

**Ministry of Higher Education and Scientific Research
Scientific Supervision and Scientific Evaluation Apparatus
Directorate of Quality Assurance and Academic Accreditation
Accreditation Department**



Academic Program and Course Description Guide

2024

Introduction:

The educational program is a well-planned set of courses that include procedures and experiences arranged in the form of an academic syllabus. Its main goal is to improve and build graduates' skills so they are ready for the job market. The program is reviewed and evaluated every year through internal or external audit procedures and programs like the External Examiner Program.

The academic program description is a short summary of the main features of the program and its courses. It shows what skills students are working to develop based on the program's goals. This description is very important because it is the main part of getting the program accredited, and it is written by the teaching staff together under the supervision of scientific committees in the scientific departments.

This guide, in its second version, includes a description of the academic program after updating the subjects and paragraphs of the previous guide in light of the updates and developments of the educational system in Iraq, which included the description of the academic program in its traditional form (annual, quarterly), as well as the adoption of the academic program description circulated according to the letter of the Department of Studies T 3/2906 on 3/5/2023 regarding the programs that adopt the Bologna Process as the basis for their work.

In this regard, we can only emphasize the importance of writing an academic programs and course description to ensure the proper functioning of the educational process.

Concepts and terminology:

Academic Program Description: The academic program description provides a brief summary of its vision, mission and objectives, including an accurate description of the targeted learning outcomes according to specific learning strategies.

Course Description: Provides a brief summary of the most important characteristics of the course and the learning outcomes expected of the students to achieve, proving whether they have made the most of the available learning opportunities. It is derived from the program description.

Program Vision: An ambitious picture for the future of the academic program to be sophisticated, inspiring, stimulating, realistic and applicable.

Program Mission: Briefly outlines the objectives and activities necessary to achieve them and defines the program's development paths and directions.

Program Objectives: They are statements that describe what the academic program intends to achieve within a specific period of time and are measurable and observable.

Curriculum Structure: All courses / subjects included in the academic program according to the approved learning system (quarterly, annual, Bologna Process) whether it is a requirement (ministry, university, college and scientific department) with the number of credit hours.

Learning Outcomes: A compatible set of knowledge, skills and values acquired by students after the successful completion of the academic program and must determine the learning outcomes of each course in a way that achieves the objectives of the program.

Teaching and learning strategies: They are the strategies used by the faculty members to develop students' teaching and learning, and they are plans that are followed to reach the learning goals. They describe all classroom and extra-curricular activities to achieve the learning outcomes of the program.

Academic Program Description Form

University Name: University of Anbar

Faculty/Institute: College of Agriculture

Scientific Department: Food Science Department

Academic or Professional Program Name:

Final Certificate Name: BSc in Agriculture Science

Academic System: Courses

Description Preparation Date: 1/9/2023

File Completion Date: 14/4/2024

Signature:

Head of Department Name:

Assist. Prof. Dr. Saad I. Yousif

Date: 14/4/2024

Signature:

Scientific Associate Name:

Assist. Prof. Dr. Osama H. Mahedi

Date: 14/9/2024



The file is checked by:

Department of Quality Assurance and University Performance

Director of the Quality Assurance and University Performance Department:

Assist. Prof. Dr. Waleed Ismael Kurdi

Date: 14/4/2024

Signature:



Approval of the Dean

Prof. Dr. Idham Ali Abed

14 \ 4 \ 2024

1. Program Vision

Preparing scientifically qualified cadres and opening up to society to transfer modern agricultural technologies and keep pace with global development in the agricultural sector.

2. Program Mission

The main goal of the department's administration is to provide society with resources and staff working in various educational and pedagogical fields, as well as the industrial, banking, security, and economic sectors through:

- 1- Two agricultural engineer teachers graduated with high-level qualifications capable of modernizing the infrastructure in the field of agriculture.
- 2- Developing students, providing them with modern technologies, and providing services to the community and the labor market.
- 3- Building leadership qualities in graduates by training them to work as one team.
- 4- Support and provide a good work environment for students and faculty members.
- 5 - Caring for, supporting and encouraging outstanding students.

3. Program Objectives

- 1- Preparing graduates with high theoretical and practical skills to meet the needs of industry, technological development and community service in the field of agricultural engineering.
- 2- Providing the graduates with the applied practical skills and the necessary engineering background according to the scientific developments taking place in the methodological vocabulary and modern teaching methods to pursue postgraduate studies in the various specializations of agricultural engineering.
- 3- Preparing graduates to participate actively in building and rebuilding the country and achieving economic and social benefits for society.

4. Program Accreditation

Study plans for all stages and for the coming years

5. Other external influences

Instructions and instructions related to the program

6. Program Structure

Program Structure	Number of Courses	Credit hours	Percentage	Reviews*
Institution Requirements	14	17	9.90%	Basic
College Requirements	21	67	39.06%	Basic
Department Requirements	27	87.50	51.02%	Basic
Summer Training	1			
Other				

* This can include notes whether the course is basic or optional.

7. Program Description

First Year

Course Description	Couse Name	Course Code	Class Hours	Units
1st Semester \Core	general chemistry	FS19101	2+3	3.5
1st Semester \Core	mathematics	FS19102	2	2
1st Semester \Core	Gardening principles	FS19103	2+3	3.5
1st Semester \Core	Baath Party crimes	FS19104	2	2
1st Semester \Core	English language	FS19105	2	2
1st Semester \Core	agricultural economy	FS19106	2	2
1st Semester \Core	Soil principles	FS19107	2+3	3.5
1st Semester \Core	Engineering Drawing	FS19108	2	2
2nd Semester \Core	Quantitative chemistry	FS19109	2+3	3.5
2nd Semester \Core	Engineering workshops	FS191010	2+3	3.5
2nd Semester \Core	animal production	FS191011	2+3	3.5
2nd Semester \Core	English language 2	FS191012	2	2
2nd Semester \Core	Arabic	FS191013	2	2
2nd Semester \Core	Computer skills	FS191014	2	2
2nd Semester \Core	Principles of food industries	FS191015	3+2	3.5
2nd Semester \Core	Statistics	FS191016	2	2

2.11Second Year

Course Description	Couse Name	Course Code	Class Hours	Units
1st Semester \Core	Microbiology	FS19201	2+3	3.5
1st Semester \Core	organic chemistry	FS19202	2+3	3.5
1st Semester \Core	Dairy principles	FS19203	2+3	3.5
1st Semester \Core	Design and analysis of experiments	FS19204	2+3	3.5
1st Semester \Core	Irshad Zarei	FS19205	2	2
1st Semester \Core	Computer skills 2	FS19206	2	1
1st Semester \Core	Industrial crops	FS19207	2+3	3.5
1st Semester \Core	Biochemistry	FS19208	2+3	3.5
2nd Semester \Core	Physical chemistry	FS19209	2+3	3.5
2nd Semester \Core	Food health	FS192010	2+3	3.5

2nd Semester \Core	Freedom and democracy	FS192011	2	2
2nd Semester \Core	Warehouse pests	FS192012	2+3	3.5
2nd Semester \Core	Food factory engineering	FS192013	2+3	3.5
2nd Semester \Core	Food factory management	FS192014	2	2

3.11 Third Year

Course Description	Couse Name	Course Code	Class Hours	Units
1st Semester \Core	Microbiology of foods	FS19301	2+3	3.5
1st Semester \Core	Food chemistry	FS19302	2+3	3.5
1st Semester \Core	Liquid dairy products	FS19303	2+3	3.5
1st Semester \Core	Molecular biology	FS19304	2+3	3.5
1st Semester \Core	Agricultural marketing	FS19305	2+3	2
1st Semester \Core	Principles of human nutrition	FS19306	2+3	2
1st Semester \Core	Manufacture of pills	FS19307	2+3	3.5
2nd Semester \Core	Manufacture of dates and sugar	FS19308	2+3	3.5
2nd Semester \Core	Genetic engineering	FS19309	2+3	3.5
2nd Semester \Core	Computer skills3	FS193010	2	1.5
2nd Semester \Core	Metabolic pathways	FS193011	2+3	3
2nd Semester \Core	Bread and pastries	FS193012	2+3	3.5
2nd Semester \Core	Dairy chemistry	FS193013	3+2	3.5
2nd Semester \Core	Dairy microbiology	FS193014	3+2	3.5

4.11 Fourth Year

Course Description	Couse Name	Course Code	Class Hours	Units
1st Semester \Core	Biotechnology 1	FS19401	2+3	3.5
1st Semester \Core	Food manufacturing 1	FS19402	2+3	3.5
1st Semester \Core	Meat and fish manufacturing	FS19403	2+3	3.5
1st Semester \Core	Food analysis	FS19404	2+3	3.5
1st Semester \Core	Cheese making	FS19405	2+3	3.5
1st Semester \Core	Food care and storage	FS19406	2+3	3.5
1st Semester \Core	Graduation research project	FS19407	-	1.5
2nd Semester \Core	Biotechnology 2	FS19408	2+3	3.5
2nd Semester \Core	Butter and ice cream industry	FS19409	2+3	3.5
2nd Semester \Core	Therapeutic nutrition	FS194010	2+3	3.5
2nd Semester \Core	Quality control	FS194011	2+3	3.5
2nd Semester \Core	Food manufacturing 2	FS194012	2+3	3.5
2nd Semester \Core	Seminars	FS194013		3.5
1st Semester \Core	Graduation research project	FS194014		1.5

8. Expected learning outcomes of the program

Knowledge:

- The student has the ability to know and understand the principles, theories, and fundamentals in agricultural engineering.
- The student has the ability to understand modern and advanced scientific topics in the field of agricultural engineering.
- The student should be able to understand mathematics and equations for major studies.
- Have a student able to solve engineering problems and design agricultural parts and the foundations of their theoretical applications.
- The student shall be able to understand the basics of the laboratory devices that are used in agricultural examination.

Skills:

- Description and analysis of agricultural applications.
- Analyze problems related to agricultural engineering and discussing the possible solutions
- Using computer programs for agricultural engineering to analyze these problems.

