# Wasit University

# جامعة واسط

## First Cycle – Bachelor's Degree (B.Sc.) – Food Science

بكالوريوس – علوم أغذية

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# 1. Mission & Vision Statement

*Vision Statement*

To be a leading center of excellence in food science education, research, and innovation, dedicated to enhancing food quality, safety, nutrition, and sustainability for the betterment of society and global well-being.

*Mission Statement*

- Provide high-quality education that equips students with the scientific knowledge and practical skills necessary for careers in the food industry, research, and public service.
- Advance scientific research in food safety, processing, preservation, nutrition, and biotechnology to meet current and future challenges in food systems.

- Promote collaboration with industry, government, and communities to ensure the development of safe, nutritious, and sustainable food products.
- Foster innovation, critical thinking, and lifelong learning among students and professionals in the field of food science.

# 2. Program Specification

| | | | |
|---|---|---|---|
| **Program code:** | BSc-FS | **ECTS** | 240 |
| **Duration:** | 4 levels, 8 Semesters | **Method of Attendance:** | Full Time |

**Food Science is an exciting and interdisciplinary subject that draws from chemistry, biology, engineering, and nutrition to understand the nature of food, its processing, preservation, and impact on human health.** The emphasis of the program is on the entire food system—from the molecular composition of food components to the technology used in production and quality assurance, and to consumer behavior and food safety. This degree attracts students with a wide range of interests; for some, it's the applied scientific aspect that appeals, while for others, it's a step toward specialization in food product development, quality control, or nutrition. All students have the opportunity to transfer onto our specialist degrees in Food Safety, Nutrition, or Food Technology at the end of the first year.

**Level 1 introduces students to the fundamental principles of food science**, providing a solid foundation for all programs within the Food Science degree group. Core topics specific to the chosen program are explored in Level 2, preparing students for more advanced, research-led specialist modules at Levels 3 and 4. Graduates of the Food Science program are thus trained to appreciate the importance of evidence-based learning and how research drives innovation in food science, in alignment with the University and School's Mission Statements.

**From Level 2 onward, students can tailor their education by selecting from a variety of modules**, ensuring a balanced understanding of food science topics such as food chemistry, microbiology, sensory analysis, food engineering, and functional foods. This structure allows students to develop their own academic interests while still meeting the expected breadth and depth of knowledge required for a food science graduate. Module selection is made with the guidance of academic and personal tutors.

**The research ethos is integrated from the beginning**, through hands-on laboratory work embedded in lecture modules, dedicated practical sessions, research seminars, and small group tutorials. There is a compulsory food-related field trip or industrial visit in Level 1, which students must complete to progress to Level 2, along with optional field or industry-based experiences in Levels 2, 3, and 4. At Level 4, all

students complete an independent research project, which may be a literature-based study, data analysis, or an experimental project carried out in a laboratory, food industry setting, or pilot plant.

**Academic tutorials in Levels 1 and 2 are led by the same tutor**, who also serves as the personal academic advisor, ensuring continuity and personalized support. Tutorials include workshops to build essential skills such as scientific writing, data analysis, and presentation techniques, followed by assessed tasks like essays, project proposals, or seminar talks, providing students with a platform to develop and demonstrate these skills in a food science context.

**International study opportunities and industrial placements** are available to students, with personalized support to match individual goals and professional aspirations. These placements help bridge the gap between academic learning and real-world applications, further enriching the educational journey in the Food Science Department.

# 3. Program Objectives

1. Providing Quality Education: Equipping students with the knowledge and skills necessary to work in the fields of food science and technology.
2. Scientific Research: Promoting applied scientific research to solve problems related to the food industry and improve food quality and safety.
3. Industry Development: Supporting the local food sector through scientific innovations and the application of modern technologies.
4. Collaboration with Institutions: Enhancing partnerships with academic, industrial, and community institutions to improve food products and meet market needs.
5. Sustainable Development: Contributing to environmental and social sustainability by developing eco-friendly food manufacturing practices.

# 4. Student Learning Outcomes

The learning outcomes in the Food Science Department at the College of Agriculture focus on equipping students with the knowledge and skills necessary to understand and apply food science concepts, and to analyze and evaluate the quality and safety of food products. These outcomes are achieved through:

1. Theoretical Understanding of Food Components: Understanding the chemical composition of foods, including carbohydrates, proteins, fats, vitamins, and minerals, and how they affect food quality and safety.

2. Practical Application of Food Analysis Techniques: Gaining the ability to use laboratory techniques to analyze various food components, such as chemical and microbiological analysis and quality testing.

3. Awareness of Food Safety Concepts: Understanding food safety standards and procedures and how to assess risks associated with microbial or chemical contamination, including the application of Hazard Analysis and Critical Control Points (HACCP) systems.

4. Knowledge of Food Processing: Understanding fundamental food processing operations such as drying, freezing, canning, and fermentation, and how these processes impact food quality.

5. Food Product Development: Learning how to design and develop new food products that align with market needs while considering health and nutritional aspects.

6. Quality Management in the Food Industry: The ability to implement quality management systems such as ISO and HACCP to ensure food product safety and sustainability.

7. Sensory Analysis of Foods: The ability to perform sensory evaluation of food products in terms of taste, smell, texture, and appearance, and to use this data to improve product quality.

8. Sustainability and Modern Technologies in Food Science: Understanding the impact of modern technologies such as nanotechnology, smart packaging, and industrial microbiology on the sustainable development and improvement of food products.

9. Professional Ethics: Promoting awareness of the importance of adhering to ethical and professional standards in the production, processing, and distribution of food.

10. These learning outcomes prepare students for various careers in the food industry, food safety, research and development, as well as in regulatory bodies

# 5. Academic Staff

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# 6. Credits, Grading and GPA

***Credits***

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

***Grading***

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

| **GRADING SCHEME**<br>مخطط الدرجات | | | | |
|---|---|---|---|---|
| **Group** | **Grade** | التقدير | **Marks (%)** | **Definition** |

| | | | | |
|---|---|---|---|---|
| **Success Group (50 - 100)** | A - Excellent | امتياز | 90 - 100 | Outstanding Performance |
| | B - Very Good | جيد جدا | 80 - 89 | Above average with some errors |
| | C - Good | جيد | 70 - 79 | Sound work with notable errors |
| | D - Satisfactory | متوسط | 60 - 69 | Fair but with major shortcomings |
| | E - Sufficient | مقبول | 50 - 59 | Work meets minimum criteria |
| **Fail Group (0 – 49)** | FX – Fail | راسب - قيد المعالجة | (45-49) | More work required but credit awarded |
| | F – Fail | راسب | (0-44) | Considerable amount of work required |
| | | | | |
| Note: | | | | |
| Number Decimal places above or below 0.5 will be rounded to the higher or lower full mark (for example a mark of 54.5 will be rounded to 55, whereas a mark of 54.4 will be rounded to 54. The University has a policy NOT to condone "near-pass fails" so the only adjustment to marks awarded by the original marker(s) will be the automatic rounding outlined above. | | | | |

***Calculation of the Cumulative Grade Point Average (CGPA)***

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

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

   CGPA = [ (1st $^{m}$odule score x ECTS) + (2nd $^{m}$odule score x ECTS) + ……] / 240

# 7. Curriculum/Modules

**Semester 1 | 30 ECTS | 1 ECTS = 25 hrs**

| Code | Module | SSWL | USSWL | ECTS | Type | Pre-request |
|---|---|---|---|---|---|---|
| FSD112 | Analytical Chemistry | 79 | 96 | 7 | C | |

| | | | | | | |
|---|---|---|---|---|---|---|
| FSD113 | Dairy Principles | 79 | 96 | 7 | C | |
| AGR115 | Agricultural Economics | 34 | 66 | 4 | B | |
| FSD111 | Organic Chemistry | 79 | 96 | 7 | C | |
| WOU4 | Computer Programing | 50 | 25 | 3 | B | |
| WU04 | Democracy and human rights | 33 | 17 | 2 | B | |

**Semester 2 | 30 ECTS | 1 ECTS = 25 hrs**

| Code | Module | SSWL | USSWL | ECTS | Type | Pre-request |
|---|---|---|---|---|---|---|
| AGR123 | Machines and Workshops | 78 | 97 | 7 | B | |
| AGR1211 | Microbiology | 78 | 97 | 7 | B | |
| FSD124 | Food Industries | 78 | 97 | 7 | C | |
| AGR127 | Statistics | 78 | 47 | 5 | B | |
| WU02 | Academic Englis Language 1 | 32 | 18 | 2 | B | |
| WU01 | Arabic Language | 33 | 17 | 2 | S | |

**Semester 3 | 30 ECTS | 1 ECTS = 25 hrs**

| Code | Module | SSWL | USSWL | ECTS | Type | Pre-request |
|---|---|---|---|---|---|---|
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**Semester 4 | 30 ECTS | 1 ECTS = 25 hrs**

| Code | Module | SSWL | USSWL | ECTS | Type | Pre-request |
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**Semester 5 | 30 ECTS | 1 ECTS = 25 hrs**

| Code | Module | SSWL | USSWL | ECTS | Type | Pre-request |
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**Semester 6 | 30 ECTS | 1 ECTS = 25 hrs**

| Code | Module | SSWL | USSWL | ECTS | Type | Pre-request |
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**Semester 7 | 30 ECTS | 1 ECTS = 25 hrs**

| Code | Module | SSWL | USSWL | ECTS | Type | Pre-request |
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**Semester 8 | 30 ECTS | 1 ECTS = 25 hrs**

| Code | Module | SSWL | USSWL | ECTS | Type | Pre-request |
|---|---|---|---|---|---|---|
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# 8. Contact

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# Wasit University

# جامعة واسط

## First Cycle – Bachelor's Degree (B.Sc.) – Food Science

بكالوريوس – علوم أغذية

Table of Contents

# 1. Overview

This catalogue is about the courses (modules) given by the program of Food Science to gain the Bachelor of Science degree. The program delivers (48) Modules with (6000) total student workload hours and 240 total ECTS. The module delivery is based on the Bologna Process.

نظرة عامة

يتناول هذا الدليل المواد الدراسية التي يقدمها برنامج علوم الأغذية للحصول على درجة بكالوريوس العلوم. يقدم البرنامج (48) مادة دراسية، مع (6000) إجمالي ساعات حمل الطالب و240 إجمالي وحدات أوروبية. يعتمد تقديم المواد الدراسية على عملية بولونيا.

## 2. Undergraduate Courses 2024-2025

**Module 1**

| Code | Course/Module Title | ECTS | Semester |
|---|---|---|---|
| FSD112 | Analytical Chemistry | 7 | 1 |
| **Class (hr/w)** | **Lect/Lab./Prac./Tutor** | **SSWL (hr/sem)** | **USWL (hr/w)** |
| 2 | 3 | 79 | 96 |
| **Description** | | | |
| This course introduces students to the fundamental principles, methods, and applications of **analytical chemistry**. It covers both **qualitative** and **quantitative** analysis, focusing on the theory and practice of chemical measurements. Topics include classical methods such as **gravimetric** and **volumetric analysis**, as well as modern instrumental techniques including **spectrophotometry**, **chromatography**, and **electrochemical analysis**. Students will gain hands-on experience in laboratory techniques, data interpretation, error analysis, and the application of analytical methods in real-world contexts, such as environmental, pharmaceutical, agricultural, and industrial analysis.<br>The course aims to develop students' ability to solve chemical problems through analytical thinking, proper experimental design, and accurate data reporting. | | | |

# MODULE DESCRIPTION FORM

| Module Information | | | | | |
|---|---|---|---|---|---|
| **Module Title** | Theoretical analytical Chemistry | | | **Module Delivery** | |
| **Module Type** | Core | | | ☒ **Theory**<br>☒ **Lecture**<br>☒ **Lab**<br>☐ **Tutorial**<br>☐ **Practical**<br>☐ **Seminar** | |
| **Module Code** | FSD112 | | | | |
| **ECTS** | 7 | | | | |
| **SWL (hr/sem)** | 175 | | | | |
| **Module Level** | | 1 | **Semester of Delivery** | | 1 |
| **Administering Department** | | Food science | **College** | Agriculture | |
| **Module Leader** | Suhad Kareem Rahi Al-Magsoosi | | **e-mail** | skareem@uowasit.edu.iq | |
| **Module Leader's Acad. Title** | | Lecturer | **Module Leader's Qualification** | | Ph.D. |
| **Module Tutor** | Suhad Kareem Rahi Al-Magsoosi | | **e-mail** | skareem@uowasit.edu.iq | |
| **Peer Reviewer Name** | | Name | **e-mail** | E-mail: | |
| **Scientific Committee Approval Date** | | 2024/9/2 | **Version Number** | 1.0 | |

| Relation with other Modules | | | |
|---|---|---|---|
| **Prerequisite module** | None | **Semester** | |
| **Co-requisites module** | None | **Semester** | |

| Module Aims, Learning Outcomes and Indicative Content | |
|---|---|
| **Module Objectives** | A general study of chemistry, including analytical chemistry, which is divided into two types: quantitative analysis and descriptive qualitative analysis, knowledge of the requirements for volumetric analysis, and also methods for expressing the concentration of solutions to know their weights. Analytical chemistry also studies the indicators used in the analysis of acids and bases, the foundations of choosing the indicator, the mechanism of the work of the indicator, and calculating the ph for all solutions. |

| | |
|---|---|
| | Objectives of analytical Chemistry<br>By knowing the objectives of analytical Chemistry, the following can be reached: -<br>•Study the basics of analytical chemistry and its sections<br>•Determining the weights of some chemicals using volumetric determination methods<br>•Knowing the requirements for volumetric corrosion<br>•Methods of expressing the concentration of solutions to determine the weights of some compounds<br>•Analysis of acids and bases<br>•Knowing the evidence used in analyzing acids and bases<br>•Interpreting the work of the guide<br>•How to choose the appropriate guide<br>•Calculate the pH of all solutions |
| **Module Learning Outcomes** | The graduate of the department is awarded a degree (Bachelor of Science in general chemistry)<br>and acquires the following skills:<br>1- The ability to apply knowledge of the general chemistry method and related techniques<br>2- The ability to evaluate and implement experiments.<br>3- The ability to use ready-made programs to accomplish the required cases.<br>4- The ability to work with diverse teams.<br>5- The ability to know and bear responsibility.<br>6- The ability to communicate.<br>7- The ability to use skills.<br>8- The ability to intertwine with other specializations to serve them |
| **Indicative Contents** | The guiding content includes the following.<br>- Be extremely careful when sorting chemicals that cause violent reactions when mixed together.<br>- Immediately dispose of containers that do not have a label indicating their contents at the end of the daily working hours.<br>- Operate the suction fan (pump) to get rid of fumes. |

| | |
|---|---|
| | - Connect electric heating devices to a control device to disconnect the power from the device in the event of a noticeable rise in the temperature of the device.<br>- Periodically check the efficiency of the laboratory devices and keep records of the devices that have been checked to determine their validity.<br>- Use both hands when handling large bottles and do not lift them up.<br>- Return all materials, glassware and equipment to their designated places after use. |

| Learning and Teaching Strategies | |
|---|---|
| **Strategies** | 1- Identify the tools and devices used in chemical analysis and train to use and deal with them correctly.<br>2- Identify some chemical materials and their physical and chemical properties and their solutions and how to prepare them.<br>3- Practice writing equations correctly.<br>4- Practice choosing the appropriate guide for the calibration process.<br>5- Practice performing various chemical calibrations correctly and with high confidence.<br>6- Practice performing chemical calculations and calculations of concentrations and purity. |

| Student Workload (SWL)<br>الحمل الدراسي للطالب محسوب لـ ١٥ اسبوعا | | | |
|---|---|---|---|
| **Structured SWL (h/sem)** | 78 | **Structured SWL (h/w)** | 7 |
| **Unstructured SWL (h/sem)** | 97 | **Unstructured SWL (h/w)** | 6 |
| **Total SWL (h/sem)** | **175** | | |

