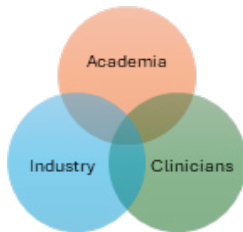# Bachelor of
Biomedical Engineering

Professional Occupations
1. Biomedical Engineer
2. Clinical Engineer
3. Research Scientist
4. Healthcare Technology Manager

Program Overview

The goal of the Biomedical Engineering program is to integrate academia, clinical medicine, and the biomedical industry into the

biomedical engineering education and research program. This provides structural support to the clinical rotations and senior design projects for the bachelor›s program.

The new four-year Biomedical Engineering program at Alfaisal University offers students a comprehensive and cutting-edge curriculum that combines principles of engineering, biology, and medicine. This program is designed to equip students with the knowledge and skills necessary to contribute to the advancement of healthcare technology and improve patient care outcomes.

Throughout the program, students will delve into a wide range of subjects, including biomedical instrumentation, medical imaging, biomaterials, biomechanics, and biomedical signal processing. They will also gain a deep understanding of anatomy, physiology, and biomedical ethics, enabling them to approach their work with a holistic perspective.

Hands-on experience is a crucial component of the program, and students will have numerous opportunities to engage in laboratory experiments, design projects, and clinical internships. These practical experiences will enhance their problem-solving abilities, critical thinking skills, and teamwork capabilities.

Upon completing the program, graduates will be well-prepared to pursue careers in various sectors, including medical device manufacturing, healthcare systems, research and development, and biomedical consulting. They will also have a strong foundation for advanced studies in biomedical engineering or related disciplines.

Tracks

The students in this program will take a set of core courses in from science, medicine, and engineering. Students will finish out their courses through a choice of one of the following specializations areas:

- **Medical Imaging**
- **Medical Devices**
- **Artificial Intelligence (AI) in Healthcare**

These specialty areas combined with core foundation courses will give students a solid foundational background in biomedical engineering with specific depth areas useful to industry, innovation, and postgraduate studies.

Local Tel: 920 000 570
Int'l Tel: +966 11 215 7777

coe@alfaisal.edu

twitter.com/alfaisaluniv

www.youtube.com/user/alfaisaluniv

http://coe.alfaisal.edu/departments/ie_home

Alfaisal University
Bachelor of Biomedical Engineering Perspective | Study Plan Summary | Effective Fall 2024

4-Year Curriculum: 138 Credit Hours Total

Freshman Year - Fall Semester

Course Code	Course-Title	CRHs
SE 100	Programming for Engineers	3
SE 100 L	Programming for Engineers Lab	1
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
	Total	**18**

Freshman Year - Spring Semester

Course Code	Course-Title	CRHs
ME 201	Materials Science and Engineering	3
ME 201 L	Materials Science and Engineering Lab	1
MAT 112	Calculus II	3
PHU 124	Electromagnetism and Optics for Engineers	3
PHU 124 L	Electromagnetis and Optics for Engineers Lab	1
BME 100	Introduction to Biomedical Engi-neering	3
BME 101	Introduction to Biomedical Engi-neering Lab	1
ISL 101	Islamic Studies I	2
	Total	**17**

Sophomore Year - Fall Semester

Course Code	Course-Title	CRHs
BME 201	Bio Fluid Dynamics	3
EE 207	Foundations of Electrical Engineering	3
EE 207 L	Foundations of Electrical Engineering Lab	1
COM 200	Human Structure & Functions	4
MAT 211	Calculus III	3
MAT 212	Linear Algebra	3
	Total	**17**

Sophomore Year - Spring Semester

Course Code	Course-Title	CRHs
BME 202	Biomechanics	3
EE 209	Applied Electromagnetics	3
STA 212	Probability and Statistics for Bio-medical Engineers	3
MAT 213	Differential Equations	3
COM 201	Principles of Disease	3
ARB 101	Arabic Language and Literature I	2
	Total	**17**

Junior Year - Fall Semester

Course Code	Course-Title	CRHs
BME 301	Biomedical Signals and Systems	3
BME 303	Biomedical Electronics	3
BME 303 L	Biomedical Electronics Lab	1
BME 305	Biomedical Imaging Systems	3
BME 305 L	Biomedical Imaging Systems Lab	1
BME 307	Information Technology for Bio-medical Engineers	3
ENG 222	Technical Writing	3
	Total	**17**

Junior Year - Spring Semester

Course Code	Course-Title	CRHs
BME 302	Biomedical Digital Signals Processing	3
BME 304	Biomedical Image Processing	4
BME 306	Biomedical Imaging Systems II	4
BME 308	Biomedical Instrumentation I	3
BME 308 L	Biomedical Instrumentation Lab I	1
BME 310	Healthcare Management System	3
	Total	**18**

Junior Year - Summer Semester

Course Code	Course-Title	CRHs
BME 390	Biomedical Engineering Summer Internship	0
	Total	**0**

Senior Year - Fall Semester

Course Code	Course-Title	CRHs
BME 4 _ _	Technical Elective I	3
BME 4 _ _	Technical Elective II	3
BME 4 _ _	Technical Elective III	3
BME 4 _ _	Technical Elective IV	3
BME 495	Capstone Project I	3
_ _ _ _ _ _	General Education Elective I	2
	Total	**17**

Senior Year - Spring Semester

Course Code	Course-Title	CRHs
BME 460	Bioinformatics	3
BME 4 _ _	Technical Elective V	3
BME 4 _ _	Technical Elective VI	3
BME 4 _ _	Technical Elective VII	3
BME 495	Capstone Project II	3
_ _ _ _ _ _	General Education Elective II	2
	Total	**17**

Taming technology and disseminating knowledge is what we do. Engineering innovation to make the world better IS WHAT YOU'LL DO.