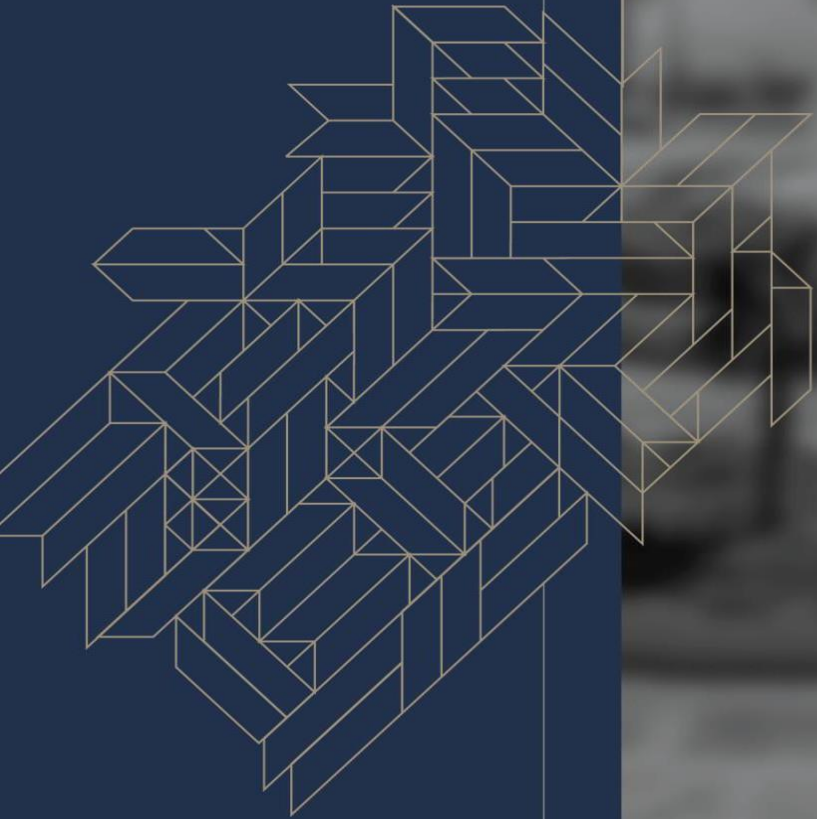




جامعة الإمام عبد الرحمن بن فيصل
IMAM ABDULRAHMAN BIN FAISAL UNIVERSITY



SDG 17.4.2
Dedicated
Sustainability
Courses
2022-2023



Table of Contents

1.	Biomedical Engineering Department.....	3
2.	Civil & Construction Engineering Department.....	5
3.	Environmental Engineering Department.....	6
4.	Mechanical and Energy Engineering Department.....	7
5.	Transportation and Traffic Engineering Department.....	8
6.	Energy Efficiency for Sustainable Development.....	9

1. Biomedical Engineering Department

The Biomedical Engineering Department (BMED) was established with the approval of His Majesty the Custodian of the Two Holy Mosques (Number 1086/MB date 26-11-1428H) in 2012/2013.

Despite its newness at the university level and the kingdom, it has achieved distinction in its programs according to the Kingdom's Vision 2030.

The BMED is proud of its professors, students and graduates and their achievements, especially recently. It has several research and graduation projects participating in regional and international initiatives. Some of them have begun to enter the market as products that meet the real needs of a citizen, which in turn has a positive impact on the economy and society.

It works to graduate distinct generations with high scientific competence and skills to meet the current and future labor market demands.

BMED graduates work in many governmental and private institutions, such as hospitals, medical companies, educational institutes, and research centers.

The department is looking forward to further achievements to keep pace with the evolution of biomedical engineering in its diverse areas.

Students Outcomes (SOs) (ABET 1-7)

1. An ability to identify, formulate, and solve complex engineering problems by applying principles of engineering, science, and mathematics.
2. An ability to apply engineering design to produce solutions that meet specified needs with consideration of public health, safety, and welfare, as well as global, cultural, **social, environmental, and economic factors.**
3. An ability to communicate effectively with a range of audiences.
4. An ability to recognize ethical and professional responsibilities in engineering situations and make informed judgments, which must consider the impact of engineering solutions in **global, economic, environmental, and societal contexts.**
5. An ability to function effectively on a team whose members together provide leadership, create a collaborative and inclusive environment, establish goals, plan tasks, and meet objectives.
6. An ability to develop and conduct appropriate experimentation, analyze, and interpret data, and use engineering judgment to draw conclusions.



7. An ability to acquire and apply new knowledge as needed, using appropriate learning strategies.

<https://www.iau.edu.sa/en/colleges/college-of-engineering/departments/biomedical-engineering-department>

2. Civil & Construction Engineering Department

The Civil and Construction Engineering Department, established in 2009, has the distinction of being the first in the Kingdom of Saudi Arabia and the region to offer the degree of Bachelor of Science in Construction Engineering. The program is geared towards preparing its graduates with the necessary and state-of-the-art knowledge, skills, and competencies to take up new challenges as the **Kingdom embarks upon sustainable construction development and practices**. The construction industry is one of the prominent sectors that Vision 2030 of the Kingdom looking forward to for economic diversification in addition to being associated with achieving other objectives like fostering investment opportunities, advancing various industries, urbanization to meet the needs of escalating population beside attaining the **sustainable development goals (SDGs) and net-zero emission** targets set by the global community.