Ethics:

- Preparing engineering designs for agricultural parts and systems.**
- **Analyzing and discussing the results of engineering tests for use in design and evaluation processes.**
- **The ability to write and draft engineering technical reports on the results of scientific examinations and tests.**
- The ability to extract test results and their effects from the test.**

9. Teaching and Learning Strategies:

- 1. Daily theoretical lectures.**
- 2. Practical lectures in laboratories.**
- 3. Graduation projects for final stage students and their discussion.**

10. Evaluation methods:

- **Monthly and quarterly written exams.**
- **Rapid exams (Quizzes).**
- **Homework.**
- **Writing scientific reports.**

11.Faculty

Faculty Members

Academic Rank	Specialization		Special Requirements/Skills (if applicable)		Number of the teaching staff	
	General	Special			Staff	Lecturer
Professor	Food science	dairy microbiology	NO		1	NO
Assistant Professor	Food science	Biotechnology Grain technology analytical chemistry Milk cattle production Food technology			5	
Teacher	Food science	Meat and fish technology Food biotechnology Food chemistry Food technology Dairy technology			6	
assistant teacher	Food science	Food science			10	

Professional Development

Mentoring new faculty members

Briefly describes the process used to mentor new, visiting, full-time, and part-time faculty at the institution and department level.

Professional development of faculty members

Briefly describe the academic and professional development plan and arrangements for faculty such as teaching and learning strategies, assessment of learning outcomes, professional development, etc.

12.Acceptance Criterion

Approving admission conditions for students in accordance with the regulations of the Ministry of Higher Education and Scientific Research (central admission)

- To pass the department's personal interview.
- Must be fit for medical examination.
- High school average.
- The college's absorptive capacity.

13.The most important sources of information about the program

Market needs.

- Local trends of the governorate.
- Studies and questionnaires

14.Program Development Plan

Developing the program through evaluation results through which the highest levels of educational success and student outcomes are achieved

Program Skills Outline

Please put (√) in the boxes corresponding to the individual learning outcomes of the evaluated program

Year \ Course			Required learning outcomes of the program															
Course name	Course code	Core or elective	Knowledge and understanding				Subject-specific skills				Thinking skill				General and transferable skills (Or) Other skills related to employability and personal development			
			A1	A2	A3	A4	B1	B2	B3	B4	C1	C2	C3	C4	D2	D3	D4	
1st Year			A1	A2	A3	A4	B1	B2	B3	B4	C1	C2	C3	C4	D2	D3	D4	
general chemistry	FS19101	Core	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	
mathematics	FS19102	Core	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	
Gardening principles	FS19103	Core	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	
Baath Party crimes	FS19104	Core	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	
English language	FS19105	Core	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	
agricultural economy	FS19106	Core	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	
Soil principles	FS19107	Core	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	
Engineering Drawing	FS19108	Core	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	
Quantitative chemistry	FS19109	Core	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	

Engineering workshops	FS191010	Core	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√
animal production	FS191011	Core	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√
English language 2	FS191012	Core	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√
Arabic	FS191013	Core	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√
Computer skills	FS191014	Core	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√
Principles of food industries	FS191015	Core	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√
Statistics	FS191016	Core	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√
2nd Year			A1	A2	A3	A4	B1	B2	B3	B4	C1	C2	C3	C4	D2	D2	D3	D4
Microbiology	FS19201	Core	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√
organic chemistry	FS19202	Core	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√
Dairy principles	FS19203	Core	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√
Design and analysis of experiments	FS19204	Core	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√
Irshad Zarei	FS19205	Core	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√
Computer skills 2	FS19206	Core	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√
Industrial crops	FS19207	Core	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√
Biochemistry	FS19208	Core	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√

Physical chemistry	FS19209	Core	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√
Food health	FS192010	Core	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√
Freedom and democracy	FS192011	Core	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√
Warehouse pests	FS192012	Core	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√
Food factory engineering	FS192013	Core	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√
Food factory management	FS192014	Core	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√
3rd Year			A1	A2	A3	A4	B1	B2	B3	B4	C1	C2	C3	C4	D2	D2	D3	D4
Microbiology of foods	FS19301	Core	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√
Food chemistry	FS19302	Core	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√
Liquid dairy products	FS19303	Core	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√
Molecular biology	FS19304	Core	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√
Agricultural marketing	FS19305	Core	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√
Principles of human nutrition	FS19306	Core	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√
Manufacture of pills	FS19307	Core	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√
Manufacture of dates and sugar	FS19308	Core	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√
Genetic engineering	FS19309	Core	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√

Computer skills3	FS193010	Core	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√
Metabolic pathways	FS193011	Core	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√
Bread and pastries	FS193012	Core	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√
Dairy chemistry	FS193013	Core	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√
Dairy microbiology	FS193014	Core	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√
4th Year			A1	A2	A3	A4	B1	B2	B3	B4	C1	C2	C3	C4	D2	D2	D3	D4
Biotechnology 1	FS19401	Core	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√
Food manufacturing 1	FS19402	Core	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√
Meat and fish manufacturing	FS19403	Core	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√
Food analysis	FS19404	Core	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√
Cheese making	FS19405	Core	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√
Food care and storage	FS19406	Core	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√
Graduation research project	FS19407	Core	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√
Biotechnology 2	FS19408	Core	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√
Butter and ice cream industry	FS19409	Core	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√
Therapeutic nutrition	FS194010	Core	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√

Quality control	FS194011	Core	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√
Food manufacturing 2	FS194012	Core	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√
Seminars	FS194013	Core	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√
Graduation research project	FS194014	Core	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√

- Please tick the boxes corresponding to the individual program learning outcomes under evaluation.

Course Description Form

1. Course Name:	
Arabic	
2. Course Code:	
BRAL104	
3. Semester / Year:	
SEMESTER	
4. Description Preparation Date:	
15/4//2024	
5. Available Attendance Forms:	
Presence	
6. Number of Credit Hours (Total) / Number of Units (Total)	
30 hours 2 units per week	
7. Course administrator's name (mention all, if more than one name)	
Name: mohammed kareem shaker Email: ag.mohammed.kareem@uoanbar.edu.iq	
8. Course Objectives	
1- Preparing students, including the Arabic language 2- Instilling the values of the Arabic language the hearts of students	3- Assistance in writing scientific research in objective Arabic 4- Familiarity with Arabic language vocabulary and correct spelling 5- Knowing the common mistakes
9. Teaching and Learning Strategies	
Strategy	1- Enabling students to obtain the intellectual framework for the Arabic language subject 2- Preparing students linguistically and educationally 3- A solid knowledge of the Arabic language vocabulary that enables the student formulate Arabic vocabulary 4- Avoid spelling mistakes 5- Correct pronunciation of some vocabulary 6- Expanding cognitive awareness

10. Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1	2	Understanding and learning	Sections of speech	My presence	the exam
2	2	skills development	punctuation mark	My presence	the exam
3	2	Correct spelling	Common linguistic errors	My presence	the exam
4	2	Know the errors	The difference between dha and	My presence	the exam
5	2	Knowledge and awareness	dha	My presence	the exam
6	2	Learn to parse	Solar and lunar lan	My presence	the exam
7	2	Learn to parse	The simple and	My presence	the exam
8	2	Knowledge and perception	marbuta tā'	My presence	the exam
9	2	Learn Arabic	Number and	My presence	the exam
10	2	Proper pronunciation	Suspicious actions	My presence	the exam
11	2	Learn the differences	Imperfect verbs	My presence	the exam
12	2	Brief and learn Discrimination	The subject and the predicate	My presence	
13	2	Understanding and perception	Sound feminine plural		
14	2	The right style	Sound masculine plural		
15	2		The parsing Discrimination Exception		

11. Course Evaluation

1- Through daily and monthly exams, homework, oral exams, attendance, and class activities.

12. Learning and Teaching Resources

Required textbooks (curricular books, if any)	
Main references (sources)	Arabic language books
Recommended books and references (scientific journals, reports...)	
Electronic References, Websites	

Course Description Form

13. Course Name:	
Crimes of the former Baath regime / AL Baath Crimes	
14. Course Code:	
BACR205	
15. Semester / Year:	
SEMESTER	
16. Description Preparation Date:	
15/4//2024	
17. Available Attendance Forms:	
Presence	
18. Number of Credit Hours (Total) / Number of Units (Total)	
30 hours 2 units per week	
19. Course administrator's name (mention all, if more than one name)	
Name: mohammed kareem shaker Email: ag.mohammed.kareem@uoanbar.edu.iq	
20. Course Objectives	
1-Preparing educated students with correct ideas 2- Instilling noble values and morals	3- Helping in writing scientific research objective 4- Know the facts and not falsify them 5- Knowing the repressive methods used by the former regime
21. Teaching and Learning Strategies	
Strategy	1- Enabling students to obtain the intellectual framework 2- Preparing students with a correct culture 3- Instilling and preserving the principles of patriotism 4- Developing the intellectual side of students 5- Vocabulary formulation and its absence 6- Expanding cognitive awareness

22. Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1	2	Understanding an	Violation of rights	My presence	the exam
2	2	learning	and freedoms	My presence	the exam
3	2	skills developmen	A descriptive overvie	My presence	the exam
4	2	Know the facts	of political systems	My presence	the exam
5	2	Knowledge of sou	The Baathist regime's	My presence	the exam
6	2	principles	violation of rights and	My presence	the exam
7	2	Knowledge and	freedoms	My presence	the exam
8	2	awareness	The impact of the	My presence	the exam
9	2	Learn high values	behavior of the forme	My presence	the exam
10	2	raising awareness	Baathist regime on	My presence	the exam
11	2	Knowledge and	the society	My presence	the exam
12	2	perception	The impact of the	My presence	the exam
13	2	Crystallization of	transitional period	My presence	the exam
14	2	ideas	The psychological fie	My presence	the exam
15	2	Mind developmen	+ the social field	My presence	the exam
		Learn the facts	Religion and state	My presence	the exam
		Brief and learn	First month exam	My presence	
		Discrimination	Culture, media, and t		
		Understanding an	militarization of soci		
		perception	The impact of		
		The right style	oppression and wars		
			the environment and		
			population		
			The use of		
			internationally		
			prohibited weapons		
			and environmental		
			pollution		
			Scorched earth policy		
			drying of the marshe		
			Destruction of the		
			agricultural and anim		
			environment		
			Mass graves		
			Second month exam		

23. Course Evaluation

- 1- Through daily and monthly exams, homework, oral exams, attendance, and
- 2- class activities.

