

UNIVERSITY of Thi-Qar

جامعة ذي قار



Bachelor of Science Honours (B.Sc. Honours) – Mechanical Engineering

بكالوريوس هندسة ميكانيكية



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1. **Mission & Vision Statement**

Vision Statement

Our vision for mechanical engineering is to be at the forefront of innovation, driving sustainable advancements that shape the future of our world. We strive to create transformative solutions that optimize efficiency, enhance quality of life, and promote a greener and more resilient planet. Through interdisciplinary collaboration and a commitment to excellence, we aim to revolutionize industries, propel technological breakthroughs, and empower future generations of engineers to solve complex global challenges. By leveraging cutting-edge technologies and embracing a holistic approach, we envision a future where mechanical engineering leads the way in creating a harmonious balance between human progress, environmental stewardship, and social well-being. Our vision is to be the driving force behind a sustainable and prosperous world, where mechanical engineering serves as a catalyst for positive change.

Mission Statement

Our mission is to provide exceptional education, research, and practical experiences in mechanical engineering to empower our students with the knowledge, skills, and ethical values necessary for successful careers and contributions to society. We are committed to fostering a dynamic learning environment that nurtures curiosity, critical thinking, and problem-solving abilities.

Through our rigorous curriculum, we aim to instill a strong foundation in core mechanical engineering principles and practices while promoting innovation, creativity, and entrepreneurship. We strive to equip our graduates with the ability to adapt to emerging technologies and to meet the evolving needs of the industry.

In collaboration with industry partners and research institutions, we actively engage in cutting-edge research and development activities that address significant societal challenges. We aspire to be a leading center for research excellence in mechanical engineering, contributing to advancements in energy, manufacturing, transportation, and sustainable design.

Furthermore, we are dedicated to serving the community through outreach programs, knowledge transfer initiatives, and collaboration with local industries. We aim to foster a spirit of social responsibility and leadership in our students, encouraging them to actively contribute to the development and progress of Iraq.

Overall, our mission is to cultivate competent, innovative, and ethical mechanical engineers who can make significant contributions to the advancement of technology, industry, and society, both locally and globally.

2. Program Specification

Programme code:	BSc-ME	ECTS	240
Duration:	4 levels, 8 Semesters	Method of Attendance:	Full Time

Mechanical engineering is an incredibly diverse and dynamic field, and at Thi-Qar University, we are proud to offer a comprehensive program that covers a wide range of subjects within this discipline. With a dedicated faculty and state-of-the-art facilities, we are well-equipped to provide a quality education in mechanical engineering.

Our program places a strong emphasis on understanding the intricacies of mechanical systems and their interrelationships. From the smallest components such as gears and mechanisms to the larger systems like engines and robotics, we explore the entirety of mechanical engineering. We believe in a holistic approach that considers the whole system and its integration with other disciplines.

The popularity of our program stems from its broad scope. Some students are drawn to the breadth of mechanical engineering, appreciating the opportunity to gain knowledge and skills in various areas. For others, it serves as a pathway to specialization, allowing them to focus on specific aspects of mechanical engineering that align with their interests and career goals. At the end of the first year, all students have the option to transfer to our specialized degrees in areas such as automotive engineering, energy systems, or manufacturing. Our program provides a solid foundation in the fundamental principles of mechanical engineering. Students learn about mechanics, thermodynamics, materials science, and other core subjects that form the backbone of the field. This knowledge is then applied to practical situations through laboratory sessions, design projects, and hands-on experiences.

Furthermore, we encourage our students to engage in interdisciplinary collaborations and explore the connections between mechanical engineering and other fields. By understanding the broader

context, such as the impact of mechanical systems on the environment, sustainability, and societal needs, our graduates are equipped to make meaningful contributions to their communities and address global challenges. At Thi-Qar University, we foster a supportive and engaging learning environment. Our faculty members are dedicated to providing quality education through interactive lectures, practical demonstrations, and research opportunities. We strive to create an atmosphere where students can develop critical thinking, problem-solving, and teamwork skills that are essential for success in the field of mechanical engineering.

Overall, our mechanical engineering program at Thi-Qar University aims to produce well-rounded graduates who possess a deep understanding of the subject, practical skills, and a passion for innovation. We are committed to preparing our students to become future leaders, capable of driving advancements, improving efficiency, and contributing to the development and progress of society through their knowledge and expertise in mechanical engineering. Mechanical Engineering at Thi-Qar University follows a structured program that progressively builds students' knowledge and skills in the field.

Level 1 serves as an introduction to the fundamentals of mechanical engineering, providing a strong foundation for students to progress to higher levels and specialize within the program. At Level 2, students delve into program-specific core topics that prepare them for research-led subject specialist modules at Levels 3 and 4. This progression ensures that graduates of the program have a comprehensive understanding of mechanical engineering, aligning with the University and College Mission statements to appreciate how research informs teaching.

