

# University of Technology



## الجامعة التكنولوجية

Bachelor of Applied Chemistry (B.Sc. Applied Chemistry) -

بكالوريوس علوم تطبيقية - كيمياء تطبيقية



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### 1. **Mission & Vision Statement**

#### ***Vision Statement***

The applied chemistry academic staff at University of Technology believe that students come to understand the discipline of chemistry through a combination of course work, laboratory experiences, research, and fieldwork. The combination of instructional methods leads students to a balanced understanding of the scientific methods used by chemists to make observations, develop insights and create theories about the living organisms that populate our planet.

#### ***Mission Statement***

The chemistry academic staff pursues a multifaceted charge at University of Technology. The Program seeks to provide all students with fundamental knowledge of chemistry. The curriculum and advising have been designed to prepare graduates for their professional future, whether they choose to work as chemists, or to pursue advanced degrees in the chemistry sciences.

### **Program Specification**

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Level 1 exposes students to the fundamentals of chemistry. Programme-specific core topics are covered at Level 2 preparing for research-led subject specialist modules at Levels 3 and 4. An applied chemistry is therefore trained to appreciate how research informs teaching, according to the University and School Mission statements.

At Levels 2, 3 and 4 students are free to choose more than half of their module credits. This allows students to develop their own wide-ranging interests in applied chemistry. Decisions on what to study are made with input from personal tutors.

The research ethos is developed and fostered from the start via practicals, which are either embedded in lecture modules or taught in dedicated practical modules, research seminars and tutorials. There is a compulsory field course in Level 1, which students must pass in order to progress into Level 2, and optional field courses in Levels 2, 3 and 4. At Level 4 all students carry out an independent research project, which may be a xx credit library or data analysis project, or a xx credit field or laboratory based project.

Academic tutorials are held at Levels 1 and 2 with the same tutor, who is also the personal tutor, providing continuity and progressive guidance. Level 1 and 2 tutorials include a number of workshops to teach skills, e.g. library use and presentation skills, followed by assessed exercises, e.g. essays and talks, as opportunities to practice these skills in a subject-specific context.

International years and Industrial placements are also offered and individual needs are discussed with the appropriate tutor and accommodated wherever possible.

## **2. Program Goals**

1. To provide a comprehensive education in applied chemistry that stresses scientific reasoning and problem solving across the spectrum of disciplines within chemistry.
2. To prepare students for a wide variety of post-baccalaureate paths, including graduate school, professional training programs, or entry level jobs.

3. To provide extensive hands-on training in electronic technology, statistical analysis, laboratory skills, and field techniques
4. To provide thorough training in written and oral communication of scientific information
5. To enrich students with opportunities for alternative education in the area of biology through undergraduate research, internships, and study-abroad

### **3. Student Learning Outcomes**

Applied Chemistry is the scientific field for understanding basic chemical properties of materials and for producing new materials with well-controlled functions.

Graduates obtain information in the field of applied chemistry and utilize basic knowledge toward realizing broader concepts. The curriculum and experiences are designed to prepare students, in part, for entry into professional health programs, graduate studies, technical careers and education

#### **Outcome 1**

*Identification of Complex Relationships*

#### **Outcome 2**

*Oral and Written Communication*

Graduates will be able to formally communicate the results of their work using both oral and written communication skills.

#### **Outcome 3**

*Laboratory and Field Studies*

Graduates will be able to perform laboratory experiments and field studies, by using scientific equipment and computer technology while observing appropriate safety protocols.

#### **Outcome 4**

##### *Scientific Knowledge*

Graduates will be able to demonstrate a balanced concept of how scientific knowledge develops, including the historical development of foundational theories and laws and the nature of science.

#### **Outcome 5**

##### *Data Analyses*

Graduates will be able to demonstrate scientific quantitative skills, such as the ability to conduct simple data analyses.

#### **Outcome 6**

##### *Critical Thinking*

Graduates will be able to use critical-thinking and problem solving skills to develop a research project and/or paper.

## **4. Academic Staff**

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## 5. Credits, Grading and GPA

### *Credits*

University of Technology is following the Bologna Process with the European Credit Transfer System (ECTS) credit system. The total degree program number of ECTS is 240, 30 ECTS per semester. 1 ECTS is equivalent to 25 student workload, including structured and unstructured workload.

### *Grading*

Before the evaluation, the results are divided into two subgroups: pass and fail. Therefore, the results are independent of the students who failed a course. The grading system is defined as follows:

GRADING SCHEME مخطط الدرجات				
Group	Grade	التقدير	Marks (%)	Definition
<b>Success Group (50 - 100)</b>	A - Excellent	امتياز	90 - 100	Outstanding Performance
	B - Very Good	جيد جدا	80 - 89	Above average with some errors
	C - Good	جيد	70 - 79	Sound work with notable errors
	D - Satisfactory	متوسط	60 - 69	Fair but with major shortcomings
	E - Sufficient	مقبول	50 - 59	Work meets minimum criteria
<b>Fail Group (0 - 49)</b>	FX – Fail	مقبول بقرار	(45-49)	More work required but credit awarded
	F – Fail	راسب	(0-44)	Considerable amount of work required

#### Note:

NB Decimal places above or below 0.5 will be rounded to the higher or lower full mark (for example a mark of 54.5 will be rounded to 55, whereas a mark of 54.4 will be rounded to 54. The University has a policy NOT to condone "near-pass fails" so the only adjustment to marks awarded by the original marker(s) will be the automatic rounding outlined above.

### *Calculation of the Grade Point Average (GPA)*

- The GPA is calculated by the summation of each module score multiplied by its ECTS, all are divided by the program total ECTS.

GPA of a 4-year B.Sc. degrees:

$$\text{GPA} = [(1\text{st module score} \times \text{ECTS}) + (2\text{nd module score} \times \text{ECTS}) + \dots] / 240$$

## 6. Curriculum/Modules

### Semester 1 | 30 ECTS

Code	Module	SSWL	USSWL	ECTS	Type	Pre-request
ANCH111	Analytical Chemistry 1	93	107	8.00	C	
INCH112	Inorganic Chemistry1	63	112	7.00	C	
MATH113	Mathematic	63	87	6.00	B	
GEPH114	General Physics	78	47	5.00	B	
HURI115	Human Rights	33	17	2.00	S	
WORSH11	Workshops	45	5	2.00	S	

### Semester 2 | 30 ECTS

Code	Module	SSWL	USSWL	ECTS	Type	Pre-request
ANCH121	Analytical Chemistry2	93	107	8.00	C	
INCH122	Inorganic Chemistry 2	78	112	8.00	C	

GEBI123	General biology	78	55	6.00	B	
COSC125	Computer Science	63	37	4.00	B	
ENLA124	English Language	33	17	2.00	B	
WORSH11	Workshops	45	5	2.00	S	

**Semester 3 | 30 ECTS**

Code	Module	SSWL	USSWL	ECTS	Type	Pre-request

**Semester 4 | 30 ECTS**

Code	Module	SSWL	USSWL	ECTS	Type	Pre-request

**Semester 5 | 30 ECTS**

Code	Module	SSWL	USSWL	ECTS	Type	Pre-request


**Semester 6 | 30 ECTS**

Code	Module	SSWL	USSWL	ECTS	Type	Pre-request

**Semester 7 | 30 ECTS**

Code	Module	SSWL	USSWL	ECTS	Type	Pre-request

**Semester 8 | 30 ECTS**

Code	Module	SSWL	USSWL	ECTS	Type	Pre-request

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