24. Learning and Teaching Resources

Required textbooks (curricular books, if any)	Curriculum Crimes of the former Baath regime
Main references (sources)	
Recommended books and references (scientific journals, reports...)	
Electronic References, Websites	

Course Description Form

1. Course Name: English Language/4					
2. Course Code: ENGL406					
3. Semester / Year: SECOND / 2023–2024					
4. Description Preparation Date:1/4/2024					
5. Available Attendance Forms: DAYLY					
6. Number of Credit Hours (Total) / Number of Units (Total) 1 HOUER-1 UNIT					
7. Course administrator's name (mention all, if more than one name)					
Name: Dr.ANMAR NAZAR HASAN					
Email:ag.anmar.nizar@uoanbar.edu.iq					
8. Course Objectives English Language/4					
Course Objectives					
9. Teaching and Learning Strategies					
Strategy		Theoretical 1 hour			
10. Course Structure					
Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
14	1	BScs.	English Language/4	Theoretical	Daily, monthly and semester exams

11. Course Evaluation					
Distributing the score out of 100 according to the tasks assigned to the student such as daily preparation, daily oral, monthly, or written exams, reports etc					
12. Learning and Teaching Resources					
Required textbooks (curricular books, if any)			NEW HEADWAY PLUS		
Main references (sources)					
Recommended books and references (scientific journals, reports...)					
Electronic References, Websites			You Tub Chanel		

Course Description Form

25.	Course Name: Meat Processing
26.	Course Code: MEPR420
27.	Semester / Year: Semester
28.	Description Preparation Date: 7/4/2024
29.	Available Attendance Forms: Mandatory
30.	Number of Credit Hours (Total) / Number of Units (Total): 75
31.	Course administrator's name (mention all, if more than one name)
Name: Amarr Adil salih	
32.	Course Objectives
<p>Course Objectives</p>	<p>Learning outcomes and methods of teaching, learn and assessment:</p> <p>a-A – Understand the nutritional value of meat</p> <p style="padding-left: 20px;">Meat preservation methods (cooling and freezing)</p> <p style="padding-left: 40px;">– Chemical composition and physical composition</p> <p>the carcass</p> <p>Cooperating with scientific and production institutions</p> <p>various areas of meat processing</p> <p style="padding-left: 20px;">Causes of microbial spoilage of meat and the use</p> <p>animal waste</p> <p style="padding-left: 40px;">. Contribute with the rest of the scientific departme</p> <p>in the college to support and develop the college and</p> <p>university</p> <p style="padding-left: 20px;">– Holding some qualifying and scientific courses wit</p> <p>the continuing education course of the college to deve</p> <p>production facilities related to dairy factories</p> <p>b– Subject-specific skills</p>

	<p>Chemical and biological applications to meat</p> <p>Skills in the manufacture of food products from meat</p> <p>Causes of microbial spoilage of meat and the use of animal waste</p> <p>Quality checks for raw meat and meat products</p> <p>– Making sausages and hamburgers</p> <p>Evaluation of the quality and freshness of the fish</p> <p>Conducting quality checks for raw meat and its products</p>
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33. Teaching and Learning Strategies

Strategy	<p>1-Develop teaching programs in coordination with higher departments.</p> <p>2- Developing teaching curricula similar to the work environment.</p> <p>3- Sending students to departments and directorates for conducting summer application.</p> <p>4- Assigning students to conduct research and reports.</p> <p>5- Assigning students to go to the library and collect sources on the topic</p> <p>Implementing practical lessons in laboratories, each according to their current</p>
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34. Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1	Theory and Pract.	Meat Processing	Introduction to meat	Giving lectures	Quiz+ activities
2	Theory and Pract.	Meat Processing	Meat sampling methods	Giving lectures	Quiz+ activities
3	Theory and Pract.	Meat Processing	Meat Composition Analysis	Giving lectures	Quiz+ activities
4	Theory and Pract.	Meat Processing	Chemical composition of eggs	Giving lectures	Quiz+ activities
5	Theory and Pract.	Meat Processing	Quality checks for raw meat and meat products	Giving lectures	Quiz+ activities
6	Theory and Pract.	Meat Processing	Assessment of quality and freshness of fish	Giving lectures	Quiz+ activities
7	Theory and Pract.	Meat Processing	Preparation of saline solutions	Giving lectures	Quiz+ activities
8	Theory and Pract.	Meat Processing	Preserving meat and fish (salting)	Giving lectures	Quiz+ activities

9	Theory and Pract.	Meat Processing	Meat and fish preservation (smoking)	Giving lectures	Quiz+ activities
10	Theory and Pract.	Meat Processing	Preserving meat and fish by canning	Giving lectures	Quiz+ activities
11	Theory and Pract.	Meat Processing	Keeping meat and fish drying	Giving lectures	Quiz+ activities
12	Theory and Pract.	Meat Processing	Freezing meat and fish	Giving lectures	Quiz+ activities
13	Theory and Pract.	Meat Processing	The sausage and hamburger industry	Giving lectures	Quiz+ activities
14	Theory and Pract.	Meat Processing	Measurement of functional properties	Giving lectures	Quiz+ activities
15	Theory and Pract.	Meat Processing	The effect of muscle ability to carry water and methods of cooking meat and fish	Giving lectures	Quiz+ activities

35. Course Evaluation

Distributing the score out of 100 according to the tasks assigned to the student such as daily preparation, daily oral, monthly, or written exams, reports etc

36. Learning and Teaching Resources

Required textbooks (curricular books, if any)	Meat science and technology, d. Majed Bas Al Aswad 2000
Main references (sources)	Relying on recent scientific research and publications issued by reputable international publishing houses and journals
Recommended books and references (scientific journals, reports...)	Scientific journals related to the field of Meat science and technology
Electronic References, Websites	https://www.researchgate.net/ https://scholar.google.com/schhp?hl=ar

Course Description Form

37.	Course Name: Health food products	
38.	Course Code: FOSA215	
39.	Semester / Year: Semester	
40.	Description Preparation Date: 7/4/2024	
41. Available Attendance Forms: Mandatory		
42. Number of Credit Hours (Total) / Number of Units (Total): 75		
43.	Course administrator's name (mention all, if more than one name)	
	Name: Amarr Adil salih †monaf akram qasem	
44.	Course Objectives	
	<p>Course Objectives</p>	<p>Learning outcomes and methods of teaching, learn and assessment:</p> <p>1- A study of the concept of food health and importance with a historical overview.</p> <p>2- A study about microorganisms and their relations to food.</p> <p>3- Studying the sources of food contamination, food legislation and standard specifications</p> <p>4- Identifying the physical, chemical and biological risks that affect food during and after manufacturing operations.</p> <p>5- 4- Learn about the HACCP system, its application and its usefulness in food processing</p>
45.	Teaching and Learning Strategies	
Strategy	<p>1- Develop teaching programs in coordination with higher departments.</p> <p>6- Developing teaching curricula similar to the work environment.</p>	

- 7-Sending students to departments and directorates for conducting summer application.
- 8- Assigning students to conduct research and reports.
- 9- Assigning students to go to the library and collect sources on the topic.
- Implementing practical lessons in laboratories, each according to their current

46. Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1	Theory and Pract.	Health food products	The concept of food health and its importance with a historical overview	Giving lectures	Quiz+ activities
2	Theory and Pract.	Health food products	An introduction to microorganisms and their relationship to food	Giving lectures	Quiz+ activities
3	Theory and Pract.	Health food products	sources of food contamination	Giving lectures	Quiz+ activities
4	Theory and Pract.	Health food products	Food legislation and standard specifications	Giving lectures	Quiz+ activities
5	Theory and Pract.	Health food products	Health of workers in the field of food and healthy methods of food handling	Giving lectures	Quiz+ activities
6	Theory and Pract.	Health food products	First month exam	Giving lectures	Quiz+ activities
7	Theory and Pract.	Health food products	HACCP . system	Giving lectures	Quiz+ activities
8	Theory and Pract.	Health food products	Biological hazards in food	Giving lectures	Quiz+ activities
9	Theory and Pract.	Health food products	Chemical hazards in food	Giving lectures	Quiz+ activities
10	Theory and Pract.	Health food products	physical dangers in foods	Giving lectures	Quiz+ activities
11	Theory and Pract.	Health food products	Methods of washing, sterilization and removal in laboratories and food processing places	Giving lectures	Quiz+ activities
12	Theory and Pract.	Health food products	To control rodents, insects and birds	Giving lectures	Quiz+ activities
13	Theory and Pract.	Health food products	Sanitary treatment of liquid and solid food waste	Giving lectures	Quiz+ activities

14	Theory and Pract.	Health food products	Food hygiene in meat and vegetable processing plants	Giving lectures	Quiz+ activities
15	Theory and Pract.	Health food products	Second month exam	Giving lectures	Quiz+ activities

47. Course Evaluation

Distributing the score out of 100 according to the tasks assigned to the student such as daily preparation, daily oral, monthly, or written exams, reports etc

48. Learning and Teaching Resources

Required textbooks (curricular books, if any)	Food health_ Amer Abdul Rahman Sheh Zahir Principles of Food Safety - Fahad Muhammad Al-Jassas
Main references (sources)	Relying on recent scientific research and publications issued by reputable international publishing houses and journals
Recommended books and references (scientific journals, reports...)	Scientific journals related to the field of food safety
Electronic References, Websites	https://www.researchgate.net/ https://scholar.google.com/schhp?hl=ar

Course Description Form

49. Course Name: Principles of animal production					
50. Course Code: ANPR123					
51. Semester / Year: Semester					
52. Description Preparation Date: 7/4/2024					
53. Available Attendance Forms: Mandatory					
54. Number of Credit Hours (Total) / Number of Units (Total): 75					
55. Course administrator's name (mention all, if more than one name)					
Name: Amarr Adil salih					
56. Course Objectives					
Course Objectives			Introducing the student to the reality of animal production, the economic importance of animal production, nutritional needs of ruminants and poultry, identify breeds and classifying them according to production, learning about the daily and seasonal field operations conducted by animal breeders.		
57. Teaching and Learning Strategies					
Strategy		1-Identifying animal breeds. 2- Modern methods of raising animals. 3-Routine work in ruminant and poultry fields. 4-Milking methods and their advantages. 5- Taking care of animals and barns. 10- 6-Animal nutrition and ration calculations			
58. Course Structure					
Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method

