

## Academic program description form

University name: Al-Qasim Al-Khadraa

College/Institute: College of Food Sciences

Scientific Department: Department of Food Science and Technology

Name of the academic or professional program: Bachelor of Food Science

Name of final degree: Bachelor of Food Science and Technology

Academic system: courses

Description preparation date: 9/1/2023

Date of filling the file: 4/28/2024

**the signature:**

**Name of Department Head: A.M.D. Sakina Taha Hassan**

**the date:**

**the signature:**

**Name of the scientific assistant: A.M.D. Haider Shahd Wahad**

**the date:**

Check the file

Division of Quality Assurance and University Performance

:Name of the Director of the Quality Assurance and University Performance Division

the date

the signature

**Authentication of the Dean**

### **1-Program vision**

The College of Food Sciences was established starting from the academic year 2013–2014. The duration of study in the college is four years. The graduating student is awarded a bachelor's degree in food sciences. Only graduates of the preparatory study are accepted for the scientific stream, for both genders. The graduate is prepared to work in scientific bodies and institutions that work in the field of food sciences and dairy and technology to develop the reality of local production in this field.

### **1-Program message**

Providing good educational service regarding the undergraduate and postgraduate levels and developing academic and applied research, whether on academic degrees or solving manufacturing problems, in addition to the advisory role of serving and developing work in the field of food and dairy science and technology. The college's activity extends alongside the educational process in other areas, including conducting scientific research, developing appropriate proposals to solve problems related to the field of food technology, holding training courses at the local and regional levels, and holding scientific conferences in cooperation with relevant local authorities and foreign universities, and joint supervision of research projects, in addition to Preparing some solid scientific references related to food and dairy science and technology.

## Program Aims

- 1-Preparing specialized cadres and researchers to work in health institutions affiliated with the Ministry of Health and research centers in the fields of nutrition and food safety.
- 2-Preparing specialized cadres to work in health control departments and detecting food fraud by providing college graduates with the necessary skills to perform the tasks assigned to them with high efficiency and accuracy
- 3-Preparing researchers in nutrition research institutes to conduct applied research in the field of nutrition to solve health problems related to nutrition
- 4-Providing qualified personnel to support medical and health personnel working in the field of providing nutritional services through the Nutrition Intervention Unit.
- 5-Preparing competent cadres to detect and investigate food safety and suitability for human consumption by supporting the Ministry of Health's mobile teams to detect food fraud, as this sector is of great importance to the health of the individual and society.
- 6-Holding training and guidance courses to raise the scientific and practical competence of workers in the field of food and dairy science and technology, food health and nutrition, in a way that integrates with the role of the Ministry of Health in raising the efficiency of its cadres and expertise in the field of health, .nutrition and food safety
- 7-Holding specialized scientific conferences and seminars in the field of food safety and nutrition, food and dairy science and technology, and cooperating with local, regional and international scientific bodies by holding scientific seminars and training courses in the field of food and dairy science and technology, food health and nutrition.
- 8-Contributing to the preparation and provision of scientific references in Arabic and English on topics related to food and dairy science and technology, food health and nutrition.
- 9-Cooperating with local consulting offices by providing suggestions and expertise that contribute to developing the reality of local production in the field of food and dairy science and technology, food hygiene and nutrition.

## Program accreditation

Nothing

Other external influences

Nothing

**Program structure**

* comments	percentage	Study unit	Number of courses	Program structure
	7.5	18	7	Enterprise requirements
	20.83	50	8	College requirements
	71.66	172	29	Department requirements
Summer training for the third stage, without units, only fulfilled or not fulfilled				summer training
				Other

\* Notes may include whether the course is core or elective

**Program description**

Credit hours		Name of the course or course	Course code	Year/ level
Practical	Theoretical			
	2	Arabic language	UOQ1101	The first/first course
2	2	Physics	COFS1102	The first/first course
2	2	Organic chemistry	COFS1103	The first/first course

2	2	Computer	UOQ1104	The first/first course
	2	Mathematics	COFS1105	The first/first course
2	2	Microbiology	COFS1106	The first/first course
	2	English language	UOQ1207	The first/second course
2	2	analytical chemistry	COFS1208	The first/second course
2	2	Biostatistics	COFS1209	The first/second course
2	2	Safety and biological security	COFS12010	The first/second course
	2	Human rights and democracy	UOQ12011	The first/second course
2	2	Foundations of engineering workshops	COFS12012	The first/second course
2	2	Biochemistry	COFS23013	The second/first course
2	2	Biotechnology	FST23014	The second/first course
2	2	Food health and safety	FST23015	The second/first course
		Managing food factories and marketing their products	COFS23016	The second/first course
2	2	Computer applications in food factories	FST23117	The second/first course
2	2	Food filling and packaging	FST24018	The second/second course
2	2	Principles of food processing	FST24019	The second/second course
2	2	Physical chemistry	COFS24020	The second/second course

2	2	Nano technology	FST24021	The second/second course
2	2	Food and dairy plant engineering	COFS24022	The second/second course
2	2	Food chemistry	FST35023	The third/first course
2	2	cereal technology	FST35024	The third/first course
2	2	Food microbiology	FST35125	The third/first course
2	2	Treatment of water and waste of food factories	FST35026	The third/first course
2	2	Care and storage	FST35027	The third/first course
2	2	Quality control	FST36028	The third/second course
2	2	Dairy chemistry	COFS36029	The third/second course
2	2	Date technology	FST36030	The third/second course
2	2	Food technology1	FST36131	The third/second course
2	2	Food analysis	FST36132	The third/second course
2	2	Scientific research methodology	COFS47033	The fourth/first course
2	2	Food additives	FST47034	The fourth/first course
2	2	Food product development and evaluation technology	FST47035	The fourth/first course
2	2	Enzymes	FST47036	The fourth/first course
2	2	Human nutrition	FST47037	The fourth/first course
2	2	Dairy technology1	FST47038	The fourth/first course

2		Graduation Project	COFS48139	The fourth/second course
2	2	Food technology 2	FST48140	The fourth/second course
2	2	Industrial microbiology	FST480141	The fourth/second course
2	2	Meat technology	FST48042	The fourth/second course
2	2	Bread and pastries	FST48143	The fourth/second course
	2	Professional ethics	UOQ48044	The fourth/second course

Expected learning outcomes of the program	
<b>Knowledge</b>	
<p><b>Graduates are able to explain food components, food manufacturing technology, and nutritional properties during life for specialized purposes such as food manufacturing, meat and dates processing, food analysis methods, as well as the manufacture of various baking products, and a general perception of the food industries in Iraq.</b></p>	<p><b>1-That the student knows the basics of the required sciences. 2-That the student understands the required scientific details. 3-The student should analyze scientific developments.</b></p>
<b>Skills</b>	
<p><b>To properly use laboratory equipment to measure food quality and specifications by teaching the student how to use laboratory equipment to determine food quality.</b></p>	<p><b>1-Good knowledge of the principles of food industry and related sciences. 2-The ability to manufacture</b></p>

**Teaching the student the basic principles of the concept of food science and technology**

**various food products.**  
**3-Graduates are able to conduct laboratory experiments and field studies using scientific requirements and computer techniques.**  
**4-Good knowledge of scientific terminology in his specialty.**

**The values**

**Enhancing the student's self-confidence by clarifying the national importance of excellence and success**

**Commitment to the ethics of the university institution**

**Teaching and learning strategies**

**Theoretical and practical lectures.**  
**Conduct scientific discussions.**  
**Conduct various research during the semester.**  
**Trying to deal with the scientific material in a way that makes the student highly focused through the latest teaching methods.**  
**Actively involve students in the course of the lesson.**  
**Evaluating and discussing quarterly scientific reports.**  
**Voluntary supervision of students in graduation projects.**  
**Conduct discussions among students.**

**Evaluation methods**

**Surprise written and oral tests**  
**Monthly exam**  
**Semester final exam**  
**Writing reports or scientific research on specific topics**  
**Asking questions during lectures and assigning marks to the student**