## Module Evaluation

| | | Time/Number | Weight (Marks) | Week Due | Relevant Learning Outcome |
|---|---|---|---|---|---|
| **Formative assessment** | **Quizzes** | 2 | 10% (10) | 5 and 10 | LO #1, #2 and #10, #11 |
| | **Assignments** | 2 | 10% (10) | 2 and 12 | LO #3, #4 and #6, #7 |

| | | | | | |
|---|---|---|---|---|---|
| | **Projects / Lab.** | 1 | 10% (10) | Continuous | All |
| | **Report** | 1 | 10% (10) | 13 | LO #5, #8 and #10 |
| **Summative assessment** | **Midterm Exam** | 2hr | 10% (10) | 7 | LO #1 - #7 |
| | **Final Exam** | 3hr | 50% (50) | 16 | All |
| **Total assessment** | | | 100% (100 Marks) | | |

## Delivery Plan (Weekly Syllabus)

| | **Material Covered** |
|---|---|
| **Week 1** | Introduction to the importance of quantitative chemistry and expression of concentrations with problems. |
| **Week 2** | Expressing the laws of ppm, w\w%, v\v% with dilution laws for solubility with problems. |
| **Week 3** | Beginning with ionic equilibrium, hydrolysis theories, and pH for strong and weak acids, bases, and salts with problems. |
| **Week 4** | Methods of measuring pH and a pH meter with a detailed explanation of buffer solutions. |
| **Week 5** | Methods of preparing buffer solutions with problems on the topic. |
| **Week 6** | Explanation of acid and base indicators with solutions to multiple problems. |
| **Week 7** | Midterm exam. |
| **Week 8** | K estimation method and titration curves with problems. |
| **Week 9** | Precipitation titration, including an introduction to the Moore, Fohlhard, and Fagen method. |
| **Week 10** | EDTA complex titrations, their properties, and problems on the topic. |
| **Week 11** | The student will become familiar with gravimetric analysis with problems on the topic. |
| **Week 12** | Spectroscopic analysis. |
| **Week 13** | Chromatographic analysis. |
| **Week 14** | Chromatographic analysis (High-performance liquid chromatography - HPLC). Chromatographic analysis (Gas chromatography - GC). |
| **Week 15** | Final exam. |

## Delivery Plan (Weekly Lab. Syllabus)

| | Material Covered |
|---|---|
| **Week 1** | Prepare standard solutions of specified concentrations and apply various techniques, such as titration, to analyze them. Concentrations are calculated using basic laws, such as the molarity law, and applied to problems involving dilution and mixing of solutions. |
| **Week 2** | Prepare solutions using concentration expressions such as ppm, w/w%, and v/v%. Dilutions are then performed on these solutions using the dilution law (C1V1 = C2V2). Practical experiments are conducted to apply these laws to calculate final concentrations after dilution. |
| **Week 3** | Study ionic equilibrium and analyze the effect of hydrolysis on the pH values of acids, bases, and salts by preparing different solutions and measuring the pH using a pH meter. |
| **Week 4** | Measure the pH of solutions using a pH meter after titration with standard solutions. |
| **Week 5** | Buffer solutions are prepared by mixing a weak acid and its conjugate base, using the Henderson-Hasselbach equation to calculate the optimal ratios of components. |
| **Week 6** | Adding acid and base indicators such as lithumic and phenolphthalein to various solutions and observing the color change to determine the pH of the solution. |
| **Week 7** | Exam (Report) |
| **Week 8** | Estimate the Ka of acids by performing titrations using a strong base, recording the pH values at each addition. Titration curves are plotted to analyze the equivalence point and calculate the acid dissociation constant (Ka) using the data obtained. |
| **Week 9** | Perform precipitation titration using the Moore, Fohlhard, and Fagen methods to determine the concentration of ions in solutions. |
| **Week 10** | Problems related to calculating concentrations based on the volume of solution added and endpoints. |
| **Week 11** | Students are introduced to gravimetric analysis by accurately weighing samples and using precipitation techniques to separate compounds. |
| **Week 12** | The principle of optical absorption; the use of a spectrophotometer to measure absorbance; the relationship between concentration and absorbance (Beer-Lambert law). |
| **Week 13** | The principle of paper chromatography; separation of mixture components; identification of unknown substances using chromatographic techniques. |
| **Week 14** | Introduction to HPLC; operation of an HPLC instrument; analysis of HPLC results; initiation of gas chromatography; analysis of volatile organic compounds; separation and identification of samples using GC. |
| **Week 15** | Final Exam |

## Learning and Teaching Resources

| | Text | Available in the Library? |
|---|---|---|
| **Required Texts** | Theoretical and practical lectures. | Yes |

| | | |
|---|---|---|
| | Fundamentals of Analytical Chemistry, translated by Zuhair Matti Qasir, Edmond Mikhail Hanna, and Abdul Latif Abdul Razzaq.<br><br>Main References (Sources): Analytical Chemistry: Basic Concepts in Conventional and Instrumental Analysis, by Abdullah Mahmoud Abu Al-Kabbash<br><br>Muhyiddin Al-Bakoush et al. (2003). Principles of General Chemistry, Tripoli, 687 pages. | |
| **Recommended Texts** | Pauling, L. (1988). General chemistry. Courier Corporation. | No |
| **Websites** | | |

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

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

**Module 2**

| **Code** | **Course/Module Title** | **ECTS** | **Semester** |
|---|---|---|---|
| FSD113 | Dairy Principles | 7 | 1 |
| **Class (hr/w)** | **Lect/Lab./Prac./Tutor** | **SSWL (hr/sem)** | **USWL (hr/w)** |

| | | | |
|---|---|---|---|
| 2 | 3 | 79 | 96 |

**Description**

This course provides students with a comprehensive introduction to the **principles of dairy science**, focusing on the production, composition, processing, and quality control of milk and dairy products. It covers the **biological and chemical properties of milk**, factors influencing milk yield and quality, and an overview of **dairy herd management**. Students will also study **processing techniques** for various dairy products such as cheese, yogurt, butter, and powdered milk, with emphasis on **hygiene, safety, and quality assurance standards**.

The course integrates both theoretical and practical knowledge, preparing students to understand the role of dairy science in human nutrition, public health, and food industry systems.

# MODULE DESCRIPTION FORM

| Module Information | | | | |
|---|---|---|---|---|
| **Module Title** | Principles of dairy science | | **Module Delivery** | |
| **Module Type** | C | | ☒ **Theory**<br>☒ **Lecture**<br>☐ **Lab**<br>☐ **Tutorial**<br>☒ **Practical**<br>☐ **Seminar** | |
| **Module Code** | FSD113 | | | |
| **ECTS Credits** | 7 | | | |
| **SWL (hr/sem)** | 175 | | | |
| **Module Level** | 1 | | **Semester of Delivery** | 1 |
| **Administering Department** | Food Science Dept. | | **College** | College of Agriculture |
| **Module Leader** | Dr. Hyder Najy Al Zobaidy | | **e-mail** | hynajy@uowasit.edu.iq |
| **Module Leader's Acad. Title** | Assist. Professor | | **Module Leader's Qualification** | Ph.D. |
| **Module Tutor** | | | **e-mail** | |
| **Peer Reviewer Name** | Name | | **e-mail** | E-mail |
| **Scientific Committee Approval Date** | 10/03/2025 | | **Version Number** | 1.0 |

| Relation with other Modules | | | |
|---|---|---|---|
| **Prerequisite module** | None | **Semester** | |
| **Co-requisites module** | None | **Semester** | |

| Module Aims, Learning Outcomes and Indicative Contents | |
|---|---|
| **Module Objectives** | 1. **Understanding the Components of Milk**: Learn the chemical composition of milk, including proteins, fats, sugars, vitamins, and minerals.<br>2. **Understanding Basic Dairy Processing Operations**: Study fundamental processes such as pasteurization, sterilization, fermentation, and manufacturing as applied in dairy product production.<br>3. **Understanding Dairy Preservation Techniques**: Explore preservation methods to extend the shelf life of milk and its products, such as cooling, drying, and thermal treatments.<br>4. **Understanding Milk Quality and Safety**: Learn about health and quality standards of milk and the methods used to test its safety.<br>5. **Understanding Dairy By-products**: Explore various uses of dairy by-products such as whey and yogurt.<br>6. **Developing Sensory and Tasting Skills**: Train students to evaluate flavor and texture in dairy products and enhance their sensory analysis abilities.<br>7. **Acquiring Laboratory Skills in Dairy Analysis**: Learn essential chemical and physical analysis techniques for dairy products in laboratory settings. |
| **Module Learning Outcomes** | 1. **Understanding Milk Components**: The student should be able to identify and describe the main components of milk, such as proteins, fats, sugars, vitamins, and minerals.<br>2. **Mastering Basic Processing Operations**: The student should acquire the ability to explain and apply fundamental dairy processing operations, including pasteurization, sterilization, fermentation, and dairy product preparation.<br>3. **Understanding Dairy Preservation Techniques**: The student should be able to identify and apply various methods for preserving milk and dairy products, such as refrigeration and drying.<br>4. **Assessing Milk Quality and Safety**: The student should be capable of applying health standards to evaluate milk quality and safety using modern laboratory methods.<br>5. **Analyzing Dairy By-products**: The student should gain knowledge on how to utilize dairy by-products in sustainable and efficient ways. |

| | |
|---|---|
| | 6. **Developing Sensory Skills**: The student should be able to evaluate dairy products in terms of flavor and texture using sensory analysis techniques.<br>7. **Conducting Dairy Laboratory Analyses**: The student should acquire practical skills in performing chemical and physical analyses of milk and accurately interpreting the results. |
| **Indicative Contents** | **1. Introduction to Dairy:**<br>• Definition of milk and its importance as a complete nutritional source.<br>• Nutritional value of milk and its role in human nutrition.<br>**2. Chemical Composition of Milk:**<br>• Main components of milk: proteins, fats, lactose, vitamins, and minerals.<br>• Chemical composition of milk and its impact on quality and flavor.<br>**3. Basic Dairy Processing Operations:**<br>• Pasteurization and sterilization: importance and their impact on milk quality and safety.<br>• Fermentation and production of fermented dairy products such as yogurt and (buttermilk).<br>**4. Preservation and Processing Techniques:**<br>• Methods of preserving milk, such as cooling and drying.<br>• Thermal treatments and their effect on shelf life and quality.<br>**5. Milk Quality and Safety:**<br>• Milk quality standards and principles of testing.<br>• Standard milk tests for detecting contamination and spoilage.<br>**6. Dairy By-products:**<br>• Introduction to by-products like whey and buttermilk.<br>• Uses of dairy by-products in the food industry.<br>**7. Sensory Evaluation of Dairy Products:**<br>• Principles of sensory analysis and evaluation of flavor and texture.<br>• Training students in tasting and practical evaluation of dairy products.<br>**8. Laboratory Applications:**<br>• Performing laboratory tests on milk, such as fat, protein, and lactose content analysis.<br>• Studying changes in milk components during processing and storage.<br>**9. Issues and Challenges in the Dairy Industry:**<br>• Discussion of challenges such as biological and chemical contamination.<br>• Reviewing techniques for improving quality and extending shelf life.<br>**10. References and Scientific Resources:** |

| | |
|---|---|
| | • Providing a list of useful books, articles, and references to support students' learning in the field of dairy science. |

| Learning and Teaching Strategies | |
|---|---|
| **Strategies** | **1. Experiential Learning:**<br>• Provide laboratory experiments to analyze milk components such as fat and protein content, helping students apply theoretical knowledge practically.<br>• Conduct experiments on pasteurization, sterilization, and fermentation to develop hands-on understanding of dairy processing techniques.<br>**2. Project-Based Learning:**<br>• Assign student projects focused on the production of dairy products, including product selection, manufacturing methods, and quality evaluation.<br>• Encourage research on the uses of dairy by-products and prepare reports on their nutritional and economic impacts.<br>**3. Collaborative Learning:**<br>• Organize small groups to explore different aspects of the dairy industry, such as sensory evaluation, preservation methods, and processing techniques.<br>• Promote the exchange of ideas and experiences to foster critical thinking and teamwork.<br>**4. Problem-Based Learning:**<br>• Present challenges or issues related to dairy quality or preservation, and facilitate discussion of possible solutions.<br>• Analyze problems such as contamination and industry challenges, training students in analytical thinking to derive solutions.<br>**5. Multimedia-Supported Instruction:**<br>• Use educational videos and simulations to explain various dairy processing operations, such as pasteurization and fermentation.<br>• Show visual demonstrations to clarify complex processes and chemical interactions during production.<br>**6. Self-Directed and Independent Learning:**<br>• Encourage students to conduct independent research using scientific references and specialized articles.<br>• Guide students in preparing summaries or presentations on milk components, preservation methods, and the role of dairy in nutrition.<br>**7. Formative Assessment and Feedback:** |

| | |
|---|---|
| | • Conduct short quizzes after each learning unit to assess student understanding and provide constructive feedback.<br>• Use practical assessments to evaluate students' ability to perform laboratory analyses accurately.<br>**8. Sensory-Based Learning:**<br>• Train students in sensory evaluation of dairy products to develop tasting skills, including assessment of flavor and texture.<br>• Allocate regular tasting sessions to teach students how to conduct sensory evaluations and compare product quality.<br>**9. Academic Advising and Guidance:**<br>• Provide individual support for students needing extra help understanding chemical and technological processes in dairy science.<br>• Offer advisory lectures focused on the importance of dairy products in nutrition and public health. |

