

# UNIVERSITY of Technology

الجامعة التكنولوجية

Bachelor's degree (B.Sc) - Biotechnology

بكالوريوس علوم / التقنيات الاحيائية



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### 1. Overview

This catalogue is about the courses (modules) given by the program of biotechnology to gain the Bachelor of Science degree. The program delivers (40) Modules with (6000) total student workload hours and 240 total ECTS. The module delivery is based on the Bologna Process.

#### نظرة عامه

يتناول هذا الدليل المواد الدراسية التي يقدمها برنامج التقنيات الاحيائية للحصول على درجة بكالوريوس العلوم. يقدم البرنامج ( 40 ) مادة دراسية مع ( 6000 ) إجمالي ساعات حمل الطالب و ( 240 ) إجمالي وحدات أوروبية. يعتمد تقديم المواد الدراسية على عملية بولونيا.

## 2. Undergraduate Courses 2023-2024

### Module 1

Code	Course/Module Title	ECTS	Semester
HURI116	HUMAN RIGHTS	2.00	1
Class (hr/w)	Lect/Lab./Prac./Tutor	SSWL (hr/sem)	USWL (hr/w)
1	1	33	17
Description			
<p>Developing and flourishing the human personality in its emotional, intellectual and social dimensions, and rooting in its sense of dignity, freedom, equality, social justice and democratic practice. Enhancing people's awareness - women and men - of their rights in a way that helps enable them to transform the principles of human rights into a social, economic, cultural and political reality, and raise their ability to defend, maintain and advance them at all levels. Strengthening the bonds of friendship and solidarity among peoples, enhancing respect for the rights of others, preserving cultural pluralism and diversity, flourishing national cultures for all groups and peoples, enriching the culture of dialogue and mutual tolerance, rejecting violence and terrorism, promoting non-violence and combating intolerance, and providing all people with strong immunity against hate speech. Promoting a culture of peace based on justice and respect for human rights, foremost of which is the right to self-determination, the right to resist occupation, and the democratization of international relations and the institutions of the international community, so as to reflect the common interests of humanity.</p>			

### Module 2

Code	Course/Module Title	ECTS	Semester
PRBI112	PRINCIPLE OF	8.00	1

	BIOTECHNOLOGY		
<b>Class (hr/w)</b>	<b>Lect/Lab./Prac./Tutor</b>	<b>SSWL (hr/sem)</b>	<b>USWL (hr/w)</b>
4	3	108	92
<b>Description</b>			
<p>The main objective is to offer a broad view of biotechnology, integrating historical, global current and future applications. Demonstrate knowledge of essential facts of the history of biotechnology and description of key scientific events in the development of biotechnology. Demonstrate knowledge of the definitions and principles of ancient, classical, and modern biotechnologies. Describe the theory, practice and potential of current and future biotechnology. Describe and begin to evaluate aspects of current and future research and applications in biotechnology.</p>			

**Module 3**

<b>Code</b>	<b>Course/Module Title</b>	<b>ECTS</b>	<b>Semester</b>
WORSH11	Workshops	2.00	1
<b>Class (hr/w)</b>	<b>Lect/Lab./Prac./Tutor</b>	<b>SSWL (hr/sem)</b>	<b>USWL (hr/w)</b>
-	3	45	5
<b>Description</b>			
<p>Preparing applied engineers in the field of engineering sciences who are distinguished by a high level of knowledge and technological creativity, in line with the strict standards adopted globally in quality assurance and academic accreditation of the corresponding engineering programs, while adhering to the ethics of the engineering profession. Enable the student to know and understand work systems, risks, and the factors surrounding them. Enable the student to know and understand theoretical principles in handicrafts and measurements.</p>			

**Module 4**

<b>Code</b>	<b>Course/Module Title</b>	<b>ECTS</b>	<b>Semester</b>
COSC114	COMPUTER SCIENCE	4	1

Class (hr/w)	Lect/Lab./Prac./Tutor	SSWL (hr/sem)	USWL (hr/w)
2	2	63	37
Description			
<p>To develop problem solving skills and understanding of computer science through the application of techniques. To understand how the computer works from zero. This course deals with the basic concept of computer science. This is the basic subject for all computers and programs circuits subject. To understand how to solve computer problems. To perform solutions for the problems.</p>			