Education institution						
Faculty members						
Preparing the teaching staff		Special requirements/skills (if any)		Specialization		Scientific rank
lecturer	cadre			specific	general	
	permanent			Food science	Food science	Assisst.Prof.Dr.Sakina Taha Hassan
	permanent			Human nutrition	Food science	Assisst.Prof.Dr.Mahdi Hassan Hussain
	permanent			Food science	Food science	Assisst.prof.Dr.Ali Flayeh Alsaraj
	permanent			Nano technology	Nano technology	Assisst.Prof.Dr. Sharaf Al-Din Muhammad Thamer
	permanent			Agricultural economy	Agriculture	Prof, Hayat Kadhim Odaa
	permanent			Microbiology	Biology	Lec.Naghham Adil Ghani
	permanent			Food science	Food science	Lec. Haider Nasser Salman Al Tamimi
	permanent			Food science	Food science	Lec. Luay Salam Khalifa
	permanent			Organic chemistry	Chemistry	Lec.Haitham Kadhim Radhi
	permanent			Law	Law	Assisst.lec.Ali abid

						Alamer
	permanent			Horticulture	Agriculture	Assist. lec. Enas Majed
	permanent			Food science	Food science	Assist. lec. Zahraa Makki Mohammed
	permanent			Analytical chemistry	Chemistry	Assist. lec. Ghufan Khalid Alawi
	permanent			Plant protection	Agriculture	Assist. lect. Ahmed Hamid Badr

### **Professional development**

#### **Orienting new faculty members**

#### **Follow the program carefully**

**Ask many assignments that require external information**

#### **Professional development for faculty members**

**Many practical discussions, seminars, and workshops, and continuing to follow the latest scientific research**

**Good knowledge of the practical importance of how to conduct practical experiments**

### **Acceptance criterion**

**Central admission standard from the Ministry of Higher Education and Scientific Research**

**The most important sources of information about the program**

- 1-Textbooks prescribed by the Ministry of Higher Education and Scientific Research**
- 2-External scientific sources**
- 3-Using libraries and the Internet**

**Program development plan**

**The department has many methodological and research plans in order to develop the department and the environmental environment, as the department presidency, the department council, and the scientific committee work to provide all requirements for the development of the department**



✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	<b>Basic</b>	Microbiology	COFS1106	<b>First/second course</b>
✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	<b>Support</b>	English language	UOQ1207	
✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	<b>Basic</b>	Analytical chemistry	COFS1208	
✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	<b>Support</b>	Biostatistic	COFS1209	
✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	<b>Support</b>	Safety and biological security	COFS12010	
✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	<b>Support</b>	Human rights and democracy	UOQ12011	
✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	<b>Basic</b>	Foundations of engineering	COFS12012	

														workshops		
✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	<b>Basic</b>	Biochemistry	COFS23013	<b>Second/first course</b>	
✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	<b>Basic</b>	Biotechnology	FST23014		
✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	<b>Basic</b>	Food health and safety	FST23015		
✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	<b>Basic</b>	Managing food factories and marketing their products	COFS23016		
✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	<b>Basic</b>	Computer applications in food factories	FST23117		
✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	<b>Basic</b>	Food filling and	FST24018		

														packaging		<b>Second/second course</b>
✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	<b>Basic</b>	Principles of food processing	FST24019		
✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	<b>Basic</b>	Physical chemistry	COFS24020		
✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	<b>Basic</b>	Nano technology	FST24021		
✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	<b>Basic</b>	Food and dairy plant engineering	COFS24022		
✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	<b>Basic</b>	Food chemistry	FST35023	<b>Third/ first course</b>	
✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	<b>Basic</b>	Cereal chemistry	FST35024		

✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	<b>Basic</b>	Food microbiology	FST35125	
✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	<b>Basic</b>	Treatment of water and waste of food factories	FST35026	
✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	<b>Basic</b>	Care and storage	FST35027	
✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	<b>Basic</b>	Quality control	FST36028	<b>Third / second course</b>
✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	<b>Basic</b>	Dairy chemistry	COFS36029	
✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	<b>Basic</b>	Date technology	FST36030	
✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	<b>Basic</b>	Food technology1	FST36131	



✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	<b>Basic</b>	Food analysis	FST36132	<b>Fourth / first course</b>
✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	<b>Helpful</b>	Scientific research methodology	COFS47033	
✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	<b>Basic</b>	Food additives	FST47034	
✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	<b>Basic</b>	Food product development and evaluation technology	FST47035	
✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	<b>Basic</b>	Enzymes	FST47036	
✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	<b>Basic</b>	Human nutrition	FST47037	
✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	<b>Basic</b>	Dairy technology	FST47038	

✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	<b>Basic</b>	Graduation Project	COFS48139	<b>Fourth / second course</b>
✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	<b>Basic</b>	Food technology 2	FST48140	
✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	<b>Basic</b>	Industrial microbiology	FST480141	
✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	<b>Basic</b>	Meat technology	FST48042	
✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	<b>Basic</b>	Bread and pastries	FST48143	
✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	<b>helpful</b>	Professional ethics	UOQ48044	

Please check the boxes corresponding to the individual learning outcomes from the program subject to ●  
evaluation

Course description form

<b>1. Course Name</b>						
<b>Principles of food processing</b>						
<b>2. Course Code</b>						
FST24017						
<b>3. Semester/year</b>						
2023-2024						
<b>4. The date this description was prepared</b>						
1/9/2023						
<b>5. Available attendance forms</b>						
<b>Attendance only</b>						
<b>6. Number of study hours (total) / number of units (total)</b>						
150 hours/6 units						
<b>7. Name of the course administrator (if more than one name is mentioned)</b>						
Name: M. Hayder Nasser Salman Al Tamimi Email: hayderN@fosc.uoqasim.edu.iq						
<b>8. Course objectives</b>						
Objectives of the study subject		<ol style="list-style-type: none"> <li>1. An introductory introduction to the food industries and food technology and the most important areas of food technology as well as the types of food industries in Iraq.</li> <li>2. Understanding traditional and modern techniques in food manufacturing and the stages of food processing.</li> <li>3. Learn about food processing and meal preparation methods.</li> <li>4. This is the basic topic of safety in food manufacturing and the concept of food packaging.</li> <li>5. Understand the Interactions and What happened to food components in During operations Food processing.</li> </ol>				
<b>9. Teaching and learning strategies</b>						
<b>The strategy</b>		<p>Theoretical and practical lectures            Conduct scientific discussions            Conduct various research during the semester            Trying to deal with the scientific material in a way that makes the student highly focused through the latest teaching methods            Actively involve students in the course of the lesson.            Evaluating and discussing quarterly scientific reports.            Voluntary supervision of students in graduation projects.            Conduct discussions among students.</p>				
<b>10. Course structure</b>						
<b>the week</b>	<b>hours</b>	<b>Required outcomes</b>	<b>learning</b>	<b>Name of the unit or topic</b>	<b>Learning method</b>	<b>Evaluation method</b>

1	4 hours	Learn about food science and development History of food processing.	Introduction to food science and technology	Lectures	Short tests
2	4 hours	Identify the most important areas of technology Food and food handling.	The most important aspects of food technology	Lectures	Short tests
3	4 hours	Develop an understanding of the most important types of industries Food in Iraq.	Types of food industries in Iraq	Lectures	Short tests
4	4 hours	Understanding traditional techniques in Food processing.	Traditional techniques in food processing	Lectures	Short tests
5	4 hours	Learn about modern technologies In food manufacturing.	Modern technologies in food manufacturing	Lectures	Short tests
6	4 hours	Understand the different stages of processing Food including processes Handling and post-harvest.	Stages of food processing, part one	Lectures	Short tests
7	4 hours		First month exam		
8	4 hours	Understand the intermediate product and products Ready to eat.	Stages of food processing, part two	Lectures	Short tests
9	4 hours	Learn about different methods For food processing and meal preparation	Food processing and meal preparation methods	Lectures	Short tests
10	4 hours	Understand what is happening in the components food during food processing	Changes in food during processing	Lectures	Short tests

11	4 hours	Understand the purpose and principles Food packaging.	Food packaging methods	Lectures	Short tests
12	4 hours	To develop understanding of the United Nations About safety in food processing	Safety in food processing	Lectures	Short tests
13	4 hours	Understand the economic purpose From food processing	Economics of food processing	Lectures	Short tests
14	4 hours		A Second month exam		

#### **11. Course evaluation**

Distributed as follows:35 degree monthly and daily exams for theory.15 score for monthly and daily exams for practical and lab And. 50 marks for the theoretical and practical final exam.