The research ethos is instilled in students from the beginning through practicals, which are integrated within lecture modules or taught in dedicated practical modules. Research seminars and tutorials further foster a research-oriented mindset. Additionally, a compulsory field course is offered at Level 1, providing hands-on experience and knowledge that is essential for progression to Level 2. More field courses are available at Levels 2, 3, and 4, allowing students to explore specific areas of interest. At Level 4, all students undertake an independent research project, which can be a library or data analysis project, or a field or laboratory-based project, depending on their preferences and the available resources.

To provide continuous guidance and support, academic tutorials are held at Levels 1 and 2 with the same tutor, who also acts as the personal tutor for consistency. These tutorials include workshops that teach essential skills, such as library use and presentation skills. Students have opportunities to practice these skills in a subject-specific context through assessed exercises, such as essays and talks.

Thi-Qar University also offers international years and industrial placements to provide students with valuable experiences and exposure to different cultures and industry practices. Individual needs and preferences are discussed with the appropriate tutor to ensure that students can take advantage of these opportunities whenever possible.

Overall, the Mechanical Engineering program at Thi-Qar University combines a structured curriculum, research-oriented practical experiences, and personalized guidance to prepare students for successful careers in mechanical engineering. By fostering a strong research ethos, offering diverse module choices, and providing opportunities for international and industrial experiences, we strive to develop well-rounded graduates who are equipped to excel in their field and contribute to the advancement of mechanical engineering.

3. Program Goals

1. Graduation of qualified engineers in the specialization of mechanical engineering with the ability to distinguish, analyze, find appropriate solutions to the problems of application and deal with modern technologies with great skill.
2. The department aims to provide the country with mechanical engineers who contribute to the development of energy sectors, industrial sectors, projects management and solving the engineering problems associated with the development of industrial and technical fields.
3. Develop scientific research field and scientific and engineering expertise.
4. Developing the community through the training and rehabilitation of engineers and employees of the departments of the province through the establishment of training courses.

5. Contribute to the dissemination of scientific and engineering knowledge in the community with the establishment of seminars and scientific conferences that address the topics that concern the development of society.
6. Preparing qualified graduates to enroll in graduate programs within and outside the country and work in research centers.

4. Student Learning Outcomes

The program has graduate outcomes that prepare graduates to attain the program educational objectives few years after graduation. The graduate outcomes stated in this report were set according to the Iraqi Engineering Graduate's Attributes in terms of knowledge, skills, abilities and attitudes. Societal and environmental aspects have been also considered under the title of ethics. Students must be directed towards enhancing the quality of human life and maintaining sustainability principles, cultural heritage and humanitarian and patriotism values.

Outcome 1

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

Outcome 2

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

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 4

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

Outcome 5

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

An ability to perceive the continual necessity for professional knowledge growth and how to find, assess, assemble and apply it properly.

Outcome 7

An ability to work adequately on teams and to set up objectives, plan activities, meet due dates, and manage risk and uncertainty.

5. Academic Staff

Khudheyer S. Mushatet | Ph.D. in Mechanical Engineering | Prof.

Email: khudheyersalim@gmail.com

Mobile no.: 07801398170

Mushtaq Ismael Hasan | Ph.D. in Mechanical Engineering | Prof.

Email: mushtaq@utq.edu.iq

Mobile no.: 07809750758

Adnan A. Ugla | Ph.D. in Mechanical Engineering | Prof.

Email: adnanugla76@gmail.com

Mobile no.: 07836898790

Rafid M.Hannun | Ph.D. in Mechanical Engineering | Prof.

Email: Rafid-m@utq.edu.iq

Mobile no.: 009647826980584

Kadim Karim Mohsin | Ph.D. in Mechanical Engineering | Prof.

Email: dkadim2020@utq.edu.iq

Mobile no.: 07818392076

Mohammed Dakheel Salman | Ph.D. in Chemical Engineering | Prof.

Email: dr.mohzaidi@utq.edu.iq

Mobile no.: 07801755901

Haider J. Abid | Ph.D. in Mechanical Engineering | Prof.

Email: haider-jabaur-abid@utq.edu.iq

Mobile no.: 07707015858

Ahmed J. Shkarah | Ph.D. in Mechanical Engineering | Assistant Prof.

Email: shkarah@utq.edu.iq

Mobile no.: 07804232036

Mohsen H. Fagr | Ph.D. in Mechanical Engineering | Assistant Prof.

Email: mohsenfagr@utq.edu.iq

Mobile no.: 07830898310

Hussam A. Kalaf | Ph.D. in Mechanical Engineering | Assistant Prof.

Email:

Mobile no.:

Talib Ehraize Elaikh | MSc. in Mechanical Engineering | Assistant Prof.

Email: talib-h@utq.edu.iq

Mobile no.: 07807279183

Ghassan adnan abd | MSc. in Mechanical Engineering | Assistant Prof.

Email: ghassanadnan77@utq.edu

Mobile no.: 07810873638

Kamaal Sahib Mekki | Ph.D. in Mechanical Engineering | Lecturer.

Email: Kamal-s@utq.edu.iq

Mobile no.: 07807020100

Mustafa Mohammedali Mansour | Ph.D. in Mechanical Engineering | Lecturer.

Email: mustafa.muhammedali@utq.edu.iq

Mobile no.: 07802223311

Kadhim Mohammed Abed | Ph.D. in Mechanical Engineering | Lecturer.