The B.Sc. in Construction Engineering Program is designed in such a way that it integrates fundamental knowledge, skills, and competencies in all the core areas of construction engineering and is demonstrated by highly qualified and distinguished instructors.

<https://www.iau.edu.sa/en/colleges/college-of-engineering/departments/civil-construction-engineering-department>



3. Environmental Engineering Department

The department of environmental engineering is considered as a pioneer since it is the first department to offer the bachelor's degree environmental engineering in the Kingdom of Saudi Arabia. It concentrates on application of fundamentals of sciences and engineering towards improvement of the environment (air, water, and earth resources) for provision of potable and **palatable water, clean air, and useful land** to be used by human and other living organisms and for treatment of polluted areas. Environmental engineering incorporates water and **air quality management, abatement of pollution, reuse and recycling, hazardous solid waste disposal**, general health issues and knowledge of related law to environmental engineering.

Environmental engineering also involves environmental impact assessment for proposed projects in building and industry. An environmental engineer is concerned with environmental behavior and hazardous solid waste management in the form of studies to evaluate these hazards, offering advice regarding treatment and enclosure, and establishing systems to prevent accidents. Other concerns of the environmental engineer are design of municipal and **industrial water supply, wastewater treatment** systems. This is in addition to the responsibilities all over the globe with environmental issues such as: effects of trans boundary pollutants, ozone layer depletion, water pollution, air pollution from vehicles and industrial sources.

<https://www.iau.edu.sa/en/colleges/college-of-engineering/departments/environmental-engineering-department>

4. Mechanical and Energy Engineering Department

The Mechanical and Energy Engineering Department has the distinction of being the first in the Kingdom of Saudi Arabia and the region to offer the degree of Bachelor of Science in Energy Engineering to address the emerging needs of the Kingdom in the **Renewable Energy field** in harmony with its Vision 2030.

Mechanical and Energy Engineering Department Goals

The main goals of the program are that it will prepare graduates with the following attributes:

- Able to engage with society to provide innovative, professional, and ethical solutions in the energy and other engineering fields.
- Able to identify local and international energy issues and provide constructive solutions in a societal context.
- Able to display leadership and initiative in advancing knowledge and technology in the energy and other engineering fields.

Program Educational Objectives

The program educational objectives for the B.Sc. in Energy Engineering program reflect the mission of Imam Abdulrahman bin Faisal University and Mechanical and Energy Engineering Department. The overall educational objective of the Energy Engineering program is to prepare graduates for careers in the **renewable energy engineering profession** and related disciplines, and/or receive an advanced graduate degree within three to five years from their graduation. Specifically, the expected professional accomplishments of the program graduates within five years from their graduation are that they will:

- Pursue advanced studies in energy engineering or in other disciplines.
- Meet or exceed the expectations of their employers in the energy engineering workplace, or in other professional careers.
- Continue to learn and to adapt to evolving technology and changing career opportunities to serve community needs.

<https://www.iau.edu.sa/en/colleges/college-of-engineering/departments/mechanical-and-energy-engineering-department>

5. Transportation and Traffic Engineering Department

The Institute of transportation Engineers (1987) defines transportation engineering as: Transportation engineering is the application of technology and scientific principles to the planning, functional design, operation and management of facilities for any mode of transportation in order to provide for the safe, efficient, rapid, comfortable, convenient, economical, and environmentally compatible movement of people and goods transportation and Traffic Engineering is a relatively new subject under the field of Civil Engineering, and covers aspects of the highway engineering, traffic engineering, transportation and travelling in general.

The Transportation and Traffic Engineering program was established in 2012 and it is a new discipline of engineering in Kingdom of Saudi Arabia (KSA) as standalone bachelor's degree in engineering disciplines.

The importance of transportation engineering has recently escalated, as the daily demands of life in the modern and globalized world is being much and at times overly dependent on an efficient and safe transport system. It is now accepted that an efficient transport system promotes productivity, whilst a poor transport system hampers the economy. Therefore, it is necessary to combine the efforts of all segments of society and governmental and private agencies that have a relationship with the traffic organization to work together to reduce traffic problems and prepare specialists and engineers in the science of transport and traffic to study and develop the transport network and address the resulting problems in scientific and practical ways knowing that the science of transport and traffic in developed countries It has become one of the sciences that has concepts, foundations, faculties, departments and research centers.

Vision

Leadership and excellence in transportation and traffic engineering academia and research for **sustainability of transport** network locally and regionally

Mission

Graduate engineers capable of providing safety, **sustainability** and appropriate solution to the transport systems and environment, incorporating research and community services.

<https://www.iau.edu.sa/en/colleges/college-of-engineering/departments/transportation-and-traffic-engineering-department>



6. Energy Efficiency for Sustainable Development

Course ID: ENRG 502

Credit hours	Theory	Practical	Laboratory	Lecture	Studio	Contact hours	Pre-requisite
2	2					2	ENRG 313

<https://www.iau.edu.sa/en/courses/energy-efficiency-for-sustainable-development>