#### **12. Learning and teaching resources**

Required course books (methodology, if any)	Food processing part 1&2 by Dr. Ali Mohammed Hussain. Ministry of Higher Education and Scientific Research - University of Mosul – 1989
Main references (sources)	Encyclopedia of food processing part 1 by Dr. sad Ahmed sad and Mahmood Ali Ahmed. Ministry of Agriculture-University of Cairo – 2010
Recommended supporting books and references (scientific journals, reports.....)	
Electronic references, Internet sites	

Course description form

<b>1. Course Name</b>					
Nanotechnology					
<b>2. Course Code</b>					
FST24021					
<b>3. Semester/year</b>					
2023-2024					
<b>4. The date this description was prepared</b>					
1/9/2023					
<b>5. Available attendance forms</b>					
Attendance only					
<b>6. Number of study hours (total) / number of units (total)</b>					
150 hours/6 units					
<b>7. Name of the course administrator (if more than one name is mentioned)</b>					
Name: A. Dr. Sharaf Al-Din Muhammad Thamer					
Email: <a href="mailto:dr.sharaf@biotech.uoqasim.edu.iq">dr.sharaf@biotech.uoqasim.edu.iq</a>					
<b>8. Course objectives</b>					
Objectives of the subject		<ol style="list-style-type: none"> <li>1. Give a basic understanding of the subject matter</li> <li>2. Introduction to Nanotechnological science</li> <li>3. Learn about methods of manufacturing Products And nanomaterials</li> <li>4. Identify the materials and requirements of Nanotechnological</li> <li>5. Identify the devices used in the Nanotechnological</li> </ol>			
<b>9. Teaching and learning strategies</b>					
<b>The strategy</b>		Transferable general and qualifying skills (other skills related to employment and personal development). Using videos, using presentation, laboratory experiments, field experiments Interactive lessons by looking at simple types of experiments that include some sampling activities of interest to students.			
<b>10. Course structure</b>					
the week	hours	Required learning outcomes	Name of the unit or topic	Learning method	Evaluation method
1	4 hours	Introduction to nanotechnology	Introduction to nanotechnology	Lectures	Short tests

2	4 hours	Material properties at nanoscales	Material properties at nanoscales	Lectures	Short tests
3	4 hours	Organic nanoparticles	Organic nanoparticles	Lectures	Short tests
4	4 hours	Inorganic nanoparticles	Inorganic nanoparticles	Lectures	Short tests
5	4 hours	Midterm exam 1	Midterm exam 1		
6	4 hours	Nanoparticle synthesis (top-down and bottom-up methods)	Nanoparticle synthesis (top-down and bottom-up methods)	Lectures	Short tests
7	4 hours	Nanoparticle characterization methods	Nanoparticle characterization methods	Lectures	Short tests
8	4 hours	Nanotechnology in vitamin delivery	Nanotechnology in vitamin delivery	Lectures	Short tests
9	4 hours	Applications of nanotechnology in foodstuffs and delivery of bioactive agents	Applications of nanotechnology in foodstuffs and delivery of bioactive agents	Lectures	Short tests
10	4 hours	Midterm exam 2	Midterm exam 2	Lectures	Short tests
11	4 hours	Application of nanotechnology in the dairy industry	Application of nanotechnology in the dairy industry	Lectures	Short tests



12	4 hours	Ethical and regulatory issues in application of nanotechnology food	Ethical and regulatory issues in application of nanotechnology food	Lectures	Short tests
13	4 hours	Applications of nanobiosensors food nanotechnology	Applications of nanobiosensors food nanotechnology	Lectures	Short tests
14	4 hours	Nanotechnology in health environmental issues	Nanotechnology in health environmental issues	Lectures	Short tests

**11. Course evaluation**

Distributed as follows:35 degree monthly and daily exams for theory.15 score for monthly and daily exams for practical and lab And. 50 marks for the theoretical and practical final exam.

**12. Learning and teaching resources**

Required course books (methodology, if a	Nanotechnology Applications in the Food Industry-CRC Press • (2018).
Main references (sources)	Food nanotechnology principles and applications-CRC Press • (2019).
Recommended supporting books and references (scientific journals, reports.....)	Handbook of Food Nanotechnology Applications and Approaches-Acade Press (2020).
Electronic references, Internet sites	Nanotechnology Applications in the Food Industry-CRC Press (2018)

Course description form

<b>1. Course Name</b>						
Bio chemistry						
<b>2. Course Code</b>						
FST21326						
<b>3. Semester/year</b>						
2023-2024						
<b>4. The date this description was prepared</b>						
1/9/2023						
<b>5. Available attendance forms</b>						
Attendance only						
<b>6. Number of study hours (total) / number of units (total)</b>						
150 hours/6 units						
<b>7. Name of the course administrator (if more than one name is mentioned)</b>						
Name: A.M. Dr. Sharaf Al-Din Muhammad Thamer						
Email: dr.sharaf@biotech.uoqasim.edu.iq						
<b>8. Course objectives</b>						
Objectives of the subject		<p>-to get to know the students on Biochemical molecules, chemical structures, and knowing the shape of biochemical molecules and how to do so</p> <p>- Explaining the importance of biomolecules and their practical applications with the aim of developing and keeping pace with scientific development in biochemistry.</p> <p>- Teaching and educating students on all the necessary information related to biochemistry, which qualifies them to work and research in all fields of biochemistry</p>				
<b>9. Teaching and learning strategies</b>						
<b>The strategy</b>		Transferable general and qualifying skills (other skills related to employment and personal development). Using videos, using presentation, laboratory experiments, field experiments Interactive lessons by looking at simple types of experiments that include some sampling activities of interest to students.				
<b>10. Course structure</b>						
the week	Hours	Required outcomes	learning	Name of the unit or topic	Learning method	Evaluation method
1	4 hours	Introduction concept cells	On basis	Introduction concept cells	Lectures	Short tests

2	4 hours	water	Water	Lectures	Short tests
3	4 hours	Amino acids, peptides proteins	Amino acids, peptides proteins	Lectures	Short tests
4	4 hours	Three-dimensional structure proteins	Three-dimensional structure proteins	Lectures	Short tests
5	4 hours	Protein function	Protein function		
6	4 hours	First monthly exam	First monthly exam	Lectures	Short tests
7	4 hours	Protein function	Protein function	Lectures	Short tests
8	4 hours	Enzymes	Enzymes	Lectures	Short tests
9	4 hours	Carbohydrates	Carbohydrates	Lectures	Short tests
10	4 hours	Nucleotides and nucleic acids	Nucleotides and nucleic acids	Lectures	Short tests
11	4 hours	First monthly exam	First monthly exam	Lectures	Short tests

12	4 hours	Nucleotides and nucleic acids	Nucleotides and nucleic acids	Lectures	Short tests
13	4 hours	DNA-based technologies	DNA-based technologies	Lectures	Short tests
14	4 hours	Fats	Fats	Lectures	Short tests

#### 11. Course evaluation

Distributed as follows:35 degree monthly and daily exams for theory.15 score for monthly and daily exams for practical and lab And. 50 marks for the theoretical and practical final exam.

