

Tikrit University



Bachelor's degree (B.Sc.) of Science - Food Science and Technology



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1. **Mission & Vision Statement**

Vision Statement

The Department of Food Science and Technology faculty members at the College of Food Sciences in Al-Shirqat, Tikrit University, confirm that students benefit from the Food Science specialization through academic study, practical experience, and scientific experimentation. This combination enhances students' understanding of food specialists' scientific and practical methods in conducting research and developing ideas related to the food industry, particularly in Iraq. The College of Food Sciences in Al-Shirqat was established in 2024, and academic studies began in the 2024-2025 academic year. The college aims to prepare students for obtaining a bachelor's degree in food science, enabling graduates to work in scientific institutions and food and dairy factories and gain a comprehensive understanding of local food production in Iraq.

The faculty members at the College of Food Sciences in Al-Shirqat, Tikrit University, undertake a multifaceted mission to provide all students with foundational knowledge in food technology. This includes focusing on both academic and research aspects, whether in undergraduate or graduate studies, along with the development of academic and applied research. The program addresses issues related to manufacturing processes, enhancing students' ability to understand real challenges in the industry and preparing them to confront them with innovative and scientific solutions. In addition to its guiding role in serving and developing the field of Food Science and Technology, the college's activities extend to other areas, such as conducting scientific research and proposing appropriate solutions to problems related to food technology. The college also organizes specialized training courses in this field.

The curricula are designed to be suitable for preparing graduates for their professional futures, whether they choose to work as specialists in the food industry or pursue advanced degrees in food and dairy sciences. This design aims to enhance students' skills and prepare them to face challenges in the market and work effectively in their fields.

2. Program Specification

Programme code:	BSc- FST	ECTS	240
Duration:	4 levels, 8 Semesters	Method of Attendance:	Full Time

Food Science and Technology is a broad field, and through the courses offered in the department, students gain practical knowledge and skills required in food industry processes. This enables graduates to work in food industry laboratories, food quality control organizations, and public and private factories. These skills and knowledge help students interact effectively with challenges in the sector, enhancing their professional success and preparing them to meet market needs.

In the initial stages of their studies, students in the first level study the basics of microbiology, which serves as a foundation for studying food biology in the third level and industrial biology in the fourth level. The curriculum also includes studies in organic chemistry and analytical chemistry at the first level, which are fundamental for studying food chemistry and dairy chemistry at the third and fourth levels. The program also includes practical exercises in food and dairy plant engineering fundamentals and other academic requirements, providing students with a strong knowledge base to tackle sector challenges.

In the second level, students study the basics of food manufacturing and food technology, including nanotechnology, a foundation for core subjects in the Food Technology program in the third and fourth levels. These subjects include food technology, product development and evaluation, and meat technology in the fourth level.

These courses comprehensively prepare students, enabling them to conduct graduation research projects at the fourth level efficiently. They also enhance their ability to apply the knowledge gained in specialized fields, opening up extensive opportunities for them in the food industry.

In the third level, students study core subjects like grain technology, focusing on bread and pastry studies in the fourth level. Research skills are fostered from the outset through practical applications, where practical activities are integrated with academic lectures.

The study includes a mandatory field course at the first level, which students must pass to progress to higher levels. Additionally, there are elective field courses in the second and third levels. In the fourth level, all students must conduct a research project, which may be independent, data analysis, or a project based on practical or laboratory experiments. This system enhances students' ability to apply their knowledge in practical, real-world environments, thoroughly preparing them for the job market.

3. Program Objectives

1. Training specialized cadres and researchers to work in scientific institutions, government agencies, private factories, laboratories, and research centers focusing on Food Science and Technology. It also allows graduates to work in health institutions affiliated with the Ministry of Health.
2. Providing comprehensive Food Science and Technology education that focuses on scientific thinking and problem-solving across various disciplines.
3. Conducting applied research to solve industrial problems and improve the quality of production processes in factories and companies working in the food manufacturing and preservation sector.
4. Training specialized personnel in health monitoring and food fraud prevention departments by equipping graduates with the skills to manage quality control departments. This is achieved through understanding modern systems such as Good Manufacturing Practices (GMP), Hazard Analysis and Critical Control Points (HACCP), and other standards.
5. Preparing students for various post-undergraduate pathways, including specialized fields such as graduate studies, and developing practical and technical skills through training in laboratories, food factories, or quality management. This also includes job opportunities in the private sector, such as engaging in food manufacturing companies or areas of food marketing and consulting.
6. Organizing specialized scientific conferences and seminars on food safety and human nutrition, which enhance the exchange of expertise in Food Science, Technology, and Dairy. This includes collaboration with local, national, and global institutions specializing in the field, contributing to developing innovative solutions, and enhancing quality and safety standards in the food industry.

