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

UNIVERSITY OF ANBAR/ COLLEGE OF AGRICULTURE
FOOD SCIENCE DEPT.

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: 25/1/2024

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: 14/4/2024

جامعة الانبار كلية الزراعة قسم علوم الاغذية

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:

جامعة الانبار - كلية الزراعة شعبة ضمان الجودة والاداء الجامعي

Approval of the Dean

Prof. Dr. Idham Ali Abed

14\4\2024

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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

3.11Third 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			6	

		Dairy technology				
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**															
Couse mane	**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**			
1st Year 2023-2024			**A1**	**A2**	**A3**	**A4**	**B1**	**B2**	**B3**	**B4**	**C1**	**C2**	**C3**	**C4**	**D2**	**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 2023-2024			**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 2023-2024			**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 2023-2024			**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

Course Name:	
Engineering workshop	
Course Code:	
FS191010	
Semester / Year:	
Second semesters 2023-2024	
Description Preparation Date:	
25/1/2024	
Available Attendance Forms:	
Mandatory	
Number of Credit Hours (Total) / Number of Units (Total):	
75/3.5	
Course administrator's name	
Assist. Prof. Dr. Saad Ibrahim Yousif	
Course Objectives	
Course Objectives	Introducing students to the basics of working in food workshops and the most important things that must be followed in these workshops, in addition to teaching students the basics of dealing with water and electricity in food workshops and performing important calculations.
Teaching and Learning Strategies	
Strategy	a. Developing teaching programs in coordination with higher departments.

	b. Developing teaching curricula similar to the work environment. c. Sending students to departments and directorates for the purpose of summer application. d. Assigning students to conduct research and reports. e. Assigning students to go to the library and collect sources on the subject. f. Implementing practical lessons in laboratories, each according to his specialization

Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1	Theory and Pract.	Engineering workshop	Units, their multiples, parts, and conversions	Giving lectures	Quiz+ activities
2	Theory and Pract.	Engineering workshop	Means used in transferring and converting movement	Giving lectures	Quiz+ activities
3	Theory and Pract.	Engineering workshop	Types of movement	Giving lectures	Quiz+ activities
4	Theory and Pract.	Engineering workshop	Axles and columns	Giving lectures	Quiz+ activities
5	Theory and Pract.	Engineering workshop	Means of converting movement from one form to another	Giving lectures	Quiz+ activities
6	Theory and Pract.	Engineering workshop	Water sources	Giving lectures	Quiz+ activities
7	Theory and Pract.	Engineering workshop	Pumps and the basis of their work	Giving lectures	Quiz+ activities
8	Theory and Pract.	Engineering workshop	The tools used in water connections	Giving lectures	Quiz+ activities
9	Theory and Pract.	Engineering workshop	Electrical terms	Giving lectures	Quiz+ activities

10	Theory and Pract.	Engineering workshop	Electricity, its types and connections	Giving lectures	Quiz+ activities
11	Theory and Pract.	Engineering workshop	Electrical circuit	Giving lectures	Quiz+ activities
12	Theory and Pract.	Engineering workshop	Earth and its relationship to safety	Giving lectures	Quiz+ activities
13	Theory and Pract.	Engineering workshop	Electric motor	Giving lectures	Quiz+ activities
14	Theory and Pract.	Engineering workshop	The tools used in electrical connections	Giving lectures	Quiz+ activities
15	Theory and Pract.	Engineering workshop	Control of weather conditions	Giving lectures	Quiz+ activities

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

Learning and Teaching Resources

Required textbooks (curricular books, any)	Engineering Workshops (Lotfi Mohamed Ali) 1990
Main references (sources)	Engineering Workshops (Lotfi Mohamed Ali) 1990
Recommended books and references (scientific journals, reports...)	A. Lectures
Electronic References, Websites	https://scholar.google.com/schhp?hl=ar

Course Description Form

Course Name:	
General Mathematics	
Course Code:	
FS19102	
Semester / Year:	
First Semester/2023-2024	
Description Preparation Date:	
25/1/2024	
Available Attendance Forms:	
in-person learning	
Number of Credit Hours (Total) / Number of Units (Total)	
30/2	
Course administrator's name (mention all, if more than one name)	
Dr. Bilal Yaseen Taher	
Course Objectives	
Course Objectives	A-Ability to understand the principle of mathematical functions B-Increasing the skills of students for using it to solve the problems C-Ability the undergraduate students to use these skills in different fields. D-Ability the students to graph the equations, inequalities and functions.
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.

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	Identities of Trigonometric	on the white board,	questions, discussions,

		Trigonometric functions	functions	Homework	and examples
Fourteenth	2	Testing these equations in the practical experimental.	Solve all homework and problems	on the white board, Homework, and Applications by computers	questions, discussions, and examples
		Exam of the third month			

1. Course Evaluation

Theory exam 30%, Practical Quiz 10%, Practical exam 10%, final exam 50%.
Final degree from 100%.

2. 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

Course Name:	
Horticulture Principles	
Course Code:	
FS19103	
Semester / Year:	
First semester 2023-2024	
Description Preparation Date:	
25/1/2024	
Available Attendance Forms:	
Mandatory attendance	
Number of Credit Hours (Total) / Number of Units (Total):	
75/3.5	
Course administrator's name (mention all, if more than one name)	
Assist. Prof. Dr. Mahmood Shakir Ahmed	
Course Objectives	
Course Objectiv	1. Identify the most important strategic gastrointestinal plants in the circumstances of Iraq. 2. Identify the environmental conditions appropriate to the growth of gastrinical plants. 3. Learn about the most important ways to multiply gastroids. 4. Learn about the most important gastroids used in the cultivation of gastrinical plants.
Teaching and Learning Strategies	

Strategy	Teaching therolotical parts in class by using data show and some new methods, Teaching the practical part through field visits/work in the department's laboratories
Course Structure	

Week	Hours	ILOs	Unit/Module or Topic Title	Teaching Method	Assessment Method
1	5	General knowledge of gastrinical plants	Gardening Science, the history of the development of gardening science is economic and nutritional importance	Lecture	quiz
2	5	Vegetable classification	Divide gastroidian plants	Lecture	quiz
3	5	The impressive factors	The appropriate environmental factors and their impact on the production of gastroids (light, heat, moisture, soil).	Lecture	quiz
4	5	Methods of propagation	Methods of proliferation of gastroids (sexual reproduction, vegetative, tissue transplantation).	Lecture	quiz
5	5	Its types	The most important fungal, bacterial and viral diseases that affect the crop	Lecture	quiz
6	5	Methods of propagation	Machinery, field agriculture patterns (for fruit, vegetables, ornamental plants, medicinal and aromatic).	Lecture	quiz
7	5	Agricultural operations	Agricultural operations (irrigation, fertilization, lightness, bush and pest resistance .... etc.)	Lecture	quiz
8	5	Agricultural methods	Agriculture under air - conditioned environments.	Lecture	quiz
9	5	Post -harvest operations	Genie, picking, marketing.	Lecture	quiz
10	5	Treasury transactions	The most important fungal, bacterial and viral diseases that affect the crop	Lecture	quiz
11	5	Storage methods	Storage and memorization	Lecture	quiz
12	5	Raising	About raising and improving gastrinical plants.	Lecture	quiz
13	5	the fruit	Examples of fruit trees, vegetables and decorations.	Lecture	quiz
14	5	Medical and aromatic	Examples of medicinal and aromatic plants.	Lecture	quiz
15	5		The most important l, nematodes diseases that affect the crop, The most important fungal, bacterial and viral diseases that affect the crop	Lecture	quiz

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	
Learning and Teaching Resources	
Required textbooks (curricular books, if any)	• Principles of Gardening and Garden Engineering 2017. Iyad Hani Ismail Al -Allaf. College of Agriculture and Forests - Mosul University. • Basics in Gardening Science and Garden Engineering 2017. Iyad Hani Ismail Al -Allaf and Iyad Tariq Shila Al -Alam. College of Agriculture and Forests - Mosul University. • Principles of 2014 gardening. Sami Karim Mohamed Amin and Nisreen Khalil. College of Agricultural Engineering Science - University of Baghdad.
Main references (sources)	Books and scientific research specialized in gastrison plants.
Recommended books and references (scientific journals, reports...)	
Electronic References, Websites	Youtube.com Springer.com

Course Description Form

Course Name:
Soil principles
Course Code:
FS19107
Semester / Year:
Semester 2023_2024
Description Preparation Date:
25/1/2024
Available Attendance Forms:
Attendance (theoretical + practical)
Number of Credit Hours (Total) / Number of Units (Total)
75 hours / 3.5 units
Course administrator's name (mention all, if more than one name)
Saad Enad Harfoosh
Course Objectives
1. Identify the soil, which is the upper part of the earth's crust. 2. Understanding the mechanism of soil formation and development. 3. Identify the physical, chemical, fertility and biological characteristics of soil for each type of soil. 4. Learn about analysis methods for each soil characteristic. 5. Use some laboratory equipment and field tools
Teaching and Learning Strategies

Strategy	1. Traditional means of explanation and clarification.

	2. Electronic means of explanation and clarification. 3. Field work. 4. Adopting student groups for field work to take measurements. 5. Use of surveying devices and equipment. 6. Show illustrative pictures of the devices and their accessories.

Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
The first	5	Soil development and formation	Soil principles	**A lecture w explanation and clarification**	**The exam**
the second	5	Principles of soil science	Soil principles	**A lecture w explanation and clarification**	**The exam**
the third	5	Physical properties soil	Soil principles	**A lecture w explanation and clarification**	**The exam**
the fourth	5	Soil water	Soil principles	**A lecture w explanation and clarification**	**The exam**
Fifth	5	Estimation of moist content	Soil principles	**A lecture w explanation and clarification**	**The exam**
VI	First month exam - theoretical and practical				
Seventh	5	Estimation of bullk and true density and porosity	Soil principles	**A lecture w explanation and clarification**	**The exam**
VIII	5	Colloids and soil chemical properties	Soil principles	**A lecture w explanation and clarification**	**The exam**
Ninth	5	analysis of soil particles	Soil principles	**A lecture w explanation**	**The exam**

				and clarification	
The tenth	5	Salinity and alkalinity in the soil	Soil principles	**A lecture w explanation and clarification**	**The exam**
Eleventh	5	Preparation of saturated soil paste	Soil principles	**A lecture w explanation and clarification**	**The exam**
Twelveth	5	Biological and biochemical properties of soil	Soil principles	**A lecture w explanation and clarification**	**The exam**
Thirteenth	Second month exam - theoretical and practical				
Fourteenth	5	Soil fertility and plant nutrition	Soil principles	**A lecture w explanation and clarification**	**The exam**
Fifteenth	5	Estimation of organic matter	Soil principles	**A lecture w explanation and clarification**	**The exam**

Course Evaluation	
1- Rapid daily tests. 2- Theoretical tests. 3- Practical tests. 4- Research and reports.	
Learning and Teaching Resources	
Required textbooks (curricular books, if any)	Soil principles/Abdullah Najm Al-Ani
Main references (sources)	Soil principles/Abdullah Najm Al-Ani
Recommended books and references (scientific journals, reports...)	Soil salinity / Ahmed Haider Al-Zubaidi Soil fertility / Kazem Mashhout Soil Chemistry / Kazem Mashhout Soil survey and classification / Walid Al-Akidi Soil physics/Mahdi Ibrahim Odeh
Electronic References, Websites	Local, regional and international scientific books and journals concerned with soil fertility, especially within scientific and virtual libraries.

Course Description Form

1. Course Name:	
Engineering Drawing	
2. Course Code:	
FS19108	
3. Semester / Year: semester	
2023_2024	
4. Description Preparation Date:	
2024/1/25	
5. Available Attendance Forms:	
Attendance	
6. Number of Credit Hours (Total) / Number of Units (Total)	
45\2	
7. Course administrator's name	
Bahjet Hardan Sulayman	
8. Course Objectives	
Basic Understanding: Introducing students to the fundamental concepts of geometric drawing, including symbols, dimensions, and scales. Analysis and Interpretation: Empowering students to analyze and interpret geometric drawings and diagrams efficiently. Technical Skills Development: Enhancing students' skills in using geometric drawing tools such as traditional tools like ruler and compass.	
9. Teaching and Learning Strategies	
Strategy	Interactive Teaching: Using classroom discussions and workshops to enhance interaction among students and

	exchange of ideas. This helps deepen students' understanding of geometric drawing concepts and their applications. Flipped Classroom: Students review theoretical content outside the classroom, while class time is allocated for practical applications. Cooperative Learning: Encouraging students to work in groups to promote collaboration and knowledge exchange, leading to improved communication and teamwork skills. Utilization of Diverse Resources: Providing a wide range of educational resources, including instructional videos, e-books, and scientific articles, to enhance understanding and expand knowledge.

10. Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1	2	Absolute Value	Engineering drawing	Attendance	Class assignment
2	2	Learning Drawing Scale and Its Importance	Engineering Drawing	Attendance	Class assignment
3	2	Introduction to Types of Lines and Engineering Drawing	Engineering drawing	Attendance	Class assignment
4	2	Learning Line Bisecting	Engineering drawing	Attendance	Class assignment
5	2	Geometric Operations	Engineering drawing	Attendance	-
6	2	Parallelism and Dividing Lines Equally and in Different Proportions	Engineering drawing	Attendance	Class assignment
7	2	Exam	Engineering drawing	Attendance	Class assignment
8	2	Learning Triangular,	Engineering drawing	Attendance	Class assignment

		Quadrilateral, and Pentagon Shapes			
9	2	Learning Hexagonal, Heptagonal, and Octagonal Shapes	Engineering drawing	Attendance	Class assignment
10	2	Learning Nonagon and Decagon Shapes	Engineering drawing	Attendance	-
11	2	Learning Individual Polygons	Engineering drawing	Attendance	Class assignment
12	2	Learning Paired Polygons	Engineering drawing	Attendance	Class assignment
13	2	oval	Engineering drawing	Attendance	Class assignment
14	2	exam	Engineering drawing	Attendance	-

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	
Learning and Teaching Resources	
Required textbooks (curricular books, if any	Engineering drawing
Main references (sources)	Learning Applications of Engineeri Drawing
Recommended books and references (scientific journals, reports...)	Engineering Operations Handbook
Electronic References, Websites	-Geometry Learning Pages

Course Description Form

Course Name:
Fundamentals of Food Manufacturing
Course Code:
Fs191015
Semester / Year:
Second semester 2023-2024
Description Preparation Date:
25/1/2024
Available Attendance Forms:
Mandatory
Number of Credit Hours (Total) / Number of Units (Total):
75 h./ 3.5 unit
Course administrator's name (mention all, if more than one name)
Dr. Sari Ali Hussein and Dr. Fadwa Waleed Abdulqahar
Course Objectives

Course Objectives	The Fundamentals of Food Manufacturing course aims to enrich students' knowledge of the following: 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.
Teaching and Learning Strategies	
Strategy	Developing teaching programs in coordination with higher departments. Developing teaching curricula similar to the work environment. Sending students to departments and directorates for the purpose of conducting summer school. Assigning students to conduct research and reports related to the course. Assigning students to use of libraries and websites to collect sources on course topics.

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	Delivering theoretical lectures and conducting class discussions to stimulate

				activities, discussions, and class participation.	thinking and conclusion using brainstormin g and positive reinforceme nt, and conducting extracurricul ar 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 brainstormin g and positive reinforceme nt, and conducting extracurricul ar 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 brainstormin g and positive reinforceme nt, 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 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	Fundamentals of Food Manufacturing	Food preservation by pickling and pickles manufacturing	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 brainstormin g and positive reinforceme nt, and conducting extracurricul ar 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 brainstormin g and positive reinforceme nt, and conducting extracurricul ar activities.
8	5	Fundamentals of Food Manufacturing	The 1st 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 brainstormin g 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, 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	Fundamentals of Food Manufacturing	Date and Date syrup 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 brainstormin g and positive reinforceme nt, and conducting extracurricul ar 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 brainstormin g and positive reinforceme nt, and conducting extracurricul ar activities.
13	5	Fundamentals of Food Manufacturing	Burger 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 brainstormin

					g 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 2nd 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.
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.	
Learning and Teaching Resources	
Required textbooks (curricular books, 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

Course Name:	
Principles of animal production	
Course Code:	
FS191011	
Semester / Year:	
Second semesters 2023-2024	
Description Preparation Date:	
25/1/2024	
Available Attendance Forms:	
Mandatory	
Number of Credit Hours (Total) / Number of Units (Total):	
75/3.5	
Course administrator's name	
Amarr Adil salih	
Course Objectives	
Course Objectives	Introducing the student to the reality of animal production, t economic importance of animal production, the nutritional nee of ruminants and poultry, identifying breeds and classifying the according to production, and learning about the daily and seasor field operations conducted by animal breeders.
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. 6-Animal nutrition and ration calculations

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

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

Learning and Teaching Resources

Required textbooks (curricular books, if any)	Basics of animal production Mahmoud Riyad 2013
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:	
Arabic	
2. Course Code:	
FS191013	
3. Semester / Year:	
Sconed Semester/2023-2024	
4. Description Preparation Date:	
25/1/2024	
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	
Mohammed Kareem shaker	
8. Course Objectives	
1- Preparing students, including the Arabic language 2- Instilling the values of the Arabic language in 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 to 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 skills development Correct spelling Know the errors Knowledge and awareness Learn to parse Learn to parse Knowledge and perception Learn Arabic Proper pronunciation Learn the differences	Sections of speech punctuation marks Common linguistic errors The difference between dha and dha Solar and lunar lam The simple and marbuta tā’ Number and	My presence	the exam
2	2			My presence	the exam
3	2			My presence	the exam
4	2			My presence	the exam
5	2			My presence	the exam
6	2			My presence	the exam
7	2			My presence	the exam
8	2			My presence	the exam
9	2			My presence	the exam
10	2			My presence	the exam
				My presence	the exam

11 12 13 14 15	2 2 2 2 2	Brief and learn Discrimination Understanding and perception The right style	number Suspicious actions Imperfect verbs The subject and the predicate	My presence My presence My presence My presence My presence	the exam the exam the exam the exam the exam

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

Course Description Form

Course Name:	
Principles of Economics	
Course Code:	
FS19106	
Semester / Year:	
First /2023_2024	
Description Preparation Date:	
25/1/2024	
Available Attendance Forms:	
regularity (attendance)	
Number of Credit Hours (Total) / Number of Units (Total)	
75 Hour / 3.5 unit	
Course administrator's name (mention all, if more than one name)	
Mustafa Fadel hamad	
Course Objectives	
Course Objective	1- The student knows the concept of economics and economic activity 2-The student understands the concept of demand, the law of demand, the concept of supply and their elasticities 3-The student knows the concept of production theory and consumer theory 4- The student should know the concept of costs, production, and the best production level 5- The student understands the meaning of revenue and its types 6- The student should know the concept of markets and th types
Teaching and Learning Strategies	
Strategy	Clarifying the concept of economics, methods of economic analysis, t

	concept of demand, the law of demand and its elasticities, the fact affecting it, the concept of supply and their elasticities, clarifying t theory of production, the theory of consumer behavior, the theory costs, the concept of revenue and its types, and addressing the concept markets, their types, and the characteristics of each market

Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1	5	Knowledge and understanding Skill for the subject	The concept of economics its branches and relationship to other scie and methods of research	theoretically Practical vocabulary Subject	Examination, reporting
2	5	Knowledge and understanding Skill for the subject	The concept of econo needs and their characteris as well as the concept economic activities and circular flow of income	theoretically Practical vocabulary Subject	Examination, reporting
3	5	Knowledge and understanding Skill for the subject	Demand, its concept, function and demand cu and the exceptions to this l	theoretically Practical vocabulary Subject	Examination, reporting
4	5	Knowledge and understanding Skill for the subject	Factors affecting demand, concept of elasticity, ty degrees and uses of elastic of demand	theoretically Practical vocabulary Subject	Examination, reporting
5	5	Knowledge and understanding Skill for the subject	Supply its concept, law, cu and schedule of supply, elasticity and the fac affecting it	theoretically Practical vocabulary Subject	Examination, reporting
6	5	Knowledge and understanding Skill for the subject	The theory of consu behavior and its analysis the concept of consu equilibrium according to classical theory	theoretically Practical vocabulary Subject	Examination, reporting
7	5	Knowledge and understanding Skill for the subject	The modern theory or theory of indifference curv	theoretically Practical vocabulary Subject	Examination, reporting
8	5	Knowledge and understanding Skill for the subject	production factors	theoretically Practical vocabulary Subject	Examination, reporting
9	5	Knowledge and understanding Skill for the subject	Cost theory and the concep costs of all kinds	theoretically Practical vocabulary Subject	Examination, reporting
10	5	Knowledge and understanding	The law of diminishing ret is understood and evaluate	theoretically Practical	Examination, reporting

		Skill for the subject		vocabulary Subject	
11	5	Knowledge and understanding Skill for the subject	Revenue and its types	theoretically Practical vocabulary Subject	Examination, reporting
12	5	Knowledge and understanding Skill for the subject	Markets concept and types	theoretically Practical vocabulary Subject	Examination, reporting
13	5	Knowledge and understanding Skill for the subject	Perfectly competitive ma conditions and equilibrium	theoretically Practical vocabulary Subject	Examination, reporting
14	5	Knowledge and understanding Skill for the subject	Monopolistic competition oligopoly	theoretically Practical vocabulary Subject	Examination, reporting
15	5	Knowledge and understanding Skill for the subject	Monopoly market producer equilibrium	theoretically Practical vocabulary Subject	Examination, reporting

Course Evaluation	
Daily exam 5 marks, semester exam 40 marks, submission of report 5 marks, final exam 50 marks (total 100)	
Learning and Teaching Resources	
Required textbooks (curricular books, if any)	
Main references (sources)	1- Dr. Sami Al-Sayed, "Principles of Economics 2- Dr. Abdul Karim Mahdi Al-Hasnawi, "Principles of Economics" 3- Dr. Mohsen Hassan Al-Mamouri, "Principles Economics" 4- Dr. Rania Mahmoud Abdel Aziz Ama "Principles of Economics
Recommended books and references (scientific journals, reports...)	
Electronic References, Websites	

Course Description Form

Course Name:	
Computer/1	
Course Code:	
FS191014	
Semester / Year:	
Second Semester/2023-2024	
Description Preparation Date:	
25/1/2024	
Available Attendance Forms:	
in-person learning	
Number of Credit Hours (Total) / Number of Units (Total)	
30/1 (practical only)	
Course administrator's name (mention all, if more than one name)	
Name: Dr.Bilal Yaseen Taher	
Course Objectives	
Course Objectives	Ability to understand the principle of PowerPoint program, Increasing the skills of students for using it to solve the problems, Ability the undergraduate students to use these skills in different fields, Ability the students to show their presentations of researches by data show.
Teaching and Learning Strategies	
Strategy	Using these computer essentials and skills in different applications. Using the computer programs to do the

	presentations for your seminars and researches by data show. Ability of student to evaluate the problems, and writing then scientific reports. The student can acquire the practical and scientific experience in his specialized field it.

Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
First	2	definition and important of Microsoft excel 2010	introduction of Microsoft PowerPoint 2010	by computer	questions , discussions, and examples
Second	2	operating Microsoft PowerPoint 2010.	operating Microsoft PowerPoint 2010	by computer	questions , discussions, and examples
Third	2	Definition the groups in file tab. (save, save as,….)	file, home, and Insert tab	by computer	questions , discussions, and examples
Fourth	2	Definition the groups in home tab (clipboard, font, number,…..)	Design and Transitions Tab	by computer	questions , discussions, and examples
Fifth	2	Exam of first month			
Sixth	2	Include the groups (themes, page setup, select to fit,..)	page layout tab	by computer	questions , discussions, and examples
Seventh	2	Definition the groups in Animation tab (type of animations,…)	Animation tab	by computer	questions , discussions, and examples
Eighth	2	Definition the methods of slides view in view tab	View tab	by computer	questions , discussions, and examples
Ninth	2	slides show methods calculations,…)	Slides Show tab	by computer	questions , discussions, and examples
Tenth	2	Exam of second month			
Eleventh	2	proofing and translations	Review tab	by computer	application of equations in formula bar

Twelfth	2	methods of slides printing	methods of slides Print	by computer	Definition the groups in review tab (proofing, language, comments,….)
Thirteenth	2	Definition the groups in slides show tab	methods of slides show	by computer	Definition the groups in view tab (workbook views, show, zoom, window)
Fourteenth	2	applications for all tabs	review for all tabs	applications for all tabs	applications for all tabs
		Exam of the third month			

Course Evaluation	
Practical Quiz 10%, Practical exam 40%, final exam (Practical only) 50%. Final degree from 100%.	
Learning and Teaching Resources	
Required textbooks (curricular books, if any)	"Essentials of computers and library applications", Pro.Dr. Zaid Mohamed Abood, Pro.Dr. Gasan Hameed, vol.3, 2010
Main references (sources)	Practical applications by PowerPoint program.
Recommended books and references (scientific journals, reports...)	Essentials of computers and libra applications
Electronic References, Websites	Microsoft Internet websites

Course Description Form

Course Name:	
Statistic	
Course Code:	
FS191016	
Semester / Year:	
second/ 2023-2024	
Description Preparation Date:	
2024/1/25	
Available Attendance Forms:	
Personal presence	
Number of Credit Hours (Total) / Number of Units (Total)	
75/3.5	
Course administrator's name (mention all, if more than one name)	
Dr. Ahmed Shiab Salih	
Course Objectives	
Course Objectives	data and methods of collecting, classifying, describing, analyzing, and extracting results from them
Teaching and Learning Strategies	
Strategy	Teaching students methods of collecting data and methods of presenting it

	Teaching students methods for estimating descriptive scales Teaching students the types of distributions and testing hypotheses related to phenomena

Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1	4	Knowledge of statistics and its functions	Definition of statistics and its relationship to other sciences	Presentation and discussion	daily tests
2	4	Identify the types of variables	Statistical variables and symbols	Presentation and discussion	daily tests
3	4	Learn about data collection methods	Data collection	Presentation and discussion	daily tests
4	4	Learn about display and tabulation	Tab and display data	Presentation and discussion	daily tests
5	4	Estimating measures of central tendency	Measures of central tendency for primary data	Presentation and discussion	daily tests

6	4	Calculate measures of central tendency	Measures of central tendency for classified data	Presentation and discussion	daily tests
7	4	Calculating dispersion measures	Measures of dispersion	Presentation and discussion	daily tests
8	4	First test	Exam monthly		monthly test
9	4	Calculating relative dispersion measures	Measures of relative dispersion	Presentation and discussion	daily tests
10	4	Calculating measures of skwwenses and kuartis	Skwensses and kuartis	Presentation and discussion	daily tests
11	4	Calculating probabilities	probability theory	Presentation and discussion	daily tests
12	4	Calculating probabilities in discrete distributions	Discrete distributions	Presentation and discussion	daily tests

13	4	Second exam	Second test	Presentation and discussion	daily tests
14	4	probability distributions	continuose brobability	Presentation and discussion	daily tests
15	4	test hypotheses	hypothesis	Presentation and discussion	monthly test

Course Evaluation

The course is evaluated through its outcomes, which can be observed as students progress in learning the course, as well as through what graduates of the program are able to use what is included in the course in performing tasks that require collecting, describing, and analyzing data.

