

Your Career in Biomedical Engineering

A series of horizontal lines in shades of teal and light blue, with varying lengths and thicknesses, creating a modern, layered effect.

**Center of Biomedical Engineering
Addis Ababa Institute of Technology, AAU**

March 17, 2023

Agenda

- 1) What is Biomedical Engineering?
- 2) The Biomedical Engineering Program
- 3) Available Resources

1. What is Biomedical Engineering?

- ❖ Application of engineering principles and technological advances to solve problems in medicine and biology and improve healthcare service.

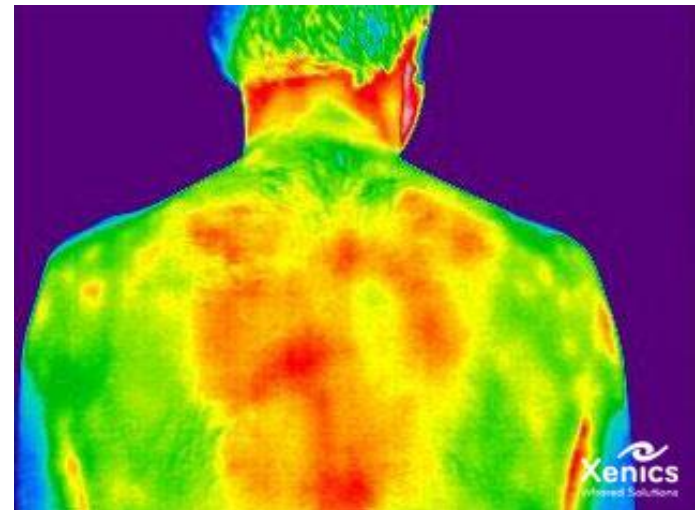
Relevant Focus Areas in Biomedical Engineering

bio-instrumentation



Relevant Focus Areas in Biomedical Engineering

biomedical imaging



Relevant Focus Areas in Biomedical Engineering

biomedical rehabilitation



Relevant Focus Areas in Biomedical Engineering

biomedical infomatics



2. The Biomedical Engineering Program

- ❖ Currently a harmonized curriculum composed of Biomedical Science, Biomedical Engineering, Electrical Engineering, and Mechanical Engineering)
- ❖ 3½ year duration;
- ❖ Requirement: Successful completion of the Pre-Engineering Program

Minimum Requirements to Succeed in BME

- ❖ Should have interest in mathematics, life sciences, and engineering
- ❖ Should be innovative and practical with dedication to focus on local problems

The BME Program Composition

- ❖ **Basic life sciences** (biology, biochemistry, human anatomy and physiology, biophysics, biomaterials, biomechanics, etc)
- ❖ **Electrical and computer engineering** (electrical and electronic devices, analog and digital electronics, control principles, software applications, etc)
- ❖ **Core biomedical engineering** (bio-instrumentation and signal processing, medical imaging and image processing, rehabilitation, biomedical design, etc)

Job Opportunities

- ❖ Clinical Engineer in healthcare institutions (health centers, clinics, hospitals)
- ❖ Research and Development (higher education institutions, industries, manufacturing companies)
- ❖ biomedical equipment import and sales companies
- ❖ Policy advising for Government

On the job you may

- ❖ Design and construct medical devices such as cardiac pacemakers, defibrillators, artificial kidneys, blood oxygenators, hearts, blood vessels, joints, arms, and legs
- ❖ Design computer systems to monitor patients during surgery or in intensive care
- ❖ Design and Build sensors to measure blood pressure and blood chemistry, such as potassium, sodium, O₂, CO₂, and pH

On the job you may ...

- ❖ Design instruments and devices for therapeutic uses, such as a laser system for eye surgery or a device for automated delivery of insulin
- ❖ Construct and implement mathematical/computer models of physiological systems

3. Available Resources: Space

- ❖ Offices
- ❖ Classrooms (Mostly Shared)
- ❖ Laboratories (Dedicated + Shared)

Available Resources: **Laboratory Facilities**

- ❖ Bio-instrumentation Laboratory
- ❖ Bio-imaging Laboratory
- ❖ Bio-Computing Laboratory
- ❖ Design Studio

Resources: Staff Profile - By Qualification

- ❖ PhD Holders (6)
- ❖ MSc Holders (14)
- ❖ BSc Holders (4)
- ❖ Diploma Holders (3)

Resources: Staff Profile - By Research Area

- ❖ Biomedical Instrumentation (8),
- ❖ Biomedical Imaging (8),
- ❖ Biomedical Rehabilitation (6),
- ❖ Biomedical Informatics (5),



Thank you