1	Theory and Pract.	Animal Production	The economic importance of animal products	Giving lectures	Quiz+ activities
2	Theory and Pract.	Animal Production	Cows and buffalo: Cows and their types	Giving lectures	Quiz+ activities
3	Theory and Pract.	Animal Production	Reproduction in cows	Giving lectures	Quiz+ activities
4	Theory and Pract.	Animal Production	Calf care and nutrition	Giving lectures	Quiz+ activities
5	Theory and Pract.	Animal Production	First semester exam	Giving lectures	Quiz+ activities
6	Theory and Pract.	Animal Production	Milk production	Giving lectures	Quiz+ activities
7	Theory and Pract.	Animal Production	Field operations	Giving lectures	Quiz+ activities
8	Theory and Pract.	Animal Production	Records and residences	Giving lectures	Quiz+ activities
9	Theory and Pract.	Animal Production	The second semester exam	Giving lectures	Quiz+ activities
10	Theory and Pract.	Animal Production	Buffalo, sheep, goats and economic importance	Giving lectures	Quiz+ activities
11	Theory and Pract.	Animal Production	Its classification and methods used for classification and reproduction	Giving lectures	Quiz+ activities
12	Theory and Pract.	Animal Production	Reproduction	Giving lectures	Quiz+ activities
13	Theory and Pract.	Animal Production	Field operations	Giving lectures	Quiz+ activities
14	Theory and Pract.	Animal Production	Sheep and goat products	Giving lectures	Quiz+ activities
15	Theory and Pract.	Animal Production	Third monthly exam	Giving lectures	Quiz+ activities

59. Course Evaluation

Distributing the score out of 100 according to the tasks assigned to the student such as daily preparation, daily oral, monthly, or written exams, reports etc

60. Learning and Teaching Resources

Required textbooks (curricular books, if an | Basics of animal production Mahmoud Riyad 20

Main references (sources)	Relying on recent scientific research and publications issued by reputable international publishing houses and journals
Recommended books and references (scientific journals, reports...)	Scientific journals related to the field of animal production, such as poultry science and zoology
Electronic References, Websites	https://www.researchgate.net/ https://scholar.google.com/schhp?hl=ar

Course Description Form

1. Course Name:

Biotechnology1

2. Course Code:

BITE442

3. Semester / Year:

First / 2023 – 2024

4. Description Preparation Date:

17 / 4 / 2024

5. Available Attendance Forms:

Attendance

6. Number of Credit Hours (Total) / Number of Units (Total)

30 theoretical and 45 paractical

7. Course administrator's name (mention all, if more than one name)

Name: Assist. Prof. Dr. Hussein Jasim Mohemmed

Email: ag. Husseinjasim@uoanbar. Edu.iq

With Assist. Lecturer Bilal Ali Khashan

8. Course Objectives

Course Objectives

Learning students the general basics of biotechn fields.

9. Teaching and Learning Strategies

Strategy

Lectures, discussions and paractical experiments

10. Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1515	30 +45	Bachalor	Biotechnology1	Lectures	Test

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11. Course Evaluation

Distributing the score out of 100 according to the tasks assigned to the student such as daily preparation, daily oral, monthly, or written exams, reports etc

12. Learning and Teaching Resources

Required textbooks (curricular books, if any)	Biotechnology/ Zahra Alkafaji/ 1990
Main references (sources)	Biotechnology/ Faez Al-Ani/ 1996
Recommended books and references (scientific journals, reports...)	
Electronic References, Websites	

Course Description Form

1. Course Name:

Biotechnology2

2. Course Code:

443

3. Semester / Year:

First / 2023 - 2024

4. Description Preparation Date:

17 / 4 / 2024

5. Available Attendance Forms:

Attendance

6. Number of Credit Hours (Total) / Number of Units (Total)

30 theoretical and 45 paractical

7. Course administrator's name (mention all, if more than one name)

Name: Assist. Prof. Dr. Hussein Jasim Mohemmed

Email: ag. Husseinjasim@uoanbar. Edu.iq

With Assist. Lecturer Bilal Ali Khashan

8. Course Objectives

Course Objectives

Learning students the most important methods are followed in production of some type bioproducts.

9. Teaching and Learning Strategies

Strategy

Lectures, discussions and paractical experiments

10. Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1515	30 +45	Bachalor	Biotechnology1	Lectures	Test

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11. Course Evaluation

Distributing the score out of 100 according to the tasks assigned to the student such as daily preparation, daily oral, monthly, or written exams, reports etc

12. Learning and Teaching Resources

Required textbooks (curricular books, if any)	ogy/ Zahra Alkafaji/ 1990
Main references (sources)	Biotechnology/ Faez Al-Ani/ 1996
Recommended books and references (scientific journals, reports...)	
Electronic References, Websites	

Course Description Form

1. Course Name:	
General Mathematics	
2. Course Code:	
3. Semester / Year:	
First Semester/2023–2024	
4. Description Preparation Date:	
15/4/2024	
5. Available Attendance Forms:	
in-person learning	
6. Number of Credit Hours (Total) / Number of Units (Total)	
30/2	
7. Course administrator's name (mention all, if more than one name)	
Name: Dr.Bilal Yaseen Taher Email: ag.bilal.yaseen@Uoanbar.edu.iq	
8. Course Objectives	
Course Objectives	A-Ability to understand the principle of mathematical functions B-Increasing the skills of students using it to solve the problems C-Ability the undergraduate students to use these skills in different fields. D-Ability the students to graph equations, inequalities and all function
9. Teaching and Learning Strategies	
Strategy	A1. Analysis the problems and understand how can you be ability to solve it. A2. Testing these equations in the practical experimental. A3. Using equations to find variables in the problems. A4. Ability to convert the scales on the real number line. A5. Ability of student to evaluate the problems, and writing the scientific reports. A6. The student can acquire the practical and scientific experience his specialized field.it.
10. Course Structure	

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
First	2	Analysis the problems and understand how can you be able to solve it.	The rate of change function	Theoretical Lectures, white board	questions , discussions, and examples
Second	2	Ability to use suitable coordinates in the problems.	Cartesian coordinates	on the white board	questions , discussions, and examples
Third	2	Ability to use suitable coordinates in the problems.	Increments in coordinates	on the white board, Homework	questions , discussions, and examples
Fourth	2	Using slope to find the variables in the problems.	Slope and angles of inclination	on the white board	questions , discussions, and examples
Fifth	2	Exam of first month			
Sixth	2	special cases of slope of lines	Properties of parallel and perpendicular lines	on the white board	questions , discussions, and examples
Seventh	2	Boundary conditions for	Domain and Range of functions	on the white board	questions , discussions, and examples
Eighth	2	solving equation of Absolute values and inequalities	Absolute values for equations and inequalities	on the white board	questions , discussions, and examples
Ninth	2	solving equations of Exponential and logarithm	Exponential and logarithm functions	on the white board	questions , discussions, and examples
Tenth	2	Exam of second month			
Eleventh	2	solving equations of Trigonometric	Trigonometric functions	on the white board	questions , discussions, and examples
Twelfth	2	solving equations of Inverse Trigonometric.	Inverse Trigonometric functions	on the white board	questions , discussions, and examples
Thirteenth	2	Prove identities of Trigonometric functions	Identities of Trigonometric functions	on the white board Homework	questions , discussions, and examples
Fourteenth	2	Testing these equations in the practical experimental.	Solve all homework and problems	on the white board Homework, Applications computers	questions , discussions, and examples

		Exam of the third month
11. Course Evaluation		
Theory exam 30%, Practical Quiz 10%, Practical exam 10%, final exam 50%. Final degree from 100%.		
12. Learning and Teaching Resources		
Required textbooks (curricular books, if any)		
Main references (sources)	Calculus, Thomas, 11Ed, 2006, Addison-Wesley, United States.	
Recommended books and references (scientific journals, reports...)	Understanding Basic Calculus S.K.Chung, Wolfram, 2007, Hong Kong.	
Electronic References, Websites	https://en.wikipedia.org/wiki/Function_(mathematics)	

Course Description Form

61.	Course Name: Dairy Microbiology	
62.	Course Code: AF193014	
63.	Semester / Year: Semester	
64.	Description Preparation Date: 1/4/2024	
65.	Available Attendance Forms: Mandatory	
66.	Number of Credit Hours (Total) / Number of Units (Total): 75	
67.	Course administrator's name (mention all, if more than one name)	
Name: prof. Ali Ameen Yaseen , Noor Taleb Kalel Email: ag.ali.ameen@uoanbar.edu.iq		
68.	Course Objectives	
Course Objectives	Learning outcomes and teaching, learning and evaluation methods: 1–Sources of contamination of milk with microbes. 2– Methods of controlling milk microbes. 3– Microbiology of market milk. 4– Microbiology of fermented and therapeutic dairy. 5–Dairy products as a source of nutritional diseases 6–Microbiological tests for abnormal milk – Subject-specific skills 1–Sample examination and raw milk quality methods 2–Colon bacteria examination 3–Tests of raw milk and pasteurized milk 4–Microbiological tests for ice cream Vessel cleanliness checks	
69.	Teaching and Learning Strategies	
Strategy	1- Develop teaching programs in coordination with higher departments. 2-Developing teaching curricula similar to the work environment.	

- 3-Sending students to departments and directorates for conducting summer application.
 - 4-Assigning students to conduct research and reports.
 - 5-Assigning students to go to the library and collect sources on the topic.
- Implementing practical lessons in laboratories, each according to their currency

70. Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1	5	Dairy Microbiology	Milk as a medium for the growth of micro	Giving lectu	Quiz+ activities
2	5	Dairy Microbiology	Sources of contamination of milk microbes	Giving lectu	Quiz+ activities
3	5	Dairy Microbiology	Important microbes in milk and its prod - molds, yeasts, viruses	Giving lectu	Quiz+ activities
4	5	Dairy Microbiology	Important microbes in milk and its prod - molds, yeasts, viruses	Giving lectu	Quiz+ activities
5	5	Dairy Microbiology	Methods of controlling milk microbes	Giving lectu	Quiz+ activities
6	5	Dairy Microbiology	Natural inhibitors in milk - relationship co-growth of milk microbes	Giving lectu	Quiz+ activities
7	5	Dairy Microbiology	Milk Microbiology Market	Giving lectu	Quiz+ activities
8	5	Dairy Microbiology	Microbiology primers	Giving lectu	Quiz+ activities
9	5	Dairy Microbiology	Microbiology of fermented dairy therapeutic dairy	Giving lectu	Quiz+ activities
10	5	Dairy Microbiology	Microbiology of skimming and butter	Giving lectu	Quiz+ activities
11	5	Dairy Microbiology	Microbiology of cheese	Giving lectu	Quiz+ activities
12	5	Dairy Microbiology	Microbiology of dried milk and sweete condensed milk	Giving lectu	Quiz+ activities
13	5	Dairy Microbiology	Microbiology of milk ice	Giving lectu	Quiz+ activities
14	5	Dairy Microbiology	Microbiology of milk ice	Giving lectu	Quiz+ activities
15	5	Dairy Microbiology	Dairy products as a source of nutriti diseases	Giving lectu	Quiz+ activities