Learning and Teaching Resources

Required textbooks (curricular books, if any	
Main references (sources)	1 - Khasi Al-Rawi, Principles of Statistics 2- Muhammad Alaa El-Din, Principles of the Statistical Method Methods, first edition, 2011
Recommended books and references (scientific journals, reports...)	Introduction to statistics By Mikki Hebi and others ,, Koone HON , An introduction statistics
Electronic References, Websites	The electronic library of the Department of Agricultural Economics

Course Description Form

Course Name:
English Language/1
Course Code:
FS19105
Semester / Year:
First / 2023-2024
Description Preparation Date:
25/1/2024
Available Attendance Forms:
in-person learning
Number of Credit Hours (Total) /
30HOUER/2 UNIT
Course administrator's name
Anmar Nazar Hasan
Course Objectives English Language/1
a. Grades on students' participation in research and scientific reports b. Discussing research and reports, presenting them, and giving them a grade c. Conducting tests during the application period and asking questions to students to determine the extent of their understanding of the subject d. Conduct a discussion of reports at the end of the semester to find out students' choices in courses e. Writing reports after completing the application period to determine the extent to which students were able to diagnose problems and how to find

solutions.

Teaching and Learning Strategies

a. Developing teaching programs in coordination with higher departments.

b. Develop teaching curricula similar to the work environment.

c. Sending students to departments and directorates for the purpose of conducting summer application.

d. Assigning students to conduct research and reports.

e. Assigning students to go to the library and collect resources on the topic.

f. Implementing practical lessons in laboratories, each according to l specialty

Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1	Theoretical 1 ho	English 1	Hello	Theoretical 1 hour	Daily and quarterl exam + activity
2	Theoretical 1 ho	English 1	Your world	Theoretical 1 hour	Daily and quarterl exam + activity
3	Theoretical 1 ho	English 1	**All abo you**	Theoretical 1 hour	Daily and quarterl exam + activity
4	Theoretical 1 ho	English 1	**Family and friends**	Theoretical 1 hour	Daily and quarterl exam + activity
5	Theoretical 1 ho	English 1	**The wa** live	Theoretical 1 hour	Daily and quarterl exam + activity
6	Theoretical 1 ho	English 1	**Every**	Theoretical 1 hour	Daily and quarterl exam + activity
7	Exam2				
8	Theoretical 1 hour	English 1	**My favorite's**	Theoretical 1 hour	Daily and quarterl exam + activity
9	Theoretical 1 hour	English 1	**Where** I li	Theoretical 1 hour	Daily and quarterl exam + activity

10	Theoretical 1 hour	English 1	**Times pas**	Theoretical 1 hour	Daily and quarterl exam + activity
11	Theoretical 1 hour	English 1	**We had a great time**	Theoretical 1 hour	Daily and quarterl exam + activity
12	Theoretical 1 hour	English 1	**I can do th**	Theoretical 1 hour	Daily and quarterl exam + activity
13	Theoretical 1 hour	English 1	**Please and thank you**	Theoretical 1 hour	Daily and quarterl exam + activity
14	Theoretical 1 hour	English 1	**Here and now**	Theoretical 1 hour	Daily and quarterl exam + activity
15	Exam2				

Course Evaluation
. Daily (10%) and monthly tests (40%) through questions on the subject of the subject. final exam(50%).

Learning and Teaching Resources	
Required textbooks (curricular books, any)	NEW HEADWAY beginner
Main references (sources)	NEW HEADWAY beginner
Recommended books and references (scientific journals, reports...)	NEW HEADWAY beginner
Electronic References, Websites	You Tub Chanel

Course Description Form

Course Name:
Crimes of the former Baath regime / AL Baath Crimes
Course Code:
FS192011
Semester / Year:
First Semester/2023-2024
Description Preparation Date:
25/1/2024
Available Attendance Forms:
Presence
Number of Credit Hours (Total) / Number of Units (Total)
30 hours 2 units per week
Course administrator's name (mention all, if more than one name)
Dr. Mohammed Kareem shaker
Course Objectives
1-Preparing educated students with correct ideas 2- Instilling noble values and morals 3- Helping in writing scientific research objectively 4- Know the facts and not falsify them 5- Knowing the repressive methods used by the former regime
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

Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1	2	Understanding and	Violation of rights and freedoms	presence	the exam
2	2	learning	A descriptive overview of political	presence	the exam
3	2	skills development	systems	presence	the exam
4	2	Know the facts	The Baathist regime's violation of	presence	the exam
5	2	Knowledge of sound	rights and freedoms	presence	the exam
6	2	principles	The impact of the behavior of the	presence	the exam
7	2	Knowledge and	former Baathist regime on the	presence	the exam
8	2	awareness	society	presence	the exam
9	2	Learn high values	The impact of the transitional	presence	the exam
10	2	raising awareness	period the psychological field + the	presence	the exam
11	2	Knowledge and	social field	presence	the exam
12	2	perception	Religion and state	presence	the exam
13	2	Crystallization of idea	First month exam	presence	the exam
14	2	Mind development	Culture, media, and the	presence	the exam
15	2	Learn the facts	militarization of societ	presence	

		Brief and learn Discrimination Understanding and perception The right style	The impact of oppression and wars on the environment and population The use of internationally prohibited weapons and environmental pollution Scorched earth policy + drying of the marshes Destruction of the agricultural and animal environment Mass graves Second month exam		

13. Course Evaluation

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

14. 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

Course Name:	
Biochemistry	
Course Code:	
FS19208	
Semester / Year:	
Second Semester 2023-2024	
Description Preparation Date:	
25/1/2024	
Available Attendance Forms:	
Mandatory	
Number of Credit Hours (Total) / Number of Units (Total):	
75/3.5	
Course administrator's name	
Dr. Hussain J. Mohammed Dr. Fadwa Waleed Abdulqahar, Mr. Omar Salah Ahmed	
Course Objectives	
Course Objectives	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. It also aims to increase students' knowledge of the practical methods for these components' determination and estimation analyses.
Teaching and Learning Strategies	
Strategy	Developing teaching programs in coordination with

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

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	Delivering theoretical lectures and conducting class discussions

				extracurricular activities, discussions, and class participation.	to stimulate thinking and conclusion using brainstormin g and positive reinforceme nt, and conducting extracurricul ar activities.
3	5	Biochemistry	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 brainstormin g and positive reinforceme nt, and conducting extracurricul ar 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 brainstormin g and positive reinforceme

					nt, and conducting extracurricular activities.
5	5	Biochemistry	The 1st 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 +	Delivering theoretical lectures and conducting

				grades awarded for extracurricular activities, discussions, and class participation.	class discussions to stimulate thinking and conclusion using brainstormin g and positive reinforceme nt, and conducting extracurricul ar activities.
8	5	Biochemistry	Carbohydrates (sugar derivatives)	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 brainstormin g and positive reinforceme nt, and conducting extracurricul ar 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 brainstormin g and

					positive reinforcement, and conducting extracurricular activities.
10	5	Biochemistry	The 2nd 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	Delivering theoretical

				quarterly exams + grades awarded for extracurricular activities, discussions, and class participation.	lectures and conducting class discussions to stimulate thinking and conclusion using brainstormin g and positive reinforceme nt, and conducting extracurricul ar activities.
13	5	Biochemistry	Micro phyto chemicals (phenolics and other compounds)	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 brainstormin g and positive reinforceme nt, and conducting extracurricul ar activities.
14	5	Biochemistry	Extracurricular activity	Daily, monthly, and quarterly exams + grades awarded for extracurricular activities, discussions, and class	Delivering theoretical lectures and conducting class discussions to stimulate thinking and conclusion using

				participation.	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.

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.

Learning and Teaching Resources	
Required textbooks (curricular books, if any)	Non
Main references (sources)	Al-Asar, Abdulmonim. 2000.

	Fundimentals of Biochemistry. Academic library
Recommended books and references (scientific journals, reports...)	JOHN, W. PELLEY. 2010. Comprehensive Biochemistry.
Electronic References, Websites	Many references from the Internet

Course Description Form

Course Name:
Industrial Crops
Course Code:
FS19207
Semester / Year:
Second Semester (Spring**) 2023-2024**
Description Preparation Date:
25-1-2024
Available Attendance Forms:
Attendance (study and exams)
Number of Credit Hours (Total) / Number of Units (Total)
75 hours (30 theoretical + 45 practical) / Number of Units : 3
Course administrator's name (mention all, if more than one name)
Name: Asst.Prof.Dr.Ismail Ahmed Sarhan + Asst. teacher Am Hashem
Course Objectives
Course Objectives 1- Providing students with knowledge of the nature and function of agricultural methods from an academic and professional point of view 2- Understand the nature of agriculture work based on international and local statistical standards 3- Providing students with information related to programs and files related to farming methods

4 - Dissemination of knowledge in the fields of agricultural sciences and human nutrition and work
on its application to serve the community.
5- Providing the agricultural sector with specialized cadres with expertise, knowledge and skill in the
field of agriculture and production to provide food security

Teaching and Learning Strategies

Strategy	1- Adopting the method of giving lectures and linking each top with examples from the reality of agricultural work. 2- Giving the students some simple practical exercises that are discussed by them and solved during the lecture, with the participation of all students in the section with the professor, to give the subject a kind of interaction. 3 - Demonstrating the students' ability to give some possibiliti and other ways to solve some problems. 4- Preparing reports on specific topics.

Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
the first	**5**	Providing students with information about oil crops and their importance in providing food security	Oil crops: their definition, their economic importance, the most important crops the represent, oils and their types.	Ettendance	Discussion, daily exams, monthly exams
the second	**5**	Statement of the importance sunflower as an oil crop	Sunflower: its importance, methods of cultivation, suitable soil for it, date of planting it, crop service, harvest and pests that	Ettendance	Discussion, daily exams, monthly exams

			infect it		
the third	**5**	Explanation of the importance of sesame as an oil crop	Sesame: methods of cultivation, its economic importance, suitable soils for it, and the service harvest of the crop	Ettendance	Discussion,daily exams,monthly Exams
The Fourth	**5**	Statement of the importance Pea nut as an oil crop	Pea nut:its importance, methods of cultivation, suitable soil for it, its harvest and the pests that infect it	Ettendance	Discussion,daily exams,monthly Exams
Fifth	**5**	Explanation of the importanc soybean as an oil crop	Soybean:its importance , methods of cultivation, suitable soil for it, its harvest and pests that affect it	Ettendance	Discussion,daily exams,monthly Exams
Sixth	**5**	Statement of the importance safflower as an oil crop	Safflower:economic importance, origin, types varieties, botanical descript suitable environment and soil and crop service processes	Ettendance	Discussion,daily exams,monthly Exams
Seventh	**First month exam**				
Eighth	**5**	Statement of the importance rapeseed as an oil crop	Rapeseed:economic importance, origin, Types and varieties, botanical description, appropriate environment	Ettendance	Discussion, daily exams, monthly exams
Ninth	**5**	Explanation of the importance castor as an oil crop	Castor: its importance, methods of cultivation, suitable soil for it, the service of the crop and its medicinal uses	Ettendance	Discussion, daily exams, monthly exams
The Tenth	**5**	Statement of the importance sugar crops as strategic crops	Sugar crops: an introduction historical overview of sugar cane, its geographical distribution, suitable soils, and its cultivation methods.	Ettendance	Discussion, daily exams, monthly exams
Eleven	**5**	Explanation of the importance sugar cane as a major crop for the production of sugar	Soil and crop service operati (hoeing, fertilization, grafting, grafting) for sugar cane plants, sugar cane breeding methods, sugar cane genetics	Ettendance	Discussion, daily exams, monthly exams
Twelveth	**5**	Explain the importance of sugar cane as an industrial crop	Chemical components of sugar cane plants, bush control operations, diseases and insects of sugarcane plants, ripening, harvesting production of raw sugar.	Ettendance	Discussion, daily exams, monthly exams
Thirteenth	**5**	Explanation of the importance of sugar beet as an industrial crop	Sugar beet: its economic importance, geographical distribution, development of sugar beet cultivation, the most important problems of cultivation, stages of its growth and methods of	Ettendance	Discussion, daily exams, monthly exams

			breeding it		
Fourteenth	**5**	Clarification of soil and c service operations for the sugar beet crop	Soil and crop service factors (planting date, planting methods, seed classifications crop service operations (mowing, weeding, fertilizing, irrigation, harvesting, yield, agricultura cycles)	Ettendance	Discussion, daily exams, monthly exams
Fifteenth	**Second month exam**				

Course Evaluation

1- Through the students' participation in the lecture, based on their prior preparation for the subject.
2- Giving them an exercise as homework and asking the students to bring the solution on a separate sheet in the subsequent lecture.
3- Giving the students a specific case study and dividing the students into groups to write a report about that study
4 - Evaluation through daily and monthly examinations

Learning and Teaching Resources

Required textbooks (curricu books, if any)	1 - Mahmoud Al-Shaer and others. 2015. Oil, sugar and fiber crops 2- Al-Baldawi and others. 2014. Principles of field crop production. 3- Safar, Nasser Hussein. 1990. Oil and sugar crops. 4 - Rizk and Ali. 1981. Oil and sugar crops
Main references (sources)	Using the results obtained from scientific resear master's theses, and doctoral dissertations
Recommended books and references (scientific journals, reports...)	Scientific articles and periodic reports on the reality o agriculture from FAO and others
Electronic Referenc Websites	Lectures and studies from the Internet

Course Description Form

Course Name:	
Computer 2	
Course Code:	
FS19206	
Semester / Year:	
second/ 2023-2024	
Description Preparation Date:	
2024/1/25	
Available Attendance Forms:	
Personal presence	
Number of Credit Hours (Total) / Number of Units (Total)	
30/ 2	
Course administrator's name (mention all, if more than one name)	
Name: Asst. Pro. Dr. Ahmed Abdulrahman Majid	
Course Objectives	
Course Objectives	1. Knowing how to operate Microsoft Word 2. Study the basic principles of using the mouse and keyboard 3. Study how to work on Microsoft Word 4. Learn how to store files in Microsoft Word format
Teaching and Learning Strategies	
Strategy	**Knowledge and understanding** Learn about the capabilities of printing, inserting images, tables, storing, and writing formatting. **Subject-specific skills:** Students can develop skills by gaining sufficient experience to produce Microsoft Word files in a sophisticated and artistic style.