## Student Workload (SWL)

| | | | |
|---|---|---|---|
| **Structured SWL (h/sem)** | 78 | **Structured SWL (h/w)** | 5 |
| **Unstructured SWL (h/sem)** | 97 | **Unstructured SWL (h/w)** | 6 |
| **Total SWL (h/sem)** | **175** | | |

## Module Evaluation

| | | Time/Number | Weight (Marks) | Week Due | Relevant Learning Outcome |
|---|---|---|---|---|---|
| **Formative assessment** | **Tests** | 1 | 10% (10) | 8 | LO #1 - #7 |
| | **Projects** | 1 | 10% (10) | 6 | LO #1 -#5 |
| | **Lab** | 1 | 10% (10) | 9 | LO #1 - #8 |
| | **Reports** | 1 | 10% (10) | 15 | LO #1 - #14 |
| **Summative assessment** | **Mid Exam** | 2hr | 10% (10) | 7 | LO #1 - #6 |
| | **Final Exam** | 3hr | 50% (50) | 16 | All |

| | | | |
|---|---|---|---|
| **Total assessment** | 100% (100 Marks) | | |

| Delivery Plan (Weekly Syllabus) | |
|---|---|
| | **Material Covered** |
| **Week 1** | Introduction and Course Overview |
| **Week 2** | Economic Importance of Milk and Dairy Products |
| **Week 3** | Factors Affecting the Quality, Quantity, and Composition of Milk |
| **Week 4** | Nutritional Value of Milk |
| **Week 5** | Components of Milk |
| **Week 6** | Homework Evaluation |
| **Week 7** | Milk Proteins |
| **Week 8** | Water and Milk Fat |
| **Week 9** | Vitamins and Lactose |
| **Week 10** | Enzymes and Minerals |
| **Week 11** | Physical Properties of Milk |
| **Week 12** | Microorganisms Present in Milk |
| **Week 13** | Milk Processing in Dairy Plants |
| **Week 14** | Thermal Treatments of Milk |
| **Week 15** | Introduction and Course Overview |

| Delivery Plan (Weekly Lab. Syllabus) | |
|---|---|
| | **Material Covered** |
| **Week 1** | Examination of Milk Components |
| **Week 2** | Determination of Acidity in Milk |
| **Week 3** | Microscopic Fat Test and Fat Percentage Estimation |
| **Week 4** | Babcock and Gerber Methods |
| **Week 5** | Specific Gravity and Milk Adulteration Detection |

| | |
|---|---|
| **Week 6** | Milk Separation |
| **Week 7** | Cheese Making (Soft, Ricotta, Halloumi, Processed) |
| **Week 8** | Butter Production and Factors Affecting Churning |
| **Week 9** | Dairy and Water-Based Ice Cream Production |
| **Week 10** | Milk Enzymes |
| **Week 11** | Milk Handling in Dairy Plants |
| **Week 12** | Microorganisms in Milk and Dairy Products |
| **Week 13** | Yogurt Production |
| **Week 14** | Butter Manufacturing |
| **Week 15** | Cheese Products |

| **Learning and Teaching Resources** | | |
|---|---|---|
| | **Text** | **Available in the Library?** |
| **Required Texts** | Theory and practical lectures | Yes |
| **Recommended Texts** | Dairy principles Book | Yes |
| **Websites** | | |

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

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

**Module 3**

| Code | Course/Module Title | ECTS | Semester |
|---|---|---|---|
| AGR115 | Agricultural Economics | 4 | 1 |
| **Class (hr/w)** | **Lect/Lab./Prac./Tutor** | **SSWL (hr/sem)** | **USWL (hr/w)** |
| 2 | 0 | 34 | 66 |

**Description**

This course introduces students to the basic concepts and principles of **agricultural economics**, focusing on the application of economic theory to the agriculture sector. It explores the **economic behavior of individuals, firms, and governments** in relation to agricultural production, distribution, and consumption. Topics include **supply and demand in agriculture**, **production economics**, **farm management**, **market structures**, **price analysis**, **agricultural policy**, and **resource use in farming**.
Special emphasis is placed on the role of agriculture in national economic development, food security, and sustainability. Students will learn how to apply economic tools to solve real-world problems in farming, agribusiness, and rural development.

**Module 4**

| Code | Course/Module Title | ECTS | Semester |
|---|---|---|---|
| FSD111 | Organic Chemistry | 7 | 1 |
| **Class (hr/w)** | **Lect/Lab./Prac./Tutor** | **SSWL (hr/sem)** | **USWL (hr/w)** |
| 2 | 3 | 79 | 96 |
| **Description** | | | |
| This course introduces students to the fundamental concepts of **organic chemistry**, which is the study of the structure, properties, composition, reactions, and preparation of compounds containing carbon. Topics include the classification and nomenclature of organic compounds, structure and bonding, functional groups, reaction mechanisms, stereochemistry, and the chemistry of alkanes, alkenes, alkynes, alcohols, acids, esters, amines, and aromatic compounds.<br>The course emphasizes both theoretical understanding and practical applications, especially in fields such as **agriculture**, **pharmaceuticals**, **biochemistry**, and **environmental science**. Laboratory sessions (if applicable) focus on the safe handling, synthesis, and identification of organic compounds using classical and modern techniques. | | | |

# MODULE DESCRIPTION FORM

| Module Information | | | |
|---|---|---|---|
| **Module Title** | Organic chemistry | **Module Delivery** | |
| **Module Type** | Basic | ☒ **Theory**<br>☒ **Lecture**<br>☐ **Lab**<br>☐ **Tutorial**<br>☒ **Practical**<br>☐ **Seminar** | |
| **Module Code** | FSD111 | | |
| **ECTS Credits** | 7 | | |
| **SWL (hr/sem)** | 175 | | |
| **Module Level** | 1 | **Semester of Delivery** | 1 |
| **Administering Department** | Food Science Dept. | **College** | College of Agriculture |
| **Module Leader** | Dr. Muhsin Falih Abdullah | **e-mail** | mufalih@uowasit.edu.iq |
| **Module Leader's Acad. Title** | Lecturer | **Module Leader's Qualification** | Ph.D. |

| | | | |
|---|---|---|---|
| **Module Tutor** | | **e-mail** | |
| **Peer Reviewer Name** | Name | **e-mail** | E-mail |
| **Scientific Committee Approval Date** | 10/03/2025 | **Version Number** | 1.0 |

| **Relation with other Modules** | | | |
|---|---|---|---|
| **Prerequisite module** | None | **Semester** | |
| **Co-requisites module** | None | **Semester** | |

| **Module Aims, Learning Outcomes and Indicative Contents** | |
|---|---|
| **Module Objectives** | 1. To provide students with an awareness of the importance of organic chemistry at the industrial, agricultural, and environmental levels.<br>2. To provide students with a broad and balanced foundation of knowledge and skills in organic chemistry.<br>3. To develop students' ability to apply their chemical knowledge and skills to solve theoretical and scientific problems in chemistry that serve sustainable development goals.<br>4. To develop students' skills of value in their field of specialization.<br>5.Enabling students to apply and utilize their acquired skills to serve the community.<br>6. Introducing and familiarizing students with the most important devices and equipment used in the laboratory.<br>7. Introducing students to the most important requirements for an ideal laboratory.<br>8. Introducing students to safety procedures during laboratory work.<br>9. Teaching students the best diagnostic methods.<br>10. Finding the appropriate and rapid method for diagnosis.<br>11. Enabling the student to perform calculations to determine the concentrations of substances and the percentages of the resulting substances.<br>12. Finding alternatives if the equipment used is unavailable. |
| **Module Learning Outcomes** | Upon completion of the course, the student should be able to:<br>1. Be familiar with the basic concepts of organic chemistry.<br>2. Be able to identify the chemical formulas of hydrocarbon compounds.<br>3. Distinguish between the types of chemical reactions of hydrocarbon compounds.<br>4. Compare the results of hydrocarbon reactions.<br>5. Apply the IUPAC rules for naming hydrocarbon compounds. |

| | |
|---|---|
| **Indicative Contents** | 1.Introduction to Organic Chemistry<br>• Define and study the properties of the carbon atom.<br>• Study the types of reactions of organic compounds (elimination, addition, substitution).<br>2. Saturated Nonaliphatic Hydrocarbons (Alkanes)<br>• Define, name, and study their physicochemical properties.<br>• Study methods for their laboratory preparation.<br>3. Unsaturated Hydrocarbons (Alkenes)<br>• Define them, understand their general formula, naming methods (systematic), and study their properties.<br>• How to prepare ethylene gas in the laboratory.<br>4. Unsaturated Hydrocarbons (Alkynes)<br>• Define them, understand their general formula, naming methods (systematic), and study their properties.<br>• How to prepare acetylene gas in the laboratory.<br>5. Aldehydes and Ketones<br>• Read and understand their structures, know the difference between them, and name them (systematic nomenclature).<br>• Understand how some aldehydes and ketones are prepared and study their various properties.<br>6. Aromatic Compounds<br>• Know their characteristics and systematic nomenclature.<br>• Study their properties and methods of preparing benzene.<br>7. Phenols<br>• Understand their importance, study their properties, and naming methods.<br>• Understand how phenol is prepared in the laboratory.<br>8. Alcohols<br>Define them, study their types, and systematically name them.<br>• Understand the methods for preparing primary and secondary alcohols and study their most important properties.<br>9. Carboxylic Acids<br>• Study its importance and chemical composition.<br>• Methods of preparing propionic acid and studying its properties.<br>10. Ethers.<br>11. Midterm and final exams.<br>• General review of basic concepts.<br>• Practical applications and performance evaluation tests. |

## Learning and Teaching Strategies

| | |
|---|---|
| **Strategies** | 1. Interactive Theoretical Lectures: Present basic information in an organized manner using educational tools such as presentations and diagrams. Use discussion and dialogue to stimulate critical thinking among students.<br>2. Practical Applications and Field Experiments: Conduct practical laboratory experiments to enhance understanding of theoretical concepts. Train students on the use of laboratory tools and supplies, such as glassware, chemicals, and laboratory equipment, and teach them how to handle them.<br>3. Problem-Based Learning (PBL): Present various organic solutions and ask students to identify the type of these solutions using experiments and the scientific skills provided.<br>4. Demonstrations and Simulations: Use video projectors to demonstrate how to conduct practical experiments in the preparation and study of some organic compounds. Implement virtual experiments to reduce risks and improve understanding of complex processes.<br>5. Cooperative Learning and Teamwork: Divide students into working groups to complete small engineering projects. Encourage the exchange of knowledge and experiences among students through collaborative exercises and experiments.<br>6. Self-Assessment and Continuous Feedback: Encourage students to evaluate their performance through short tests and practical reports. Provide continuous feedback to improve understanding and application.<br>7. Using Technology in Education: Employing e-learning techniques such as explanatory videos and interactive digital content. Leveraging smart systems to measure performance and provide academic recommendations.<br>8. Field Visits to Industrial Facilities: Organizing field trips to factories and engineering laboratories to observe practical applications of the concepts studied. Enhancing students' understanding of the practical environment and linking theoretical information to practical application. |

| Student Workload (SWL) | | | |
|---|---|---|---|
| **Structured SWL (h/sem)** | 78 | **Structured SWL (h/w)** | 5 |
| **Unstructured SWL (h/sem)** | 97 | **Unstructured SWL (h/w)** | 6 |
| **Total SWL (h/sem)** | **175** | | |

## Module Evaluation

| | | Time/Number | Weight (Marks) | Week Due | Relevant Learning Outcome |
|---|---|---|---|---|---|
| Formative assessment | Tests | 1 | 10% (10) | 8 | LO #1 - #7 |
| | Projects | 1 | 10% (10) | 6 | LO #1 -#5 |
| | Lab | 1 | 10% (10) | 9 | LO #1 - #8 |
| | Reports | 1 | 10% (10) | 15 | LO #1 - #14 |
| Summative assessment | Mid Exam | 2hr | 10% (10) | 7 | LO #1 - #6 |
| | Final Exam | 3hr | 50% (50) | 16 | All |
| Total assessment | | | 100% (100 Marks) | | |

## Delivery Plan (Weekly Syllabus)

| | Material Covered |
|---|---|
| Week 1 | definition of organic chemistry, its importance, and knowledge of the properties of the carbon atom |
| Week 2 | Saturated hydrocarbons (alkanes): definition, preparation, properties, and reactions. |
| Week 3 | Alkenes: definition, preparation, properties, and reactions. |
| Week 4 | Alkynes: definition, preparation, properties, and reactions. |
| Week 5 | Aldehydes and ketones: definition, importance, methods of preparation, and physical and chemical properties. |
| Week 6 | Properties and nomenclature of aromatic compounds |
| Week 7 | Preparation and reactions of aromatic compounds |
| Week 8 | Properties and nomenclature of alcohols and phenols |
| Week 9 | Preparation and Reactions Alcohols and Phenols |
| Week 10 | Ethers: Properties, Preparation, and Reactions |
| Week 11 | Preparation, Naming, and Reactions Aldehydes |
| Week 12 | Preparation, Naming, and Reactions Ketones |
| Week 13 | Properties and Naming of Carboxylic Acids |
| Week 14 | Reactions and Preparation Carboxylic Acids |
| Week 15 | Amines: Naming, Preparation Methods, and Properties |

## Delivery Plan (Weekly Lab. Syllabus)

| | Material Covered |
|---|---|
| Week 1 | Determine the melting point |

| | |
|---|---|
| **Week 2** | Determine the boiling point |
| **Week 3** | Purify organic compounds Liquid by simple distillation |
| **Week 4** | Recrystallization + Scientific visit Study the sublimation |
| **Week 5** | Solvent extraction |
| **Week 6** | Preparation of methane gas |
| **Week 7** | Preparation of butene Preparation of acetylene gas |
| **Week 8** | Study the properties of alcohols |
| **Week 9** | Reaction and detection of aldehydes and ketones |
| **Week 10** | Preparation of acetone |
| **Week 11** | Preparation of propanoic acid |
| **Week 12** | Preparation of propane aldehyde |
| **Week 13** | phenomenon of organic compounds |
| **Week 14** | Practical Application of of define different organics solutions |
| **Week 15** | Report Preparation |

| **Learning and Teaching Resources** | | |
|---|---|---|
| | **Text** | **Available in the Library?** |
| **Required Texts** | Theory and practical lectures | Yes |
| **Recommended Texts** | Principle of organic chemistry | Yes |