71. Course Evaluation

- Daily and monthly tests through questions on the subject of the subject
- 2- Grades for students' participation in research and scientific reports.
 - 3- Discussing research and reports, presenting them, and giving a grade for them

72. Learning and Teaching Resources

Required textbooks (curricular books, if any)	Dairy Microbiology by: Robinson
Main references (sources)	
Recommended books and references (scientific journals, reports...)	
Electronic References, Websites	

Course Description Form

73.	Course Name: Food Microbiology		
74.	Course Code: AF 19301		
75.	Semester / Year:		
76.	Description Preparation Date: 1/4/2024		
77.	Available Attendance Forms: Mandatory		
78.	Number of Credit Hours (Total) / Number of Units (Total): 75		
79.	Course administrator's name (mention all, if more than one name) Name: Ali Ameen Yaseen Email: ag.ali.ameen@uoanbar.edu.iq		
80.	Course Objectives <table border="1" style="width: 100%; border-collapse: collapse; margin-top: 10px;"> <tr> <td style="width: 40%; vertical-align: top; padding: 5px;">Course Objectives</td> <td style="padding: 5px;"> <ol style="list-style-type: none"> 1- Introduction to food microbiology 2- Introducing the important bacterial groups in foods 3- Sources of food contamination with microorganisms and methods of controlling them 4- Food-borne diseases. 5- Microbiology of fruits, vegetables and juices 6- Spoilage of vegetables and fruits. <p>B- Subject-specific skills</p> <ol style="list-style-type: none"> 1- Chemical and biological applications on food 2- Manufacture of Lahana pickles. 3- Examination of juices and soft drinks 4- Inspection of eating utensils. 5- Showing films and illustrations about pollution in food factories 6- Biohazards in foods </td> </tr> </table>	Course Objectives	<ol style="list-style-type: none"> 1- Introduction to food microbiology 2- Introducing the important bacterial groups in foods 3- Sources of food contamination with microorganisms and methods of controlling them 4- Food-borne diseases. 5- Microbiology of fruits, vegetables and juices 6- Spoilage of vegetables and fruits. <p>B- Subject-specific skills</p> <ol style="list-style-type: none"> 1- Chemical and biological applications on food 2- Manufacture of Lahana pickles. 3- Examination of juices and soft drinks 4- Inspection of eating utensils. 5- Showing films and illustrations about pollution in food factories 6- Biohazards in foods
Course Objectives	<ol style="list-style-type: none"> 1- Introduction to food microbiology 2- Introducing the important bacterial groups in foods 3- Sources of food contamination with microorganisms and methods of controlling them 4- Food-borne diseases. 5- Microbiology of fruits, vegetables and juices 6- Spoilage of vegetables and fruits. <p>B- Subject-specific skills</p> <ol style="list-style-type: none"> 1- Chemical and biological applications on food 2- Manufacture of Lahana pickles. 3- Examination of juices and soft drinks 4- Inspection of eating utensils. 5- Showing films and illustrations about pollution in food factories 6- Biohazards in foods 		
81.	Teaching and Learning Strategies		

Strategy	<p>1-Develop teaching programs in coordination with higher departments.</p> <p>11- Developing teaching curricula similar to the work environment.</p> <p>12- Sending students to departments and directorates for conducting summer application.</p> <p>13- Assigning students to conduct research and reports.</p> <p>14- Assigning students to go to the library and collect sources on the topic.</p> <p>Implementing practical lessons in laboratories, each according to their curriculum.</p>
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82. Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1	Theory and Pract.	Food Microbiology	Hazard Analysis and Critical Control Points system	Giving lectures	Quiz+ activities
2	Theory and Pract.	Food Microbiology	Types of food poisonings	Giving lectures	Quiz+ activities
3	Theory and Pract.	Food Microbiology	The importance of microorganisms and their relationship to food	Giving lectures	Quiz+ activities
4	Theory and Pract.	Food Microbiology	Microorganisms and their important characteristics in food	Giving lectures	Quiz+ activities
5	Theory and Pract.	Food Microbiology	First semester exam	Giving lectures	Quiz+ activities
6	Theory and Pract.	Food Microbiology	Sources of food contamination with microorganisms	Giving lectures	Quiz+ activities
7	Theory and Pract.	Food Microbiology	Microorganisms in meat, meat products and poultry	Giving lectures	Quiz+ activities
8	Theory and Pract.	Food Microbiology	Microorganisms in pickles, spices, and dried foods	Giving lectures	Quiz+ activities
9	Theory and Pract.	Food Microbiology	Microorganisms in refrigerated and frozen foods and in canned and heat-treated foods.	Giving lectures	Quiz+ activities
10	Theory and Pract.	Food Microbiology	The second semester exam	Giving lectures	Quiz+ activities
11	Theory and Pract.	Food Microbiology	Microorganisms in fruits, vegetables and sugary foods	Giving lectures	Quiz+ activities
12	Theory and Pract.	Food Microbiology	Microorganisms in grains and their products	Giving lectures	Quiz+ activities

13	Theory and Pract.	Food Microbiology	Microbial standard specifications	Giving lectures	Quiz+ activities
14	Theory and Pract.	Food Microbiology	Poisoning and infection in food	Giving lectures	Quiz+ activities
15	Theory and Pract.	Food Microbiology	Biohazards in food - food poisoning bacteria	Giving lectures	Quiz+ activities

83. Course Evaluation

Distributing the score out of 100 according to the tasks assigned to the student such as daily preparation, daily oral, monthly, or written exams, reports etc

84. Learning and Teaching Resources

Required textbooks (curricular books, if any)	Food Microbiology Dr. Khalaf Soofi Al-Delaimy
Main references (sources)	Relying on recent scientific research and publications issued by reputable international publishing houses and journals
Recommended books and references (scientific journals, reports...)	Scientific journals related to the field of food microbiology
Electronic References, Websites	https://www.researchgate.net/ https://scholar.google.com/schhp?hl=ar

Course Description Form

85.Course Name:	
Food Processing-1	
86.Course Code:	
FOPR412	
87.Semester / Year:	
Semester	
88.Description Preparation Date:	
1/4/2024	
89.Available Attendance Forms:	
Mandatory	
90.Number of Credit Hours (Total) / Number of Units (Total):	
75 h.	
91.Course administrator's name (mention all, if more than one name)	
Name: Dr. Fadwa Waleed Abdulqahar and Mr. Shamil Kamil Mahmood	
Email: ag.fadwa.waleed@uoanbar.edu.iq	
92.Course Objectives	
Course Objectives	<p>The Food Processing-1 course aims to enrich students' knowledge of the following:</p> <ol style="list-style-type: none"> 1- The science of Food Processing, how to establish food manufacturing factories, the factors that must be provided for them, and the obstacles that stand in the way of this industry in Iraq. 2- The various manufacturing operations that are performed on food and how to implement them in food factories in a scientific and sequential manner for the purpose of preserving food and manufacturing various products. 3- Modern technologies that have recently been introduced globally into advanced food factories, such as nanotechnology, smart packaging, and effective packaging.
93.Teaching and Learning Strategies	
Strategy	<ol style="list-style-type: none"> 1. Developing teaching programs in coordination with higher departments. 2. Developing teaching curricula similar to the work environment.

3. Sending students to departments and directorates for the purpose of conducting summer school.
4. Assigning students to conduct research and reports related to the course.
5. Assigning students to use of libraries and websites to collect sources on course topics.

94. Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1	5	Food Processing	Introduction to food manufacturing, its importance, requirements, and obstacles to its development in Iraq	Daily, monthly, and quarterly exams + grades awarded for extracurricular activities, discussions, and class participation.	Delivering theoretical lectures and conducting class discussions to stimulate thinking and conclusion using brainstorming and positive reinforcement, and conducting extracurricular activities.
2	5	Food Processing	Food preservation and its various methods – Refrigerating preservation	Daily, monthly, and quarterly exams + grades awarded for extracurricular activities, discussions, and class participation.	Delivering theoretical lectures and conducting class discussions to stimulate thinking and conclusion using brainstorming and positive reinforcement, and conducting

					extracurricular activities.
3	5	Food Processing	Freezing preservation	Daily, monthly, and quarterly exams + grades awarded for extracurricular activities, discussions, and class participation.	Delivering theoretical lectures and conducting class discussions to stimulate thinking and conclusion using brainstorming and positive reinforcement, and conducting extracurricular activities.
4	5	Food Processing	Preservation using high temperature	Daily, monthly, and quarterly exams + grades awarded for extracurricular activities, discussions, and class participation.	Delivering theoretical lectures and conducting class discussions to stimulate thinking and conclusion using brainstorming and positive reinforcement, and conducting extracurricular activities.
5	5	Food Processing	The 1st monthly exam	Daily, monthly, and quarterly exams + grades awarded for extracurricular activities,	Delivering theoretical lectures and conducting class discussions to stimulate thinking and

				discussions, and class participation.	conclusion using brainstorming and positive reinforcement, and conducting extracurricular activities.
6	5	Food Processing	Packing materials	Daily, monthly, and quarterly exams + grades awarded for extracurricular activities, discussions, and class participation.	Delivering theoretical lectures and conducting class discussions to stimulate thinking and conclusion using brainstorming and positive reinforcement, and conducting extracurricular activities.
7	5	Food Processing	Food canning	Daily, monthly, and quarterly exams + grades awarded for extracurricular activities, discussions, and class participation.	Delivering theoretical lectures and conducting class discussions to stimulate thinking and conclusion using brainstorming and positive reinforcement, and conducting extracurricular activities.