	Teaching and learning methods: The student relies for his understanding and learning on in-person lectures during this academic year **Evaluation methods:** Through daily and monthly exams, homework, oral exams, attendance, and various activities **thinking skills:** The student relies on linking the topics of the lectures in order to provide a model answer that can benefit him in the monthly exams. **General and transferable skills (other skills related to employability and personal development).** The student can study the curriculum topics in a practical way to understand and comprehend the curriculum lectures through his visit to the laboratory.

Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1	3		Turning The Calculator On And Off	(practical)	Daily exam
2	3		Learn About Windows Principles	(practical)	Daily exam + homework
3	3		How To Run Microsoft Word	(practical)	Daily exam + homework
4	3		File Tab Details	(practical)	Monthly exam
5	3		Home Tab Details	(practical)	Daily exam
6	3		Insert Tab Details	(practical)	Daily exam + homework
7	3		Page Layout Tab Details	(practical)	Daily exam + homework
8	3		References Tab Details	(practical)	Monthly exam
9	3		Messages Tab Details	(practical)	Daily exam
10	3		Review Tab Details	(practical)	Daily exam + homework
11	3		View Tab Details	(practical)	Daily exam + homework
12	3		Details Tab Design In The Table	(practical)	Monthly exam
13	3		Layout Tab Details In The Table	(practical)	Daily exam
14	3		Format Tab Details In Image	(practical)	Daily exam +

					homework
15	3		Abbreviations In The Program	(practical)	Daily exam + homework
16	3		Professionalism Using The Program	(practical)	Monthly exam

Course Evaluation	
Monthly exam 60%, daily exam 20%, homework 10%, attendance 10%.	
Learning and Teaching Resources	
Required textbooks (curricular books, any)	Computer applications book Microsoft Word
Main references (sources)	**My practical experience is in the computer field**
Recommended books and references (scientific journals, reports...)	-
Electronic References, Websites	-

Course Description Form

Course Name:	
Organic chemistry	
Course Code:	
FS19202	
Semester / Year:	
First Semester/2023-2024	
Description Preparation Date:	
25/1/2024	
Available Attendance Forms:	
Attendance	
Number of Credit Hours / Number of Units	
(75)/ (3.5)	
Course administrator's name	
Dr. Maher Ahmed Abed	
Course Objectives	
Course Objectives	Explanation of cyclic and open aphatic compounds Classification of active compounds according to active group Preparation of some organic compounds Naming organic compounds
Teaching and Learning Strategies	
Strategy	
Course Structure	

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1	2+3	Organic chemistry	Preparation of cyclic acid - its purpose - scientific idea - method of work - calculations - drawing of the device	lectures Theo. And EXP.	Daily and quart exam
2	2+3	Organic chemistry	Preparation of alkyl halide - purpose of the experiment - scientific idea - method of work - calculations - drawing of the device.	lectures Theo. And EXP.	Daily and quart exam
3	2+3	Organic chemistry	Alcohols - purpose of the experiment - scientific idea - method of work - calculations - drawing of the device.	lectures Theo. And EXP.	Daily and quart exam
4	2+3	Organic chemistry	Acetone - purpose of the experiment - scientific idea - method of work - calculations - drawing of the device. First month exam	lectures Theo. And EXP.	Daily and quart exam
5	2+3	Organic chemistry	Review	lectures Theo. And EXP.	Daily and quart exam
6	2+3	Organic chemistry	Review	lectures Theo. And EXP.	Daily and quart exam
7	2+3	Organic chemistry	First month exam	lectures Theo. And EXP.	Daily and quart exam
8	2+3	Organic chemistry	Study of the properties of aldehydes and ketones - introduction - method of work - calculations - drawing of the device	lectures Theo. And EXP.	Daily and quart exam
9	2+3	Organic chemistry	Preparation of caroxylic acid - purpose of the experiment - type of reaction - method of work - calculations - drawing of the device.	lectures Theo. And EXP.	Daily and quart exam
10	2+3	Organic chemistry	Preparing esters - purpose of the experiment - method of work - calculations - drawing of the device.	lectures Theo. And EXP.	Daily and quart exam
11	2+3	Organic chemistry	Preparing aspirin - purpose of the experiment - method of work - calculations - drawing of the device.	lectures Theo. And EXP.	Daily and quart exam
12	2+3	Organic chemistry	Review	lectures Theo. And EXP.	Daily and quart exam
13	2+3	Organic chemistry	Review	lectures Theo. And EXP.	Daily and quart exam
14	2+3	Organic chemistry	Second month exam	lectures Theo. And EXP.	Daily and quart exam
15	2+3	Organic chemistry	Review	lectures Theo. And EXP.	Daily and quart exam

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	
Learning and Teaching Resources	
Required textbooks (curricular books, if any)	Organic chemistry for agriculture college student
Main references (sources)	
Recommended books and references (scientific journals, reports...)	Types of Chemical Bonds. Dummies. Retrieved January 4, 2021,from
Electronic References, Websites	-

Course Description Form

Course Name:
English Language/2
Course Code:
FS191012
Semester / Year:
SECOND / 2023-2024
Description Preparation Date:
25/1/2024
Available Attendance Forms:
in-person learning
Number of Credit Hours (Total) /
30HOUER/2 UNIT
Course administrator's name
Anmar Nazar Hasan
Course Objectives English Language/1
a. Grades on students' participation in research and scientific reports b. Discussing research and reports, presenting them, and giving them a grade c. Conducting tests during the application period and asking questions to students to determine the extent of their understanding of the subject d. Conduct a discussion of reports at the end of the semester to find out students' choices in courses e. Writing reports after completing the application period to determine the extent to which students were able to diagnose problems and how to find

solutions.

Teaching and Learning Strategies

a. Developing teaching programs in coordination with higher departments.

b. Develop teaching curricula similar to the work environment.

c. Sending students to departments and directorates for the purpose of conducting summer application.

d. Assigning students to conduct research and reports.

e. Assigning students to go to the library and collect resources on the topic.

f. Implementing practical lessons in laboratories, each according to l specialty

Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1	Theoretical 1 hour	English 2	Auxiliary verbs (do, be, have) Naming the tenses Questions and Negatives Short answers	Theoretical 1 hour	Daily and quarter exam + activity
2	Theoretical 1 hour	English 2	Present tenses (simple, continuous, passive)	Theoretical 1 hour	Daily and quarter exam + activity
3	Theoretical 1 hour	English 2	Doing the right thing	Theoretical 1 hour	Daily and quarter exam + activity
4	Theoretical 1 hour	English 2	Modal verbs – obligation and permission	Theoretical 1 hour	Daily and quarter exam + activity
5	Theoretical 1 hour	English 2	Future forms Going to , present	Theoretical 1 hour	Daily and quarter exam + activity

			continuous		
6	Theoretical 1 hour	English 2	Questions with like Verb patterns	Theoretical 1 hour	Daily and quarter exam + activity
7	Exam2				
8	Theoretical 1 hour	English 2	Present perfect Present perfect passive	Theoretical 1 hour	Daily and quarter exam + activity
9	Theoretical 1 hour	English 2	Conditionals Time clauses	Theoretical 1 hour	Daily and quarter exam + activity
10	Theoretical 1 hour	English 2	Modal verbs (2) probability	Theoretical 1 hour	Daily and quarter exam + activity
11	Theoretical 1 hour	English 2	Present perfect Continuous Questions & answers Time expressions	Theoretical 1 hour	Daily and quarter exam + activity
12	Theoretical 1 hour	English 2	Indirect questions Question tags	Theoretical 1 hour	Daily and quarter exam + activity
13	Theoretical 1 hour	English 2	Reported speech (reported statements, reported	Theoretical 1 hour	Daily and quarter exam + activity
14	Theoretical 1 hour	English 2	questions, and reported requests \ commands)	Theoretical 1 hour	Daily and quarter exam + activity
15	Exam2				

Course Evaluation	
. Daily (10%) and monthly tests (40%) through questions on the subject of the subject. final exam(50%).	
Learning and Teaching Resources	
Required textbooks (curricular books, if an	NEW HEADWAY beginner
Main references (sources)	NEW HEADWAY beginner
Recommended books and references (scientific journals, reports...)	NEW HEADWAY beginner
Electronic References, Websites	You Tub Chanel

Course Description Form

Course Name:	
Fundamentals of Agricultural Extension	
Course Code:	
FS19205	
Semester / Year:	
Second semester 2023-2024	
Description Preparation Date:	
25/1/2024	
Available Attendance Forms:	
regularity (attendance)	
Number of Credit Hours (Total) / Number of Units (Total)	
75 Hour / 3.5unit	
Course administrator's name	
Mustafa Subhi Abd AL-Gabbar	
Course Objectives	
Course Objectives	Providing the student with basic knowledge of agricultural extension concepts Providing the student with the general concepts and principles of agricultural extension, Providing the student with the objectives of agricultural extension, Providing the student and introducing him to how to plan agricultural extension programs

Teaching and Learning Strategies	
Strategy	A theoretical clarification of the vocabulary of the subject, using data to understand the scientific subject Using graphs in scientific material, student participation in lectures Conduct daily and monthly tests.

Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1	5	Knowledge and understanding Skillfor the subject	brief history	theoretically Practical vocabulary Subject	Examination, reporting
2	5	Knowledge and understanding Skill for the subject	Introduction to agricultural extension	theoretically Practical vocabulary Subject	Examination, reporting
3	5	Knowledge and understanding Skill for the subject	The importance of agricultural extension	theoretically Practical vocabulary Subject	Examination, reporting
4	5	Knowledge and understanding Skill for the subject	Principles of agricultural extension	theoretically Practical vocabulary Subject	Examination, reporting
5	5	Knowledge and understanding Skill for the subject	The importance of having principles of guidance work	theoretically Practical vocabulary Subject	Examination, reporting
6	5	Knowledge and understanding Skill for the subject	Mention the principles and the	theoretically Practical vocabulary Subject	Examination, reporting

			importance of each of them		
7	5	Knowledge and understanding Skill for the subject	Objectives of extension work	theoretically Practical vocabulary Subject	Examination, reporting
8	5	Knowledge and understanding Skill for the subject	Introducing the process of communicating with audiences	theoretically Practical vocabulary Subject	Examination, reporting
9	5	Knowledge and understanding Skill for the subject	Factors affecting communication effectiveness	theoretically Practical vocabulary Subject	Examination, reporting
10	5	Knowledge and understanding Skill for the subject	Rural leadership	theoretically Practical vocabulary Subject	Examination, reporting
11	5	Knowledge and understanding Skill for the subject	Adoption and spread of modern technologies in agriculture	theoretically Practical vocabulary Subject	Examination, reporting
12	5	Knowledge and understanding Skill for the subject	Planning extension programs	theoretically Practical vocabulary Subject	Examination, reporting
13	5	Knowledge and understanding Skill for the subject	Agricultural extension methods and extension tools	theoretically Practical vocabulary Subject	Examination, reporting
14	5	Knowledge and understanding Skill for the subject	Evaluation of extension programs	theoretically Practical vocabulary Subject	Examination, reporting
15	5	Knowledge and understanding Skill for the subject	Agricultural	theoretically Practical vocabulary	Examination, reporting

			extension in Iraq and its stages of development	Subject	

Course Evaluation	
Daily exam, submission of reports, semester exam, final exam (total score 100)	
Learning and Teaching Resources	
Required textbooks (curricular books, any)	
Main references (sources)	Fundamentals of Agricultural Extension
Recommended books and references (scientific journals, reports...)	
Electronic References, Websites	

Course Description Form

Course Name:	
Meat and fish processing	
Course Code:	
FS19403	
Semester / Year:	
First Semester 2023-2024	
Description Preparation Date:	
25/1/2024	
Available Attendance Forms:	
Mandatory	
Number of Credit Hours (Total) / Number of Units (Total):	
75/3.5	
Course administrator's name (mention all, if more than one name)	
Amar Adil salih	
Course Objectives	
Course Objectives	Learning outcomes and methods of teaching, learning and assessment: a-A - Understand the nutritional value of meat Meat preservation methods (cooling and freezing) - Chemical composition and physical composition of the carcass Cooperating with scientific and production institutions in various areas of meat processing Causes of microbial spoilage of meat and the use of animal

	waste . Contribute with the rest of the scientific departments in the college to support and develop the college and the university - Holding some qualifying and scientific courses within the continuing education course of the college to develop production facilities related to dairy factories b- Subject-specific skills Chemical and biological applications to meat Skills in the manufacture of food products from meat Causes of microbial spoilage of meat and the use of animal waste Quality checks for raw meat and meat products - Making sausages and hamburgers Evaluation of the quality and freshness of the fish Conducting quality checks for raw meat and its products
Teaching and Learning Strategies	
Strategy	1-Develop teaching programs in coordination with higher departments. Developing teaching curricula similar to the work environment. Sending students to departments and directorates for conducting summer application. Assigning students to conduct research and reports. Assigning students to go to the library and collect sources on the topic. Implementing practical lessons in laboratories, each according to their currency

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

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	
Learning and Teaching Resources	
Required textbooks (curricular books, if any)	Meat science and technology, d. Majed Bashir 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

Course Name:
Health food products
Course Code:
FS192010
Semester / Year:
Second Semester 2023-2024
Description Preparation Date:
25/1/2024
Available Attendance Forms:
Mandatory
Number of Credit Hours (Total) / Number of Units (Total):
75/3.5
Course administrator's name
Amar Adil salih ،monaf akram qasem
Course Objectives

Course Objectives	Learning outcomes and methods of teaching, learning and assessment: 1- A study of the concept of food health and its importance with a historical overview. 2- A study about microorganisms and their relationship to food. 3- Studying the sources of food contamination, food legislation and standard specifications 4- Identifying the physical, chemical and biological risks that affect food during and after manufacturing operations.