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

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

**Module 5**

| Code | Course/Module Title | ECTS | Semester |
|---|---|---|---|
| WOU4 | Computer Programing | 3 | 1 |
| **Class (hr/w)** | **Lect/Lab./Prac./Tutor** | **SSWL (hr/sem)** | **USWL (hr/w)** |
| 0 | 3 | 50 | 25 |
| **Description** | | | |
| This course introduces students to the **fundamentals of computer programming**, with a focus on developing skills using a program such as **Office**. It covers basic concepts including **data types**, **variables**, **input/output operations**, **control structures** (such as loops and conditionals), **functions**, **arrays**, and **simple data structures**. Students will learn to design, write, test, and debug computer programs.<br>The course aims to build computational thinking skills and demonstrate how programming can be used to solve real-world problems, including applications in **agriculture**, **science**, **data analysis**, and **automation**. | | | |

# MODULE DESCRIPTION FORM

| Module Information | | | | |
|---|---|---|---|---|
| **Module Title** | Computer programming 1 | | **Module Delivery** | |
| **Module Type** | B | | ☒ **Theory**<br>☒ **Lecture**<br>☒ **Lab**<br>☐ **Tutorial**<br>☐ **Practical**<br>☐ **Seminar** | |
| **Module Code** | WOU4 | | | |
| **ECTS Credits** | 3 | | | |
| **SWL (hr/sem)** | 75 | | | |
| **Module Level** | 1 | **Semester of Delivery** | 1 | |
| **Administering Department** | Food Science | **College** | College of Agriculture | |
| **Module Leader** | Hussien Njem Hameed | **e-mail** | husain@uowasit.edu.iq | |

| | | | |
|---|---|---|---|
| **Module Leader's Acad. Title** | Assistant Lecturer | **Module Leader's Qualification** | M.Sc. |
| **Module Tutor** | Hussien Njem Hameed | **e-mail** | husain@uowasit.edu.iq |
| **Peer Reviewer Name** | | **e-mail** | |
| **Scientific Committee Approval Date** | 2024-12-12 | **Version Number** | 1.0 |

| **Relation with other Modules** | | | |
|---|---|---|---|
| **Prerequisite module** | None | **Semester** | |
| **Co-requisites module** | None | **Semester** | |

| **Module Aims, Learning Outcomes and Indicative Contents** | |
|---|---|
| **Module Objectives** | Identify the parts of the computer and the function of each part, and identify computer technologies, programs, and applications necessary to work on it and complete work. |
| **Module Learning Outcomes** | Delivering theoretical lectures to deliver information to students through the following methods: (whiteboard, data projector, interactive lecture, educational video presentation).<br>Implementing practical lectures through observations and interaction with field or laboratory aspects. |
| **Indicative Contents** | Conducting daily quick exams.<br>Evaluating students through the submission of academic reports and oral presentations.<br>Conducting monthly exams.<br>Conducting practical exams.<br>Conducting final exams. |

| **Learning and Teaching Strategies**<br>استراتيجيات التعلم والتعليم | |
|---|---|
| **Strategies** | Delivering theoretical lectures to deliver information to students through the following methods: (whiteboard, data projector, interactive lecture, educational video presentation). |

| | |
|---|---|
| | Implementing practical lectures through observations and interaction with field or laboratory aspects. |

| Student Workload (SWL) | | | |
|---|---|---|---|
| **Structured SWL (h/sem)** | 45 | **Structured SWL (h/w)** | 15 |
| **Unstructured SWL (h/sem)** | 5 | **Unstructured SWL (h/w)** | 10 |
| **Total SWL (h/sem)** | **75** | | |

## Module Evaluation

| | | Time/Number | Weight (Marks) | Week Due | Relevant Learning Outcome |
|---|---|---|---|---|---|
| **Formative assessment** | **Assignments** | 1 | 10% (10) | Continuous | 1,2,3,4,5,6 |
| | **Projects / Lab.** | 15 | 10% (10) | Continuous | 1,2,3,4,5,6 |
| | **Report** | 1 | 15% (15) | Continuous | 1,2,3,4,5,6،7,8,9,10,11, 12,13,14, |
| | **Seminars** | 1 | 5% (5) | Continuous | 1,2,3,4,5,6 |
| **Summative assessment** | **Midterm Exam** | 2hr | 10% (10) | 14 | 1,2,3,4,5,6 |
| | **Final Exam** | 3hr | 50% (50) | 16 | All |
| **Total assessment** | | | 100% (100 Marks) | | |

## Delivery Plan (Weekly Lab. Syllabus)

| | **Material Covered** |
|---|---|
| **Week 1** | What is a computer? / Computer features / Computer components / Types of computers |
| **Week 2** | Main parts of a personal computer |
| **Week 3** | Operating systems and their types |
| **Week 4** | Information Network |
| **Week 5** | Telephone networks and the computer world |

| | |
|---|---|
| **Week 6** | Internet |
| **Week 7** | Computers in our daily life |
| **Week 8** | Insurance, Copyright, and Law |
| **Week 9** | Dealing with menus and icons |
| **Week 10** | Desktop Quick Menu |
| **Week 11** | Windows Explorer |
| **Week 12** | Using some add-on programs with Windows |
| **Week 13** | How to improve the appearance of screen lines when using flat panel LCD displays or laptops |
| **Week 13** | What is the Firewall available in Windows XP and how do I activate it? |
| **Week 14** | Dynamic Disk |

| **Learning and Teaching Resources** | | |
|---|---|---|
| | **Text** | **Available in the Library?** |
| **Required Texts** | Required textbooks: Computer Science textbook<br>Main references (sources): Office software user guide | Yes |
| **Recommended Texts** | Recommended books and references (scientific journals, reports). | Yes |
| **Websites** | No | |

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

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

**Module 6**

| Code | Course/Module Title | ECTS | Semester |
|---|---|---|---|
| WU04 | Democracy and human rights | 2 | 1 |
| **Class (hr/w)** | **Lect/Lab./Prac./Tutor** | **SSWL (hr/sem)** | **USWL (hr/w)** |
| 2 | 0 | 33 | 17 |
| **Description** | | | |
| This course introduces students to the core concepts, principles, and practices of **democracy and human rights** at the national and international levels. It explores the **development of democratic systems**, the **rule of law**, **citizenship**, **civil liberties**, **political participation**, and the **protection of individual and collective rights**. Students will study major human rights declarations and conventions, such as the **Universal Declaration of Human Rights**, and the roles of international organizations in promoting justice and equality.<br>Through discussions, case studies, and interactive activities, the course aims to strengthen students' awareness of their **rights and responsibilities** as citizens and to encourage **active participation** in democratic processes. | | | |

# MODULE DESCRIPTION FORM

| Module Information | | | | | |
|---|---|---|---|---|---|
| **Module Title** | Democracy and human rights | | | **Module Delivery** | |
| **Module Type** | S | | | ☒ **Theory**<br>☒ **Lecture**<br>☐ **Lab**<br>☐ **Tutorial**<br>☒ **Practical**<br>☐ **Seminar** | |
| **Module Code** | WU04 | | | | |
| **ECTS Credits** | 2 | | | | |
| **SWL (hr/sem)** | 50 | | | | |
| **Module Level** | 1 | | **Semester of Delivery** | 1 | |
| **Administering Department** | Food Science Dept. | | **College** | College of Agriculture | |
| **Module Leader** | Dr. Amir Kareem Hadhal | | **e-mail** | | |
| **Module Leader's Acad. Title** | Lecturer | | **Module Leader's Qualification** | Ph.D. | |
| **Module Tutor** | | | **e-mail** | | |
| **Peer Reviewer Name** | Name | | **e-mail** | E-mail | |
| **Scientific Committee Approval Date** | 10/03/2025 | | **Version Number** | 1.0 | |

| Relation with other Modules | | | |
|---|---|---|---|
| **Prerequisite module** | None | **Semester** | |
| **Co-requisites module** | None | **Semester** | |

| Module Aims, Learning Outcomes and Indicative Contents | |
|---|---|
| | 1. **Introduce students to the concept of democracy**, its historical development, various forms, and mechanisms of implementation in modern political systems.<br>2. **Enhance students' awareness of human rights**, including their definition, types (civil, political, economic, social, cultural), and the international and local sources that protect these rights.<br>3. **Promote a culture of tolerance and active citizenship** among students, and encourage respect for others' opinions and political and cultural pluralism. |

| | |
|---|---|
| **Module Objectives** | 4. **Enable students to distinguish between democratic and non-democratic systems**, analyze their characteristics, and assess their impact on societies.<br>5. **Highlight the role of national and international institutions** in the protection and promotion of human rights.<br>6. **Introduce students to international human rights declarations and conventions**, such as the Universal Declaration of Human Rights and the two International Covenants.<br>7. **Encourage students to participate in public life** and practice their political and civil rights with awareness and responsibility.<br>8. **Develop students' critical thinking** regarding contemporary issues related to freedom, justice, equality, and the rights of vulnerable and marginalized groups. |
| **Module Learning Outcomes** | 1. **Explain the basic concepts of democracy and human rights**, and distinguish them from similar or overlapping concepts.<br>2. **Analyze the development of democratic thought throughout history**, and identify its forms and contemporary applications.<br>3. **Identify the types of human rights** (civil, political, economic, social, cultural) and their international and local legal sources.<br>4. **Evaluate the role of national and international organizations** in the protection and promotion of human rights, such as the United Nations, international courts, and civil society organizations.<br>5. **Compare democratic and non-democratic systems** in terms of structure, function, and their impact on public freedoms.<br>6. **Apply democratic principles in university and community life**, through respect for others' opinions, teamwork, and active participation.<br>7. **Recognize human rights violations** in various contexts and be able to propose humanitarian and legal solutions or alternatives.<br>8. **Demonstrate ethical and humanitarian commitment** to issues related to equality, justice, and the rights of vulnerable and marginalized groups in society. |
| **Indicative Contents** | 1. **Introduction to Democracy and Human Rights**<br>o Basic concepts<br>o Importance and objectives<br>2. **Origin and Development of Democracy**<br>o Historical roots<br>o Contemporary models of democracy<br>3. **Forms of Democracy**<br>o Direct democracy<br>o Representative democracy<br>4. **Human Rights: Concept and Characteristics**<br>o Classifications (civil, political, economic...) |

| | |
|---|---|
| | ○ Fundamental principles (dignity, equality, freedom)<br>5. **International Human Rights Instruments**<br>○ The Universal Declaration of Human Rights<br>○ The International Covenant on Civil and Political Rights<br>○ The International Covenant on Economic, Social and Cultural Rights<br>6. **Mechanisms for the Protection of Human Rights**<br>○ Nationally (constitution, judiciary)<br>○ Internationally (United Nations, international organizations)<br>7. **Democracy and Human Rights in the Arab Context**<br>○ Challenges and opportunities<br>○ Positive and negative examples<br>8. **The Role of Citizens in a Democratic System**<br>○ Political participation<br>○ Social responsibility<br>9. **Contemporary Human Rights Issues**<br>○ Women's rights<br>○ Children's rights<br>○ Freedom of expression<br>10. **Conclusion and General Evaluation**<br>○ Comprehensive review<br>○ Open discussions and practical applications |

| Learning and Teaching Strategies | |
|---|---|
| **Strategies** | • **Interactive lectures**: To present basic concepts and theories in a simplified and clear manner.<br>• **Brainstorming and classroom discussions**: To stimulate critical thinking and promote the exchange of ideas.<br>• **Case studies**: To analyze real-life situations related to human rights and democracy.<br>• **Group work**: To develop a spirit of cooperation and dialogue among students.<br>• **Student presentations**: To enhance communication and research skills.<br>• **Field visits or meetings with human rights organizations (if possible)**: To connect theory with practical application.<br>• **Use of multimedia**: Such as videos and documents to showcase examples of the struggle for democracy and human rights.<br>• **Short reports and research papers**: To encourage self-learning and deepen understanding. |

## Student Workload (SWL)

| | | | |
|---|---|---|---|
| **Structured SWL (h/sem)** | 33 | **Structured SWL (h/w)** | 3 |
| **Unstructured SWL (h/sem)** | 17 | **Unstructured SWL (h/w)** | 1 |
| **Total SWL (h/sem)** | **50** | | |

## Module Evaluation

| | | Time/Number | Weight (Marks) | Week Due | Relevant Learning Outcome |
|---|---|---|---|---|---|
| **Formative assessment** | **Tests** | 1 | 10% (10) | 7 | LO #1 - #6 |
| | **Projects** | 1 | 10% (10) | 15 | LO #1 -#15 |
| | **Lab** | 1 | 10% (10) | 8 | LO #1 - #7 |
| | **Reports** | 1 | 10% (10) | 15 | LO #1 - #14 |
| **Summative assessment** | **Mid Exam** | 2hr | 10% (10) | 7 | LO #1 - #6 |
| | **Final Exam** | 3hr | 50% (50) | 16 | All |
| **Total assessment** | | | 100% (100 Marks) | | |

## Delivery Plan (Weekly Syllabus)

| | Material Covered |
|---|---|
| **Week 1** | Definition of Human Rights |
| **Week 2** | Origin and Development of the Concept of Human Rights |
| **Week 3** | Overview of Human Rights in Ancient Civilizations (Mesopotamia, Nile Valley) |
| **Week 4** | Human Rights in Divine Religions |
| **Week 5** | Human Rights and Their Relation to Other Variables |
| **Week 6** | Relationship Between Rights and Law |
| **Week 7** | Relationship Between Rights and Duties |
| **Week 8** | Key Fundamental Human Rights |
| **Week 9** | Impact of Globalization on Human Rights |
| **Week 10** | Major International Declarations and Conventions on Human Rights |
| **Week 11** | Universal Declaration of Human Rights (1948) |

| | |
|---|---|
| **Week 12** | Cairo Declaration on Human Rights in Islam |
| **Week 13** | Human Rights in International Charters and Laws |
| **Week 14** | International Covenant on Civil and Political Rights |
| **Week 15** | Financial and Administrative Corruption |

| **Learning and Teaching Resources** | | |
|---|---|---|
| | **Text** | **Available in the Library?** |
| **Required Texts** | Theory and practical lectures | Yes |
| **Recommended Texts** | Human rights Book | Yes |
| **Websites** | | |

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

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

**Module 7**

| Code | Course/Module Title | ECTS | Semester |
|---|---|---|---|
| AGR123 | Machines and Workshops | 7 | 2 |
| **Class (hr/w)** | **Lect/Lab./Prac./Tutor** | **SSWL (hr/sem)** | **USWL (hr/w)** |
| 2 | 3 | 78 | 97 |
| **Description** | | | |
| This course introduces students to the **fundamentals of machines and engineering workshop practices**, with a focus on the operation, maintenance, and practical use of **agricultural and mechanical machinery**. It covers basic concepts of **mechanical systems**, **tools**, **machine components**, and **workshop safety procedures**. Students will gain hands-on experience in the **use of lathes, welding tools, cutting tools, drilling machines**, and other common workshop equipment.<br>The course emphasizes the role of machines in agricultural productivity and technical industries, teaching students how to operate, maintain, and troubleshoot simple machines and tools used in various fields. | | | |