#### 12. Learning and teaching resources

Required course books (methodology if any)	Lehninger Principles of Biochemistry
Main references (sources)	Biochemistry A Short Course: Third Edition by John L. Tymoczko, Jeremy M. Berg, Lubert Stryer
Recommended supporting books and references (scientific journals, reports.....)	Medical Biochemistry: Third Edition Antonio Blanco and Gustavo Blanco
Electronic references, Internet site	<a href="https://www.centreofexcellence.com/shop/biochemistry-course/">https://www.centreofexcellence.com/shop/biochemistry-course/</a>

<b>1. Course Name</b>					
Biotechnology					
<b>2. Course Code</b>					
FST48326					
<b>3. Semester/year</b>					
2023-2024					
<b>4. The date this description was prepared</b>					
1/9/2023					
<b>5. Available attendance forms</b>					
Attendance only					
<b>6. Number of study hours (total) / number of units (total)</b>					
150 hours/6 units					
<b>7. Name of the course administrator (if more than one name is mentioned)</b>					
Name: A.M. Dr. Sharaf Al-Din Muhammad Thamer Email: <a href="mailto:dr.sharaf@biotech.uoqasim.edu.iq">dr.sharaf@biotech.uoqasim.edu.iq</a>					
<b>8. Course objectives</b>					
Objectives of the subject		<ol style="list-style-type: none"> <li>1. Give a basic understanding of the subject matter</li> <li>2. Introduction to biotechnology</li> <li>3. Learn about methods of extracting biological products</li> <li>4. Identifying the materials and requirements of biotechnology</li> <li>5. Identify the devices used in biotechnology</li> </ol>			
<b>9. Teaching and learning strategies</b>					
<b>The strategy</b>		Transferable general and qualifying skills (other skills related to employment and personal development). Using videos, using presentation, laboratory experiments, field experiments Interactive lessons by looking at simple types of experiments that include some sampling activities of interest to students.			
<b>10. Course structure</b>					
the week	hours	Required learning outcomes	Name of the unit or topic	Learning method	Evaluation method
1	4 hours	What is biotechnology? (classic and modern)	What is biotechnology? (classic and modern)	Lectures	Short tests
2	4 hours	The nature of genes, clones and recombinant DNA	The nature of genes, first clones and recombinant DNA	Lectures	Short tests

3	4 hours	Basic principles recombinant DNA technology	Basic principles of recombinant DNA technology	Lectures	Short tests
4	4 hours	Molecular techniques construction and screening DNA libraries, reporter genes and blotting.	Molecular techniques construction and screening DNA libraries, reporter genes and blotting.	Lectures	Short tests
5	4 hours	Molecular techniques polymerase chain reaction (PCR)	Molecular techniques polymerase chain reaction (PCR)		
6	4 hours	First test mid-exam 1	First test mid-exam 1	Lectures	Short tests
7	4 hours	Bioreactor and recombinant DNA technology	Bioreactor and recombinant DNA technology	Lectures	Short tests
8	4 hours	Microbial biotechnology	Microbial biotechnology	Lectures	Short tests
9	4 hours	Plant biotechnology	Plant biotechnology	Lectures	Short tests
10	4 hours	Animal biotechnology	Animal biotechnology	Lectures	Short tests
11	4 hours	Marine biotechnology	Marine biotechnology	Lectures	Short tests
12	4 hours	Medical biotechnology 1	Medical biotechnology 1	Lectures	Short tests

13	4 hours	Medical biotechnology 2	Medical biotechnology 2	Lectures	Short tests
14	4 hours	The second test is mid-exam	The second test is mid-exam	Lectures	Short tests

**11. Course evaluation**

Distributed as follows:35 degree monthly and daily exams for theory.15 score for monthly and daily exams for practical and lab And. 50 marks for the theoretical and practical final exam.

**12. Learning and teaching resources**

Required course books (methodology if any)	Food Biotechnology
Main references (sources)	Food Science and Food Biotechnology
Recommended supporting books and references (scientific journals, reports.....)	International scientific research and studies with accredited specializations
Electronic references, Internet site	International scientific research and studies with specializations, approved by journals with influential and scientifically accredited laboratories

Course description form

<b>1. Course Name</b>
<b>Food analysis</b>
<b>2. Course Code</b>

<b>FST36132</b>					
<b>3. Semester/year</b>					
2023-2024					
<b>4. The date this description was prepared</b>					
1/9/2023					
<b>5. Available attendance forms</b>					
Attendance only					
<b>6. Number of study hours (total) / number of units (total)</b>					
<b>7. Name of the course administrator (if more than one name is mentioned)</b>					
Name: Dr. Mahdi Hassan Hussein Email: <a href="mailto:Dr.mahdihassan@fosci.uoqasim.edu.iq">Dr.mahdihassan@fosci.uoqasim.edu.iq</a>					
<b>8. Course objectives</b>					
Objectives of the subject		Recognizing the scientific terminology of the subject. <b>.1. Providing cadres High efficiency there is chance analysis Food To work in production laboratories, border crossings, or health control</b> <b>2.Providing job opportunities for specialists in the field of Food manufacturing</b> <b>3.gainStudentsAbilities to work in the field of Food analysis.</b> <b>-4. Developing scientific research in the field of analysis and benefit from the expertise of faculty members to cooperate with institutions Related In this field</b> <b>-5. Developing the necessary skills to develop food products in line with consumer desires and food health and safety</b>			
<b>9. Teaching and learning strategies</b>					
The strategy		Theoretical lectures Conduct scientific discussions Conduct various research during the semester Trying to deal with the scientific material in a way that makes the student highly focused through the latest teaching methods Actively involve students in the course of the lesson. Evaluating and discussing quarterly scientific reports. Voluntary supervision of students in graduation projects. Conduct discussions among students.			
<b>10. Course structure</b>					
the week	hours	Required learning outcomes	Name of the unit or topic	Learning method	Evaluation method
1	4 hours	Definition of student importance of food anal	Introduction and definition importance of food analysis	Lectures	Short tests



2	4 hours	Definition of study Preparatory processes in food analysis	Preparatory processes in food analysis	Lectures	Short tests
3	4 hours	Learn about spectroscopy	Spectroscopic analysis of food	Lectures	Short tests
4	4 hours	Flame analysis and atomic absorption	Flame analysis and atomic absorption of foods	Lectures	Short tests
5	4 hours		First exam		
6	4 hours	Infrared	The use of infrared rays in food analysis	Lectures	Short tests
7	4 hours	Chromatographic	Using a chromatographic device in food analysis	Lectures	Short tests
8	4 hours	Separation by light layer and column method	Using light layer and column technology in food analysis	Lectures	Short tests
9	4 hours	Ion exchange and chromatography	Using ion exchange food analysis technology and chromatography process	Lectures	Short tests
10	4 hours	Fractionation chromatography	The use of fractionation chromatography in food analysis	Lectures	Short tests
11	4 hours		Second exam		

12	4 hours	Electromigration	Using electromigration technology in food analysis	Lectures	Short tests
13	4 hours	Enzymatic methods	The use of enzymatic methods in food analysis	Lectures	Short tests
14	4 hours	Microbial analysis	Using a microbial method to analyze foods	Lectures	Short tests

**11. Course evaluation**

Distributed as follows: 35 degree monthly and daily exams for theory. 15 score for monthly and daily exams for practical and lab And. 50 marks for the theoretical and practical final exam.