**Module 5**

Code	Course/Module Title	ECTS	Semester
GEB111	GENERAL BIOLOGY (ANIMAL)	8.00	1
Lectures (hr/w)	Lab./Prac./Tutor.	SSWL (hr/sem)	USSWL (hr/w)
4	3	108	92
Description			
<p>To develop information about biology and To understand how living organism divided. This course deals with living organism animal and microorganism. This is the basic subject for all living organism..</p>			

**Module 6**

Code	Course/Module Title	ECTS	Semester
ANCH113	Analytical chemistry	6.00	1
Class (hr/w)	Lect/Lab./Prac./Tutor	SSWL (hr/sem)	USWL (hr/w)
4	3	108	42

Description
<p>. Course Main Objective The purpose from this course is to relate the fundamental concepts of general chemistry to the world around us, and in this way illustrate how chemistry explains many aspects of everyday life. In this course we will follow two guiding principles</p> <ul style="list-style-type: none"> <li>• use relevant and interesting applications for all basic chemical concepts.</li> <li>• present the material in a student friendly fashion using bulleted lists, extensive illustrations, and step-by-step problem solving. Keep abreast of developments in scientific research through a review of the latest research in the field of chemistry and linking of information theory in practical side through research published in this area in the form of scientific research useful.</li> </ul>

**Module 7**

Code	Course/Module Title	ECTS	Semester
BIOSI124	BIOSTATISTIC	4.00	2
Class (hr/w)	Lect/Lab./Prac./Tutor	SSWL (hr/sem)	USWL (hr/w)
3	1	63	37
Description			
<p>The objective of Biostatistics is to advance statistical science and its application to problems of human health and disease, with the ultimate goal of advancing the public's health.</p>			

**Module 8**

Code	Course/Module Title	ECTS	Semester
BIOP121	BIOPHYSICS	8.00	2
Lectures (hr/w)	Lab./Prac./Tutor.	SSWL (hr/sem)	USSWL (hr/w)
4	3	108	92

Description
To understand the principles of biophysics. Describe the source and transfer of energy in biological systems. Explain the roles of physical laws in different organism's functions. Summarize the biophysics applications.

**Module 9**

Code	Course/Module Title	ECTS	Semester
GEBI125	General biology (plant)	8.00	2
Lectures (hr/w)	Lab./Prac./Tutor.	SSWL (hr/sem)	USSWL (hr/w)
4	3	108	92
Description			
To develop information about biology plant and To understand how living organism divided. This course deals with living organism plant and microorganism. This is the basic subject for all living organism.			

**Module 10**

Code	Course/Module Title	ECTS	Semester
ORCH122	organic chemistry	6.00	2
Class (hr/w)	Lect/Lab./Prac./Tutor	SSWL (hr/sem)	USWL (hr/w)
4	3	108	42
Description			

**Course Main Objective** The purpose from this course is to relate the fundamental concepts of general chemistry to the world around us, and in this way illustrate how chemistry explains many aspects of everyday life. In this course we will follow two guiding principles

- use relevant and interesting applications for all basic chemical concepts.
- present the material in a student friendly fashion using bulleted lists, extensive illustrations, and step-by-step problem solving.

Keep abreast of developments in scientific research through a review of the latest research in the field of chemistry and linking of information theory in practical side through research published in this area in the form of scientific research useful

**Module 11**

Code	Course/Module Title	ECTS	Semester
WORK115	Workshops	2.00	2
Class (hr/w)	Lect/Lab./Prac./Tutor	SSWL (hr/sem)	USWL (hr/w)
-	3	45	5
Description			
<p>Preparing applied engineers in the field of engineering sciences who are distinguished by a high level of knowledge and technological creativity, in line with the strict standards adopted globally in quality assurance and academic accreditation of the corresponding engineering programs, while adhering to the ethics of the engineering profession. Enable the student to know and understand work systems, risks, and the factors surrounding them. Enable the student to know and understand theoretical principles in handicrafts and measurements.</p>			

**Module 12**

Code	Course/Module Title	ECTS	Semester
ENLA123	English Language	2	2
Class (hr/w)	Lect/Lab./Prac./Tutor	SSWL (hr/sem)	USWL (hr/w)
1	1	33	17
Description			



English is a course for first-class students depending on theoretical lectures. It is a comprehensive course that provides students with the fundamental principles of English. , some of the principles are illustrated with nature. In addition, it is focused on effective teaching and learning. The English course is specially adapted for the Middle East and North Africa. This course combines the best of English language teaching methodologies to help students use English accurately and fluently. It provides Basic Concepts materials and their applications