# MODULE DESCRIPTION FORM

| Module Information | | | | |
|---|---|---|---|---|
| **Module Title** | Machines and workshops | | **Module Delivery** | |
| **Module Type** | Basic | | ☒ **Theory**<br>☒ **Lecture**<br>☐ **Lab**<br>☐ **Tutorial**<br>☒ **Practical**<br>☐ **Seminar** | |
| **Module Code** | AGR123 | | | |
| **ECTS Credits** | 7 | | | |
| **SWL (hr/sem)** | 175 | | | |
| **Module Level** | 1 | | **Semester of Delivery** | 2 |
| **Administering Department** | Food Science Dept. | | **College** | College of Agriculture |
| **Module Leader** | Dr. Hyder Najy Al Zobaidy | | **e-mail** | hynajy@uowasit.edu.iq |
| **Module Leader's Acad. Title** | Assist. Professor | | **Module Leader's Qualification** | Ph.D. |
| **Module Tutor** | | | **e-mail** | |
| **Peer Reviewer Name** | Name | | **e-mail** | E-mail |

| Scientific Committee Approval Date | 10/03/2025 | Version Number | 1.0 |
|---|---|---|---|

| Relation with other Modules | | | |
|---|---|---|---|
| **Prerequisite module** | None | **Semester** | |
| **Co-requisites module** | None | **Semester** | |

| Module Aims, Learning Outcomes and Indicative Contents | |
|---|---|
| **Module Objectives** | 1. **Understanding Motion and Its Types:** Comprehending the basics of mechanical motion, its various types, and their impact on the performance of engineering equipment.<br>2. **Power Transmission Methods:** Studying methods of mechanical and electrical power transmission in engineering systems, such as belts, chains, and gears.<br>3. **Pump Transmission Ratio and Operating Principle:** Analyzing how power is transmitted in pumps and examining the factors affecting their efficiency.<br>4. **Pump Curves:** Learning how to read and analyze pump performance curves to select the appropriate type according to operational requirements.<br>5. **Water Installation Symbols:** Understanding the symbols used in engineering drawings for water supply and drainage systems.<br>6. **Main Electricity and Electrical Installations:** Understanding the basic principles of electrical systems in industrial and agricultural facilities, including distribution and protection.<br>7. **Electric Motor:** Studying the working principles of electric motors, their different types, and their applications in agriculture and industry.<br>8. **Dairy Plant Ventilation:** Learning about ventilation systems used in dairy processing plants and their importance in maintaining product quality.<br>9. **Storage of Agricultural Products:** Studying various storage methods for agricultural products and the effect of environmental factors on their quality.<br>10. **Cooling and Freezing Equipment:** Understanding the equipment used in cooling and freezing processes and their role in product preservation.<br>11. **Equipment Testing Methods:** Learning different methods for testing engineering devices and ensuring their efficient performance.<br>12. **Types of Welding:** Understanding various welding techniques, such as electric arc and gas welding, and their industrial applications.<br>13. **Midterm Exam:** Preparing students to successfully complete examinations through reviewing core concepts and practical applications. |

| | |
|---|---|
| **Module Learning Outcomes** | 1. **Understanding the fundamental principles of motion and power transmission systems**, and the ability to analyze their impact on the performance of engineering equipment.<br>2. **Ability to calculate transmission ratios in pumps**, understand their operating principles, and analyze their curves to select the appropriate pump for each application.<br>3. **Proficiency in reading and interpreting water and electrical installation symbols** used in engineering drawings for industrial and agricultural facilities.<br>4. **Familiarity with ventilation systems in dairy plants** and their impact on production quality, along with studying techniques for agricultural product storage, cooling, and freezing.<br>5. **Acquisition of practical skills in testing engineering devices and equipment**, ensuring their operational efficiency in accordance with quality and maintenance standards.<br>6. **Understanding various welding types and their applications**, with the ability to select the appropriate method according to engineering work requirements. |
| **Indicative Contents** | **1. Introduction to Motion and Its Types**<br>• Definition of motion and its basic types (linear, rotational, oscillatory).<br>• Applications of motion in engineering and agricultural systems.<br>**2. Power Transmission Methods**<br>• Belts, chains, gears, and drive shafts.<br>• Advantages, disadvantages, and various applications of each method.<br>**3. Pump Transmission Ratio and Operating Principle**<br>• Concept of transmission ratio and its effect on pump efficiency.<br>• Components and types of pumps (centrifugal, gear, piston).<br>**4. Pump Curves and Their Analysis**<br>• How to read performance curves (flow rate, pressure, efficiency).<br>• Selecting the appropriate pump based on operational requirements.<br>**5. Water and Electrical Installation Symbols**<br>• Reading and understanding engineering diagrams for water supply and drainage.<br>• Recognizing electrical symbols in industrial and agricultural installations.<br>**6. Main Electricity and Electrical Installation**<br>• Components of the main electrical network.<br>• Principles of electrical installation in workshops and processing facilities.<br>**7. Electric Motors**<br>• Types of electric motors (single-phase and three-phase). |

| | |
|---|---|
| | • Operating principles and various applications of motors.<br>**8. Dairy Plant Ventilation**<br>• Importance of ventilation in dairy plants and its impact on production quality.<br>• Types of ventilation systems used in the food industry.<br>**9. Storage of Agricultural Products**<br>• Various storage methods and the effect of environmental factors on quality.<br>• Preservation techniques for fresh, dried, and frozen products.<br>**10. Cooling and Freezing Equipment**<br>• Components and operating principles of cooling and freezing systems.<br>• Applications of refrigeration in food and agricultural industries.<br>**11. Equipment and Device Testing Methods**<br>• Periodic inspections to ensure equipment safety.<br>• Using mechanical and electrical devices for testing.<br>**12. Types and Techniques of Welding**<br>• Electric arc, gas, friction, and laser welding.<br>• Welding applications in engineering and industrial workshops.<br>**13. Midterm and Final Exams**<br>• General review of basic concepts.<br>• Practical applications and performance evaluation tests. |

| Learning and Teaching Strategies | |
|---|---|
| | **1. Interactive Theoretical Lectures**<br>• Presenting foundational information in an organized manner using educational tools such as presentations and illustrative diagrams.<br>• Using discussion and dialogue to stimulate students' critical thinking.<br>**2. Practical Applications and Field Experiments**<br>• Conducting hands-on experiments in engineering workshops to reinforce theoretical concepts.<br>• Training students on the use of engineering tools and equipment such as pumps, ventilation systems, and electrical installations.<br>**3. Problem-Based Learning (PBL)**<br>• Presenting real-world engineering problems that require analysis and practical solutions from students.<br>• Enhancing creative thinking and decision-making skills. |

| | |
|---|---|
| **Strategies** | **4. Demonstrations and Simulations**<br>• Using engineering simulation programs to illustrate the functioning of systems like power transmission, pumps, and electrical systems.<br>• Conducting virtual experiments to reduce risks and improve understanding of complex operations.<br>**5. Collaborative Learning and Teamwork**<br>• Dividing students into working groups to execute small engineering projects.<br>• Encouraging knowledge and experience exchange among students through collaborative problem-solving and experiments.<br>**6. Self-Assessment and Continuous Feedback**<br>• Encouraging students to evaluate their performance through quizzes and practical reports.<br>• Providing continuous feedback to improve understanding and application.<br>**7. Use of Technology in Education**<br>• Utilizing e-learning technologies such as instructional videos and interactive digital content.<br>• Taking advantage of smart systems to measure performance and provide academic recommendations.<br>**8. Field Visits to Industrial Facilities**<br>• Organizing field trips to factories and engineering plants to observe practical applications of studied concepts.<br>• Enhancing students' understanding of the work environment and connecting theoretical knowledge to real-world practice. |

## Student Workload (SWL)

| | | | |
|---|---|---|---|
| **Structured SWL (h/sem)** | 78 | **Structured SWL (h/w)** | 5 |
| **Unstructured SWL (h/sem)** | 97 | **Unstructured SWL (h/w)** | 6 |
| **Total SWL (h/sem)** | **175** | | |

## Module Evaluation

| | | Time/Number | Weight (Marks) | Week Due | Relevant Learning Outcome |
|---|---|---|---|---|---|
| | **Tests** | 1 | 10% (10) | 8 | LO #1 - #7 |

| | | | | | |
|---|---|---|---|---|---|
| **Formative assessment** | **Projects** | 1 | 10% (10) | 6 | LO #1 -#5 |
| | **Lab** | 1 | 10% (10) | 9 | LO #1 - #8 |
| | **Reports** | 1 | 10% (10) | 15 | LO #1 - #14 |
| **Summative assessment** | **Mid Exam** | 2hr | 10% (10) | 7 | LO #1 - #6 |
| | **Final Exam** | 3hr | 50% (50) | 16 | All |
| **Total assessment** | | | 100% (100 Marks) | | |

## Delivery Plan (Weekly Syllabus)

| | **Material Covered** |
|---|---|
| **Week 1** | Motion and Its Types |
| **Week 2** | Power Transmission Methods |
| **Week 3** | Pump Transmission Ratio and Operating Principle |
| **Week 4** | Pump Performance Curves |
| **Week 5** | Water Installation Symbols |
| **Week 6** | Midterm Exam |
| **Week 7** | Main Electricity |
| **Week 8** | Electric Motor |
| **Week 9** | Electrical Installation |
| **Week 10** | Dairy Plant Ventilation |
| **Week 11** | Storage of Agricultural Products |
| **Week 12** | Cooling and Freezing Equipment |
| **Week 13** | Equipment Testing Methods |
| **Week 14** | Types of Welding |
| **Week 15** | Motion and Its Types |

## Delivery Plan (Weekly Lab. Syllabus)

| | **Material Covered** |
|---|---|
| **Week 1** | Transmission Devices |
| **Week 2** | Mathematical Applications |
| **Week 3** | Types of Pumps |

| | |
|---|---|
| **Week 4** | Types of Pumps |
| **Week 5** | Electrical Circuit – General Applications |
| **Week 6** | Tools and Materials Used in Water Installations |
| **Week 7** | Electrical Circuit |
| **Week 8** | General Applications |
| **Week 9** | Electrical Power Transmission |
| **Week 10** | Air Distribution Systems |
| **Week 11** | How to Create Grounding – Applications |
| **Week 12** | Cooling Devices |
| **Week 13** | Discharging, Charging, and Repairing Cooling Equipment |
| **Week 14** | Practical Application of Welding and Cooling Equipment Repair |
| **Week 15** | Report Preparation |

| **Learning and Teaching Resources** | | |
|---|---|---|
| | **Text** | **Available in the Library?** |
| **Required Texts** | Theory and practical lectures | Yes |
| **Recommended Texts** | workshop processes practices and materials 5th ed<br>Bruce J. Black | No |
| **Websites** | https://ca.tindomachine.com/info/requirements-for-food-processing-workshop-45757974.html | |

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

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

**Module 8**

| Code | Course/Module Title | ECTS | Semester |
|---|---|---|---|
| AGR1211 | Microbiology | 7 | 2 |
| **Class (hr/w)** | **Lect/Lab./Prac./Tutor** | **SSWL (hr/sem)** | **USWL (hr/w)** |
| 2 | 3 | 78 | 97 |

**Description**

This course provides an introduction to the **science of microbiology**, focusing on the structure, classification, physiology, and functions of microorganisms, including **bacteria, viruses, fungi, protozoa**, and **algae**. It explores their roles in **health, agriculture, industry, and the environment**. Topics include microbial growth, nutrition, reproduction, metabolism, genetic variation, and methods of microbial control.

Special attention is given to **beneficial and harmful microorganisms** in agriculture, food production, and animal health. The laboratory component involves techniques such as **microscopy, staining, culturing, isolation**, and **identification** of microbes.

# MODULE DESCRIPTION FORM

| Module Information | | | | | |
|---|---|---|---|---|---|
| **Module Title** | Microbiology | | | **Module Delivery** | |
| **Module Type** | Basic | | | ☒ **Theory**<br>☒ **Lecture**<br>☒ **Lab**<br>☐ **Tutorial**<br>☐ **Practical**<br>☐ **Seminar** | |
| **Module Code** | AGR1211 | | | | |
| **ECTS Credits** | 7 | | | | |
| **SWL (hr/sem)** | 175 | | | | |
| **Module Level** | 1 | | **Semester of Delivery** | 2 | |
| **Administering Department** | Food Science Dept. | | **College** | College of Agriculture | |
| **Module Leader** | Dr. Abdulaal Farhan | | **e-mail** | abfarhan@uowasit.ed.iq | |
| **Module Leader's Acad. Title** | Assist. Professor | | **Module Leader's Qualification** | Ph.D. | |
| **Module Tutor** | | | **e-mail** | | |
| **Peer Reviewer Name** | Name | | **e-mail** | E-mail | |
| **Scientific Committee Approval Date** | 10/03/2025 | | **Version Number** | 1.0 | |

| Relation with other Modules | | | |
|---|---|---|---|
| **Prerequisite module** | None | **Semester** | |
| **Co-requisites module** | None | **Semester** | |

| Module Aims, Learning Outcomes and Indicative Contents | |
|---|---|
| | 14. Understanding the fundamentals and importance of studying microbiology for food science students.<br>15. Identifying the different branches of microbiology.<br>16. Studying the microorganisms associated with each branch of microbiology.<br>17. Recognizing the importance of beneficial microorganisms used in various applied fields.<br>18. Studying the relationships among microorganisms and the factors affecting them. |