**12. Learning and teaching resources**

Required course books (methodology, if any)	1-Food analysis. By Dr. Basil Kamil Dalaly and Sadik Hassan Al-Hakem. 1987. Ministry of Higher Education and Scientific Research - University of Mosul –
Main references (sources)	-Food analysis. By Dr. S. Suzanne Nielson. 2012. fourth edition. USA
Recommended supporting books and references (scientific journals, reports.....)	Methods of analysis of food components and additives. By Semih Otles. 2011. second edition
Electronic references, Internet sites	

Course description form

<b>1. Course Name</b>
Treatment of water and waste of food factories
<b>2. Course Code</b>
FST35026
<b>3. Semester/year</b>
2023-2024
<b>4. The date this description was prepared</b>

1/9/2023					
5. Available attendance forms					
Attendance only					
6. Number of study hours (total) / number of units (total)					
150 hours/6 units					
7. Name of the course administrator (if more than one name is mentioned)					
the name: M. Enas Majed Email: <a href="mailto:inasmajid@fosci.uoqasim.edu.iq">inasmajid@fosci.uoqasim.edu.iq</a>					
8. Course objectives					
Identify the technological approach to the water filtration process Learn about the importance of water sterilization, types of sterilizers, and examination methods Water treatment for food industries and soft water production Identify food factory waste and its environmental impacts Understanding the stages of treating various types of waste					Objectives of the subject
9. Teaching and learning strategies					
Theoretical and practical lectures Conduct scientific discussions Conduct various research during the semester Trying to deal with the scientific material in a way that makes the student highly focused through the latest teaching methods Actively involve students in the course of the lesson. Evaluating and discussing quarterly scientific reports. Voluntary supervision of students in graduation projects. Conduct discussions among students.					The strategy
10. Course structure					
Evaluation method	Learning method	Name of the unit or topic	Required learning outcomes	hours	the week
Short tests	Lectures	The importance of filtering purifying water	Learn about methods filtering and locations water withdrawal	4 hours	1
Short tests	Lectures	Water filtering procedure removing hardness, producing soft water	Understanding the role chemical softeners and effect of acid function Water filtration procedures, removing hardness, and producing soft water	4 hours	2
Short tests	Lectures	Chemical and physical transactions	Identify methods physical and chemical deposition and ongoing examination	4 hours	3

Short tests	Lectures	Sterilization, disinfectants, examination methods	Understanding mechanics of chlorine sterilization and advantages of sterilization methods	4 hours	4
		First exam		4 hours	5
Short tests	Lectures	Mechanism of chlorine action through sterilization and various treatments for food industry purposes	Understanding the reasons for treating water for food industry purposes	4 hours	6
Short tests	Lectures	Types of food factory waste	Identifying solid, liquid, gaseous factory waste	4 hours	7
Short tests	Lectures	Initial treatment	Learn the steps preliminary treatment waste Transactions/initial transaction	4 hours	8
Short tests	Lectures	Secondary (biological) treatment and advanced treatments	Detailing the importance of secondary (biological) treatment and the role of microorganisms in it	4 hours	9
Short tests	Lectures	Specialized transactions	Study some specialized transactions	4 hours	10
		Second exam		4 hours	11
Short tests	Lectures	Examinations BOD And COD	Conducting tests for oxidizable substances total organic substances	4 hours	12
Short tests	Lectures	Exploiting waste for agricultural purposes	About recycling waste and benefit from it	4 hours	13

Short tests	Lectures	Review	Environmental impact waste	4 hours	14
<b>11. Course evaluation</b>					
Distributed as follows:35 degree monthly and daily exams for theory.15 score for monthly and daily exams for practical and lab And. 50 marks for the theoretical and practical final exam.					
<b>12. Learning and teaching resources</b>					
Water microbiology			Required course books (methodology, if any)		
Practical environmental engineering Water tests			Main references (sources)		
All books and resources related to water purification and factory waste treatment			Recommended supporting books and references (scientific journals, reports.....)		
The Internet			Electronic references, Internet sites		

Course description form

<b>1. Course Name</b>
Care and storage of horticultural crops
<b>2. Course Code</b>
FST35027
<b>3. Semester/year</b>
2023-2024
<b>4. The date this description was prepared</b>
1/9/2023
<b>5. Available attendance forms</b>
Attendance only
<b>6. Number of study hours (total) / number of units (total)</b>

150 hours/6 units					
<b>7. Name of the course administrator (if more than one name is mentioned)</b>					
Name: M. Enas Majed Email: inasmajid@fosci.uoqasim.edu.iq					
<b>8. Course objectives</b>					
Recognizing the scientific terminology of the subject. Identify The importance of the steps of grief Identify Storing horticultural crops and storage methods and the influence of factors External On the speed of breathing and the effect of hormones on maturity the Learn about the importance of storage, its impact on crops, and storage methods Dry or refrigerate the definition With types And storage methods Dry or refrigerate Understanding the necessity of providing untimely crops Identify On the basics of refrigeration work And Standards completion of the growth and maturity For fruits					Objectives of the subject
<b>9. Teaching and learning strategies</b>					
Theoretical and practical lectures Conduct scientific discussions Conduct various research during the semester Trying to deal with the scientific material in a way that makes the student highly focused through the latest teaching methods Actively involve students in the course of the lesson. Evaluating and discussing quarterly scientific reports. Voluntary supervision of students in graduation projects. Conduct discussions among students.					<b>The strategy</b>
<b>10. Course structure</b>					
Evaluation method	Learning method	Name of the unit or topic	Required learning outcomes	hours	the week
Short tests	Lectures	The importance of storage of horticultural crops	Storage of horticultural crops	4 hours	1
Short tests	Lectures	Stages of fruit formation, growth and ripening	Formation and growth of fruits	4 hours	2
Short tests	Lectures	Effect of hormones on plants	Contract and hormonal balance of the fruits	4 hours	3

Short tests	Lectures	Standards Stir the fruits	Completeness terms din	4 hours	4
		Fruit treatments after harvest	Harvesting horticultural crops and its supplies	4 hours	5
Short tests	Lectures	harvest Factors affecting speed of weight loss in fruits	Weight loss in horticultural crops after harvest Factors affecting the speed of weight loss in fruit	4 hours	6
Short tests	Lectures	Exam		4 hours	7
Short tests	Lectures	Nutrition and organic products	Factors before harvest and their effects on the life of fruits after harvest	4 hours	8
Short tests	Lectures	Antioxidants and mineral elements	Post-harvest treatment treatments	4 hours	9
Short tests	Lectures	Changes in the content of water, carbohydrates, starch, sugars and substances in fruits made me cry And the effect of hormones	the changes in fruits during growth, ripening and storage	4 hours	10
		Auxins, gibberellins, ethylene, cytokinins, and abscisic acid	The effect of plant hormones on the growth and ripening of fruit	4 hours	11
Short tests	Lectures	Exam		4 hours	12
Short tests	Lectures	Alternative stores	Fruit and vegetable stores	4 hours	13

Short tests	Lectures	Handling citrus fruits & harvest	Handling fruits after har	4 hours	14
<b>11. Course evaluation</b>					
Distributed as follows:35 degree monthly and daily exams for theory.15 score for monthly and daily exams for practical and lab And. 50 marks for the theoretical and practical final exam.					
<b>12. Learning and teaching resources</b>					
Theoretical care and storage of horticultural crops - practical care and storage of fruits and vegetables			Required course books (methodology, if any)		
Maintaining quality specifications after harvest / University California – Davis			Main references (sources)		
All books and resources related to care and storage			Recommended supporting books and references (scientific journals, reports.....)		
<a href="http://postharvest.ucdavis">http://postharvest.ucdavis</a>			Electronic references, Internet sites		

Course description form

Name of the course
Quality control and quality control
Course code
FST36028
Semester/year
۲۰۲۴-۲۰۲۳
Date this description was prepared
۲۰۲۳/۹/۱
Available forms of attendance
My presence only
Number of study hours (total) / Number of units (total)
150 urs/6 units
Name of the course administrator (if more than one name is mentioned)



Name: M. Haider Nasser Salman Al Tamimi Email: [hayderN@fosc.uoqasim.edu.iq](mailto:hayderN@fosc.uoqasim.edu.iq)

**Course objectives**

Objectives of the study material: To become familiar with the scientific terminology of the subject.	Objectives of the study material: To become familiar with the scientific terminology of the subject.
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Proper use of laboratory equipment to measure food quality and specifications.

