3

An ability to communicate effectively with a range of audiences oral and written.

Outcome 4

An ability to recognize ethical and professional responsibilities in engineering situations and make informed judgments, which must consider the impact of engineering solutions in global, economic, environmental, and societal contexts.

Outcome 5

An ability to function effectively on a team whose members together provide leadership, create a collaborative and inclusive environment, establish goals, plan tasks, and meet objectives.

Outcome 6

An ability to develop and conduct appropriate experimentation, analyze and interpret data, and use engineering judgment to draw conclusions.

Outcome 7

An ability to acquire and apply new knowledge as needed, using appropriate learning strategies.

4. Academic Staff

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5. Credits, Grading and GPA

Credits

Tikrit University 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 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	مقبول بقرار	(45-49)	More work required but credit awarded
	F – Fail	راسب	(0-44)	Considerable amount of work required
Note:				
NB 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 Grade Point Average (GPA)

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

GPA of a 4-year B.Sc. degrees:

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

6. Curriculum/Modules

Semester 1 | 30 ECTS

Code	Module	SSWL	USSWL	ECTS	Type	Pre-request
MATH-101	Calculus I	72	78	6	B	
ENG-106	Engineering Work shop	86	64	6	B	
ENG-104	Computer Science	11	64	3	S	
ENG-101	Engineering Drawing	58	93	6	B	
ENG-102	Engineering Mechanics - Statics	61	64	5	B	
ENG-108	Human Rights and Democracy	17	33	2	S	
ENG-113	Arabic	17	33	2	S	

Semester 2 | 30 ECTS

Code	Module	SSWL	USSWL	ECTS	Type	Pre-request
MATH-102	Calculus II	78	72	6	B	MATH-101
HUMN-102	English Language 1	33	17	2	S	
MECH-102	Mechanical Drawing	78	72	6	C	ENG-101
MECH-103	Manufacturing Processes 1	49	76	5	C	
MECH-101	Thermodynamics	64	86	5	B	
MECH-104	Electrical Engineering	64	61	6	S	

Semester 3 | 30 ECTS

Code	Module	SSWL	USSWL	ECTS	Type	Pre-request
MATH-201	Engineering Analysis	47	78	B	5	MATH-102
MECH-204	Metallurgical Engineering	61	64	C	5	

MECH-201	Fluid Mechanics 1	61	64	B	5	
MECH-202	Computer Programing	11	64	S	3	
MECH-203	Strength of Materials 1	61	64	C	5	ENG-102
MECH -205	Engineering Mechanics-Particle dynamics	62	63	B	5	ENG-102
ENG-114	The Crimes of Baath Regime in Iraq	17	33	S	2	

Semester 4 | 30 ECTS

Code	Module	SSWL	USSWL	ECTS	Type	Pre-request
HUMN-203	English Language 2	33	17	2	S	
MECH-206	Engineering Mechanics - rigid dynamics	63	87	6	C	MECH-205
MECH-207	Strength of Materials 2	64	86	6	C	MECH-203
MECH-208	Fluid Mechanics 2	64	86	6	C	MECH-201
MECH-209	Applied Thermodynamics	64	86	6	C	MECH-101
MECH-210	Computer Aided Drawing	64	36	4	C	ENG-101

Semester 5 | 30 ECTS

Code	Module	SSWL	USSWL	ECTS	Type	Pre-request
MATH-301	Numerical Analysis	48	52	4	B	MATH-201
MECH-301	Engineering Management and Ethics	48	52	4	S	
MECH-302	Theory of Machines	64	86	6	C	MECH-205
MECH-303	Heat Transfer conduction	64	86	6	C	
MECH-304	Gas Dynamic	64	61	5	C	MECH-101 MECH-201
MECH-305	Manufacturing Processes 2	64	61	5	C	MECH-103

Semester 6 | 30 ECTS

Code	Module	SSWL	USSWL	ECTS	Type	Pre-request
MATH-302	Statistics and probability	48	27	3	S	

MECH-306	Machine Design 1	64	86	6	C	MECH-207
MECH-307	Heat Transfer (convection & radiation)	64	86	6	C	
MECH-308	Internal Combustion Engines	64	86	6	C	MECH-209
MECH-309	Engineering Materials	48	77	5	C	MECH-204
MECH-310	Energy Conversion	48	52	4	C	MECH-101 MECH-201

Semester 7 | 30 ECTS

Code	Module	SSW L	USSWL	ECTS	Type	Pre-request
MECH-401	Engineering Graduation Project I	33	67	4	C	
MECH-402	Mechanical Design 2	64	86	6	C	MECH-306
MECH-403	Vibration 1	64	61	5	B	MECH-206
MECH-404	Classic Control System	64	61	5	B	MATH-301
MECH-405	Principles of Air Conditioning	64	61	5	C	MECH-101 MECH-201
MECH-406	Power Plant Engineering	63	62	5	C	MECH-209

Semester 8 | 30 ECTS

Code	Module	SSW L	USSWL	ECTS	Type	Pre-request
MECH-407	Engineering Graduation Project II	33	67	4	C	
MECH-408	Modern Control Theory	64	61	5	C	MECH-404
MECH-409	Heating, Ventilation and Air Conditioning (HVAC)	64	86	6	C	MECH-101 MECH-201
MECH-410	Vibration 2	64	61	5	C	MECH-403
MECH-411	Electrical Machines	64	61	5	S	
MECH-412	Industrial Engineering	63	62	5	C	

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