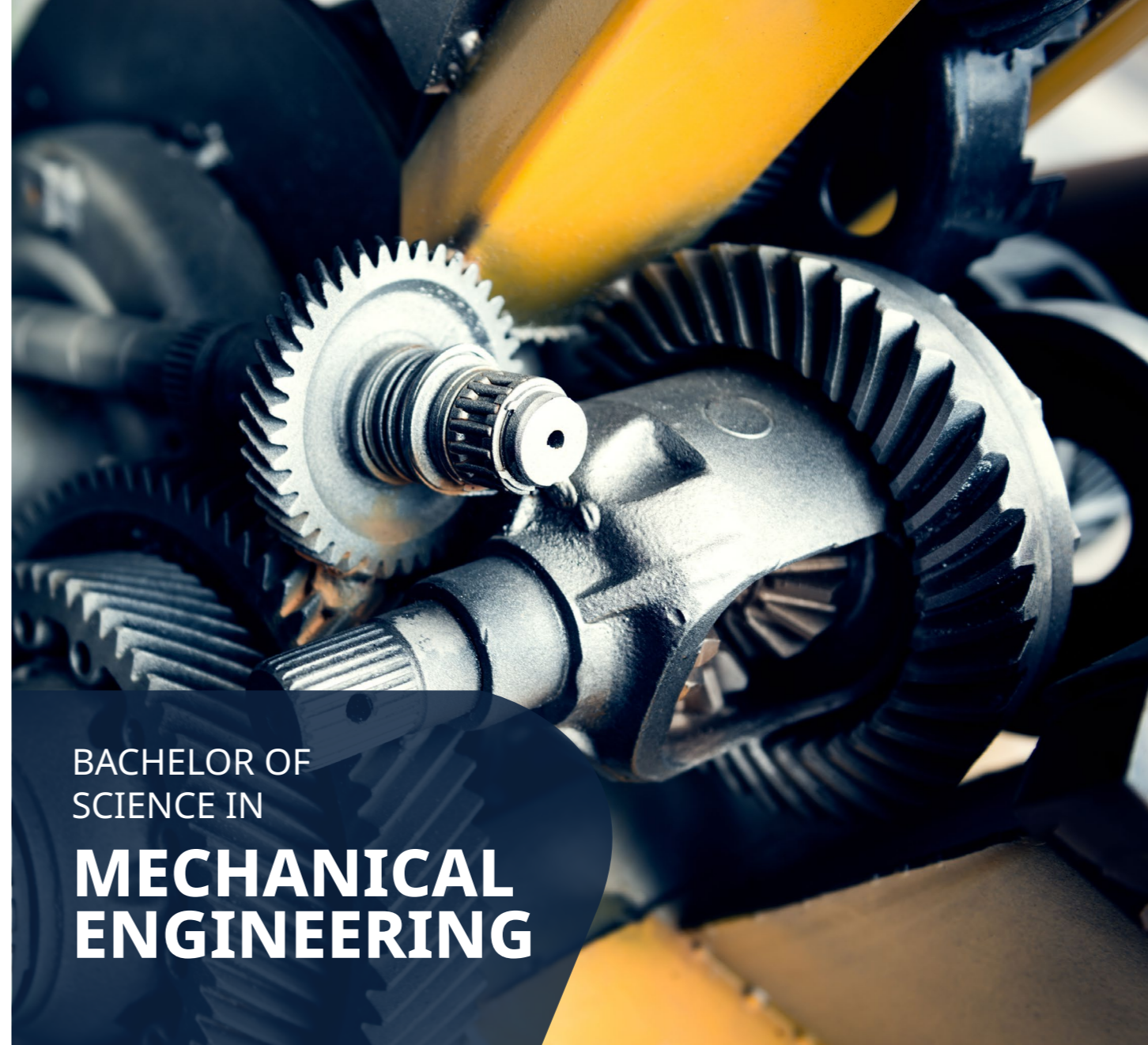


# Curriculum

COURSE CODE	COURSE TITLE	COURSE CODE	COURSE TITLE	COURSE CODE	COURSE TITLE
<b>General Education Requirements: 21 Credit Hours</b>					
ARL 101(A)	Communication Skills in Arabic I	ENG 200	English II	FWS 310	Fundamentals of Innovation & Entrepreneurship
ISL 100	Islamic Culture	MTT 102	Calculus 1	FWS 205	UAE and GCC Society
STT 100	General Statistics				
<b>Degree Requirements: 38 Credit Hours</b>					
MTT 200	Calculus II	MTT 201	Calculus III	MTT 204	Introduction to Linear Algebra
MTT 205	Differential Equations	PHY 102	Physics and Engineering Applications I	PHY 102 L	Physics and Engineering Applications I Lab
PHY 201	Physics and Engineering Applications II	PHY 201 L	Physics and Engineering Applications II Lab	CHE 205	General Chemistry I
CHE 201L	Chemistry Lab	MEC 130	Introduction to Mechanical & Industrial Engineering	CSC 201	Structured Programming
COE 102	Introductory Big Data Analytics	COE 101	Introductory Artificial Intelligence	COE 202	Engineering Ethics, Economy and Law
<b>Major Requirements: 67 Credit Hours</b>					
CIV 201	Statics	MEC 300	Materials Science	MEC 301	Manufacturing Processes
MEC 302	Mechanics of Materials	MEC 310	Dynamics	MEC 320	Thermodynamics I
MEC 321	Thermodynamics II	MEC 330	Computer Aided Drawing	MEC 340	Mechanical Engineering design
MEC 350	Fluid Mechanics	MEC 351	Fluid Mechanics Lab	MEC 390	Electromechanical Devices
MEC 410	Control Systems	MEC 411	Kinematics and Dynamics of Machinery	MEC 412	Dynamic and Control Systems lab
MEC 420	Heat Transfer	MEC 421	Thermal Engineering Lab	MEC 430	Machine Design
MEC 332	Design and manufacturing lab	MEC 398	Internship 1	MEC 399	Internship 2
MEC 463	Turbomachinery	MEC 465	Numerical & Finite Element Simulation of Eng. Problems	MEC 480	Mechanical Vibration