4. Student Learning Outcomes

The various units in the program focus on the historical, developmental, and social aspects of food technology, equipping students with the necessary practical knowledge and skills to succeed in the job market or pursue graduate studies. The Food Science and Technology Bachelor's program covers various topics, including food and dairy sciences, manufacturing, food preservation, quality control and assurance, nanotechnology, food microbiology, bakery and pastry technology, and human nutrition. The curriculum and training experiences are carefully designed to prepare students for joining professional health programs, graduate studies, and technical programs. Students can develop skills to work in food and dairy factories in both public and private sectors and engage in food quality control, food safety, and inspection at border outlets.

1. Outcome: Identifying Complex Relationships

Graduates will be able to understand the functional composition of food components, their interactions, and the changes that occur within them. This skill will help them analyze how these interactions affect the quality and safety of food products, enabling them to make informed decisions in production, preservation, and nutrition.

2. Outcome: Identifying Practical and Laboratory Studies

Graduates will be capable of using scientific equipment correctly while conducting experiments and practical processes efficiently. They will also follow appropriate safety protocols to ensure their safety and the safety of others when working in the laboratory. This skill enhances their ability to analyze data and extract results accurately and reliably.

3. Outcome: Scientific and Technical Knowledge

Graduates will demonstrate a balanced understanding of how scientific and technical knowledge has evolved, including the following concepts:

- **Conducting Practical Experiments in Food Microbiology:** Students can perform tests such as direct microbial counting and total plate count.
- **Laboratory Experiments in Food and Dairy Chemistry:** Students can conduct complex experiments related to food quality and food manufacturing processes using various laboratory tools.
- **Microbiology Application:** Students will conduct general, food, and industrial microbiology experiments.
- **Food Composition Analysis:** Students will experiment with determining moisture, ash, protein, fat, carbohydrates, and vitamins in food products.
- **Food Production Process Management:** Students will implement food production processes and procedures, following appropriate safety protocols, including the principles and fundamentals of food manufacturing.
- **Nanotechnology Application:** Students will be able to apply nanotechnology to food and dairy products and understand technology in dates, meat, and fish.
- **Human Nutrition Knowledge:** Graduates will demonstrate balanced knowledge of human nutrition and how recent scientific advancements impact our dietary and health habits.

Through these skills, graduates will be qualified to work in various food industry sectors, contributing valuable insights to improve food quality and safety.

4. Outcome: Data Analysis

Graduates will demonstrate quantitative and analytical skills, including performing simple and complex data analysis. This will enable them to understand important patterns and trends in data, enhancing their ability to make informed decisions in various fields.

5. Outcome: Critical Thinking

Graduates will use critical thinking and problem-solving skills to write research project papers and solve industrial problems. This will improve production quality and efficiency in food and dairy factories, contributing to innovation and sustainability in the business sector.

5. Academic Staff

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6. Credits, Grading and GPA

Credits

The College of Food Sciences/Al-Shirqat at Tikrit University follows the Bologna system through the European Credit Transfer and Accumulation System (ECTS). The total number of

units in the program is 240 ECTS points, with each semester containing 30 ECTS points. One ECTS point represents 25 hours of student workload, including in-class and out-of-class study time.

Grades

Before evaluation, the results are divided into two subgroups: Pass and Fail. The grading system is defined as follows:

GRADING SCHEME مخطط الدرجات				
Group	Grade	التقدير	Marks (%)	Definition
Success Group (50 - 100)	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
Fail Group (0 - 49)	FX – Fail	راسب - قيد المعالجة	(45-49)	More work required but credit awarded
	F – Fail	راسب	(0-44)	Considerable amount of work required
Note:				
Number 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 Cumulative Grade Point Average (CGPA)

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

CGPA of a 4-year B.Sc. degree:

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

7. Curriculum/Modules

Semester 1 | 30 ECTS | 1 ECTS = 25 hrs

Code	Module	SSW L	USSW L	SWL	ECTS	Type	Pre-request
UOT001	Arabic language	33	17	50	2.00	B	
TUFSFT1102	Physics	108	24	150	6.00	B	
TUFSFT1103	Organic chemistry	93	82	175	7.00	C	
UOT003	Computer	63	12	75	3.00	B	
TUFSFT1105	Mathematics	63	62	125	5.00	B	
TUFSFT1106	Microbiology	93	82	175	7.00	C	