Theoretical and practical lectures  
 Conduct scientific discussions  
 Conduct various research during the semester  
 Trying to deal with the scientific material in a way that makes the student highly focused through the latest teaching methods  
 Actively involve students in the course of the lesson.  
 Evaluating and discussing quarterly scientific reports.  
 Voluntary supervision of students in graduation projects.  
 Conduct discussions among students.

**The strategy**

**Course structure**

Evaluation method	Learning method	Name of the unit or topic	Required learning outcomes	hours	week
Short tests	Lectures	roduction and definition of quality control	roducing the student to concept of quality and quality control	4 hours	1
Short tests	Lectures	asks of the quality control department	roducing the student to the duties and responsibilities of the control department in food laboratories	4 hours	2
Short tests	Lectures	performance sign	roducing the student to the quality mark for different countries and how to obtain it	4 hours	3
Short tests	Lectures	ethods used to determine food quality	roducing the student to e modern devices and hods used to determine food quality	4 hours	4
		First exam		4 hours	5
Short tests	Lectures	the color	roducing the student to the devices used to determine food color	4 hours	6

Short tests	Lectures	Viscosity and texture	roducing the student to modern methods for measuring the viscosity and texture of foods	4 hours	7
Short tests	Lectures	pecifications for different foods	roducing the student to international and local food standards	4 hours	8
Short tests	Lectures	Food defects	roducing the student to most important defects that affect foods	4 hours	9
Short tests	Lectures	Defect detection tests	roducing the student to e methods and devices sed to detect defects	4 hours	10
		Second exam		4 hours	11
Short tests	Lectures	Adulterated food	roducing the student to the methods used to ulterate various foods	4 hours	12
Short tests	Lectures	ests to detect adulterated foods	roducing the student to ays to detect different methods of cheating	4 hours	13
Short tests	Lectures	HACCP system	roducing the student to new methods used and concept of the HACCP system and its requirements	4 hours	14

#### Course evaluation

The distribution is as follows: 35 marks for the monthly and daily exams for the first theory. 15 marks for monthly and daily exams for my work. 50 marks for the theoretical and practical final exam.

#### Learning and teaching resources

lity control and standard specifications for foods, written by Shimon Korkis. Ministry of Higher Education and Scientific Research - University of Mosul – 1988	Required course books (methodology, if any)
lity control and standard specifications for foods, written by Shimon Korkis. Ministry of Higher Education and Scientific Research - University of Mosul – 1988	Main references (sources)
ontrol and control of food quality, written by Dr. On full	Recommended supporting books and references

forearm. Faculty of Agriculture - University of Jordan - 2000	(scientific journals, reports.....)
	Electronic references, Internet sites

Course description form

1. Name of the course	
Date technology	
2. Course code	
FST36030	
3. Semester/year	
٢٠٢٤-٢٠٢٣	
4. The date this description was prepared	
٢٠٢٣/٩/١	
5. Available forms of attendance	
My presence only	
6. Number of study hours (total) / number of units (total)	
150 hours/6 units	
7. Name of the course administrator (if more than one name is mentioned)	
Name: M. Luay Salam Khalifa Email: <a href="mailto:luaysalam@fosci.uoqasim.edu.iq">luaysalam@fosci.uoqasim.edu.iq</a>	
<b>Course objectives</b>	
<ul style="list-style-type: none"> <li>١-Learn and understand the chemical composition and nutritional value of dates and the differences between their types.</li> <li>٢- Changes that occur to dates during processing, manufacturing, and maintaining their quality.</li> <li>٣-The student learns how to store dates and preserve their nutritional value</li> <li>٤-Manufacture of high-quality date products using correct scientific methods free of harmful industrial additives.</li> <li>٥-Learn methods for detecting fraud and evaluating food and industrial dates products.</li> <li>٦-Enabling the student to work in date laboratories and factories by learning the latest programs and manufacturing tools.</li> </ul>	Objectives of the study subject
<b>Teaching and learning strategies</b>	
<p>Interactive teaching: by encouraging students to interact with the educational materials through group discussion, collaborative activities, opening questions, and brainstorming.</p> <p>Peer Learning: This approach involves encouraging students to learn from each other through the exchange of knowledge and skills</p> <p>Active learning: It revolves around involving students in thinking processes and interacting with educational materials through simulation activities and scientific experiments</p> <p>Educational technology: includes the use of computers, the Internet, and multimedia to enhance the learning experience</p> <p>Providing constructive feedback: by providing students with effective feedback about their performance that helps them improve performance and understanding</p> <p>Cooperative Learning: Encourages cooperation among students through group work on educational projects and activities</p> <p>Flipped learning: In which the student studies the subject or topic at home independently and</p>	Strategy

uses the time in class to discuss questions and apply what he has learned

**Course structure**

<b>Evaluation method</b>	<b>Learning method</b>	<b>Name of the unit or topic</b>	<b>Required learning outcomes</b>	<b>hours</b>	<b>week</b>
Short tests	Lectures	eties, types and products of dates	Understanding the chemical position of dates and ways to deal with them.	4 hours	1
Short tests	Lectures	ditional value of dates and chemical content of the kernels	Understanding the chemical position of dates and ways to deal with them.	4 hours	2
Short tests	Lectures	culations of sugary sweets meals	Understands the physical, chemical and biochemical properties of dates and their products.	4 hours	3
Short tests	Lectures	ifications of dates produced and methods of manufacturing		4 hours	4
		First exam	knowledge of the percentages added to dates, cautions of increasing n, and adherence to ral methods to maintain ity and adherence to food legislation.	4 hours	5
Short tests	Lectures	ificial ripening and date treatments		4 hours	6
Short tests	Lectures	most important date manufacturing industries	etects methods of fraud ough lineage tification, analyzes and tests for dates.	4 hours	7
Short tests	Lectures	es of vinegar and methods of making it	ufacturing various apeutic and nutritional products with rovement according to the consumer market.	4 hours	8

Short tests	Lectures	Drying dates	Manufacturing various therapeutic and nutritional products with improvement according to the consumer market.	4 hours	9
Short tests	Lectures	Age of dates and the changes that occur during storage	Detects methods of fraud through lineage certification, analyzes and tests for dates.	4 hours	10
		Second exam	Choosing appropriate storage methods for dates food and industrial date products.	4 hours	11
Short tests	Lectures	Reality and prospects of the date products, technically and economically		4 hours	12
Short tests	Lectures	Materials manufactured from palm trees and its products	Understands the physical, chemical and biochemical properties of dates and their products.	4 hours	13
Short tests	Lectures	Biofuel production from dates		4 hours	14

#### Course evaluation

The distribution is as follows: 35 marks for the monthly and daily exams for the first theory. 15 marks for monthly and daily exams for my work. 50 marks for the theoretical and practical final exam.

#### Learning and teaching resources

Dates and Sugar Technology, written by Dr. Adnan Wahab Muzaffar	Required course books (methodology, if any)
Dates and sweets production, written by Dr. Hassan Kh Hassan Al-Akidi	Main references (sources)
	Recommended supporting books and references (scientific journals, reports.....)
	Electronic references, Internet sites

#### Course description form

1. Name of the course
Food technology\2
2. Course code
3. Semester/year
٢٠٢٤-٢٠٢٣
4. The date this description was prepared

٢٠٢٣/٩/١

5. Available forms of attendance

My presence only

6. Number of study hours (total) / number of units (total)

150 hours/6 units

7. Name of the course administrator (if more than one name is mentioned)

Name: Dr. Ali Flayeh alsaraj

Email: [dr.aliflayehalsaraj@fosc.uoqasim.edu.iq](mailto:dr.aliflayehalsaraj@fosc.uoqasim.edu.iq)

8. Course objectives

Recognizing the scientific terminology of the subject.

-١Developing the student's skill in identifying food processing methods in the world and Iraq and modern techniques in this field

.٢Preparing the student to have good experience in the field and knowledge of food manufacturing methods and identifying problems and solutions

.٣Preparing the student to be experienced in the field of carrying out the various manufacturing operations that accompany the food manufacturing process, using equipment and laboratories, and conducting tests related to the manufacturing of all types of foods.