| | |
|---|---|
| **Module Objectives** | 19. Understanding proper sterilization techniques used to prevent contamination by microorganisms.<br>20. Knowing the relationship between microorganisms and various food sciences.<br>21. Learning how to conduct and manage experiments in microbiology laboratories.<br>22. Would you like this formatted as part of a course description or syllabus? |
| **Module Learning Outcomes** | 1. Understanding the cellular structure of microorganisms and the function of each component in the microbial cell.<br>2. Understanding the methods of microbial reproduction and the factors that influence them.<br>3. Applying proper scientific procedures in microbiology laboratories so that students gain basic knowledge of how to handle microorganisms at the laboratory level.<br>4. Identifying how beneficial microorganisms can be utilized in the field of food science.<br>5. Learning the methods for detecting and identifying microorganisms.<br>6. Understanding how to benefit from bioactive compounds derived from beneficial microorganisms in producing high-quality products according to the practical application of each compound.<br>7. Enhancing the knowledge level of food science students in the field of microbiology.<br>8. Recognizing the role of food science students in advancing microbiological sciences. |
| **Indicative Contents** | 1. **Microbiology Definition and Development Stages:** Definition of microbiology, Branches of microbiology, A summary of the development of microbiology, Scientists who contributed to the development of microbiology, The importance of studying microbiology.<br>2. **Bacteria:** Definition of bacteria, Cellular structures of the bacterial cell, Chemical composition of each structure and its significance to bacteria.<br>3. **Bacteria (Continued):** Continuation of the cellular structures of the bacterial cell.<br>4. **Bacterial Spores:** Definition of spores, Causes and stages of spore formation, Types and structure of bacterial spores.<br>5. **Bacterial Nomenclature and Shapes:** The scientific system used for naming bacteria. Examples of bacterial nomenclature. The main shapes of bacteria.<br>6. **Nutritional Requirements for Bacterial Growth:** The ability of bacterial cells to utilize and benefit from nutrients. Nutrients that must be present in bacterial growth media.<br>7. **Factors Affecting Growth:** Physical factors. Chemical factors.<br>8. **Stages of Bacterial Growth:** The stages the bacterial cell goes through when placed in a growth medium. |

| | |
|---|---|
| | 9. **Molds and Yeasts:** Definition of molds and yeasts. The main groups of yeasts and molds, with examples of each.<br>10. **Molds and Yeasts (Continued):** Methods of reproduction in molds and yeasts. Factors affecting their growth. The importance of studying molds and yeasts.<br>11. **Algae:** Definition of algae. Algal reproduction. Algal movement. Types of algae. Factors affecting algae. The importance of studying algae.<br>12. **Viruses:** Definition of viruses. Types of viruses.<br>13. **Relationship Between Microorganisms and Food.**<br>14. **Effect of Various Substances on Microbial Growth.** |

| Learning and Teaching Strategies | |
|---|---|
| **Strategies** | 1. **Theory-Based Learning:**<br>o Utilizing scientific and cognitive principles to understand the theoretical aspects of microbiology correctly.<br>2. **Experience-Based Learning:**<br>o Conducting practical experiments with prior knowledge about the equipment and safety procedures in microbiology laboratories.<br>3. **Collaborative Application-Based Learning:**<br>o Assigning students in groups to apply a specific idea related to a particular microorganism.<br>o Encouraging students to research and work within research teams.<br>4. **Idea Exchange and Innovative Problem-Solving Learning:**<br>o Learning how to face problems in scientific research with innovative scientific ideas, and then finding sustainable solutions that address the problem in the least time and cost, and in a safe manner.<br>o Exchanging ideas with others and utilizing them to serve scientific research in the field of microbiology.<br>5. **Media-Supported Learning:**<br>o Using technological media for various topics in microbiology.<br>6. **Self-Directed and Independent Learning:**<br>o Encouraging students to research and study independently using scientific references.<br>o Guiding students to prepare summaries or presentations on a specific microorganism or experiment.<br>7. **Research-Based Learning:**<br>o Understanding the final result of a previous scientific study related to a specific microorganism and using it as a starting point for a new research that contributes to future development.<br>o Using practical assessment methods by testing students' ability to perform laboratory experiments. |

| | |
|---|---|
| | 8. **Visual Description and Documentation-Based Learning:**<br>o Training students to perform visual descriptions of an experiment related to a specific microorganism and its importance in validating the final result.<br>o Teaching students how to professionally document their findings.<br>9. **Academic Guidance:**<br>o Providing general lectures that help increase students' knowledge about microbiology. |

## Student Workload (SWL)

| | | | |
|---|---|---|---|
| **Structured SWL (h/sem)** | 78 | **Structured SWL (h/w)** | 5 |
| **Unstructured SWL (h/sem)** | 97 | **Unstructured SWL (h/w)** | 6 |
| **Total SWL (h/sem)** | **175** | | |

## Module Evaluation

| | | Time/Number | Weight (Marks) | Week Due | Relevant Learning Outcome |
|---|---|---|---|---|---|
| **Formative assessment** | **Tests** | 1 | 10% (10) | 8 | LO #1 - #7 |
| | **Projects** | 1 | 10% (10) | 6 | LO #1 -#5 |
| | **Lab** | 1 | 10% (10) | 9 | LO #1 - #8 |
| | **Reports** | 1 | 10% (10) | 15 | LO #1 - #14 |
| **Summative assessment** | **Mid Exam** | 2hr | 10% (10) | 7 | LO #1 - #6 |
| | **Final Exam** | 3hr | 50% (50) | 16 | All |
| **Total assessment** | | | 100% (100 Marks) | | |

## Delivery Plan (Weekly Syllabus)

| | Material Covered |
|---|---|
| **Week 1** | Introduction to Microbiology and its Development Stages |
| **Week 2** | Bacteria |
| **Week 3** | Bacteria (Continued) |

| | |
|---|---|
| **Week 4** | Bacterial Spores |
| **Week 5** | Bacterial Nomenclature and Shapes |
| **Week 6** | Nutritional Requirements for Bacterial Growth |
| **Week 7** | Factors Affecting Growth |
| **Week 8** | Midterm Exam |
| **Week 9** | Stages of Bacterial Growth |
| **Week 10** | Molds and Yeasts |
| **Week 11** | Molds and Yeasts (Continued) |
| **Week 12** | Algae |
| **Week 13** | Viruses |
| **Week 14** | Relationship Between Microorganisms and Food |
| **Week 15** | Effect of Different Substances on Microbial Growth |

| **Delivery Plan (Weekly Lab. Syllabus)** | |
|---|---|
| | **Material Covered** |
| **Week 1** | Basics of Working in Microbiology Laboratories |
| **Week 2** | Culture Media |
| **Week 3** | Sterilization Methods |
| **Week 4** | Simple Staining |
| **Week 5** | Gram Staining |
| **Week 6** | Spore Staining |
| **Week 7** | Negative Staining |
| **Week 8** | Study of Bacterial Movement |
| **Week 9** | Bacterial Counting |
| **Week 10** | Direct Bacterial Counting |
| **Week 11** | Study of the Effect of Physical Factors on Bacteria |
| **Week 12** | Diagnostic Bacterial Tests |
| **Week 13** | Sensitivity Testing |
| **Week 14** | Microbiological Water Testing |
| **Week 15** | Study of Molds and Yeasts |

| Learning and Teaching Resources | | |
|---|---|---|
| | **Text** | **Available in the Library?** |
| **Required Texts** | Microbiology book | Yes |
| **Recommended Texts** | Scientific articles | No |
| **Websites** | | |

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

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

**Module 9**

| Code | Course/Module Title | ECTS | Semester |
|---|---|---|---|
| FSD124 | Food Industries | 7 | 2 |
| **Class (hr/w)** | **Lect/Lab./Prac./Tutor** | **SSWL (hr/sem)** | **USWL (hr/w)** |
| 2 | 3 | 78 | 97 |
| **Description** | | | |
| This course introduces students to the **fundamentals of food industries**, covering the principles and methods used in the **processing, preservation, packaging, storage, and quality control** of various food products. Topics include the **industrial production** of dairy products, meat, poultry, cereals, oils, fruits, and vegetables. Emphasis is placed on **food safety standards**, **hygienic practices**, **processing equipment**, and the role of technology in improving shelf life, nutritional value, and consumer appeal. | | | |

Students will gain both theoretical knowledge and practical skills needed for understanding **modern food industry operations**, enabling them to apply these principles in real-world agricultural and industrial settings.

# MODULE DESCRIPTION FORM

| Module Information | | | | | |
|---|---|---|---|---|---|
| **Module Title** | Food Industries | | | **Module Delivery** | |
| **Module Type** | Core | | | ☒ **Theory**<br>☒ **Lecture**<br>☐ **Lab**<br>☐ **Tutorial**<br>☒ **Practical**<br>☐ **Seminar** | |
| **Module Code** | FSD124 | | | | |
| **ECTS Credits** | 7 | | | | |
| **SWL (hr/sem)** | 175 | | | | |
| **Module Level** | | 1 | **Semester of Delivery** | | 2 |
| **Administering Department** | | Food Science Dept. | **College** | College of Agriculture | |
| **Module Leader** | Dr. Abdulaal Farhan | | **e-mail** | abfarhan@uowasit.ed.iq | |
| **Module Leader's Acad. Title** | | Assist. Professor | **Module Leader's Qualification** | | Ph.D. |
| **Module Tutor** | | | **e-mail** | | |
| **Peer Reviewer Name** | | Name | **e-mail** | E-mail | |
| **Scientific Committee Approval Date** | | 10/03/2025 | **Version Number** | | 1.0 |

| Relation with other Modules | | | |
|---|---|---|---|
| **Prerequisite module** | None | **Semester** | |
| **Co-requisites module** | None | **Semester** | |

| Module Aims, Learning Outcomes and Indicative Contents | |
|---|---|
| **Module Objectives** | 1. Understanding the fundamentals and importance of food processing and its vital role in the development of countries.<br>2. Identifying the most important food industries in Iraq and how to keep up with advancements in food production.<br>3. Studying the different components of foods.<br>4. Understanding the scientific basis of each processing step in food production.<br>5. Recognizing the role of healthy food production in improving human health.<br>6. Understanding the relationship between food production and the environment, with a focus on proper and healthy manufacturing methods.<br>7. Studying the methods used in food preservation, storage, and extending shelf life. |
| **Module Learning Outcomes** | 1. Understanding the components of each food item so that the student is able to identify and describe the basic components of different food materials such as proteins, fats, and carbohydrates.<br>2. Applying the basic steps in food processing: the student should acquire preliminary knowledge of the correct fundamental steps in the manufacturing of food products.<br>3. Familiarization with food preservation techniques and the scientific basis of each method.<br>4. Understanding the strong relationship between human health and the type of food consumed: the student should be able to apply health standards and procedures to produce healthy foods.<br>5. Knowing how to utilize food processing waste and convert it into products of nutritional value.<br>6. Developing the knowledge level of food science students and their essential role in enhancing nutritional awareness.<br>7. Recognizing the importance of consumer awareness and their role in the production of sustainable food. |
| **Indicative Contents** | **1. Introduction to Food Processing**<br>• Definition and importance of food processing<br>• Main objectives of food processing and preservation<br>• Food industries in Iraq<br>• Factors to consider when designing and establishing a food processing plant<br>• General guidelines and introduction to food testing laboratories – solutions *(Practical)*<br>**2. Food Components**<br>• Liquid components: water<br>• Solid components: carbohydrates, proteins, lipids, vitamins, minerals, organic acids, pigments, flavor compounds |

| | |
|---|---|
| | • Types and structures of carbohydrates<br>• Introduction to solution measuring devices *(Practical)*<br>**3. Food Components (Proteins and Lipids)**<br>• Definition and structure of proteins<br>• Definition and structure of fats<br>• Food preservation by canning *(Practical)*<br>**4. Food Components: Minerals, Vitamins, and Flavor Compounds**<br>• Types and importance of minerals<br>• Types of vitamins<br>• Examples of flavor compounds<br>• Food preservation by refrigeration *(Practical)*<br>**5. Major Food Products**<br>• Meat and meat products<br>• Food preservation by freezing *(Practical)*<br>**6. Major Food Products**<br>• Poultry and fish meats<br>• Eggs<br>• Processing of meat products (e.g., burgers)<br>**7. Major Food Products**<br>• Fruits and vegetables<br>• Fatty substances (fats and oils)<br>• Preservation of meat products *(Practical)*<br>**8. Major Food Products**<br>• Grains and grain products<br>• Sugar, tea, and coffee<br>• Preservation by fermentation and pickling *(Practical)*<br>**9. Food Preservation Methods**<br>• Freezing<br>• Refrigeration<br>• Drying *(Practical)*<br>**10. Food Preservation**<br>• Canning<br>• Jam and jelly production *(Practical)*<br>**11. Food Spoilage and Deterioration**<br>• Main causes of food spoilage<br>• Types of spoilage<br>• Preservation with chemical and natural substances *(Practical)*<br>**12. Enzymes**<br>• Important enzymes used in food processing<br>• Fruit juice production *(Practical)*<br>**13. Food Packaging Materials** |

| | |
|---|---|
| | • Their functions<br>• Environmental impact<br>• Production of paste and ketchup *(Practical)*<br>**14. Food Packaging Materials**<br>• Types of packaging materials<br>• Molasses (date syrup) production *(Practical)*<br>**15. Effect of Processing on the Quality and Nutritional Value of Processed Foods**<br>• Bread and *samoon* (Iraqi bread) production *(Practical)* |

| Learning and Teaching Strategies | |
|---|---|
| **Strategies** | **1. Learning Based on Theoretical Understanding**<br>• Teaching students to understand the theoretical concepts or ideas and anticipate the outcomes before applying them practically.<br>• Employing scientific and cognitive foundations for accurate theoretical understanding in the field of food processing.<br>**2. Learning Through Practical Experimentation**<br>• Conducting hands-on experiments related to food preservation and processing, preceded by knowledge of equipment and lab safety protocols.<br>**3. Collaborative Idea Application Learning**<br>• Assigning students in groups to implement a specific idea related to the preservation or processing of a particular food product.<br>• Encouraging students to conduct research and work within research groups.<br>**4. Learning Through Idea Exchange and Innovative Problem Solving**<br>• Teaching students how to face challenges by coming up with ideas and then applying effective solutions in a timely, cost-efficient, and safe manner.<br>• Exchanging ideas with others and applying them in support of scientific research in food processing.<br>**5. Multimedia-Supported Education**<br>• Using educational videos and simulations to explain various processes in food production.<br>• Displaying visual clips to demonstrate precise operations and chemical reactions occurring during food processing.<br>**6. Self-Directed and Independent Learning**<br>• Encouraging students to conduct independent research and study using scientific references and specialized articles.<br>• Guiding students to prepare summaries or presentations on the steps used in producing or preserving a specific food product.<br>**7. Learning Based on Previous Scientific Research Findings**<br>• Understanding the final results of previous scientific studies in food production and using them as a starting point for new research that contributes to future advancements. |

| | |
|---|---|
| | • Applying practical evaluation methods by testing students' abilities to perform certain laboratory experiments.<br>**8. Learning Based on Visual Characterization and Documentation of Results**<br>• Training students to visually characterize raw materials used in food processing or processed products, and understanding its role in final product quality.<br>• Training students on how to professionally document their results.<br>**9. Academic Guidance and Counseling**<br>• Providing guidance lectures that contribute to enhancing students' nutritional awareness. |