8	5	Food Processing	Food canning (supplement)	Daily, monthly, and quarterly exams + grades awarded for extracurricular activities, discussions, and class participation.	Delivering theoretical lectures and conducting class discussions to stimulate thinking and conclusion using brainstorming and positive reinforcement, and conducting extracurricular activities.
9	5	Food Processing	Preservation by drying	Daily, monthly, and quarterly exams + grades awarded for extracurricular activities, discussions, and class participation.	Delivering theoretical lectures and conducting class discussions to stimulate thinking and conclusion using brainstorming and positive reinforcement, and conducting extracurricular activities.
10	5	Food Processing	The 2nd monthly exam	Daily, monthly, and quarterly exams + grades awarded for extracurricular activities, discussions,	Delivering theoretical lectures and conducting class discussions to stimulate thinking and conclusion using

				and class participation.	brainstorming and positive reinforcement, and conducting extracurricular activities.
11	5	Food Processing	Preservation with sugar	Daily, monthly, and quarterly exams + grades awarded for extracurricular activities, discussions, and class participation.	Delivering theoretical lectures and conducting class discussions to stimulate thinking and conclusion using brainstorming and positive reinforcement, and conducting extracurricular activities.
12	5	Food Processing	Juices and nectars	Daily, monthly, and quarterly exams + grades awarded for extracurricular activities, discussions, and class participation.	Delivering theoretical lectures and conducting class discussions to stimulate thinking and conclusion using brainstorming and positive reinforcement, and conducting extracurricular activities.
13	5	Food Processing	Jams and jellies	Daily, monthly, and quarterly	Delivering theoretical lectures and

				exams + grades awarded for extracurricular activities, discussions, and class participation.	conducting class discussions to stimulate thinking and conclusion using brainstorming and positive reinforcement, and conducting extracurricular activities.
14	5	Food Processing	Food additives	Daily, monthly, and quarterly exams + grades awarded for extracurricular activities, discussions, and class participation.	Delivering theoretical lectures and conducting class discussions to stimulate thinking and conclusion using brainstorming and positive reinforcement, and conducting extracurricular activities.
15	5	Food Processing	The 3rd monthly exam	Daily, monthly, and quarterly exams + grades awarded for extracurricular activities, discussions, and class participation.	Delivering theoretical lectures and conducting class discussions to stimulate thinking and conclusion using brainstorming and positive reinforcement,

					and conducting extracurricular activities.
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95.Course Evaluation

- 1- Conducting tests during the semester and asking questions to students to determine their understanding of the subject.
- 2- Conduct a research discussion at the end of the semester to find out students' choices in courses.
- 3- Conduct extracurricular activity by writing reports or educational brochures after completing the semester period to determine the extent to which students are able to diagnose problems and how to find solutions.

96.Learning and Teaching Resources

Required textbooks (curricular books, if any)	Hassan, Abdul Ali Mahdi and Al-Hakim, Sadiq Hassan. 1985. Food Processing - Part One. Ministry of Higher Education and Scientific Research - University of Baghdad.
Main references (sources)	Al-Shaibani, Ali Muhammad Hussein. 1989. Food Processing - Section One. Ministry of Higher Education and Scientific Research. University of Al Mosul.
Recommended books and references (scientific journals, reports...)	Al-Samahi, Salah Kamel et al., 2011. Food Technology. Amman, Dar Al Masirah for Publishing, Distribution and Printing.
Electronic References, Websites	Many references from the Internet

Course Description Form

97. Course Name:	
Fundamentals of Food Manufacturing	
98. Course Code:	
FOIN131	
99. Semester / Year:	
Semester	
100. Description Preparation Date:	
1/4/2024	
101. Available Attendance Forms:	
Mandatory	
102. Number of Credit Hours (Total) / Number of Units (Total):	
75 h.	
103. Course administrator's name (mention all, if more than one name)	
Name: Dr. Fadwa Waleed Abdulqahar and Dr. Sari Ali Hussein	
Email: ag.fadwa.waleed@uoanbar.edu.iq	
104. Course Objectives	
Course Objectives	<p>The Fundamentals of Food Manufacturing course aims to enrich students' knowledge of the following:</p> <ol style="list-style-type: none"> 1- The science of food processing and its objectives 2- How to establish food factories, the factors that must be provided for this purpose, and the obstacles that stand in the way of achieving the development of food industries in Iraq. 3- Causes of food spoilage and various manifestations of spoilage. 4- The various means of preserving food and the various manufacturing processes that are performed on food and how to implement them in food factories in a scientific and sequential manner for the purpose of preserving food and manufacturing various products, such as canning, cooling, freezing, drying, pickling, and preserving with high salt and sugar concentrations and food additives. 5- Manufacturing specific food products such as jams, juices, vinegar, pickles, tomato products, molasses, burgers, and samoon. 6- Different packaging materials, their advantages, disadvantages, and uses.
105. Teaching and Learning Strategies	
Strategy	6. Developing teaching programs in coordination with higher departments.

7. Developing teaching curricula similar to the work environment.
8. Sending students to departments and directorates for the purpose of conducting summer school.
9. Assigning students to conduct research and reports related to the course.
10. Assigning students to use of libraries and websites to collect sources on course topics.

106. Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1	5	Fundamentals of Food Manufacturing	Introduction to food manufacturing, its importance, requirements, and obstacles to its development in Iraq	Daily, monthly, and quarterly exams + grades awarded for extracurricular activities, discussions, and class participation.	Delivering theoretical lectures and conducting class discussions to stimulate thinking and conclusion using brainstorming and positive reinforcement, and conducting extracurricular activities.
2	5	Fundamentals of Food Manufacturing	Food preservation and its various methods – Refrigerating and freezing preservation	Daily, monthly, and quarterly exams + grades awarded for extracurricular activities, discussions, and class participation.	Delivering theoretical lectures and conducting class discussions to stimulate thinking and conclusion using brainstorming and positive reinforcement, and

					conducting extracurricular activities.
3	5	Fundamentals of Food Manufacturing	Preservation using high temperature and canning	Daily, monthly, and quarterly exams + grades awarded for extracurricular activities, discussions, and class participation.	Delivering theoretical lectures and conducting class discussions to stimulate thinking and conclusion using brainstorming and positive reinforcement, and conducting extracurricular activities.
4	5	Fundamentals of Food Manufacturing	Packaging materials	Daily, monthly, and quarterly exams + grades awarded for extracurricular activities, discussions, and class participation.	Delivering theoretical lectures and conducting class discussions to stimulate thinking and conclusion using brainstorming and positive reinforcement, and conducting extracurricular activities.
5	5	Fundamentals of Food Manufacturing	Preservation by drying	Daily, monthly, and quarterly exams + grades awarded for extracurricular	Delivering theoretical lectures and conducting class discussions to stimulate

				activities, discussions, and class participation.	thinking and conclusion using brainstorming and positive reinforcement, and conducting extracurricular activities.
6	5	Fundamentals of Food Manufacturing	Food preservation by pickling and pickles manufacturing	Daily, monthly, and quarterly exams + grades awarded for extracurricular activities, discussions, and class participation.	Delivering theoretical lectures and conducting class discussions to stimulate thinking and conclusion using brainstorming and positive reinforcement, and conducting extracurricular activities.
7	5	Fundamentals of Food Manufacturing	Preservation with sugar and salt solutions	Daily, monthly, and quarterly exams + grades awarded for extracurricular activities, discussions, and class participation.	Delivering theoretical lectures and conducting class discussions to stimulate thinking and conclusion using brainstorming and positive reinforcement, and conducting extracurricular activities.

8	5	Fundamentals of Food Manufacturing	The 1 st monthly exam	Daily, monthly, and quarterly exams + grades awarded for extracurricular activities, discussions, and class participation.	Delivering theoretical lectures and conducting class discussions to stimulate thinking and conclusion using brainstorming and positive reinforcement, and conducting extracurricular activities.
9	5	Fundamentals of Food Manufacturing	Jam and Jelly manufacturing	Daily, monthly, and quarterly exams + grades awarded for extracurricular activities, discussions, and class participation.	Delivering theoretical lectures and conducting class discussions to stimulate thinking and conclusion using brainstorming and positive reinforcement, and conducting extracurricular activities.
10	5	Fundamentals of Food Manufacturing	Tomato paste and tomato products manufacturing	Daily, monthly, and quarterly exams + grades awarded for extracurricular activities, discussions,	Delivering theoretical lectures and conducting class discussions to stimulate thinking and conclusion using

				and class participation.	brainstorming and positive reinforcement, and conducting extracurricular activities.
11	5	Fundamentals of Food Manufacturing	Date and Date syrup manufacturing	Daily, monthly, and quarterly exams + grades awarded for extracurricular activities, discussions, and class participation.	Delivering theoretical lectures and conducting class discussions to stimulate thinking and conclusion using brainstorming and positive reinforcement, and conducting extracurricular activities.
12	5	Fundamentals of Food Manufacturing	Samoon bread manufacturing	Daily, monthly, and quarterly exams + grades awarded for extracurricular activities, discussions, and class participation.	Delivering theoretical lectures and conducting class discussions to stimulate thinking and conclusion using brainstorming and positive reinforcement, and conducting extracurricular activities.
13	5	Fundamentals of Food Manufacturing	Burger manufacturing	Daily, monthly, and quarterly	Delivering theoretical lectures and

				exams + grades awarded for extracurricular activities, discussions, and class participation.	conducting class discussions to stimulate thinking and conclusion using brainstorming and positive reinforcement, and conducting extracurricular activities.
14	5	Fundamentals of Food Manufacturing	Food additives	Daily, monthly, and quarterly exams + grades awarded for extracurricular activities, discussions, and class participation.	Delivering theoretical lectures and conducting class discussions to stimulate thinking and conclusion using brainstorming and positive reinforcement, and conducting extracurricular activities.
15	5	Fundamentals of Food Manufacturing	The 2 nd monthly exam	Daily, monthly, and quarterly exams + grades awarded for extracurricular activities, discussions, and class participation.	Delivering theoretical lectures and conducting class discussions to stimulate thinking and conclusion using brainstorming and positive reinforcement,

					and conducting extracurricular activities.
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107. Course Evaluation

- 1- Conducting tests during the semester and asking questions to students to determine their understanding of the subject.
- 2- Conduct a research discussion at the end of the semester to find out students' choices in courses.
- 3- Conduct extracurricular activity by writing reports or educational brochures after completing the semester period to determine the extent to which students are able to diagnose problems and how to find solutions.