.٤The student should be able to distinguish the types of changes that occur to food as a result of the manufacturing process

.٥The student will have the ability to distinguish the changes that occur to a food item before and after the packaging process and how to treat them

Objectives of the study subject

**Teaching and learning strategies**

Theoretical and practical lectures

Conduct scientific discussions

Conduct various research during the semester

Trying to deal with the scientific material in a way that makes the student highly focused through the latest teaching methods

Actively involve students in the course of the lesson.

Evaluating and discussing quarterly scientific reports.

Voluntary supervision of students in graduation projects.

Conduct discussions among students.

**strategy**

**Course structure**

Evaluation method	Learning method	Name of the unit or topic	Required learning outcomes	hours	week
Short tests	Lectures	importance of refrigeration in food preservation	refrigerating food preservation	4 hours	1
Short tests	Lectures	importance of freezing in food preservation	storing food by freezing	4 hours	2
Short tests	Lectures	importance and methods of sterilization in food preservation	storing food at high temperatures (jacket)	4 hours	3

Short tests	Lectures	importance of sterilization in food preservation	erving food at high temperature (sterilization)	4 hours	4
			First exam	4 hours	5
Short tests	Lectures	importance of natural drying in food preservation	erving food by drying (natural)	4 hours	6
Short tests	Lectures	importance of dryers in erving foods and their types	d preservation by drying (mechanical)	4 hours	7
Short tests	Lectures	importance of canning and s of cans in preserving food	erving food by canning	4 hours	8
Short tests	Lectures	es of radiation and its ortance in food preservation	erving food by radiation	4 hours	9
Short tests	Lectures	tify the extent of the use of nicals and the possibility of g them in food preservation	erving food with chemicals	4 hours	10
			Second exam	4 hours	11
Short tests	Lectures	importance of pickling and entation in food preservation	d preservation by ckling and fermentation	4 hours	12
Short tests	Lectures	sing smoke to preserve food	erving food by smoking	4 hours	13

Short tests	Lectures	====	erving food by smoking	4 hours	14
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### Course evaluation

The distribution is as follows: 35 marks for the monthly and daily exams for the first theory. 15 marks for monthly and daily exams for my work. 50 marks for the theoretical and practical final exam.

### Learning and teaching resources

Books for the required course Food Industry, Parts One and	Required course books (methodology, if any)
Food manufacturing book\Food manufacturing book\F industries\Food preservation and safety book	Main references (sources)
Food technology book\\ Oil and fat technology	Recommended supporting books and references (scientific journals, reports.....)
https://www. Electronic references and websites.... J.Agr.F Chem	Electronic references, Internet sites

### Course description form

1. Name of the course	
Meat technology	
2. Course code	
FST48042	
3. Semester/year	
٢٠٢٤-٢٠٢٣	
4. The date this description was prepared	
٢٠٢٣/٩/١	
5. Available forms of attendance	
My presence only	
6. Number of study hours (total) / number of units (total)	
150 hours/6 units	
7. Name of the course administrator (if more than one name is mentioned)	
Name: M. Louay Salam Khalifa Email: <a href="mailto:luaysalam@fosci.uoqasim.edu.iq">luaysalam@fosci.uoqasim.edu.iq</a>	
<b>course objectives</b>	
<ul style="list-style-type: none"> <li>-١ Learn and understand the chemical composition and nutritional value of red and white meat and the differences between them.</li> <li>-٢ Changes that occur to meat during processing and maintaining its quality.</li> <li>-٣ The student learns methods of storing meat.</li> <li>-٤ Manufacture of high-quality meat products using correct scientific methods.</li> <li>-٥ Learn methods for detecting fraud and evaluating meat products.</li> <li>-٦ Enabling the student to work in meat laboratories and factories by learning the latest programs and manufacturing tools.</li> </ul>	ectives of the study subject
<b>Teaching and learning strategies</b>	
<p>Interactive teaching: by encouraging students to interact with the educational materials through group discussion, collaborative activities, opening questions, and brainstorming.</p> <p>Peer learning: This approach involves encouraging students to learn from each other through the exchange of knowledge and skills</p> <p>Active learning: It revolves around involving students in thinking processes and interacting with educational materials through simulation activities and scientific experiments</p> <p>Educational technology: includes the use of computers, the Internet, and multimedia to enhance the learning experience</p>	<b>Sterategy</b>



Providing constructive feedback: by providing students with effective feedback about their performance that helps them improve performance and understanding  
 Cooperative Learning: Encourages cooperation among students through group work on educational projects and activities  
 Flipped learning: In which the student studies the subject or topic at home independently and uses the time in class to discuss questions and apply what he has learned

**Course structure**

<b>Evaluation method</b>	<b>Learning method</b>	<b>Name of the unit or topic</b>	<b>Required learning outcomes</b>	<b>hours</b>	<b>week</b>
Short tests	Lectures	importance of meat and its nutritional value	Understanding the chemical composition of meat and methods of handling it.	4 hours	1
Short tests	Lectures	Physical composition and chemical composition of meat	Understands the physical, chemical and biochemical properties of meat and meat products.	4 hours	2
Short tests	Lectures		knowledge of the percentages added to meat, cautions of increasing salt, and adherence to traditional methods to maintain quality.	4 hours	3
Short tests	Lectures	Changes occurring in meat after the death of the animal	Understands the physical, chemical and biochemical properties of meat and meat products.	4 hours	4
				4 hours	5
Short tests	Lectures	Factors affecting the nature and composition of meat	Use appropriate storage methods for meat and meat products	4 hours	6
Short tests	Lectures		Use appropriate storage methods for meat and meat products	4 hours	7
Short tests	Lectures	Properties or factors of palatability of meat	Use appropriate storage methods for meat and meat products	4 hours	8

Short tests	Lectures		detects fraud methods through identification of age, analyzes and tests for meat.	4 hours	9
Short tests	Lectures	First midterm exam	manufacturing various mented meat products regular products with rovement according to the consumer market.	4 hours	10
				4 hours	11
Short tests	Lectures	c rays and their effect on meat	manufacturing various mented meat products regular products with rovement according to the consumer market.	4 hours	12
Short tests	Lectures		manufacturing various mented meat products regular products with rovement according to the consumer market.	4 hours	13
Short tests	Lectures	Methods of preserving meat	roducing the student to new methods used and concept of the HACCP t system and its requirements	4 hours	14

#### Course evaluation

The distribution is as follows: 35 marks for the monthly and daily exams for the first theory. 15 marks for monthly and daily exams for my work. 50 marks for the theoretical and practical final exam.

#### Learning and teaching resources

(Meat and Fish Technology, author Dr. Munir Abboud Jassin	Required course books (methodology, if any)
(Meat Technology, author Dr. Majid Bashir Al-Aswad)	Main references (sources)
(Meat and Fish Technology, author Dr. Munir Abboud Jassin	Recommended supporting books and references (scientific journals, reports.....)
[G_M_Hall]_Fish_Processing_Technology	Electronic references, Internet sites

#### Course description form

1. Name of the course
Industrial neighbourhoods
2. Course code
FST480141
3. Semester/year
٢٠٢٤-٢٠٢٣
4. The date this description was prepared
٢٠٢٣/٩/١
5. Available forms of attendance