	5- 4- Learn about the HACCP system, its application and its usefulness in food processing
Teaching and Learning Strategies	
Strategy	1-Develop teaching programs in coordination with higher departments. Developing teaching curricula similar to the work environment. Sending students to departments and directorates for conducting summer application. Assigning students to conduct research and reports. Assigning students to go to the library and collect sources on the topic. Implementing practical lessons in laboratories, each according to their currency

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

15.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

16.Learning and Teaching Resources

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

Course Description Form

Course Name:	
Bread and pastries	
Course Code:	
FS193012	
Semester / Year:	
Second semesters 2023-2024	
Description Preparation Date:	
25/1/2024	
Available Attendance Forms:	
Mandatory	
Number of Credit Hours (Total) / Number of Units (Total):	
75/3.5	
Course administrator's name	
Assist. Prof. Dr. Saad Ibrahim Yousif	
Course Objectives	
Course Objectives	Introducing students to the types of doughs and baked goods, methods of manufacturing and preserving them, in addition to all physical and chemical tests and sensory evaluation of these products.
Teaching and Learning Strategies	
Strategy	a. Developing teaching programs in coordination with higher departments. b. Developing teaching curricula similar to the work

	environment. c. Sending students to departments and directorates for the purpose of summer application. d. Assigning students to conduct research and reports. e. Assigning students to go to the library and collect sources on the subject. f. Implementing practical lessons in laboratories, each according to his specialization

Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1	Theory and Pract.	Bread and pastries	Flour quality factors, direct laboratory loaf bread manufacturing	Giving lectures	Quiz+ activities
2	Theory and Pract.	Bread and pastries	Importance of flour components and their role in bread and pastry manufacturing, sponge laboratory loaf bread manufacturing	Giving lectures	Quiz+ activities
3	Theory and Pract.	Bread and pastries	Composite flour, sensory evaluation of loaf bread	Giving lectures	Quiz+ activities
4	Theory and Pract.	Bread and pastries	Raw materials in bread mix (water, salt, yeast), loaf manufacturing	Giving lectures	Quiz+ activities
5	Theory and Pract.	Bread and pastries	Improved materials, Arabic bread manufacturing and laboratory evaluation	Giving lectures	Quiz+ activities
6	Theory and Pract.	Bread and pastries	Improved materials, standard biscuit manufacturing and laboratory evaluation	Giving lectures	Quiz+ activities
7	Theory and Pract.	Bread and pastries	Secondary materials in bread mixes (eggs, milk, fat), standard cake manufacturing	Giving lectures	Quiz+ activities
8	Theory and Pract.	Bread and pastries	Secondary materials in bread mixes (eggs, milk, fat), standard cake manufacturing	Giving lectures	Quiz+ activities
9	Theory and Pract.	Bread and pastries	Bread peaks, cake manufacturing defects	Giving lectures	Quiz+ activities
10	Theory and Pract.	Bread and pastries	Bread crusting, cake manufacturing defects	Giving lectures	Quiz+ activities
11	Theory and Pract.	Bread and pastries	Bread manufacturing methods, bread storage and bread crusting	Giving lectures	Quiz+ activities
12	Theory and Pract.	Bread and pastries	Bread manufacturing methods, bread storage and bread crusting	Giving lectures	Quiz+ activities
13	Theory and Pract.	Bread and pastries	Bread manufacturing methods, rice bread manufacturing	Giving lectures	Quiz+ activities
14	Theory and Pract.	Bread and pastries	Special types of traditional bread such as Tabak and Sayah (wheat germ bread, high-fiber bread, and sour bread	Giving lectures	Quiz+ activities
15	Theory and Pract.	Bread and pastries	Special types of traditional bread such as Tabak and Sayah (genin bread	Giving lectures	Quiz+ activities

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	
Learning and Teaching Resources	
Required textbooks (curricular books, any)	Bread and Pastries (Dr. Amjad Bouya Sulaka)
Main references (sources)	Bread and Pastries (Dr. Amjad Bouya Sulaka)
Recommended books and references (scientific journals, reports...)	A. Lectures
Electronic References, Websites	https://scholar.google.com/schhp?hl=ar

Course Description Form

Course Name:	
Cereal Processing	
Course Code:	
FS1907	
Semester / Year:	
First semesters 2023-2024	
Description Preparation Date:	
25/1/2024	
Available Attendance Forms:	
Mandatory	
Number of Credit Hours (Total) / Number of Units (Total):	
75/3.5	
Course administrator's name	
Assist. Prof. Dr. Saad Ibrahim Yousif	
Course Objectives	
Course Objectives	Introducing students to the most important types of grains, methods of manufacturing and storing them, in addition to the most important manufacturing processes that take place on grains after harvesting, milling processes, etc.
Teaching and Learning Strategies	
Strategy	a. Developing teaching programs in coordination with higher departments. b. Developing teaching curricula similar to the work environment

	c. Sending students to departments and directorates for the purpo of summer application. d. Assigning students to conduct research and reports. e. Assigning students to go to the library and collect sources on t subject. f. Implementing practical lessons in laboratories, each according his specialization

Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1	Theory and Pract.	Cereal processing	The importance of cereal crops and their uses	Giving lectures	Quiz+ activities
2	Theory and Pract.	Cereal processing	Grains in the world, their origin, classification and chemical composition	Giving lectures	Quiz+ activities
3	Theory and Pract.	Cereal processing	Grain grading	Giving lectures	Quiz+ activities
4	Theory and Pract.	Cereal processing	Grain storage, types of silos and primary manufacturing processes such as cleaning	Giving lectures	Quiz+ activities
5	Theory and Pract.	Cereal processing	Dry milling technology, example of bread wheat milling	Giving lectures	Quiz+ activities
6	Theory and Pract.	Cereal processing	Flour quality, example of bread wheat flour	Giving lectures	Quiz+ activities
7	Theory and Pract.	Cereal processing	Coarse wheat and semolina quality	Giving lectures	Quiz+ activities
8	Theory and Pract.	Cereal processing	Paste manufacturing	Giving lectures	Quiz+ activities
9	Theory and Pract.	Cereal processing	Yellow corn flour manufacturing	Giving lectures	Quiz+ activities
10	Theory and Pract.	Cereal processing	Wet milling and starch preparation	Giving lectures	Quiz+ activities
11	Theory and Pract.	Cereal processing	Rice manufacturing technology	Giving lectures	Quiz+ activities
12	Theory and Pract.	Cereal processing	Rye and oat crops	Giving lectures	Quiz+ activities
13	Theory and Pract.	Cereal processing	Barley, millet and triticale crops	Giving lectures	Quiz+ activities
14	Theory and Pract.	Cereal processing	Breakfast cereals	Giving lectures	Quiz+ activities
15	Theory and Pract.	Cereal processing	Bulgur industry	Giving lectures	Quiz+ activities

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

Learning and Teaching Resources

Required textbooks (curricular books, any)	Technology of manufacturing grains (Dr. Mohammed Al-Saeedi) 1992
Main references (sources)	Technology of manufacturing grains (Dr. Mohammed Al-Saeedi) 1992
Recommended books and references (scientific journals, reports...)	A. Lectures
Electronic References, Websites	https://scholar.google.com/schhp?hl=ar

Course Description Form

Course Name:
Experiment Design
Course Code:
FS19204
Semester / Year
First 2023_ 2024
Description Preparation Date:
25_1_2024
Available Attendance Forms:
Direct
Number of Credit Hours (Total) / Number of Units (Total)
75 / 3.5
Course administrator's name
Prof. Dr. Zeyad Abdul-Jabar Abdul-Hamed
Course Objectives :
The student learns about the scientific foundations for designing a analyzing theoretical and practical experiments Learn about modern technologies relevant to designing experiments
Teaching and Learning Strategies

Strategy	**A -** Expanding the student's theoretical and practical understandings **B-** Access to recent and critical experiments related to

	experimental design **C**-Learn about methods for designing experiments, processes, and conditions surrounding the research or experiment

Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1	(30 hours theoretical + 45 practical) (75 hours 5 hours (2 + 3)	Look and work Explanation and interpretation with Use means Electronic clarification	Introduction to the history of statistics, first researchers in designing experimer studying statistical tests	theoretical practical	Theoretical and practical tests
2	5	Look and work Explanation and interpretation with Use means Electronic clarification	An introduction to the history of statistics, the first researchers in statistics and experimental design,	theoretical and practical	Theoretical and practical tests
3	5	Look and work Explanation and interpretation with Use means Electronic clarification	The importance of designing experimer for the researcher	theoretical and practical	Theoretical and practical tests
4	5	Look and work Explanation and interpretation with Use means Electronic clarification	Sources of differenc in the design of experiments	theoretical and practical	Theoretical and practical tests
5	5	Look and work Explanation and interpretation with Use means Electronic clarification	Completely randomized CRD isometric design	theoretical and practical	Theoretical and practical tests
6	5	Look and work Explanation and interpretation with Use means Electronic clarification	Solve iso-repeated whole-randomized CRD exercises	theoretical and practical	Theoretical and practical tests
7	5	Look and work	Completely	theoretical and	Theoretical

		Explanation and interpretation with Use means Electronic clarification	randomized CRD design with unequal replicates.	practical	and practical tests
8	5	Look and work Explanation and interpretation with Use means Electronic clarification	Solve the exercises a complete randomi CRD isometric replication design.	theoretical and practical	Theoretical and practical tests
9	5	Look and work Explanation and interpretation with Use means Electronic clarification	Randomized comple block design (RCBI	theoretical and practical	Theoretical and practical tests
10	5	Look and work Explanation and interpretation with Use means Electronic clarification	RCBD Randomized Complete Block Design Exercises	theoretical and practical	Theoretical and practical tests
11	5	Look and work Explanation and interpretation with Use means Electronic clarification	Missed View Rating	theoretical and practical	Theoretical and practical tests
12	5	Look and work Explanation and interpretation with Use means Electronic clarification	latin square design	theoretical and practical	Theoretical and practical tests
13	5	Look and work Explanation and interpretation with Use means Electronic clarification	split experiences	theoretical and practical	Theoretical and practical tests
14	5	Look and work Explanation and interpretation with Use means Electronic clarification	Split plot experiments exercises	theoretical and practical	Theoretical and practical tests
15	5	Look and work Explanation and interpretation with Use means Electronic clarification	Orthogonal comparisons experiments and trend analysis	theoretical and practical	Theoretical and practical tests
Course Evaluation					
1-Weekly tests (quiz) and semester and final exams (theoretical and practical).					

2- Interaction within the lecture.

3- Attendance.

4- Commitment and discipline within the classroom and laboratory.

5- Preparing scientific reports, providing scientific explanations and presenting them

6-Expanding the student's theoretical and practical understandings

7- Learn about modern techniques relevant to Design of experiments

8- Identify the surrounding factors related to the science of Design of experiments

9-Learn about Design of experiments and field planning operations.

