UNIVERSITY of Sumer
جامعة سومر

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

بكالوريوس هندسة ميكانيكية

Table of Contents | جدول المحتويات

١. 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.

٢. Program Specification

Programme code:	BSc-ME	**ECTS**	٢٤٠
Duration:	٤ levels, ٨ Semesters	**Method of Attendance:**	Full Time

Mechanical engineering is an incredibly diverse and dynamic field, and at Sumer 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 Sumer 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 Sumer 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 Sumer University follows a structured program that progressively builds students' knowledge and skills in the field.

Level ١ 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 ٢, students delve into program-specific core topics that prepare them for research-led subject specialist modules at Levels ٣ and ٤. 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 ١, providing hands-on experience and knowledge that is essential for progression to Level ٢. More field courses are available at Levels ٢, ٣, and ٤, allowing students to explore specific areas of interest. At Level ٤, 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 ١ and ٢ 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.

Sumer 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 Sumer 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.

٣. Program Goals

١. 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.

٢. 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.

٣. Develop scientific research field and scientific and engineering expertise.

٤. Developing the community through the training and rehabilitation of engineers and employees of the departments of the province through the establishment of training courses.

٥. 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.
٦. Preparing qualified graduates to enroll in graduate programs within and outside the country and work in research centers.

٤. 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 ١

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

Outcome ٢

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

Outcome ٣

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 ٤

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

Outcome ٥

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 ٦

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

Outcome ٧

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

٥. Academic Staff

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٦. 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 ٢٤٠, ٣٠ ECTS per semester. ١ ECTS is equivalent to ٢٥ 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 (٥٠ - ١٠٠)	A - Excellent	امتياز	٩٠ - ١٠٠	Outstanding Performance
	B - Very Good	جيد جدا	٨٠ - ٨٩	Above average with some errors
	C - Good	جيد	٧٠ - ٧٩	Sound work with notable errors
	D - Satisfactory	متوسط	٦٠ - ٦٩	Fair but with major shortcomings
	E - Sufficient	مقبول	٥٠ - ٥٩	Work meets minimum criteria
Fail Group (٠ – ٤٩)	FX - Fail	مقبول بقرار	(٤٥-٤٩)	More work required but credit awarded
	F - Fail	راسب	(٠-٤٤)	Considerable amount of work required
Note:				
NB Decimal places above or below ٠,٥ will be rounded to the higher or lower full mark (for example a mark of ٥٤,٥ will be rounded to ٥٥, whereas a mark of ٥٤,٤ will be rounded to ٥٤. 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)

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

GPA of a ٤-year B.Sc. degrees:

GPA = [(١st module score x ECTS) + (٢nd module score x ECTS) + ...] / ٢٤٠

٧. Curriculum/Modules

Semester 1 | 30 ECTS

Code	Module	SSWL	USSWL	ECTS	Type	Pre-request
ER 101	**Calculus**	123	52	7.00	**B**	
UR 101	**Arabic language skills**	33	17	2.00	**S**	
ME101	**Principle of production processes**	94	81	7.00	**C**	
ER 102	**Principles of computer science**	64	36	4.00	**B**	
ER 103	**Physics**	33	67	4.00	**B**	
Me 102	**Engineering Mechanics (Static)**	78	72	6.00	**B**	

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	108	67	7.00	B	
ME104	Principles of Electrical Engineering	64	86	6.00	C	
UR 102	Basics of english language	33	17	2.00	S	
ER 105	Chemistry	33	67	4.00	B	
ME105	Properties of Materials	64	86	6.00	C	

Semester 3 | 30 ECTS

Code	Module	SSWL	USSWL	ECTS	Type	Pre-request
ER 201	Applied Mathematics	123	52	7.00	B	ER ١٠١
ME201	Strength of materials	79	71	6.00	C	
ME202	Thermodynamics	79	71	6.00	C	

Degree Program Catalogue

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 ١٠٢

Semester 4 | 30 ECTS

Code	Module	SSWL	USSWL	ECTS	Type	Pre-request
ME204	**Stresses analysis**	79	71	6.00	**C**	ME٢٠١
ME205	**Thermodynamics applications**	79	71	6.00	**C**	ME٢٠٢
ME206	**Mechanical Drawing**	93	82	7.00	**C**	
ME207	**Fluid Dynamics with applications**	79	71	6.00	**C**	ME٢٠٣
ME208	**Engineering of Metallurgy**	64	61	5.00	**C**	
						ME٢٠١

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