## Student Workload (SWL)

| | | | |
|---|---|---|---|
| **Structured SWL (h/sem)** | 78 | **Structured SWL (h/w)** | 5 |
| **Unstructured SWL (h/sem)** | 97 | **Unstructured SWL (h/w)** | 6 |
| **Total SWL (h/sem)** | **175** | | |

## Module Evaluation

| | | Time/Number | Weight (Marks) | Week Due | Relevant Learning Outcome |
|---|---|---|---|---|---|
| **Formative assessment** | **Tests** | 1 | 10% (10) | 15 | LO #1 - #14 |
| | **Projects** | 1 | 10% (10) | 6 | LO #1 - #5 |
| | **Lab** | 1 | 10% (10) | 7 | LO #1 - #6 |
| | **Reports** | 1 | 10% (10) | 15 | LO #1 - #14 |
| **Summative assessment** | **Mid Exam** | 2hr | 10% (10) | 8 | LO #1 - #7 |
| | **Final Exam** | 3hr | 50% (50) | 16 | All |
| **Total assessment** | | | 100% (100 Marks) | | |

## Delivery Plan (Weekly Syllabus)

| | Material Covered |
|---|---|
| **Week 1** | Introduction to Food Processing |
| **Week 2** | Food Components (Water, Carbohydrates) |
| **Week 3** | Food Components (Proteins and Lipids) |

| | |
|---|---|
| **Week 4** | Food Components (Minerals, Vitamins, Flavor Compounds) |
| **Week 5** | Major Foods (Meat and Eggs) |
| **Week 6** | Homework Evaluation |
| **Week 7** | Major Foods (Fruits and Vegetables, Fats and Oils) |
| **Week 8** | Major Foods (Grains and Products, Sugar, Tea, and Coffee) |
| **Week 9** | Methods of Food Preservation (Freezing, Refrigeration) |
| **Week 10** | Food Preservation (Canning) |
| **Week 11** | Food Spoilage and Deterioration |
| **Week 12** | Enzymes and Their Role in Food Processing |
| **Week 13** | Materials Used in Food Packaging |
| **Week 14** | Effect of Processing on Food Quality and Nutritional Value |
| **Week 15** | Exam |

| **Delivery Plan (Weekly Lab. Syllabus)** | |
|---|---|
| | **Material Covered** |
| **Week 1** | General Guidelines and Introduction to Food Testing Labs |
| **Week 2** | Introduction to Some Solution Measurement Devices |
| **Week 3** | Food Preservation by Canning |
| **Week 4** | Food Preservation by Refrigeration |
| **Week 5** | Food Preservation by Freezing |
| **Week 6** | Meat Product Processing (Burger) |
| **Week 7** | Preservation of Meat Products (Practical) |
| **Week 8** | Food Preservation by Fermentation and Pickling |
| **Week 9** | Preservation by Drying (Practical) |
| **Week 10** | Jam and Jelly Production |
| **Week 11** | Preservation with Chemical and Natural Substances |
| **Week 12** | Fruit Juice Production |
| **Week 13** | Paste and Ketchup Production (Practical) |
| **Week 14** | Molasses Production (Practical) |
| **Week 15** | Bread and Samoon Production |

| Learning and Teaching Resources | | |
|---|---|---|
| | **Text** | **Available in the Library?** |
| **Required Texts** | Principles of food processing book | Yes |
| **Recommended Texts** | Scientific articles | No |
| **Websites** | | |

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

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

**Module 10**

| Code | Course/Module Title | ECTS | Semester |
|---|---|---|---|
| AGR127 | Statistics | 5 | 2 |
| **Class (hr/w)** | **Lect/Lab./Prac./Tutor** | **SSWL (hr/sem)** | **USWL (hr/w)** |
| 2 | 3 | 78 | 47 |
| **Description** | | | |
| This course introduces the **basic principles of statistics** and their applications in scientific research, particularly in agriculture, biology, and related fields. It covers topics such as **data collection**, **organization**, **presentation**, **measures of central tendency and dispersion**, **probability distributions**, **hypothesis testing**, **correlation**, **regression**, and **analysis of variance (ANOVA)**.<br>Students will learn to use statistical tools and software to analyze and interpret data, supporting | | | |

scientific conclusions and decision-making. Emphasis is placed on **practical applications**, problem-solving, and understanding the role of statistics in research and industry.

# MODULE DESCRIPTION FORM

| Module Information | | | | | |
|---|---|---|---|---|---|
| **Module Title** | Principles of Statistics | | | **Module Delivery** | |
| **Module Type** | Basic | | | ☒ **Theory**<br>☒ **Lecture**<br>☐ **Lab**<br>☐ **Tutorial**<br>☒ **Practical**<br>☑ **Seminar** | |
| **Module Code** | AGR127 | | | | |
| **ECTS Credits** | 5 | | | | |
| **SWL (hr/sem)** | 125 | | | | |
| **Module Level** | | 1 | **Semester of Delivery** | | 2 |
| **Administering Department** | | Food Science | **College** | College of Agriculture | |
| **Module Leader** | Dr. Hakeem Sultan Abd | | **e-mail** | hsultan@uowasit.edu.iq | |
| **Module Leader's Acad. Title** | | Assist. Professor | **Module Leader's Qualification** | | PhD |
| **Module Tutor** | | | **e-mail** | | |
| **Peer Reviewer Name** | | Name | **e-mail** | E-mail | |
| **Scientific Committee Approval Date** | | 15/11/2024 | **Version Number** | | 1.0 |

| Relation with other Modules | | | |
|---|---|---|---|
| **Prerequisite module** | None | **Semester** | |
| **Co-requisites module** | None | **Semester** | |

| Module Aims, Learning Outcomes and Indicative Contents | |
|---|---|
| **Module Objectives** | 1 . Providing students with theoretical and practical scientific knowledge in the field of statistics.<br>2. The ability to collect and classify data.<br>3. The ability to measure the degree of relationship between variables<br>4. Providing students with the skills required in field management and its impact on field work. |
| **Module Learning Outcomes** | Learning outcomes for teaching the principles of statistics to first-year students in colleges of agriculture include: |

| | |
|---|---|
| | 1. Basic Concepts:<br>* Definition of statistics and its importance in agriculture.<br>* Understanding data types (quantitative, qualitative) and their sources.<br>2. Data Analysis:<br>* Organizing and presenting data using tables and graphs.<br>* Calculating statistical measures such as mean, median, and standard deviation.<br>3. Probability Distributions:<br>* Understanding normal distributions and statistical inference.<br>* Applying probability in analyzing agricultural data.<br>4. Statistical Inference:<br>* Understanding statistical hypotheses and their tests (such as the t-test, chi-square test).<br>* Interpreting statistical results and making decisions based on them.<br>5. Agricultural Applications:<br>* Using statistics to analyze crop and livestock experiments.<br>* Applying statistical methods to improve agricultural production. |
| **Indicative Contents** | The syllabus for the Principles of Statistics course for students in colleges of agriculture includes the following topics:<br>1. Introduction to Statistics:<br>• Definition of statistics and its importance in agriculture.<br>• Types of data (quantitative, qualitative) and their sources.<br>• Levels of measurement (nominal, ordinal, interval, relative).<br>2. Data Presentation and Analysis:<br>• Organizing data in frequency tables.<br>• Representing data graphically (histograms, columns, circles, lines).<br>• Calculating descriptive measures (mean, median, mode, range, variance, standard deviation).<br>3. Probability:<br>• Introduction to probability theory.<br>• Probability distributions (normal distribution, binomial distribution).<br>• Applications of probability in agriculture.<br>4. Statistical Distributions :The normal distribution and its properties.<br>• Other distributions relevant to agriculture (such as the Poisson distribution).<br>5. Statistical inference:<br>• Estimating parameters (point estimate, confidence intervals).<br>• Statistical hypothesis testing (t-test, Z-test, chi-square test).<br>• Analysis of variance (ANOVA).<br>6. Correlation and regression: |

| | |
|---|---|
| | • Analyzing the correlation between variables.<br>•The simple linear regression model and its applications in agriculture |

| Learning and Teaching Strategies | |
|---|---|
| **Strategies** | 1. Scaffolded Learning:<br>• Breaking down statistical concepts into small, sequential steps.<br>• Starting with basic concepts (such as mean and variance) and progressing to more complex concepts (such as regression and analysis of variance).<br>• Presenting simple examples initially and gradually increasing complexity.<br>2. Intensive Hands-On Practice:<br>• Allocating a significant portion of lecture time to solving statistical exercises step-by-step.<br>• Assigning students to complete large sets of homework exercises to reinforce understanding.<br>• Using real or quasi-real data from the agricultural field to apply concepts.<br>3. Problem-Based Learning:<br>• Presenting realistic statistical problems that require the application of mathematical and statistical concepts.<br>• Encouraging students to work individually or in groups to find solutions.<br>• Discussing solutions in class and pointing out common mistakes.<br>4. Visual and Graphical Learning:<br>• Use graphs and charts to illustrate abstract concepts (such as normal distribution and correlation).<br>• Teach students how to create graphs manually and using software.<br>• Demonstrate how to interpret graphs in an agricultural context.<br>5. Repetition and Practice:<br>• Repeat key concepts periodically to ensure they are consolidated.<br>• Provide a wide variety of exercises (theoretical and practical).<br>• Encourage students to complete additional exercises outside of class.<br>6. Example-Based Learning:<br>• Provide detailed practical examples of each statistical concept.<br>• Demonstrate how each concept is applied in an agricultural context (such as crop or livestock data analysis).<br>• Encourage students to analyze additional examples on their own.<br>7. Collaborative Learning:<br>• Divide students into small groups to complete complex exercises.<br>• Encourage students to explain concepts to each other.<br>• Organize group study sessions outside of class.<br>8. Continuous Formative Assessment: |

| | |
|---|---|
| | • Periodic quizzes to assess students' understanding of concepts.<br>• Weekly assignments that include solving statistical exercises.<br>• Progress reports on student progress.<br>9. Real-Data Learning:<br>• Use real data from agricultural experiments or scientific research.<br>• Teach students how to clean and analyze data.<br>•Demonstrate how to interpret results in an agricultural context. |

## Student Workload (SWL)

| | | | |
|---|---|---|---|
| **Structured SWL (h/sem)** | 78 | **Structured SWL (h/w)** | 5 |
| **Unstructured SWL (h/sem)** | 47 | **Unstructured SWL (h/w)** | 3 |
| **Total SWL (h/sem)** | 125 | | |

## Module Evaluation

| | | Time/Number | Weight (Marks) | Week Due | Relevant Learning Outcome |
|---|---|---|---|---|---|
| **Formative assessment** | **Quizzes** | 1 | 10% (10) | 15 | LO #1 - #14 |
| | **Assignments** | 1 | 10% (10) | 6 | LO #1 - #5 |
| | **Projects / Lab.** | 1 | 10% (10) | 7 | LO #1 - #6 |
| | **Report** | 1 | 10% | 14 | LO #1 - #14 |
| **Summative assessment** | **Midterm Exam** | 2hr | 10% (10) | 8 | LO #1 - #7 |
| | **Final Exam** | 3hr | 50% (50) | 16 | All |
| **Total assessment** | | | 100% (100 Marks) | | |

## Delivery Plan (Weekly Syllabus)

| | Material Covered |
|---|---|
| **Week 1** | Introduction to Statistics |
| **Week 2** | Statistical Symbols |
| **Week 3** | Data Presentation and Summarization |

| | |
|---|---|
| **Week 4** | Frequency Distribution of Tables and Data |
| **Week 5** | Measures of Centering |
| **Week 6** | Measures of Dispersion |
| **Week 7** | Hypothesis Testing |
| **Week 8** | Normal Distribution |
| **Week 9** | t-Test |
| **Week 10** | Z-Test |
| **Week 11** | F-Test |
| **Week 12** | Simple Linear Correlation |
| **Week 13** | Simple Linear Regression |
| **Week 14** | Probability Theory |
| **Week 15** | Midterm Exam |

| **Delivery Plan (Weekly Lab. Syllabus)** | |
|---|---|
| | **Material Covered** |
| **Week 1** | Applications of descriptive and quantitative measures |
| **Week 2** | Applications of statistical symbols |
| **Week 3** | Exercises of frequency tables and graphic representation |
| **Week 4** | Exercises of measures of centering |
| **Week 5** | Exercises of dispersion |
| **Week 6** | Applications of normal graphic distributions |
| **Week 7** | Exercises of t-tests |
| **Week 8** | Exercises of z-tests |
| **Week 9** | Exercises of the F-test |
| **Week 10** | Exercises of correlation |
| **Week 11** | Exercises of linear regression |
| **Week 12** | Exercises of probability |
| **Week 13** | Data collection and analysis |
| **Week 14** | ANOVA test |
| **Week 15** | Interval test |

| Learning and Teaching Resources | | |
|---|---|---|
| | **Text** | **Available in the Library?** |
| **Required Texts** | Introduction to Statistics, written by Dr. Khashe Mahmoud Al-Rawi, College of Agriculture and Forestry, University of Mosul, 1989 | Yes |
| **Recommended Texts** | )Reliable scientific journals, scientific reports.( | No |
| **Websites** | | |

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

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

**Module 11**

| Code | Course/Module Title | ECTS | Semester |
|---|---|---|---|
| WU02 | Academic Englis Language 1 | 2 | 2 |
| **Class (hr/w)** | **Lect/Lab./Prac./Tutor** | **SSWL (hr/sem)** | **USWL (hr/w)** |
| 2 | 0 | 32 | 18 |
| **Description** | | | |
| This course is designed to develop students' **academic English language skills**, with a focus on | | | |

enhancing their **reading, writing, listening, and speaking** abilities in an academic context. Emphasis is placed on **vocabulary development**, **grammar accuracy**, **sentence and paragraph structure**, and **basic academic writing techniques**. Students will engage with a variety of texts and practice language skills through structured activities that build confidence in understanding and using English in university and professional settings.
The course prepares students for future academic success by strengthening their ability to comprehend lectures, write assignments, participate in discussions, and read academic materials effectively.