Semester 2 | 30 ECTS | 1 ECTS = 25 hrs

Code	Module	SSW L	USSW L	SWL	ECTS	Type	Pre-request
TUFSFT1207	English Language	33	17	50	2.00	B	
TUFSFT1208	Analytical Chemistry	93	82	175	7.00	C	
TUFSFT1209	Biostatistics	93	57	150	6.00	B	
TUFSFT12010	safty and Biosecurity	93	82	175	7.00	B	
TUFSFT12011	Human Rights and Democracy	48	2	50	2.00	B	
TUFSFT12012	Principles of Engineering	78	72	150	6.00	C	

Semester 3 | 30 ECTS | 1 ECTS = 25 hrs

Code	Module	SSW L	USSW L	SWL	ECTS	Type	Pre-request
TUFSFT2301 3	Biochemistry	93	32	125	5.00	C	COFS1208
TUFSFT2301 4	Biotechnology	93	57	150	6.00	C	COFS1106
TUFSFT2301 5	Health and Food Safety	78	47	125	5.00	C	COFS1106
TUFSFT2301 6	Food Factory Management and producte Marketing	48	77	125	5.00	C	
TUFSFT2311 7	Computer Applications in Food Factory	93	32	125	5.00	C	UOT1104
UOT1207	English Language	33	17	50	2.00	B	
UOT1101	Arabic language	33	17	50	2.00	B	

Semester 4 | 30 ECTS | 1 ECTS = 25 hrs

Code	Module	SSW L	USSW L	SWL	ECTS	Type	Pre-request
TUFSFT24018	food Packaging	48	77	125	5.00	C	
TUFSFT24019	Principles of Food processing	78	47	125	5.00	B	FST23015
TUFSFT24020	Physical Chemistry	93	32	125	5.00	C	COFS1102
TUFSFT24021	Nanotechnology	93	32	125	5.00	C	FST23014
TUFSFT24022	Engineering of food and dairy factory	78	47	125	5.00	C	COFS12012
UOT1104	Computer	63	12	75	3.00	B	
COFS24022		33	17	50	2.00	B	

Semester 5 | 30 ECTS | 1 ECTS = 25 hrs

Code	Module	SSW L	USSW L	SWL	ECTS	Type	Pre-request
TUFSFT35023	Food Chemistry	78	72	150	6.00	C	COFS23013
TUFSFT35024	Cereal Technology	93	57	150	6.00	C	FST23015
TUFSFT35125	Food Microbiology	93	57	150	6.00	C	COFS1106
TUFSFT35026	Water Purification and Treatment of Food Factory Waste	78	72	150	6.00	C	
TUFSFT35027	Care and Storage	93	57	150	6.00	C	FST24019

Semester 6 | 30 ECTS | 1 ECTS = 25 hrs

Code	Module	SSW L	USSW L	SWL	ECTS	Type	Pre-request
TUFSFT36028	Quality control and Assurance	78	72	150	6.00	C	0
TUFSFT36029	Dairy Chemistry	93	57	150	6.00	C	FST35023
TUFSFT36030	Dates Technology	78	72	150	6.00	C	FST24019
TUFSFT36131	Food technology 1	78	72	150	6.00	C	FST24019
TUFSFT36132	Food Analysis	93	57	150	6.00	C	FST35023

Semester 7 | 30 ECTS | 1 ECTS = 25 hrs

Code	Module	SSW L	USSW L	SWL	ECTS	Type	Pre-request
TUFSFT47033	Research methodology	33	17	50	2.00	S	
TUFSFT47034	Food Additives	93	57	150	6.00	C	FST36132
TUFSFT47035	Food Development and Evaluation	93	57	150	6.00	C	FST36131
TUFSFT47036	Enzymes	78	47	125	5.00	C	FST23014
TUFSFT47037	Human Nutrition	48	77	125	5.00	C	COFS23013
TUFSFT47038	Dairy Technology	78	72	150	6.00	C	FST36131

Semester 8 | 30 ECTS | 1 ECTS = 25 hrs

Code	Module	SSW L	USSW L	SWL	ECTS	Type	Pre-request
TUFSFT48139	Research projects	33	67	100	4.00	B	COFS47033
TUFSFT48140	Food technology 2	93	57	150	6.00	C	FST36131
TUFSFT480141	Industrial Microbiology	78	72	150	6.00	C	FST35125
TUFSFT48042	Meat Technology	93	57	150	6.00	C	FST35023
TUFSFT48143	Bakery & Pastries	93	57	150	6.00	C	FST35024
TUFSFT48044	Professional Ethics	33	17	50	2.00	S	

8. Contact

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