كلية الهندسة والحوسبة المتقدمة
College of Engineering and Advanced Computing

جامعة الفيصل
Alfaisal University

Bachelor of Mechanical Engineering

Professional Occupations

- Design Engineer
- Production Engineer
- Manufacturing Engineer
- Fabrication Engineer
- Research & Development Engineer
- Tooling Engineer
- Maintenance Engineer
- Process Engineer
- Quality Engineer
- Mechanical Engineer
- Power Engineer
- Consulting Engineer
- Test Engineer
- Sales Engineer
- Analytical Engineer

Program Overview

Mechanical Engineering is concerned with the design, development, manufacturing and maintenance of machines/mechanical parts and components, based on the principles of engineering, physics and material science. It is one of the oldest and the broadest of the engineering disciplines. Subjects in Mechanical Engineering overlap with various other engineering branches such as aerospace, architecture, biomedical, civil, chemical, computer, electrical, electronics and communications, industrial, instrumentation, materials, metallurgical, nuclear and petroleum engineering to varying amounts. The Mechanical Engineering field requires an understanding of core concepts including mechanics, kinematics, thermodynamics, material science, structural analysis and power. Mechanical engineers use these core principles along with tools like computer-aided engineering and product life cycle management to design and analyse manufacturing plants, industrial equipment and machinery, heating and cooling systems, transport systems, aircraft, watercraft, robotics, medical devices, military equipment and others.

Competitive Edge

The Mechanical Engineering program at Alfaisal University is concerned with up to-date technology, applications, and current industrial needs. The program focuses on producing high-quality graduates and prepare them for challenges in the industry. The ME program focuses on three major disciplines; Thermalfluids , Manufacturing, and Design. These three disciplines (based on the principles of engineering, physics and material science) cover energy conversion, power plant technology, air conditioning, renewable energy systems, energy efficiency, development and manufacturing of machines and components, and materials. Our faculty hold degrees from world-renowned western universities as well as a high-research
output in both new and established disciplines. Furthermore, small class sizes provide students with the opportunity for individualized learning.

ABET Engineering Accreditation Commission

ABET Accredited Program

Track & Minor

Optional track is available for students in the area of:

- **Digital Design & Manufacturing Track**

Optional minor is available for students in the area of:

- **Industrial Engineering Minor**

Students will be able to tailor their senior-level technical electives to study new emerging technologies in these areas. In addition, students have the option to take a minor in Industrial Engineering by taking additional 15 CRHs on top of current study plan. More details are available on the department's website.

Collaborators

BOEING · Digital Government Authority · KACST · King Abdullah University of Science and Technology · BAE SYSTEMS · Honeywell · THALES · Saudi Electricity Company · AGH · Massachusetts Institute of Technology · Ministry of Industry & Mineral Resources · stc · ABB · Osaka University · Ministry of Communications and Information Technology · SCE · United Nations Global Compact · Qiddiya · SIEMENS · IEEE · SAMI · Tatweer · The Sandbox · General Authority for Military Industries

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Smart, desirable, feasible, marketable innovation to make the world better is what we do. IT's WHAT YOU'LL DO.

Alfaisal University

Bachelor of Mechanical Engineering | Study Plan Summary | Effective Fall 2024

4-Year Curriculum: 134 Credit Hours Total

Freshman Year - Fall Semester		
Course Code	Course-Title	CRHs
CHM 102	Introduction to Chemistry	3
CHM 102 L	Introduction to Chemistry Lab	1
MAT 101	Calculus I	3
PHU 103	Mechanics and Waves for Engineers	3
PHU 103 L	Mechanics and Waves for Engineers Lab	1
ENG 101	University Writing	3
ARB 101	Arabic Language and Literature I	2
	Total	**16**

Freshman Year - Spring Semester		
Course Code	Course-Title	CRHs
SE 100	Programming for Engineers	3
SE 100 L	Programming for Engineers Lab	1
ME 201	Material Science and Engineering	3
ME 201 L	Material Science and Engineering Lab	1
MAT 112	Calculus II	3
PHU 124	Electromagnetism and Optics for Engineers	3
PHU 124 L	Electromagnetism and Optics for Engineers Lab	1
ISL 101	Islamic Studies I	2
	Total	**17**

Sophomore Year - Fall Semester		
Course Code	Course-Title	CRHs
ME 203	Applied Mechanics I: Statics	3
ME 205	Introduction to Computer Aided Design	3
ME 305	Manufacturing and Workshop Training	3
ME 305 L	Manufacturing and Workshop Training Lab	1
MAT 211	Calculus III	3
MAT 212	Linear Algebra	3
MAT 213	Differential Equations	3
	Total	**19**

Sophomore Year - Spring Semester		
Course Code	Course-Title	CRHs
ME 208	Mechanics of Materials I	3
ME 208 L	Mechanics of Materials I Lab	1
ME 216	Fluid Mechanics	3
ME 216 L	Fluid Mechanics Lab	1
EE 207	Foundations of Electrical Engineering	3
EE 207 L	Foundations of Electrical Engineering Lab	1
MAT 224	Numerical Methods	3
STA 212	Probability and Statistics for Engineers	3
	Total	**18**

Junior Year - Fall Semester		
Course Code	Course-Title	CRHs
ME 311	Applied Mechanics II: Dynamics	3
ME 312	Mechanics of Materials II	3
ME 312 L	Mechanics of Materials II Lab	1
ME 315	Machine Design	3
ME 316	Engineering Thermodynamics	3
ENG 222	Technical Writing	3
	Total	**16**

Junior Year - Spring Semester		
Course Code	Course-Title	CRHs
ME 306	Instrumentation and Control Engineering	3
ME 306 L	Instrumentation and Control Engineering Lab	1
ME 308	Advanced Manufacturing Processes	3
ME 308 L	Advanced Manufacturing Processes Lab	1
ME 310	Mechanical Component Design	3
ME 310 L	Mechanical Component Design Lab	1
ME 317	Heat and Mass Transfer	3
ME 317 L	Heat and Mass Transfer Lab	1
IE 315	Engineering Economy and Cost Analysis	3
	Total	**19**

Junior Year - Summer Semester		
Course Code	Course-Title	CRHs
ME 390	Mechancial Engineering Summer Internshipa	0
	Total	**0**

Senior Year - Fall Semester		
Course Code	Course-Title	CRHs
ME 403	Finite Element Methods	3
ME 403 L	Finite Element Methods Lab	1
ME 407	Heating, Ventilation, and Air-Conditioning	3
ME 4 _ _	Technical Elective	3
ME 495	Mechanical Engineering Capstone Project I	3
ENG _ _ _	English Elective	3
	Total	**16**

Senior Year - Spring Semester		
Course Code	Course-Title	CRHs
ME 496	Mechanical Engineering Capstone Project II	3
ME 4 _ _	Technical Elective	3
ME 4 _ _	Technical Elective	3
_ _ _ _ _ _	General Education Elective I	2
_ _ _ _ _ _	General Education Elective II	2
	Total	**13**

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