MEC 482	Introduction to Mechatronics	MEC 482	Introduction to Mechatronics	MEC 498	Capstone I
MEC 499	Capstone II				
<b>Major and Open Electives: 15 Credit Hours</b>					
ME1	Major Elective I	ME2	Major Elective II	ME 3	Major Elective III
OE1	Open Elective I	OE 2	Open Elective II		
<b>Mechanical Engineering Electives/ Themes*</b>					
<b>Energy Systems</b>					
MEC 460	Air Conditioning Systems	MEC 461	Internal Combustion Engines	MEC 462	Energy Management
MEC 464	Power Plants				
<b>Materials and Manufacturing</b>					
MEC 431	Computer Aided Machine Design	MEC 470	Manufacturing of Composite Materials	MEC 471	Introduction to Computer Aided Manufacturing
MEC 472	Mechanics of Materials II	MEC 473	Non-Conventional Machining	MEC 474	Fracture & Fatigue Control in Design
<b>Mechatronics</b>					
MEC 481	Introduction to Robotics	MEC 483	Mechatronics System Design	MEC 450	Hydraulic & Pneumatic systems
MEC 451	PLC and Industrial Automation	MEC 484	Artificial Intelligence in Mechatronics	MEC 485	DCS and SCADA
MEC486	Smart Material Systems and MEMS				
<b>Aerospace</b>					
MEC 490	Compressible Fluid Mechanics	MEC 491	Aerodynamics	MEC 492	Aerospace Propulsion
MEC 493	Aerospace Structures				
<b>Metallurgy</b>					
MEC 475	Microstructure Engineering	MEC 477	Corrosion & Degradation of Metals	MEC 474	Fracture and Fatigue Control in Design
MEC 476	Heat Treatment & Surface Hardening	MEC 478	Phase Transformation		

\*At least 2 of the 4 elective courses must be taken from one of the Mechanical Engineering Elective themes as shown in the table below and the rest are free electives to be taken from any University approved courses.

\*To satisfy the requirements of a Theme, at least two courses must be taken from the same theme.