My presence only					
6. Number of study hours (total) / number of units (total)					
150 hours/6 units					
7. Name of the course administrator (if more than one name is mentioned)					
Name: M. Louay Salam Khalifa Email: <a href="mailto:luaysalam@fosci.uoqasim.edu.iq">luaysalam@fosci.uoqasim.edu.iq</a>					
<b>Course objective</b>					
<ul style="list-style-type: none"> <li>-<sup>١</sup>Learn and understand the composition and structure of industrial microorganisms involved in food manufacturing.</li> <li>-<sup>٢</sup> The changes that occur to industrial microorganisms when they are prepared and introduced into manufacturing and to maintain their quality and vitality.</li> <li>-<sup>٣</sup>The student learns methods of producing and storing industrial food organisms and maintaining their value and quality.</li> <li>-<sup>٤</sup>Learn how to manufacture them with high quality and correct scientific methods free of harmful industrial additives.</li> <li>-<sup>٥</sup>Learn methods for detecting fraud and evaluating food artificial biology products.</li> <li>-<sup>٦</sup>Enabling the student to work in industrial biology laboratories and factories by learning the latest programs and manufacturing tools and methods of dealing with them.</li> </ul>				Objectives of the study subject	
<b>Teaching and learning strategies</b>					
<p>Interactive teaching: by encouraging students to interact with the educational materials through group discussion, collaborative activities, opening questions, and brainstorming.</p> <p>Peer learning: This approach involves encouraging students to learn from each other through the exchange of knowledge and skills</p> <p>Active learning: It revolves around involving students in thinking processes and interacting with educational materials through simulation activities and scientific experiments</p> <p>Educational technology: includes the use of computers, the Internet, and multimedia to enhance the learning experience</p> <p>Providing constructive feedback: by providing students with effective feedback about their performance that helps them improve performance and understanding</p> <p>Cooperative Learning: Encourages cooperation among students through group work on educational projects and activities</p> <p>Flipped learning: In which the student studies the subject or topic at home independently and uses the time in class to discuss questions and apply what he has learned</p>				strategy	
<b>Course structure</b>					
Evaluation method	Learning method	Name of the unit or topic	Required learning outcomes	hours	week
Short tests	Lectures	es of industrial biology in food field and the importance of these projects	n and understand the position and structure industrial microorganisms involved in food processing.	4 hours	1
Short tests	Lectures	hods of feeding industrial organisms	changes that occur to strial microorganisms n they are prepared and duced into ufacturing and ntain their quality and vitality.	4 hours	2

Short tests	Lectures	most important industrial fermentations in the field of food and its products	Understanding the mechanism of operation of industrial fermenters and methods of their management and production	4 hours	3
Short tests	Lectures	fermenters, their types, uses, methods of preparation and sterilization	student learns methods producing and storing industrial food organisms maintaining their value and quality.	4 hours	4
		First exam		4 hours	5
Short tests	Lectures	environmental conditions of fermenters and methods of controlling them	changes that occur to industrial microorganisms when they are prepared and introduced into manufacturing and maintain their quality and vitality.	4 hours	6
Short tests	Lectures	control systems, types and conditions	student learns methods producing and storing industrial food organisms maintaining their value and quality.	4 hours	7
Short tests	Lectures	products of primary and secondary metabolism of industrial organisms, enzymes and amino acids	student learns methods producing and storing industrial food organisms maintaining their value and quality.	4 hours	8
Short tests	Lectures	Oriental fermented foods	learn how to manufacture them with high quality and select scientific methods of harmful industrial additives.	4 hours	9
Short tests	Lectures	methods of preparing the vaccine in the production line, characteristics and features	enabling the student to work in industrial biology laboratories and factories learning the latest programs, manufacturing processes, and methods of dealing with them.	4 hours	10
		Second exam		4 hours	11

Short tests	Lectures	uses of microbial dyes and methods of producing them	in methods for detecting fraud and quating food artificial biology products.	4 hours	12
Short tests	Lectures	Methods for measuring toxicity and ensuring product safety		4 hours	13
Short tests	Lectures	Polymer-producing microorganisms	abling the student to k in industrial biology ratories and factories learning the latest grams, manufacturing s, and methods of dealing with them.	4 hours	14

#### Course evaluation

The distribution is as follows: 35 marks for the monthly and daily exams for the first theory. 15 marks for monthly and daily exams for my work. 50 marks for the theoretical and practical final exam.

#### Learning and teaching resources

Food and Industrial Microbiology R. K. Malik & Shilpa Vij Okafor, N. 2007. Modern Industrial Microbiology Biotechnology. Enfield: Science Publ., USA	Required course books (methodology, if any)
Waites, M. J. 2001. Industrial Microbiology: Introduction. Blackwell Science, London	Main references (sources)
	Recommended supporting books and references (scientific journals, reports.....)
	Electronic references, Internet sites

Course description form

1. Name of the course					
Human nutrition					
2. Course code					
3. Semester/year					
٢٠٢٤-٢٠٢٣					
4. The date this description was prepared					
٢٠٢٣/٩/١					
5. Available forms of attendance					
My presence only					
6. Number of study hours (total) / number of units (total)					
7. Name of the course administrator (if more than one name is mentioned)					
Name: Dr. Ali Flayeh alsaraj                      Email: <a href="mailto:dr.aliflayehalsaraj@fosc.uoqasim.edu.iq">dr.aliflayehalsaraj@fosc.uoqasim.edu.iq</a>					
<b>Course objective</b>					
<p>Recognizing the scientific terminology of the subject.</p> <p>١. Providing qualified cadres to advance society in the field of food and nutrition, and improve the health and nutritional status of community members.</p> <p>٢. Providing job opportunities for specialists in the field of food and nutrition</p> <p>٣. Providing students with the capabilities to work in the field of nutrition, which increases job opportunities to educate different segments of society in terms of nutrition.</p> <p>٤-Developing scientific research in the field of nutrition and benefiting from the expertise of faculty members to cooperate with institutions related to food and nutrition</p> <p>٥-Developing the necessary skills to develop food products in line with consumer desires and food health and safety</p>				<p>ectives of the study subject</p>	
<b>Teaching and learning strategies</b>					
<p>Theoretical lectures</p> <p>Conduct scientific discussions</p> <p>Conduct various research during the semester</p> <p>Trying to deal with the scientific material in a way that makes the student highly focused through the latest teaching methods</p> <p>Actively involve students in the course of the lesson.</p> <p>Evaluating and discussing quarterly scientific reports.</p> <p>Voluntary supervision of students in graduation projects.</p> <p>Conduct discussions among students.</p>				<p>strategy</p>	
<b>Course structure</b>					
Evaluation method	Learning method	Name of the unit or topic	Required learning outcomes	hours	week
Short tests	Lectures	roduction and definition of human nutrition	roducing the student to concept of nutrition science	2 hours	1

Short tests	Lectures	The importance of nutrients	roducing the student to importance of nutrition the importance of nutrients	2 hours	2
Short tests	Lectures	bohydrates and their importance to humans	Carbohydrates	2 hours	3
Short tests	Lectures	and their importance to humans	Fats	2 hours	4
		First exam		2 hours	5
Short tests	Lectures	eins and their importance to humans	Proteins	2 hours	6
Short tests	Lectures	mins and their importance to humans	Vitamins	2 hours	7
Short tests	Lectures	eral elements and their importance to humans	Metal elements	2 hours	8
Short tests	Lectures	=====	Metal elements	2 hours	9
Short tests	Lectures	importance of water to humans	water	2 hours	10
		Second exam		2 hours	11

Short tests	Lectures	importance of calories methods of calculating them	energy	2 hours	12
Short tests	Lectures	How to prepare a healthy diet and its importance	Healthy diet	2 hours	13
Short tests	Lectures	Identify diseases caused by food	Malnutrition diseases	2 hours	14

**Course evaluation**

Distribution as follows: 50 marks for the monthly and daily exams for the first theory. And the second

**Learning and teaching resources**

Foundations of nutrition - food safety - food and human nutrition - therapeutic nutrition - human nutrition	Required course books (methodology, if any)
Foundations of nutrition - food safety - food and human nutrition - therapeutic nutrition - dietary patterns - human nutrition - food customs and traditions - Internet sites - Complete nutrition - vegetarians and their approach to nutrition	Main references (sources)
Foundations of nutrition - food safety - food and human nutrition - therapeutic nutrition - dietary patterns - human nutrition - dietary customs and traditions - Internet sites - Advanced nutrition	Recommended supporting books and references (scientific journals, reports.....)
	Electronic references, Internet sites