Learning and Teaching Resources	
Required textbooks (curricular books, if any	Book of Statistical methods book for agricultural research
Main references (sources)	Book of Agricultural experiment design and analysis book
Recommended books and references (scientific journals, reports...)	Book of applications in the design and analysis of experiments
Electronic References, Websites	hpp// **Principles of experimental design. com.**

Course Description Form

Course Name:	
Dairy Microbiology	
Course Code:	
AF193014	
Semester / Year:	
First semester 2023-2024	
Description Preparation Date:	
25/1/2024	
Available Attendance Forms:	
Mandatory	
Number of Credit Hours (Total) / Number of Units (Total):	
75/3.5	
Course administrator's name (mention all, if more than one name)	
prof. Ali Ameen Yaseen, Noor Taleb Kalel	
Course Objectives	
Course Objectives	Learning outcomes and teaching, learning and evaluati methods: Sources of contamination of milk with microbes. Methods of controlling milk microbes. Microbiology of market milk. Microbiology of fermented and therapeutic dairy. Dairy products as a source of nutritional diseases Microbiological tests for abnormal milk **- Subject-specific skills**

	Sample examination and raw milk quality methods Colon bacteria examination Tests of raw milk and pasteurized milk Microbiological tests for ice cream Vessel cleanliness checks

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 accordi to their currency

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 microbes	Giving lectu	Quiz+ activities
2	5	Dairy Microbiology	Sources of contamination of milk v 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

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

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

Course Description Form

Course Name:
Metabolic Pathways
Course Code:
FS193011
Semester / Year:
SECOND / 2023-2024
Description Preparation Date:
25/1/2024
Available Attendance Forms:
DAYLY
Number of Credit Hours (Total) / Number of Units (Total)
5HOUER-3.5UNIT
Course administrator's name (mention all, if more than one name)
Dr.ANMAR NAZAR HASAN
Course Objectives
Teaching students about the metabolic pathways of food within the cells the human body
Teaching and Learning Strategies
a.Developing teaching programs in coordination with higher departments. b. Develop teaching curricula similar to the work environment. c. Sending students to departments and directorates for the purpose of conducting summer application. d. Assigning students to conduct research and reports.

e. Assigning students to go to the library and collect resources on the topic.

f. Implementing practical lessons in laboratories, each according to his specialty

Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1	Theoretic hour Practical hour	Metabolic pathways	Metabolic pathways	Theoretical 2 hou Practical 3 hour	Daily and quarter exam + activity
2	Theoretic hour Practical hour	Metabolic pathways	carbohydrate metabolism	Theoretical 2 hou Practical 3 hour	Daily and quarter exam + activity
3	Theoretic hour Practical hour	Metabolic pathways	Metabolic pathways of carbohydrate digestion	Theoretical 2 hou Practical 3 hour	Daily and quarter exam + activity
4	Theoretic hour Practical hour	Metabolic pathways	Metabolic pathways of sug metabolism	Theoretical 2 hou Practical 3 hour	Daily and quarter exam + activity
5	Theoretic hour Practical hour	Metabolic pathways	Metabolic pathways of the K cycle	Theoretical 2 hou Practical 3 hour	Daily and quarter exam + activity
6	Theoretic hour Practical hour	Metabolic pathways	Metabolic pathways of glyco production	Theoretical 2 hou Practical 3 hour	Daily and quarter exam + activity
7	Theoretic hour Practical hour	Metabolic pathways	Metabolic pathways of glycogenolysis	Theoretical 2 hou Practical 3 hour	Daily and quarter exam + activity
8	Theoretic hour Practical hour	Metabolic pathways	Metabolic pathways of fat digestion	Theoretical 2 hou Practical 3 hour	Daily and quarter exam + activity
9	Theoretic hour Practical hour	Metabolic pathways	Metabolic pathways of fat metabolism	Theoretical 2 hou Practical 3 hour	Daily and quarter exam + activity
10	Theoretic hour Practical hour	Metabolic pathways	Beta cycle metabolic pathwa	Theoretical 2 hou Practical 3 hour	Daily and quarter exam + activity
11	Theoretic hour Practical hour	Metabolic pathways	Metabolic pathways for ener produced from fats	Theoretical 2 hou Practical 3 hour	Daily and quarter exam + activity
12	Theoretic hour Practical hour	Metabolic pathways	Metabolic pathways of prote digestion	Theoretical 2 hou Practical 3 hour	Daily and quarter exam + activity
13	Theoretic hour Practical	Metabolic pathways	Metabolic pathways of prote metabolism	Theoretical 2 hou Practical 3 hour	Daily and quarter exam + activity

	hour				

Course Evaluation	
a. Daily and monthly tests through questions on the subject of the subject b. Grades on students' participation in research and scientific reports c. Discussing research and reports, presenting them, and giving them a grade d. Conducting tests during the application period and asking questions to students to determine the extent of their understanding of the subject e. Conduct a discussion of reports at the end of the semester to find out students' choices in courses f. Writing reports after completing the application period to determine the extent to which students were able to diagnose problems and how to find solutions	
Learning and Teaching Resources	
Required textbooks (curricular books, any)	Genetic Engineering books
Main references (sources)	
Recommended books and references (scientific journals, reports...)	Genetic Engineering books Journals
Electronic References, Websites	You Tub Chanel

Course Description Form

Course Name:
Genetic Engineering
Course Code:
FS19209
Semester / Year:
SECOND / 2023-2024
Description Preparation Date:
25/1/2024
Available Attendance Forms:
DAYLY
Number of Credit Hours (Total) / Number of Units (Total)
75/3.5
Course administrator's name
Dr.ANMAR NAZAR HASAn
Course Objectives
Teaching students genetic engineering techniques and the latest developments in technology.....
Teaching and Learning Strategies
a.Developing teaching programs in coordination with higher departments. b. Develop teaching curricula similar to the work environment. c. Sending students to departments and directorates for the purpose c conducting summer application. d. Assigning students to conduct research and reports.

e. Assigning students to go to the library and collect resources on th topic.

f. Implementing practical lessons in laboratories, each according his specialty

Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1	Theoretic 2 hour Practical hour	Genetic engineering	Introduction to genetic engineering	Theoretical 2 hou Practical 3 hour	Daily and quarte exam + activity
2	Theoretic 2 hour Practical hour	Genetic engineering	Cutting enzymes - th types	Theoretical 2 hou Practical 3 hour	Daily and quarte exam + activity
3	Theoretic 2 hour Practical hour	Genetic engineering	Enzymes that determ their mechanism of acti	Theoretical 2 hou Practical 3 hour	Daily and quarte exam + activity
4	Theoretic 2 hour Practical hour	Genetic engineering	First semester exam	Theoretical 2 hou Practical 3 hour	Daily and quarte exam + activity
5	Theoretic 2 hour Practical hour	Genetic engineering	Carnivore enzymes	Theoretical 2 hou Practical 3 hour	Daily and quarte exam + activity
6	Theoretic 2 hour Practical hour	Genetic engineering	Carnivorous enzymes their mechanism of acti	Theoretical 2 hou Practical 3 hour	Daily and quarte exam + activity
7	Theoretic 2 hour Practical hour	Genetic engineering	Carniogenic enzymes method for repairing bl ends	Theoretical 2 hou Practical 3 hour	Daily and quarte exam + activity
8	Theoretic 2 hour Practical hour	Genetic engineering	Clone vectors	Theoretical 2 hou Practical 3 hour	Daily and quarte exam + activity
9	Theoretic 2 hour Practical hour	Genetic engineering	Clone conveyors - th types - properties	Theoretical 2 hou Practical 3 hour	Daily and quarte exam + activity
10	Theoretic 2 hour Practical hour	Genetic engineering	Genetic mapping building gene banks	Theoretical 2 hou Practical 3 hour	Daily and quarte exam + activity
11	Theoretic	Genetic engineering	As a gene - and g	Theoretical 2 hou	Daily and quarte

	2 hour Practical hour		expression	Practical 3 hour	exam + activity
12	Theoretic 2 hour Practical hour	Genetic engineering	Southern and North Western stig technology	Theoretical 2 hou Practical 3 hour	Daily and quarte exam + activity
13	Theoretic 2 hour Practical hour	Genetic engineering	Modern techniques u in genetic engineering	Theoretical 2 hou Practical 3 hour	Daily and quarte exam + activity

Course Evaluation

a. Daily and monthly tests through questions on the subject of the subject
b. Grades on students' participation in research and scientific reports
c. Discussing research and reports, presenting them, and giving them a grade
d. Conducting tests during the application period and asking questions to students to determine the extent of their understanding of the subject
e. Conduct a discussion of reports at the end of the semester to find out students' choices in courses
f. Writing reports after completing the application period to determine the extent to which students were able to diagnose problems and how to find solutions

Learning and Teaching Resources

Required textbooks (curricular books, any)	Genetic Engineering books
Main references (sources)	
Recommended books and references (scientific journals, reports...)	Genetic Engineering books Journals
Electronic References, Websites	You Tub Chanel

Course Description Form

Course Name:
Molecular Biology
Course Code:
FS19304
Semester / Year:
First / 2023-2024
Description Preparation Date:
25/1/2024
Available Attendance Forms:
DAYLY
Number of Credit Hours (Total) / Number of Units (Total)
75HOUER-3.5UNIt
Course administrator's name (mention all, if more than one name)
Dr.ANMAR NAZAR HASAN
Course Objectives
Molecular Biology IN CELL
Teaching and Learning Strategies
a.Developing teaching programs in coordination with higher departments. b. Develop teaching curricula similar to the work environment. c. Sending students to departments and directorates for the purpose c conducting summer application. d. Assigning students to conduct research and reports. e. Assigning students to go to the library and collect resources on th

topic.

f. Implementing practical lessons in laboratories, each according his specialty

Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1	Theoretica hour Practical hour	Molecular Biology	The first week: DNA and R as genetic materials for liv organisms	Theoretical 2 hour Practical 3 hour	Daily and quart exam + activity
2	Theoretica hour Practical hour	Molecular Biology	its composition and phys properties	Theoretical 2 hour Practical 3 hour	Daily and quart exam + activity
3	Theoretica hour Practical hour	Molecular Biology	DNA replication	Theoretical 2 hour Practical 3 hour	Daily and quarterly exam + activity
4	Theoretica hour Practical hour	Molecular Biology	cloning	Theoretical 2 hour Practical 3 hour	Daily and quarterly exam + activity
5	Theoretica hour Practical hour	Molecular Biology	Translation - factors involv in translation	Theoretical 2 hour Practical 3 hour	Daily and quarterly exam + activity
6	Theoretica hour Practical hour	Molecular Biology	Translation mechanism	Theoretical 2 hour Practical 3 hour	Daily and quarterly exam + activity
7	Theoretica hour Practical hour	Molecular Biolog	Post-translational changes	Theoretical 2 hour Practical 3 hour	Daily and quarterly exam + activity
8	Theoretica hour Practical hour	Molecular Biolog	Methods of controlling the expression of genetic traits (lactose and tryptophan operons as an example	Theoretical 2 hour Practical 3 hour	Daily and quarterly exam + activity
9	Theoretica hour Practical hour	Molecular Biolog	Reverse cloning	Theoretical 2 hour Practical 3 hour	Daily and quarterly exam + activity
10	Theoretica hour Practical hour	Molecular Biolog	Transfer of genetic traits between microscopic organisms	Theoretical 2 hour Practical 3 hour	Daily and quarterly exam + activity
11	Theoretica hour Practical hour	Molecular Biolog	Mutagens andgene mutations	Theoretical 2 hour Practical 3 hour	Daily and quarterly exam + activity
12	Theoretica hour Practical hour	Molecular Biolog	Introduction to genetic engineering	Theoretical 2 hour Practical 3 hour	Daily and quarterly exam + activity

13	Theoretic hour Practical hour	Molecular Biolog	cloning vectors and cutting enzymes	Theoretical 2 hour Practical 3 hour	Daily and quarterly exam + activity
14	Theoretic hour Practical hour	Molecular Biolog	DNA cloning and the detec of genetically engineered organisms	Theoretical 2 hour Practical 3 hour	Daily and quarterly exam + activity
15	Theoretic hour Practical hour	Molecular Biolog	Some applications of geneti engineering in agriculture	Theoretical 2 hour Practical 3 hour	Daily and quarterly exam + activity

1. Course Evaluation

a. Daily and monthly tests through questions on the subject of the subject

b. Grades on students' participation in research and scientific reports

c. Discussing research and reports, presenting them, and giving them a grade

d. Conducting tests during the application period and asking questions to students to determine the extent of their understanding of the subject

e. Conduct a discussion of reports at the end of the semester to find out students' choices in courses

f. Writing reports after completing the application period to determine the extent to which students were able to diagnose problems and how to find solutions

2. Learning and Teaching Resources

Required textbooks (curricular books, any)	Molecular Biology Books
Main references (sources)	
Recommended books and references (scientific journals, reports...)	Molecular Biology Books And Journal
Electronic References, Websites	You Tub Chanel

Course Description Form

Course Name:	
Computer/3	
Course Code:	
FS193010	
Semester / Year:	
First Semester/2023-2024	
Description Preparation Date:	
25/1/2024	
Available Attendance Forms:	
in-person learning	
Number of Credit Hours (Total) / Number of Units (Total)	
30/2 (practical only)	
Course administrator's name (mention all, if more than one name)	
Name: Dr.Bilal Yaseen Taher Email: ag.bilal.yaseen@Uoanbar.edu.iq	
Course Objectives	
Course Objectives	A-Ability to understand the principle of Excel program. B-Increasing the skills of students for using it to solve the problems. C-Ability the undergraduate students to use these skills in different fields. D-Ability the students to graph the equations, inequalities a all functions.
Teaching and Learning Strategies	

Strategy	A1 Analysis the data and understand how can you be ability to apply it by using the equations of excel program. A2. Testing these equations in the practical experimental. A3. Using equations to find great data for different variables with simple way and which spend less time and effort. A4. Ability to use suitable coordinates and scales in the problems, and graph it. A5. Ability of student to evaluate the problems, and writing the scientific reports. A6. The student can acquire the practical and scientific experience in specialized field it.

Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
First	2	definition and important of Microsoft excel 2010	introduction of Microsoft excel 2010	by computer3	questions , discussions, and examples
Second	2	methods of operating Microsoft excel 2010 .	operating Microsoft excel 2010	by computer3	questions , discussions, and examples
Third	2	Definition the groups in file tab. (save, save as,….)	file tab	by computer3	questions , discussions, and examples
Fourth	2	Definition the groups in home tab (clipboard, font, number,…..)	home tab	by computer3	questions , discussions, and examples
Fifth	2	Exam of first month			
Sixth	2	Include the groups (themes, page setup, select to fit,..)	page layout tab	by computer3	questions , discussions, and examples
Seventh	2	Definition the groups in insert tab (tables, charts, spark lines,…)	insert tab	by computer3	questions , discussions, and examples

Eighth	2	Definition the groups in insert tab (filter, links, text, symbols, ,…)	insert tab	by computer3	questions , discussions, and examples
Ninth	2	Include the groups (function library, defined names, calculations,…)	formula tab	by computer3	questions , discussions, and examples
Tenth	2	Exam of second month			
Eleventh	2	application of equations in formula bar	formula tab	by computer3	application of equations in formula bar
Twelfth	2	Definition the groups in review tab (proofing, language, comments,….)	Review tab	by computer3	Definition the groups in review tab (proofing, language, comments,….)
Thirteenth	2	Definition the groups in view tab (workbook views, show, zoom, window)	View tab	by computer3	Definition the groups in view tab (workbook views, show, zoom, window)
Fourteenth	2	applications for all tabs	review for all tabs	applications for all tabs	applications for all tabs
		Exam of the third month			

Course Evaluation	
Practical Quiz 10%, Practical exam 40%, final exam (Practical only) 50%. Final degree from 100%.	
Learning and Teaching Resources	
Required textbooks (curricular books, if ar	"Essentials of computers and library applications", Pro.Dr. Zaid Mohamed Abood, Pro.Dr. Gasan Hameed, vol.3, 2010
Main references (sources)	Practical applications by excel program.
Recommended books and references (scientific journals, reports...)	Essentials of computers and libra applications
Electronic References, Websites	Microsoft Internet websites

Course Description Form

Course Name:	
Food Microbiology	
Course Code:	
FS19301	
Semester / Year:	
Second semester 2023-2024	
Description Preparation Date:	
25/1/2024	
Available Attendance Forms:	
Mandatory	
Number of Credit Hours (Total) / Number of Units (Total):	
75/3.5	
Course administrator's name	
Ali Ameen Yaseen	
Course Objectives	
Course Objectives	Introduction to food microbiology Introducing the important bacterial groups in foods. Sources of food contamination with microorganisms and methods controlling them Food-borne diseases. Microbiology of fruits, vegetables and juices Spoilage of vegetables and fruits. B- Subject-specific skills Chemical and biological applications on food

	Manufacture of Lahana pickles. Examination of juices and soft drinks Inspection of eating utensils. Showing films and illustrations about pollution in food factories Biohazards in foods
Teaching and Learning Strategies	
Strategy	1-Develop teaching programs in coordination with high departments. Developing teaching curricula similar to the work environment. Sending students to departments and directorates for conducti summer application. Assigning students to conduct research and reports. Assigning students to go to the library and collect sources on t topic. Implementing practical lessons in laboratories, each accordi to their currency

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

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	
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 microbiolog
Electronic References, Websites	https://www.researchgate.net/ https://scholar.google.com/schhp?hl=ar

Course Description Form

Course Name:	
Food Processing-1	
Course Code:	
FS19402	
Semester / Year:	
Second Semester 2023-2024	
Description Preparation Date:	
25/1/2024	
Available Attendance Forms:	
Mandatory	
Number of Credit Hours (Total) / Number of Units (Total):	
75 h./3.5 unit	
Course administrator's name	
Dr. Fadwa Waleed Abdulqahar and Mr. Shamil Kamil Mahmood	
Course Objectives	
Course Objectives	The Food Processing-1 course aims to enrich students' knowledge of the following: 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. 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. Modern technologies that have recently been introduced globally into advanced food factories, such as nanotechnology, smart packaging, and effective packaging.

Teaching and Learning Strategies	
Strategy	Developing teaching programs in coordination with higher departments. Developing teaching curricula similar to the work environment. Sending students to departments and directorates for the purpose of conducting summer school. Assigning students to conduct research and reports related to the course. Assigning students to use of libraries and websites to collect sources on course topics.

Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1	5	Food Processing1	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 Processing1	Food preservation and	Daily, monthly,	Delivering

			its various methods – Refrigerating preservation	and quarterly exams + grades awarded for extracurricular activities, discussions, and class participation.	theoretical lectures and conducting class discussions to stimulate thinking and conclusion using brainstorming and positive reinforcement, and conducting extracurricular activities.
3	5	Food Processing1	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 Processing1	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 Processing1	The 1st 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	Food Processing1	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 Processing1	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 Processing1	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 Processing1	Preservation by drying	Daily, monthly, and quarterly exams + grades awarded for extracurricular	Delivering theoretical lectures and conducting class discussions to

				activities, discussions, and class participation.	stimulate thinking and conclusion using brainstorming and positive reinforcement, and conducting extracurricular activities.
10	5	Food Processing1	The 2nd 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 Processing1	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 Processing1	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 Processing1	Jams and jellies	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	5	Food Processing1	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 Processing1	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.

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.
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

Course Name:
Food Processing-2
Course Code:
FS194012
Semester / Year:
Sacond semester 2023-2024
Description Preparation Date:
25/1/2024
Available Attendance Forms:
Mandatory
Number of Credit Hours (Total) / Number of Units (Total):
75 h./3.5 unit
Course administrator's name (mention all, if more than one name)
Dr. Fadwa Waleed Abdulqahar, Dr. Sari Ali Hussein
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.
Teaching and Learning Strategies	
Strategy	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.

Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1	5	Food Processing2	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 Processing2	Oils extracting and purification	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.
3	5	Food Processing2	Chocolate and cacao products 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.
4	5	Food Processing2	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 Processing2	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 Processing2	The 1st 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 Processing2	Food fermentation manufacturing and its significance	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.
8	5	Food Processing2	Ethanol production (alcoholic 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.
9	5	Food Processing2	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 Processing2	The 2nd 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 Processing2	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 Processing2	Oriental fermented food manufacturing	Daily, monthly, and quarterly exams + grades awarded for extracurricular activities, discussions,	Delivering theoretical lectures and conducting class discussions to stimulate thinking and conclusion

				and class participation.	using brainstorming and positive reinforcement, and conducting extracurricular activities.
13	5	Food Processing2	Baby 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.
14	5	Food Processing2	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 Processing2	The 3rd monthly exam	Daily, monthly, and	Delivering theoretical

				quarterly exams + grades awarded for extracurricular activities, discussions, and class participation.	lectures and conducting class discussions to stimulate thinking and conclusion using brainstorming and positive reinforcement, and conducting extracurricular activities.

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.	
Learning and Teaching Resources	
Required textbooks (curricular books, 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

Course Name:	
Fundamentals of Human Nutrition	
Course Code:	
FS194010	
Semester / Year:	
Second semester 2023-2024	
Description Preparation Date:	
25/1/2024	
Available Attendance Forms:	
Mandatory	
Number of Credit Hours (Total) / Number of Units (Total):	
30 h.	
Course administrator's name	
Prof. Dr. Ali ameen Yassen	
Course Objectives	
Course Objectives	The Fundamentals of Human Nutrition course aims to enrich students' knowledge of: 1. Nutrition Science and its relation with other sciences 2. the human cell and its components which can absorb nutrients, metabolite them and exert metabolites. 3. the macro and micro nutritional components of food in general, their chemical composition, types, classifications, and nutritional roles for humans. 4. nutritional requirements and daily nutritional recommendations for humans depending on age, gender, and medical condition.

	5. how to obtain nutritional requirements from multiple sources and find nutritional alternatives depending on food groups.

Teaching and Learning Strategies

Strategy	A. Develop teaching programs in coordination with higher departments. B. Developing teaching curricula similar to the work environment. C. Sending students to departments and directorates for conducting summer school. D. Assigning students to conduct research and reports. E. Assigning students to use the library and websites to collect sources on the topic. F. Implementing practical lessons in laboratories, each according to their currency

17. 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,	Delivering theoretical lectures and conducting class discussions to stimulate thinking and

				discussions, and class participation.	conclusion using brainstormin g and positive reinforceme nt, and conducting extracurricul ar activities.
5	2	Fundamentals of Human Nutrition	The 1st monthly exam	Daily, monthly, and quarterly exams + grades awarded for extracurricula r activities, discussions, and class participation.	Delivering theoretical lectures and conducting class discussions to stimulate thinking and conclusion using brainstormin g and positive reinforceme nt, and conducting extracurricul ar activities.
6	2	Fundamentals of Human Nutrition	Proteins	Daily, monthly, and quarterly exams + grades awarded for extracurricula r activities, discussions, and class participation.	Delivering theoretical lectures and conducting class discussions to stimulate thinking and conclusion using brainstormin g and positive reinforceme nt, 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	Delivering theoretical lectures and conducting class discussions

				extracurricular activities, discussions, and class participation.	to stimulate thinking and conclusion using brainstorming and positive reinforcement, and conducting extracurricular activities.
10	2	Fundamentals of Human Nutrition	The 2nd 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	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 reinforceme

					nt, 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 +	Delivering theoretical lectures and conducting

				grades awarded for extracurricular activities, discussions, and class participation.	class discussions to stimulate thinking and conclusion using brainstorming and positive reinforcement, and conducting extracurricular activities.
15	2	Fundamentals of Human Nutrition	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.

18.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.

19.Learning and Teaching Resources	
Required textbooks (curricular books, 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...)	- Nutrition - Nutrition Journal - British Journal of Nutrition
Electronic References, Websites	Many references from the Internet

Course Description Form

Course Name:
Care and storage
Course Code:
FS19406
Semester / Year:
First Semester 2023-2024
Description Preparation Date:
25/1/2024
Available Attendance Forms:
Presence in the college according to lectur’s secdule
Number of Credit Hours (Total) / Number of Units (Total)
75 hours / Units 3.5
Course administrator's name (mention all, if more than one name)
Assist. Prof. Dr. Ali Ammar Ismaeel
Course Objectives
1- Identifying the most important strategic of storage of horticultural crops in the conditions of Iraq 2- Studying the importance of loss of weight during storage 3-studying the fruit ripening and relationship with plant hormones 4-studying the artificial ripening of fruits before and after harvest 5-studying the respiration of fruits and ethylene production 6-studying the chemical ingredient and Nutritional value of fruits and relationsh with storage period
Teaching and Learning Strategies

Strategy:

1. Follow the lecture method and use modern presentation methods.
2. Conduct laboratory experiments.
3. Direct dialogue with students by asking them questions.
4. Homework assignments (writing scientific reports).
5. Learning through applied laboratory work
6. visiting the cold stores
7. student do differential experiments about storage of varies vegetables and fruits

Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
First	5	**1- Computer 2-Modern mobile device 3-Observations and field applications**	**Theory** The economic importance of storage and the amount of loss resulting from it. Practical Anatomical and morphological characteristics of the types of fruits	Electronic lectures a practical application laboratories and fiel	Questions, discussions examples, quizzes and exams
Second	5	**1- Computer 2-Modern mobile device 3-Observations and field applications**	**Theory** Growth and ripening of fruits and their relationship to plant hormones Practical Studying the natural and chemical properties of fruits	Electronic lectures a practical application laboratories and fiel	Questions, discussions examples, quizzes and exams
Third	5	**1- Computer 2-Modern mobile device 3-Observations and field applications**	**Theory** Physiological and chemical changes that occur to fruits upon ripening and storage **Practical** Ripening and maturity indices	Electronic lectures a practical application laboratories and fiel	Questions, discussions examples, quizzes and exams
Fourth	5	**1- Computer 2-Modern mobile device 3-Observations and field applications**	**Theory** **Criteria of completed growth, ripening and determining the date of harvest** **Practical** Study the changes in hardness and pectins of fruits	Electronic lectures a practical application laboratories and fiel	Questions, discussions examples, quizzes and exams
Fifth	5	**1- Computer 2-Modern mobile device 3-Observations and field applications**	**Theory** **Respiratory mechanics of fruits during growth and ripening** **Practical** Studying the changes in the organic acid content and acidity of fruits	Electronic lectures and practical application in laboratories and fields	Questions, discussions examples, quizzes and exams

Sixth	5	First month exam			
Seventh	5	**1- Computer 2-Modern mobile device 3-Observations and field applications**	**Theory Ripening fruits artificially before and after harvest Practical** Study of the change in the vitamin C content of fruits	Electronic lectures a practical application laboratories and fiel	Questions, discussions examples, quizzes and exams
Eighth	5	**1- Computer 2-Modern mobile device 3-Observations and field applications**	**Theory Cold damage and freezing damage to horticultural crops Practical** Study of changes in the plant pigments chlorophyll and carotene	Electronic lectures a practical application laboratories and fiel	Questions, discussions examples, quizzes and exams
Ninth	5	**1- Computer 2-Modern mobile device 3-Observations and field applications**	**Theory Methods of harvesting, sorting, grading, packing, and additional treatments for the fruits Practical** Study of the change in fruit respiration during and after storage	Electronic lectures a practical application laboratories and fiel	Questions, discussions examples, quizzes and exams
Tenth	5	**1- Computer 2-Modern mobile device 3-Observations and field applications**	**Theory Pre-cooling methods before shipping and storage Practical** Methods to estimate ethylene production in fruits and study the physiological effects of ethylene	Electronic lectures and practical application in laboratories and fields	Questions, discussions examples, quizzes and exams
Eleven	5	**1- Computer 2-Modern mobile device 3-Observations and field applications**	**Theory Storage methods (refrigerated storage, tree storage, and ventilated rooms) Practical** Artificial ripening of some types of fruits	Electronic lectures a practical application laboratories and fiel	Questions, discussions examples, quizzes and exams
Twelfth	5	Second month exam			
Thirteen	5	**1- Computer 2-Modern mobile device 3-Observations and field applications**	**Theory The use of atomic radiation to reduce damage of horticultural crops during storage Practical** Microbial damage to horticultural crops after harvest	Electronic lectures andpractical applicat in laboratories and fi	Questions, discussions examples, quizzes and exams
Fourteenth	5	**1- Computer 2-Modern mobile device 3-Observations and field applications**	**Theory Storage in a control atmosphere and storage in low pressure atmosphere Practical** Physiological damages that occur to fruits during storage	Electronic lectures a practical application laboratories and fiel	Questions, discussions examples, quizzes and exams
Fifteen	5	**1- Computer 2-Modern mobile device 3-Observations and field applications**	**Theory General principles for determining quality degrees, their importance, and factors of deterioration of the qualitative and nutritional value of horticultural crops during storage Practical** Reviewing students' experiences about storing some types of fruits and discussing the reports submitted in this regard	Electronic lectures and practical application in laboratories and fields	Questions, discussions examples, quizzes and exams
Course Evaluation					

1- Monthly exams. 2- Rapid exams . 3- Evaluation through classroom activity. 4- By preparing scientific reports and taking advantage of information networks. 5- Final exams.