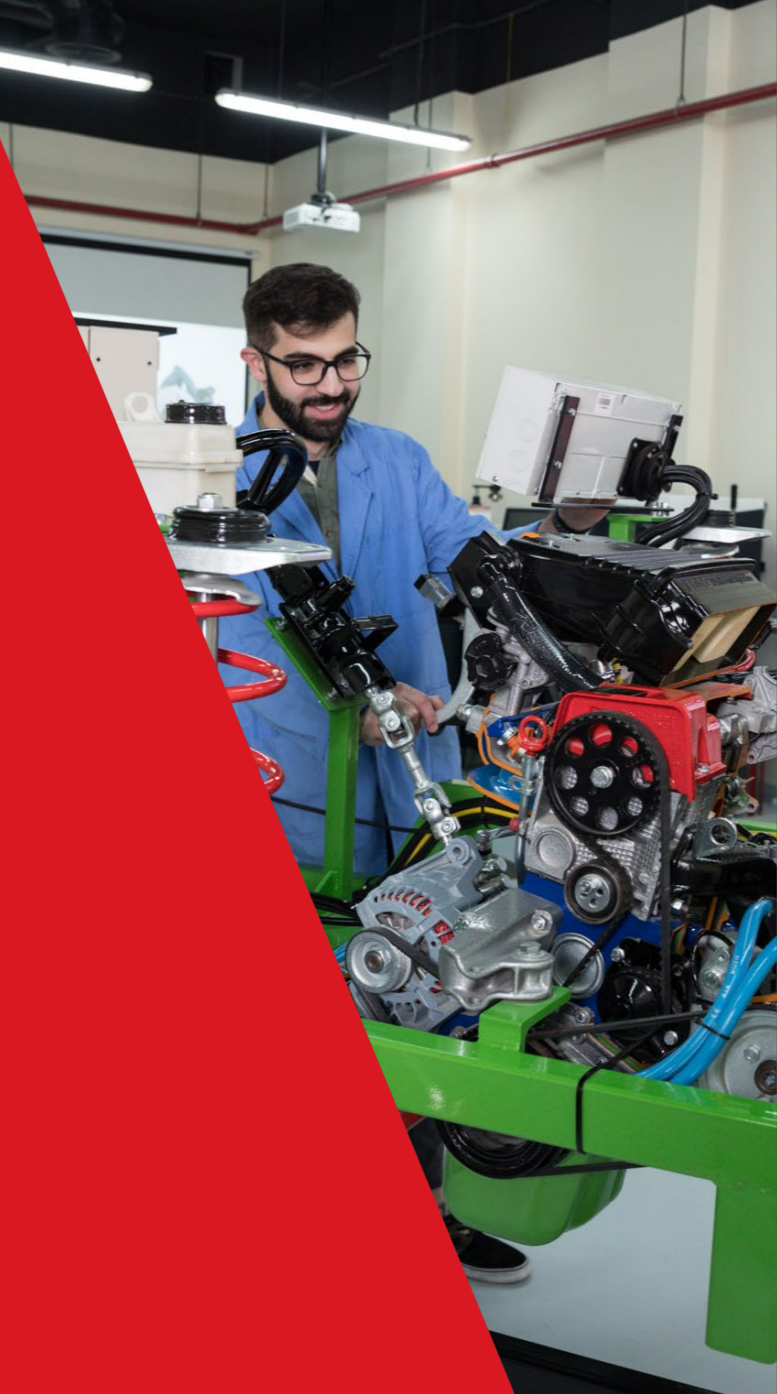


## BACHELOR OF SCIENCE IN MECHANICAL ENGINEERING

## Program Overview

The Bachelor of Science in Mechanical Engineering program is accredited by the Engineering Accreditation Commission of ABET, as well as the UAE Commission for Academic Accreditation. Mechanical Engineering is a diverse field of engineering, in fact, it is the broadest of all engineering disciplines. Mechanical engineering is the branch of engineering that deals with the design, construction and operation of machinery and systems. It is an exciting field that encompasses all engineering aspects of almost everything that moves in the universe. Mechanical engineers are trained to help address and solve some of the world's most pressing issues and problems such as energy, environment, robotics and advanced manufacturing, biomechanics, transportation on the ground, in the air, in and under water and in outer space - just to name a few from a long list of challenges facing our society. Cars and vehicles that we drive or ride on, airplanes that we fly in, ships, hovercrafts and submarines that we travel in and spaceships that take us to outer space and other planets are all mostly designed by Mechanical Engineers. However, that is just a subset of everything that Mechanical Engineers create. The Mechanical Engineering program at ADU has been developed according to the international standards. This ensures that graduates of the program will be uniquely qualified to design, analyze, and test wide-ranging solutions for state-of-the-art mechanical systems.

The program provides Mechanical Engineering students with the opportunity to learn through a combination of theory and lab work. This mix of theory and practical application allows students to think through and apply their ideas in a variety of real-life situations. Students also learn to diagnose problems and develop a variety of solutions. The program curriculum has been designed to provide a balanced education in the design, analysis and hands-on experience. It is a challenging four-year curriculum that integrates courses in mathematics, physics and mechanical engineering to produce a professional engineer capable of designing and analyzing all aspects of modern mechanical systems. The program emphasizes a number of areas of technology including aerospace, thermal power, materials and manufacturing and mechatronics.



## Student's Testimonial

**Abid Abdul Azeez - Alumnus, BSc. Mechanical Engineering**

I was privileged to be taught by an elite faculty, providing incredible teaching efforts and support. Without this continuous support and worldclass teaching, I wouldn't have been able to accomplish the achievements I've always dreamed of. Also, I had the chance to experience the fun side of Mechanical Engineering by participating in competitions such as TAQA's first GCC Hybrid Electric Car Challenge and Undergraduate student research competition. The highly advanced Mechanical engineering workshop helps students to gain hands-on experience and also excel in their research. He is studying PhD and working as doctoral researcher at Tampere University, Finland.



## Career Prospects

Graduates of the Mechanical Engineering program have great job opportunities in the following places:

- Oil and gas industries
- Power generation and distribution industries
- Control, simulation and robotics industries
- Automotive industries
- Aerospace industries
- Manufacturing industries