108. Learning and Teaching Resources

Required textbooks (curricular books, if any)	Hassan, Abdul Ali Mahdi and Al-Hakim, Sadiq Hassan. 1985. Fundamentals of Food Manufacturing. Ministry of Higher Education and Scientific Research - University of Baghdad.
Main references (sources)	Al-Shaibani, Ali Muhammad Hussein. 1989. Food Processing - Section One. Ministry of Higher Education and Scientific Research. University of Al Mosul.
Recommended books and references (scientific journals, reports...)	Al-Samahi, Salah Kamel et al., 2011. Food Technology. Amman, Dar Al Masirah for Publishing, Distribution and Printing.
Electronic References, Websites	Many references from the Internet

Course Description Form

109.	Course Name:	Biochemistry
110.	Course Code:	BICH230
111.	Semester / Year:	Semester
112.	Description Preparation Date:	1/4/2024
113.	Available Attendance Forms:	Mandatory
114.	Number of Credit Hours (Total) / Number of Units (Total):	75 h.
115.	Course administrator's name (mention all, if more than one name)	
	Name: Dr. Fadwa Waleed Abdulqahar, Dr. Bilal Ali Khashan and Mr. Omar Salah Ahmed	
	Email: ag.fadwa.waleed@uoanbar.edu.iq	
116.	Course Objectives	
	Course Objectives	<p>4- The Biochemistry course aims to enrich students' knowledge of the major and minor biological components of the cells, their classification, composition, and their impact to different cells.</p> <p>5- It also aims to increase students' knowledge of the practical methods for these components' determination and estimation analyses.</p>
117.	Teaching and Learning Strategies	
	Strategy	<p>11. Developing teaching programs in coordination with higher departments.</p> <p>12. Developing teaching curricula similar to the work environment.</p> <p>13. Sending students to departments and directorates for the purpose of conducting summer school.</p> <p>14. Assigning students to conduct research and reports related to the course.</p>

15. Assigning students to use of libraries and websites to collect sources on course topics.

118. Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1	5	Biochemistry	Fats and Oils	Daily, monthly, and quarterly exams + grades awarded for extracurricular activities, discussions, and class participation.	Delivering theoretical lectures and conducting class discussions to stimulate thinking and conclusion using brainstorming and positive reinforcement, and conducting extracurricular activities.
2	5	Biochemistry	Fats and Oils	Daily, monthly, and quarterly exams + grades awarded for extracurricular activities, discussions, and class participation.	Delivering theoretical lectures and conducting class discussions to stimulate thinking and conclusion using brainstorming and positive reinforcement, and conducting extracurricular activities.
3	5	Biochemistry	Proteins	Daily, monthly, and quarterly	Delivering theoretical lectures and

				exams + grades awarded for extracurricular activities, discussions, and class participation.	conducting class discussions to stimulate thinking and conclusion using brainstorming and positive reinforcement, and conducting extracurricular activities.
4	5	Biochemistry	Amino Acids	Daily, monthly, and quarterly exams + grades awarded for extracurricular activities, discussions, and class participation.	Delivering theoretical lectures and conducting class discussions to stimulate thinking and conclusion using brainstorming and positive reinforcement, and conducting extracurricular activities.
5	5	Biochemistry	The 1 st monthly exam	Daily, monthly, and quarterly exams + grades awarded for extracurricular activities, discussions, and class participation.	Delivering theoretical lectures and conducting class discussions to stimulate thinking and conclusion using brainstorming and positive reinforcement,

					and conducting extracurricular activities.
6	5	Biochemistry	Carbohydrates (mono saccharides)	Daily, monthly, and quarterly exams + grades awarded for extracurricular activities, discussions, and class participation.	Delivering theoretical lectures and conducting class discussions to stimulate thinking and conclusion using brainstorming and positive reinforcement, and conducting extracurricular activities.
7	5	Biochemistry	Carbohydrates (poly saccharides)	Daily, monthly, and quarterly exams + grades awarded for extracurricular activities, discussions, and class participation.	Delivering theoretical lectures and conducting class discussions to stimulate thinking and conclusion using brainstorming and positive reinforcement, and conducting extracurricular activities.
8	5	Biochemistry	Carbohydrates (sugar derivatives)	Daily, monthly, and quarterly exams + grades awarded for	Delivering theoretical lectures and conducting class discussions to

				extracurricular activities, discussions, and class participation.	stimulate thinking and conclusion using brainstorming and positive reinforcement, and conducting extracurricular activities.
9	5	Biochemistry	Water	Daily, monthly, and quarterly exams + grades awarded for extracurricular activities, discussions, and class participation.	Delivering theoretical lectures and conducting class discussions to stimulate thinking and conclusion using brainstorming and positive reinforcement, and conducting extracurricular activities.
10	5	Biochemistry	The 2 nd monthly exam	Daily, monthly, and quarterly exams + grades awarded for extracurricular activities, discussions, and class participation.	Delivering theoretical lectures and conducting class discussions to stimulate thinking and conclusion using brainstorming and positive reinforcement, and conducting

					extracurricular activities.
11	5	Biochemistry	Vitamins	Daily, monthly, and quarterly exams + grades awarded for extracurricular activities, discussions, and class participation.	Delivering theoretical lectures and conducting class discussions to stimulate thinking and conclusion using brainstorming and positive reinforcement, and conducting extracurricular activities.
12	5	Biochemistry	Minerals	Daily, monthly, and quarterly exams + grades awarded for extracurricular activities, discussions, and class participation.	Delivering theoretical lectures and conducting class discussions to stimulate thinking and conclusion using brainstorming and positive reinforcement, and conducting extracurricular activities.
13	5	Biochemistry	Micro phyto chemicals (phenolics and other compounds)	Daily, monthly, and quarterly exams + grades awarded for extracurricular activities,	Delivering theoretical lectures and conducting class discussions to stimulate thinking and

				discussions, and class participation.	conclusion using brainstorming and positive reinforcement, and conducting extracurricular activities.
14	5	Biochemistry	Extracurricular activity	Daily, monthly, and quarterly exams + grades awarded for extracurricular activities, discussions, and class participation.	Delivering theoretical lectures and conducting class discussions to stimulate thinking and conclusion using brainstorming and positive reinforcement, and conducting extracurricular activities.
15	5	Biochemistry	The 3rd monthly exam	Daily, monthly, and quarterly exams + grades awarded for extracurricular activities, discussions, and class participation.	Delivering theoretical lectures and conducting class discussions to stimulate thinking and conclusion using brainstorming and positive reinforcement, and conducting extracurricular activities.

119. Course Evaluation

- 1- Conducting tests during the semester and asking questions to students to determine their understanding of the subject.
- 2- Conduct a research discussion at the end of the semester to find out students' choices in courses.
- 3- Conduct extracurricular activity by writing reports or educational brochures after completing the semester period to determine the extent to which students are able to diagnose problems and how to find solutions.

120. Learning and Teaching Resources

Required textbooks (curricular books, if any)	Non
Main references (sources)	Al-Asar, Abdulmonim. 2000. Fundamentals of Biochemistry. Academic library.
Recommended books and references (scientific journals, reports...)	JOHN, W. PELLE. 2010. Comprehensive Biochemistry.
Electronic References, Websites	Many references from the Internet

Course Description Form

121.	Course Name:	Food Processing-1
122.	Course Code:	FOPR412
123.	Semester / Year:	Semester
124.	Description Preparation Date:	1/4/2024
125.	Available Attendance Forms:	Mandatory
126.	Number of Credit Hours (Total) / Number of Units (Total):	75 h.
127.	Course administrator's name (mention all, if more than one name)	
	Name: Dr. Fadwa Waleed Abdulqahar, Dr. Sari Ali Hussein and Mr. Anees Hashim	
	Email: ag.fadwa.waleed@uoanbar.edu.iq	
128.	Course Objectives	
	Course Objectives	The Food Processing-2 course aims to enrich students' knowledge of the following: 1- The various manufacturing operations performed on food and how to implement them in food factories in a scientific and sequential manner for the purpose of preserving food and manufacturing various products. 2- Manufacture of specific food products, such as sugar, candy, chocolate, fats, ferments, pickles, and tomato products. 3- Modern technologies that have recently been introduced globally into advanced food factories, such as nanotechnology, smart packaging, and effective packaging.
129.	Teaching and Learning Strategies	
	Strategy	16. Developing teaching programs in coordination with higher departments. 17. Developing teaching curricula similar to the work environment. 18. Sending students to departments and directorates for the purpose of conducting summer school. 19. Assigning students to conduct research and reports related to the course.

20. Assigning students to use of libraries and websites to collect sources on course topics.

130. Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1	5	Food Processing	Fat and Oils manufacturing	Daily, monthly, and quarterly exams + grades awarded for extracurricular activities, discussions, and class participation.	Delivering theoretical lectures and conducting class discussions to stimulate thinking and conclusion using brainstorming and positive reinforcement, and conducting extracurricular activities.
2	5	Food Processing	Oils extracting and purification	Daily, monthly, and quarterly exams + grades awarded for extracurricular activities, discussions, and class participation.	Delivering theoretical lectures and conducting class discussions to stimulate thinking and conclusion using brainstorming and positive reinforcement, and conducting extracurricular activities.
3	5	Food Processing	Chocolate and cacao products manufacturing	Daily, monthly, and quarterly	Delivering theoretical lectures and

				exams + grades awarded for extracurricular activities, discussions, and class participation.	conducting class discussions to stimulate thinking and conclusion using brainstorming and positive reinforcement, and conducting extracurricular activities.
4	5	Food Processing	Sugar and sugar candy manufacturing	Daily, monthly, and quarterly exams + grades awarded for extracurricular activities, discussions, and class participation.	Delivering theoretical lectures and conducting class discussions to stimulate thinking and conclusion using brainstorming and positive reinforcement, and conducting extracurricular activities.
5	5	Food Processing	Modern technologies in food manufacturing (nanotechnology and smart and efficient packaging)	Daily, monthly, and quarterly exams + grades awarded for extracurricular activities, discussions, and class participation.	Delivering theoretical lectures and conducting class discussions to stimulate thinking and conclusion using brainstorming and positive reinforcement,

					and conducting extracurricular activities.
6	5	Food Processing	The 1 st monthly exam	Daily, monthly, and quarterly exams + grades awarded for extracurricular activities, discussions, and class participation.	Delivering theoretical lectures and conducting class discussions to stimulate thinking and conclusion using brainstorming and positive reinforcement, and conducting extracurricular activities.
7	5	Food Processing	Food fermentation manufacturing and its significance	Daily, monthly, and quarterly exams + grades awarded for extracurricular activities, discussions, and class participation.	Delivering theoretical lectures and conducting class discussions to stimulate thinking and conclusion using brainstorming and positive reinforcement, and conducting extracurricular activities.
8	5	Food Processing	Ethanol production (alcoholic fermentation)	Daily, monthly, and quarterly exams + grades awarded for	Delivering theoretical lectures and conducting class discussions to