Learning and Teaching Resources	
Required textbooks (curricular books any)	Fruit care and storage / Abdul-Ilah Mukhlef and Adnan Nasser Matloub / 1982
Main references (sources)	
Recommended books and references (scientific journals, reports...)	Post harvest biology and technology
Electronic References, Websites	

Course Description Form

Course Name:	
Liquid milk product	
Course Code:	
FS19303	
Semester / Year:	
Second semester 2023-2024	
Description Preparation Date:	
25/1/2024	
Available Attendance Forms:	
Mandatory	
Number of Credit Hours (Total) / Number of Units (Total):	
75/3.5	
Course administrator's name (mention all, if more than one name)	
Dr. Firas Najm Ismael	
Course Objectives	
Course Objective	Teaching students how to receive milk, the components of milk, the role of nutrition and strain in the type of milk, and the role of microorganisms in contamination
Teaching and Learning Strategies	
Strategy	1. Develop teaching programs in coordination with high departments. 2. Developing teaching curricula similar to the work environmen 3. Sending students to departments and directorates for conducti

	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

Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1	Theory and Pract.	Liquid milk product	Liquid milk - its definition and types	Giving lectures	Quiz+ activities
2	Theory and Pract.	Liquid milk product	Liquid milk - composition - properties - nutritional value	Giving lectures	Quiz+ activities
3	Theory and Pract.	Liquid milk product	Milk production, preparation on the farm and marketing	Giving lectures	Quiz+ activities
4	Theory and Pract.	Liquid milk product	Preparation of milk in dairy factories	Giving lectures	Quiz+ activities
5	Theory and Pract.	Liquid milk product	First month exam	Giving lectures	Quiz+ activities
6	Theory and Pract.	Liquid milk product	Thermal parameters of milk	Giving lectures	Quiz+ activities
7	Theory and Pract.	Liquid milk product	Condensed dairy products	Giving lectures	Quiz+ activities
8	Theory and Pract.	Liquid milk product	Dried dairy products	Giving lectures	Quiz+ activities
9	Theory and Pract.	Liquid milk product	Dried dairy products	Giving lectures	Quiz+ activities
10	Theory and Pract.	Liquid milk product	Cleaning methods used in food and dairy factories	Giving lectures	Quiz+ activities
11	Theory and Pract.	Liquid milk product	Principles used in designing manufacturing plants	Giving lectures	Quiz+ activities

12	Theory and Pract.	Liquid milk product	Infant milk industry	Giving lectures	Quiz+ activities
13	Theory and Pract.	Liquid milk product	Thermal parameters of milk	Giving lectures	Quiz+ activities
14	Theory and Pract.	Liquid milk product	Milk preparation in dairies	Giving lectures	Quiz+ activities
15	Theory and Pract.	Liquid milk product	Second month exam	Giving lectures	Quiz+ activities

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	
Learning and Teaching Resources	
Required textbooks (curricular books, if any)	Liquid milk book
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 microbiology
Electronic References, Websites	Websites offer instructional videos on making yoghart and all kinds cheese

Course Description Form

Course Name:	
Principals of Dairy	
Course Code:	
FS19103	
Semester / Year:	
First Semester 2023-2024	
Description Preparation Date:	
25/1/2024	
Available Attendance Forms:	
Mandatory	
Number of Credit Hours (Total) / Number of Units (Total):	
75/3.5	
Course administrator's name (mention all, if more than one name)	
Dr. Firas Najm Ismael	
Course Objectives	
Course Objectives	Introduction to the science of dairy principles Teaching students about milk ingredients prepare food engineers to work in the production halls of dairy factories
Teaching and Learning Strategies	
Strategy	1-Develop teaching programs in coordination with higher departments. Developing teaching curricula similar to the work environment. Sending students to departments and directorates for conducting

	summer application. Assigning students to conduct research and reports. Assigning students to go to the library and collect sources on the topic. Implementing practical lessons in laboratories, each according to their currency

Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1	Theory and Pract.	Principals of Dairy	Sensory evaluation and examination of milk components	Giving lectures	Quiz+ activities
2	Theory and Pract.	Principals of Dairy	Determination of acidity in milk	Giving lectures	Quiz+ activities
3	Theory and Pract.	Principals of Dairy	Determination of acidity in milk	Giving lectures	Quiz+ activities
4	Theory and Pract.	Principals of Dairy	Milk sorting	Giving lectures	Quiz+ activities
5	Theory and Pract.	Principals of Dairy	Butter industry	Giving lectures	Quiz+ activities
6	Theory and Pract.	Principals of Dairy	First month exam	Giving lectures	Quiz+ activities
7	Theory and Pract.	Principals of Dairy	Factors affecting churn	Giving lectures	Quiz+ activities
8	Theory and Pract.	Principals of Dairy	Soft cheese making - ricotta	Giving lectures	Quiz+ activities
9	Theory and Pract.	Principals of Dairy	Quesblanca – halloumi – cooked	Giving lectures	Quiz+ activities
10	Theory and Pract.	Principals of Dairy	Dairy ice cream industry	Giving lectures	Quiz+ activities
11	Theory and Pract.	Principals of Dairy	Water ice industry	Giving lectures	Quiz+ activities
12	Theory and Pract.	Principals of Dairy	Infant milk industry	Giving lectures	Quiz+ activities

13	Theory and Pract.	Principals of Dairy	Heat treatments for milk	Giving lectures	Quiz+ activities
14	Theory and Pract.	Principals of Dairy	Preparation of milk in dairy factories	Giving lectures	Quiz+ activities
15	Theory and Pract.	Principals of Dairy	Second month exam	Giving lectures	Quiz+ activities

1. 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	
2. Learning and Teaching Resources	
Required textbooks (curricular books, if any)	Dairy Science (Dr. Helan Hammadi and others)
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 microbiology
Electronic References, Websites	Websites offer instructional videos on making yoghart and all kinds cheese

Course Description Form

Course Name:	
Dairy manufacturing1	
Course Code:	
FS19405	
Semester / Year:	
First semester 2023-2024	
Description Preparation Date:	
25/1/2024	
Available Attendance Forms:	
Mandatory	
Number of Credit Hours (Total) / Number of Units (Total):	
75/3.5	
Course administrator's name (mention all, if more than one name)	
Dr. Firas Najm Ismael	
Course Objectives	
Course Objectives	Teaching and teaching students the scientific basis and method of making butter and milk ice prepare food engineers to work in the production halls of dairy factories.
Teaching and Learning Strategies	
Strategy	1.Develop teaching programs in coordination with high departments. 2.Developing teaching curricula similar to the work environmen 3.Sending students to departments and directorates for conducti

	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

Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1	Theory and Pract.	Dairy manufacturing1	Some characteristics and constants of fat the milk	Giving lectures	Quiz+ activities
2	Theory and Pract.	Dairy manufacturing1	The basis of butter making and its theories	Giving lectures	Quiz+ activities
3	Theory and Pract.	Dairy manufacturing1	Packaging (packaging and storage)	Giving lectures	Quiz+ activities
4	Theory and Pract.	Dairy manufacturing1	Continuous method	Giving lectures	Quiz+ activities
5	Theory and Pract.	Dairy manufacturing1	First month exam	Giving lectures	Quiz+ activities
6	Theory and Pract.	Dairy manufacturing1	Butter rent	Giving lectures	Quiz+ activities
7	Theory and Pract.	Dairy manufacturing1	Ice cream definition and classification	Giving lectures	Quiz+ activities
8	Theory and Pract.	Dairy manufacturing1	The role of ice cream mixture components in product characteristics	Giving lectures	Quiz+ activities
9	Theory and Pract.	Dairy manufacturing1	Disadvantages of ice cream	Giving lectures	Quiz+ activities
10	Theory and Pract.	Dairy manufacturing1	Ice cream revenue	Giving lectures	Quiz+ activities
11	Theory and Pract.	Dairy manufacturing1	Factors affecting it	Giving lectures	Quiz+ activities

12	Theory and Pract.	Dairy manufacturing1	Simple and complex calculations in ice cream mixture	Giving lectures	Quiz+ activities
13	Theory and Pract.	Dairy manufacturing1	Primary and hardening	Giving lectures	Quiz+ activities
14	Theory and Pract.	Dairy manufacturing1	The role of ice cream ingredients in its characteristics	Giving lectures	Quiz+ activities
15	Theory and Pract.	Dairy manufacturing1	Second month exam	Giving lectures	Quiz+ activities

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	
Learning and Teaching Resources	
Required textbooks (curricular books, if any)	Butter and ice cream book Damaged: Abdul Majeed Hama Al-Samarrai Mahmoud Eid Al Omar Amer Khalaf Al-Darwish
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 microbiology
Electronic References, Websites	Websites offer instructional videos on making yoghart and all kinds cheese

Course Description Form

Course Name:	
Dairy manufacturing2	
Course Code:	
FS19409	
Semester / Year:	
Second semester 2023-2024	
Description Preparation Date:	
25/1/2024	
Available Attendance Forms:	
Mandatory	
Number of Credit Hours (Total) / Number of Units (Total):	
75/3.5	
Course administrator's name (mention all, if more than one name)	
Dr. Firas Najm Ismael	
Course Objectives	
Course Objectives	Teaching and teaching students the scientific basis and method of making butter and milk ice prepare food engineers to work in the production halls of dairy factories.
Teaching and Learning Strategies	
Strategy	6. Develop teaching programs in coordination with high departments. 7. Developing teaching curricula similar to the work environmen 8. Sending students to departments and directorates for conducti summer application.

	9.Assigning students to conduct research and reports. 10. Assigning students to go to the library and collect sources on the topic. Implementing practical lessons in laboratories, each according to their currency

Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1	Theory and Pract.	Dairy manufacturing2	Some characteristics and constants of fat the milk	Giving lectures	Quiz+ activities
2	Theory and Pract.	Dairy manufacturing2	The basis of butter making and its theories	Giving lectures	Quiz+ activities
3	Theory and Pract.	Dairy manufacturing2	Packaging (packaging and storage)	Giving lectures	Quiz+ activities
4	Theory and Pract.	Dairy manufacturing2	Continuous method	Giving lectures	Quiz+ activities
5	Theory and Pract.	Dairy manufacturing2	First month exam	Giving lectures	Quiz+ activities
6	Theory and Pract.	Dairy manufacturing2	Butter rent	Giving lectures	Quiz+ activities
7	Theory and Pract.	Dairy manufacturing2	Ice cream definition and classification	Giving lectures	Quiz+ activities
8	Theory and Pract.	Dairy manufacturing2	The role of ice cream mixture components in product characteristics	Giving lectures	Quiz+ activities
9	Theory and Pract.	Dairy manufacturing2	Disadvantages of ice cream	Giving lectures	Quiz+ activities
10	Theory and Pract.	Dairy manufacturing2	Ice cream revenue	Giving lectures	Quiz+ activities
11	Theory and Pract.	Dairy manufacturing2	Factors affecting it	Giving lectures	Quiz+ activities
12	Theory and Pract.	Dairy manufacturing2	Simple and complex calculations in ice	Giving lectures	Quiz+ activities

			cream mixture		
13	Theory and Pract.	Dairy manufacturing2	Primary and hardening	Giving lectures	Quiz+ activities
14	Theory and Pract.	Dairy manufacturing2	The role of ice cream ingredients in its characteristics	Giving lectures	Quiz+ activities
15	Theory and Pract.	Dairy manufacturing2	Second month exam	Giving lectures	Quiz+ activities

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	
Learning and Teaching Resources	
Required textbooks (curricular books, if any)	Butter and ice cream book Damaged: Abdul Majeed Hama Al-Samarrai Mahmoud Eid Al Omar Amer Khalaf Al-Darwish
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 microbiology
Electronic References, Websites	Websites offer instructional videos on making yoghart and all kinds cheese