# MODULE DESCRIPTION FORM

# نموذج وصف المادة الدراسية

| **Module Information**<br>معلومات المادة الدراسية | | | | | |
|---|---|---|---|---|---|
| **Module Title** | English Language | | | **Module Delivery** | |
| **Module Type** | Basic | | | ☒ **Theory**<br>☒ **Lecture**<br>☐**Lab**<br>☐ **Tutorial**<br>☐ **Practical**<br>☐ **Seminar** | |
| **Module Code** | WU02 | | | | |
| **ECTS Credits** | 2 | | | | |
| **SWL (hr/sem)** | 50 | | | | |
| **Module Level** | 1 | | **Semester of Delivery** | 2 | |
| **Administering Department** | Food Science dept. | | **College** | College of Agriculture | |
| **Module Leader** | Suhad Kareem Rahi Al-Magsoosi | | **e-mail** | skareem@uowasit.edu.iq | |
| **Module Leader's Acad. Title** | Lecturer | | **Module Leader's Qualification** | PhD | |
| **Module Tutor** | | | **e-mail** | | |
| **Peer Reviewer Name** | | | **e-mail** | | |
| **Scientific Committee Approval Date** | 2025/03/01 | | **Version Number** | 1.0 | |

| Relation with other Modules<br>العلاقة مع المواد الدراسية الأخرى | | | |
|---|---|---|---|
| **Prerequisite module** | None | **Semester** | |
| **Co-requisites module** | None | **Semester** | |

| Module Aims, Learning Outcomes and Indicative Contents<br>أهداف المادة الدراسية ونتائج التعلم والمحتويات الإرشادية | |
|---|---|
| **Module Objectives**<br>أهداف المادة الدراسية | to enable the learner to communicate effectively and appropriately in real life situation:<br>b. to use English effectively for study purpose across the curriculum;<br>c. to develop interest in and appreciation of Literature;<br>d. to develop and integrate the use of the four language skills i.e. Reading, Listening, Speaking and Writing;<br>e. to revise and reinforce structure already learnt. |
| **Module Learning Outcomes**<br><br>مخرجات التعلم للمادة الدراسية | to develop the students' abilities in grammar, oral skills, reading, and study skills<br>1. Students will increase their awareness of correct usage of English grammar in writing and speaking.<br>2. Improve their speaking ability in English both in terms of fluency and comprehensibility.<br>3. Receive feedback on their performance through oral presentations.<br>4. Increase their reading speed and comprehension of academic articles.<br>5. improve their reading fluency skills through extensive reading.<br>6. Expand their vocabulary by keeping a vocabulary journal.<br>7. strengthen their ability to write academic papers, essays and summaries using the process approach. |
| **Indicative Contents**<br>المحتويات الإرشادية | The course aims to develop communicative competence in English for intercultural contexts by teaching language items and communicative strategies essential for such scenarios, while at the same time giving students ample chances to output such items. The aims of this course are reflected in the content, which contains several themes, such as cultural awareness, intercultural awareness and English as a global language. Indicative content includes understanding the uniqueness of your own culture and other cultures, as well as being aware of the role culture plays in communication in English as a global language. In addition, this course allows for |

| | |
|---|---|
| | discussions about what it means for English to be a global language of communication and how misunderstandings and miscommunications when using English occurs. The course also includes practice in the pronunciation features that help improve intelligibility in intercultural contexts, namely the Lingua Franca Core. |

| Learning and Teaching Strategies<br>استراتيجيات التعلم والتعليم | |
|---|---|
| **Strategies** | 1. Cultivate relationships<br>Speaking with students to know each student, helps you understand who they are, where they come from and, perhaps, gain some insight into what teaching and learning styles are most effective for them.<br>2. Teach language skills across all curriculum topics<br>3. Speak slowly and be patient: Speaking in a slower, measured cadence Being a bit more aware of your pronunciation<br>4. Prioritize “productive language”<br>5. Using a variety of methods to engage learning<br>6. Using visual aids by the use of pictures, diagrams, charts and other visual tools.<br>7. Coordinate with the ESL teacher: Such discussions can yield insights into individual students and their learning styles or challenges; they can also be helpful for sharing information about curriculum topics, potentially providing ESL teachers with ideas for highly relevant vocabulary words that can reinforce academic lessons.<br>8. Pre-teach new vocabulary words that may be unfamiliar to ELLs, or even to give them a copy of the article or link to the material ahead of time.<br>9. Build in some group work.<br>10. Respect moments of silence: Many new language learners tend to be a little reticent and quiet, opting for silence over speaking up and saying something “wrong” in a language that is still unfamiliar. Research-based strategies for differentiating instruction to promote student learning |

| Student Workload (SWL)<br>الحمل الدراسي للطالب محسوب لـ ١٥ اسبوعا | | | |
|---|---|---|---|
| **Structured SWL (h/sem)**<br>الحمل الدراسي المنتظم للطالب خلال الفصل | 33 | **Structured SWL (h/w)**<br>الحمل الدراسي المنتظم للطالب أسبوعيا | 2 |
| **Unstructured SWL (h/sem)**<br>الحمل الدراسي غير المنتظم للطالب خلال الفصل | 17 | **Unstructured SWL (h/w)**<br>الحمل الدراسي غير المنتظم للطالب أسبوعيا | 1 |
| **Total SWL (h/sem)**<br>الحمل الدراسي الكلي للطالب خلال الفصل | 50 | | |

| Module Evaluation<br>تقييم المادة الدراسية | | | | | |
|---|---|---|---|---|---|
| | | **Time/Number** | **Weight (Marks)** | **Week Due** | **Relevant Learning Outcome** |
| **Formative assessment** | **Quizzes** | 2 | 10% (10) | 3,6,9 | LO #1, #7 |
| | **Assignments** | 2 | 10% (10) | 10 | LO #3, #4 and #6 |
| | **Projects / Lab.** | 0 | 0 % | | |
| | **Essays** | 1 | 10% (10) | 14 | LO #5 |
| **Summative assessment** | **Midterm Exam** | 2hr | 20% (10) | 7 | LO #1 - #7 |
| | **Final Exam** | 2hr | 50% (50) | 16 | All |
| **Total assessment** | | | 100% (100 Marks) | | |

| Delivery Plan (Weekly Syllabus)<br>المنهاج الاسبوعي النظري | |
|---|---|
| | **Material Covered** |
| **Week 1** | Unit-1 (Hello) |
| **Week 2** | Unit-2 (Your world) |
| **Week 3** | Unit-3 (Personal information) |
| **Week 4** | Unit-4 (Family and friends) |
| **Week 5** | Unit-5 (It's my life) |
| **Week 6** | Unit-6 (Every day) |
| **Week 7** | **Mid-term Exam** |
| **Week 8** | Unit-7 (Places I like) |
| **Week 9** | Unit-8 (Where I live) |
| **Week 10** | Unit-9 (Happy birthday) |
| **Week 11** | Unit-10 (We had a good time) |
| **Week 12** | Unit-11 (we can do it) |
| **Week 13** | Unit-12 (Thank you very much) |
| **Week 14** | Unit-13 (Here and now) |
| **Week 15** | Unit-14 (It's time to go) |

| Learning and Teaching Resources<br>مصادر التعلم والتدريس | | |
|---|---|---|
| | **Text** | **Available in the Library?** |
| **Required Texts** | Headway. Beginner. Student's Book by Liz and John Soars, 2019. | Yes |
| **Recommended Texts** | | No |
| **Websites** | https://elt.oup.com/student/headway/beg/?cc=global&selLanguage=en | |

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

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

**Module 12**

| Code | Course/Module Title | ECTS | Semester |
|---|---|---|---|
| WU01 | Arabic Language | 2 | 2 |
| **Class (hr/w)** | **Lect/Lab./Prac./Tutor** | **SSWL (hr/sem)** | **USWL (hr/w)** |

| | | | |
|---|---|---|---|
| 2 | 0 | 33 | 17 |

**Description**

This course aims to strengthen students' skills in the **Arabic language**, focusing on improving their abilities in **reading, writing, grammar, and comprehension**. It provides a foundation in **classical and modern standard Arabic**, with attention to **sentence structure, correct usage, punctuation**, and **writing techniques**. The course also introduces students to selected texts from **Arabic literature, culture, and heritage**, enhancing their appreciation for the richness and depth of the Arabic language.
Students will practice writing essays, analyzing texts, and applying grammatical rules accurately, enabling them to communicate effectively in academic and professional contexts.

# MODULE DESCRIPTION FORM

| Module Information | | | | |
|---|---|---|---|---|
| **Module Title** | Arabic Language | | **Module Delivery** | |
| **Module Type** | S | | ☐**Theory**<br>☒ **Lecture**<br>☐ **Lab**<br>☐ **Tutorial**<br>☐ **Practical**<br>☐ **Seminar** | |
| **Module Code** | WU01 | | | |
| **ECTS Credits** | 2 | | | |
| **SWL (hr/sem)** | 50 | | | |
| **Module Level** | 1 | | **Semester of Delivery** | 2 |
| **Administering Department** | Food Science Dept. | | **College** | College of Agriculture |
| **Module Leader** | Zena Abdulla Khamees | | **e-mail** | |
| **Module Leader's Acad. Title** | Assist. Lecturer | | **Module Leader's Qualification** | Master degree |
| **Module Tutor** | | | **e-mail** | |
| **Peer Reviewer Name** | Name | | **e-mail** | E-mail |
| **Scientific Committee Approval Date** | 10/03/2025 | | **Version Number** | 1.0 |

| Relation with other Modules | | | |
|---|---|---|---|
| **Prerequisite module** | None | **Semester** | |
| **Co-requisites module** | None | **Semester** | |

| Module Aims, Learning Outcomes and Indicative Contents | |
|---|---|
| **Module Objectives** | 1. To develop the basic language skills of the student: listening, speaking, reading, and writing.<br>2. To enhance the ability to express orally and in writing using correct and proper Arabic.<br>3. To expand the student's vocabulary through the study of new words and structures.<br>4. To improve reading comprehension and literary analysis skills across various text types (narrative, poetic, and expository).<br>5. To familiarize students with essential grammar and spelling rules and apply them accurately.<br>6. To foster a sense of belonging and appreciation for the Arabic language as a language of religion, culture, and identity.<br>7. To train students in critical and analytical thinking skills through text discussions and interpretation.<br>8. To expose students to examples of classical and modern Arabic literature to appreciate the beauty and history of the language. |
| **Module Learning Outcomes** | 1. The student will distinguish between different types of literary and linguistic texts.<br>2. The student will correctly apply grammar and spelling rules in writing and speaking.<br>3. The student will analyze written texts from both linguistic and literary perspectives.<br>4. The student will compose coherent and grammatically correct paragraphs or essays in Arabic.<br>5. The student will read texts aloud with proper pronunciation and expression.<br>6. The student will express opinions and ideas orally using clear and correct language. |

| | |
|---|---|
| | 7. The student will relate what they learn in Arabic to their daily life or academic specialization.<br>8. The student will demonstrate appreciation for the role of the Arabic language in shaping cultural and religious identity. |
| **Indicative Contents** | 1. Introduction to the importance and status of the Arabic language.<br>2. Types of texts: narrative, descriptive, expository, persuasive, poetic.<br>3. Reading skills and reading comprehension.<br>4. Writing skills: paragraph writing, essay writing, letter writing.<br>5. Grammar and morphology: nominal and verbal sentences, subjects and objects, diptotes.<br>6. Spelling rules and punctuation marks.<br>7. Oral expression and public speaking skills.<br>8. Literary analysis of poetry and prose texts.<br>9. Introduction to key figures in classical and modern Arabic literature.<br>10. Practical activities: discussions – oral presentations – written exercises. |

| **Learning and Teaching Strategies** | |
|---|---|
| **Strategies** | 1. Interactive lectures to explain linguistic and literary concepts.<br>2. Group work through class discussions and collaborative activities.<br>3. Written exercises to develop writing and grammar skills.<br>4. Oral presentations to enhance speaking abilities and self-confidence.<br>5. Analytical reading of various texts to understand deeper meanings.<br>6. Project-based learning to apply knowledge in real-world contexts.<br>7. Brainstorming for idea generation and creative expression.<br>8. Self-assessment and feedback for performance improvement and continuous learning.<br>9. Field visits or meetings with writers to connect content with real life (if applicable).<br>10. Use of multimedia tools such as educational videos and presentations to enrich the content. |

| **Student Workload (SWL)** | | | |
|---|---|---|---|
| **Structured SWL (h/sem)** | 30 | **Structured SWL (h/w)** | 2 |
| **Unstructured SWL (h/sem)** | 17 | **Unstructured SWL (h/w)** | 1 |
| **Total SWL (h/sem)** | **50** | | |

## Module Evaluation

| | | Time/Number | Weight (Marks) | Week Due | Relevant Learning Outcome |
|---|---|---|---|---|---|
| Formative assessment | Quizzes | 1 | 10% (10) | 15 | LO #1 - #14 |
| | Onset assignments | 1 | 10% (10) | 14 | LO #8 - #13 |
| | Online assignments | 1 | 10% (10) | 6 | LO #1 - #5 |
| | Reports | 1 | 10% (10) | 5 | LO #1 - #4 |
| Summative assessment | Midterm Exam | 2hr | 10% (10) | 8 | LO #1 - #7 |
| | Final Exam | 3hr | 50% (50) | 16 | All |
| Total assessment | | | 100% (100 Marks) | | |

## Delivery Plan (Weekly Syllabus)

| | Material Covered |
|---|---|
| Week 1 | Getting acquainted with the history of the Arabic language, and its sections: first: grammar: explaining the payments from the Beginner, the news, the name of Kan and her sisters, and the participation of students in applying it |
| Week 2 | Complete the explanation of the payments from the news of Kan, her sisters and the actor The actor's deputy will activate the practical application |
| Week 3 | Explanation of the postulates of the effect and absolute effect |
| Week 4 | Complete the explanation of the positions of effect and effect for him and for him |
| Week 5 | The use of competition and the spirit of the group in explaining the subject of the case and raising some questions about the subject of the exception |
| Week 6 | Using the question-and-answer method by presenting the topic of discrimination and continuing to present the subject of the caller |
| Week 7 | Getting into the topic of prepositions: explaining the importance of prepositions from the genitive by preposition and genitive by annexation |
| Week 8 | Explanation of the topic of minions, from participle, emphasis and substitution |
| Week 9 | Complete the explanation of the Minions of the kindness of the pattern |

| | |
|---|---|
| **Week 10** | Entering a new topic, namely the number, and knowing its provisions |
| **Week 11** | Second: to identify the exchange science and the exchange balance by applying it in practice |
| **Week 12** | Explain the subject of the correct verb and the difference between it and the verb The sufferer |
| **Week 13** | Touch on the subject of abstract verbs and more, explain the subject of verb attribution |
| **Week 14** | Third: spelling: explain the topic of punctuation marks and find out their importance in writing research and University theses |
| **Week 15** | Recognize the importance of drawing the Hamza, writing the TA and applying |

## Learning and Teaching Resources
مصادر التعلم والتدريس

| | Text | Available in the Library? |
|---|---|---|
| **Required Texts** | Arabic language book, Dr. Rafid Sabah Altimimy | Yes |
| **Recommended Texts** | Journals and reports, online references, internet. | No |

## Grading Scheme
مخطط الدرجات

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

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

# Contact

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