				extracurricular activities, discussions, and class participation.	stimulate thinking and conclusion using brainstorming and positive reinforcement, and conducting extracurricular activities.
9	5	Food Processing	Acetic acid production and vinegar manufacturing (Acetic acid fermentation)	Daily, monthly, and quarterly exams + grades awarded for extracurricular activities, discussions, and class participation.	Delivering theoretical lectures and conducting class discussions to stimulate thinking and conclusion using brainstorming and positive reinforcement, and conducting extracurricular activities.
10	5	Food Processing	The 2 nd monthly exam	Daily, monthly, and quarterly exams + grades awarded for extracurricular activities, discussions, and class participation.	Delivering theoretical lectures and conducting class discussions to stimulate thinking and conclusion using brainstorming and positive reinforcement, and conducting

					extracurricular activities.
11	5	Food Processing	Manufacture of olives, pickles, and Sauerkraut (Lactic acid fermentation)	Daily, monthly, and quarterly exams + grades awarded for extracurricular activities, discussions, and class participation.	Delivering theoretical lectures and conducting class discussions to stimulate thinking and conclusion using brainstorming and positive reinforcement, and conducting extracurricular activities.
12	5	Food Processing	Oriental fermented food manufacturing	Daily, monthly, and quarterly exams + grades awarded for extracurricular activities, discussions, and class participation.	Delivering theoretical lectures and conducting class discussions to stimulate thinking and conclusion using brainstorming and positive reinforcement, and conducting extracurricular activities.
13	5	Food Processing	Baby food manufacturing	Daily, monthly, and quarterly exams + grades awarded for extracurricular activities,	Delivering theoretical lectures and conducting class discussions to stimulate thinking and

				discussions, and class participation.	conclusion using brainstorming and positive reinforcement, and conducting extracurricular activities.
14	5	Food Processing	Manufacture of tomato paste and other tomato products	Daily, monthly, and quarterly exams + grades awarded for extracurricular activities, discussions, and class participation.	Delivering theoretical lectures and conducting class discussions to stimulate thinking and conclusion using brainstorming and positive reinforcement, and conducting extracurricular activities.
15	5	Food Processing	The 3 rd monthly exam	Daily, monthly, and quarterly exams + grades awarded for extracurricular activities, discussions, and class participation.	Delivering theoretical lectures and conducting class discussions to stimulate thinking and conclusion using brainstorming and positive reinforcement, and conducting extracurricular activities.

131. Course Evaluation

- 1- Conducting tests during the semester and asking questions to students to determine their understanding of the subject.
- 2- Conduct a research discussion at the end of the semester to find out students' choices in courses.
- 3- Conduct extracurricular activity by writing reports or educational brochures after completing the semester period to determine the extent to which students are able to diagnose problems and how to find solutions.

132. Learning and Teaching Resources

Required textbooks (curricular books, if any)	Hassan, Abdul Ali Mahdi and Al-Hakim, Sadiq Hassan. 1995. Food Processing - Part Two. Ministry of Higher Education and Scientific Research - University of Baghdad.
Main references (sources)	Al-Shaibani, Ali Muhammad Hussein. 1989. Food Processing - Section One. Ministry of Higher Education and Scientific Research. University of Al Mosul.
Recommended books and references (scientific journals, reports...)	Al-Samahi, Salah Kamel et al., 2011. Food Technology. Amman, Dar Al Masirah for Publishing, Distribution and Printing.
Electronic References, Websites	Many references from the Internet

Course Description Form

133.	Course Name:	Fundamentals of Human Nutrition
134.	Course Code:	HUNU316
135.	Semester / Year:	Semester
136.	Description Preparation Date:	1/4/2024
137.	Available Attendance Forms:	Mandatory
138.	Number of Credit Hours (Total) / Number of Units (Total):	30 h.
139.	Course administrator's name (mention all, if more than one name)	Name: Dr. Fadwa Waleed Abdulqahar Email: ag.fadwa.waleed@uoanbar.edu.iq
140.	Course Objectives	<p>Course Objectives</p> <p>The Fundamentals of Human Nutrition course aims to enrich students' knowledge of:</p> <ul style="list-style-type: none"> 6- Nutrition Science and its relation with other sciences 7- the human cell and its components which can absorb nutrients, metabolite them and exert metabolites. 8- the macro and micro nutritional components of food in general, their chemical composition, types, classifications, and nutritional roles for humans. 9- nutritional requirements and daily nutritional recommendations for humans depending on age, gender, and medical condition. 10- how to obtain nutritional requirements from multiple sources and find nutritional alternatives depending on food groups.
141. Teaching and Learning Strategies		
Strategy	21. Develop teaching programs in coordination with higher departments.	

- 22. Developing teaching curricula similar to the work environment.
- 23. Sending students to departments and directorates for conducting summer school.
- 24. Assigning students to conduct research and reports.
- 25. Assigning students to use the library and websites to collect sources on the topic.
- 26. Implementing practical lessons in laboratories, each according to their currency

142. Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1	2	Fundamentals of Human Nutrition	Introduction to Human Nutrition	Daily, monthly, and quarterly exams + grades awarded for extracurricular activities, discussions, and class participation.	Delivering theoretical lectures and conducting class discussions to stimulate thinking and conclusion using brainstorming and positive reinforcement, and conducting extracurricular activities.
2	2	Fundamentals of Human Nutrition	The cell and its relationship with nutrition	Daily, monthly, and quarterly exams + grades awarded for extracurricular activities, discussions, and class participation.	Delivering theoretical lectures and conducting class discussions to stimulate thinking and conclusion using brainstorming and positive

					reinforcement, and conducting extracurricular activities.
3	2	Fundamentals of Human Nutrition	Macro and micro nutrients – Carbohydrates	Daily, monthly, and quarterly exams + grades awarded for extracurricular activities, discussions, and class participation.	Delivering theoretical lectures and conducting class discussions to stimulate thinking and conclusion using brainstorming and positive reinforcement, and conducting extracurricular activities.
4	2	Fundamentals of Human Nutrition	Fats	Daily, monthly, and quarterly exams + grades awarded for extracurricular activities, discussions, and class participation.	Delivering theoretical lectures and conducting class discussions to stimulate thinking and conclusion using brainstorming and positive reinforcement, and conducting extracurricular activities.
5	2	Fundamentals of Human Nutrition	The 1 st monthly exam	Daily, monthly, and quarterly exams + grades	Delivering theoretical lectures and conducting class

				awarded for extracurricular activities, discussions, and class participation.	discussions to stimulate thinking and conclusion using brainstorming and positive reinforcement, and conducting extracurricular activities.
6	2	Fundamentals of Human Nutrition	Proteins	Daily, monthly, and quarterly exams + grades awarded for extracurricular activities, discussions, and class participation.	Delivering theoretical lectures and conducting class discussions to stimulate thinking and conclusion using brainstorming and positive reinforcement, and conducting extracurricular activities.
7	2	Fundamentals of Human Nutrition	Vitamins	Daily, monthly, and quarterly exams + grades awarded for extracurricular activities, discussions, and class participation.	Delivering theoretical lectures and conducting class discussions to stimulate thinking and conclusion using brainstorming and positive reinforcement, and conducting

					extracurricular activities.
8	2	Fundamentals of Human Nutrition	Minerals	Daily, monthly, and quarterly exams + grades awarded for extracurricular activities, discussions, and class participation.	Delivering theoretical lectures and conducting class discussions to stimulate thinking and conclusion using brainstorming and positive reinforcement, and conducting extracurricular activities.
9	2	Fundamentals of Human Nutrition	Water	Daily, monthly, and quarterly exams + grades awarded for extracurricular activities, discussions, and class participation.	Delivering theoretical lectures and conducting class discussions to stimulate thinking and conclusion using brainstorming and positive reinforcement, and conducting extracurricular activities.
10	2	Fundamentals of Human Nutrition	The 2 nd monthly exam	Daily, monthly, and quarterly exams + grades awarded for extracurricular activities,	Delivering theoretical lectures and conducting class discussions to stimulate thinking and

				discussions, and class participation.	conclusion using brainstorming and positive reinforcement, and conducting extracurricular activities.
11	2	Fundamentals of Human Nutrition	Digestion and metabolism	Daily, monthly, and quarterly exams + grades awarded for extracurricular activities, discussions, and class participation.	Delivering theoretical lectures and conducting class discussions to stimulate thinking and conclusion using brainstorming and positive reinforcement, and conducting extracurricular activities.
12	2	Fundamentals of Human Nutrition	Dietary requirements and recommendations	Daily, monthly, and quarterly exams + grades awarded for extracurricular activities, discussions, and class participation.	Delivering theoretical lectures and conducting class discussions to stimulate thinking and conclusion using brainstorming and positive reinforcement, and conducting extracurricular activities.

13	2	Fundamentals of Human Nutrition	Food groups	Daily, monthly, and quarterly exams + grades awarded for extracurricular activities, discussions, and class participation.	Delivering theoretical lectures and conducting class discussions to stimulate thinking and conclusion using brainstorming and positive reinforcement, and conducting extracurricular activities.
14	2	Fundamentals of Human Nutrition	Extra curriculum activity	Daily, monthly, and quarterly exams + grades awarded for extracurricular activities, discussions, and class participation.	Delivering theoretical lectures and conducting class discussions to stimulate thinking and conclusion using brainstorming and positive reinforcement, and conducting extracurricular activities.
15	2	Fundamentals of Human Nutrition	The 3 rd monthly exam	Daily, monthly, and quarterly exams + grades awarded for extracurricular activities, discussions,	Delivering theoretical lectures and conducting class discussions to stimulate thinking and conclusion using

				and class participation.	brainstorming and positive reinforcement, and conducting extracurricular activities.
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143. Course Evaluation

- 1- Conducting tests during the semester and asking questions to students to determine their understanding of the subject.
- 2- Conduct a research discussion at the end of the semester to find out students' choices in courses.
- 3- Conduct extracurricular activity by writing reports or educational brochures after completing the semester period to determine the extent to which students are able to diagnose problems and how to find solutions.

144. Learning and Teaching Resources

Required textbooks (curricular books, if any)	Al-Zuhairi, Abdullah Muhammad Thanoun. 1992. Human nutrition. Ministry of Higher Education and Scientific Research. University of Al Mosul.
Main references (sources)	- Human Nutrition. Catherine Geissler, Hilary J. Powers. 2017. Oxford University press. U.K.
Recommended books and references (scientific journals, reports...)	<ul style="list-style-type: none"> - Nutrition - Nutrition Journal - British Journal of Nutrition
Electronic References, Websites	Many references from the Internet