Email: Kadhimalsahlani@utq.edu.iq

Mobile no.: 07744898807

Ammar Alwan | Ph.D. in Mechanical Engineering | Lecturer.

Email:

Mobile no.:

Ahmed A. Ouda | Ph.D. in Mechanical Engineering | Lecturer.

Email: ouda1978@gmail.com

Mobile no.: 07815234095

6. Credits, Grading and GPA

Credits

Mechanical Engineering 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:

$$\text{GPA} = [(1\text{st module score} \times \text{ECTS}) + (2\text{nd module score} \times \text{ECTS}) + \dots] / 240$$

7. Curriculum/Modules**Semester 1 | 30 ECTS**

Code	Module	SSWL	USSWL	ECTS	Type	Pre-request
ER 101	Calculus	113	62	7.00	B	
UR 101	Arabic language skills	25	25	2.00	S	
ME101	Principle of production processes	80	120	8.00	C	
ER 102	Basics of English language	25	25	2.00	S	
ER 103	Physics	33	67	4.00	B	
Me 102	Engineering Mechanics (Static)	78	97	7.00	C	

Semester 2 | 30 ECTS

Code	Module	SSWL	USSWL	ECTS	Type	Pre-request
Me 103	Engineering mechanics (Dynamics)	63	62	5.00	C	
ER 104	Engineering drawing	63	62	5.00	B	
ME104	Principles of Electrical Engineering	49	76	5.00	C	
ER 102	Principles of computer science	64	36	4.00	B	
ER 105	Chemistry	33	67	4.00	B	
ME105	Properties of Materials	49	76	5.00	C	
UR 103	Human right and democracy	25	25	2.00	S	

Semester 3 | 30 ECTS

Code	Module	SSWL	USSWL	ECTS	Type	Pre-request
ER 201	Applied Mathematics	123	52	7.00	B	ER 101
ME201	Strength of materials	79	71	6.00	C	

ME202	Thermodynamics	79	71	6.00	C	
ME203	Static Fluid	64	61	5.00	C	
UR 201	Human right and democracy	33	17	2.00	S	
ER 202	Computer programming	64	36	4.00	B	ER 102

Semester 4 | 30 ECTS

Code	Module	SSWL	USSWL	ECTS	Type	Pre-request
ME204	Stresses analysis	79	71	6.00	C	ME201
ME205	Thermodynamics applications	79	71	6.00	C	ME202
ME206	Mechanical Drawing	93	82	7.00	C	
ME207	Fluid Dynamics with applications	79	71	6.00	C	ME203
ME208	Engineering of Metallurgy	64	61	5.00	C	
						ME201

Semester 5 | 30 ECTS

Code	Module	SSWL	USSWL	ECTS	Type	Pre-request
ME301	Engineering and numerical Analyses	123	77	8.00	C	
ME302	Conduction Heat Transfer	64	36	4.00	C	
ME303	Manufacturing Processes	79	71	6.00	C	ME101
ME304	Fundamentals of Internal Combustion Engines	79	36	4.00	C	
ME305	Gas dynamics	64	36	4.00	C	
ME306	Theory of Machine	64	36	4.00	C	

Semester 6 | 30 ECTS

Code	Module	SSWL	USSWL	ECTS	Type	Pre-request
ME307	Convection Heat Transfer	64	61	5.00	C	ME302
ME308	Electrical Machinery	64	61	5.00	C	ME104
ME309	Computer Aided Design (CAD/CAM)	94	56	6.00	C	

ME312	Design of Internal Combustion Engines	94	56	6.00	C	ME304
ME310	Turbo machinery	79	71	6.00	C	
UR 301	English language skills	33	17	2.00	S	ME302

Semester 7 | 30 ECTS

Code	Module	SSWL	USSWL	ECTS	Type	Pre-request
ME401	Mechanical Vibrations	63	62	5.00	C	
ME402	Air Conditioning	64	61	5.00	C	
ME403	Engineering Materials	48	52	4.00	C	ME105
ME404	Machine Design	78	72	6.00	C	
ME405	Industrial Engineering and quality control	48	52	4.00	C	
ME406	Engineering project	48	102	6.00	C	

Semester 8 | 30 ECTS

Code	Module	SSWL	USSWL	ECTS	Type	Pre-request
ME407	Engineering project	48	102	6.00	C	ME406
ME408	Refrigeration	64	61	5.00	C	ME402
ME409	Design of Machine Systems	78	72	6.00	C	ME404
ME410	Power plants	93	82	7.00	C	
ME411	Control and measurements	64	36	4.00	C	
ER 401	Ethics	33	17	2.00	S	ME406

8. Contact

Program Manager:

Ahmed J. Shkarah | Ph.D. in Mechanical Engineering | Assistant Prof.

Email: Shkarah@utq.edu.iq

Mobile no.:07804232036



Program Coordinator:

Ehab Saadi Hussein | MSc. in Mechanical Engineering | Assistant Lecturer.

Email: Ehab_s_h@yahoo.com

Mobile no.: 07803369040