Course description form

| | |
|---|---|
| **1. Course Name** | |
| **Principles of food processing** | |
| **2. Course Code** | |
| **FST24017** | |
| **3. Semester/year** | |
| **2023-2024** | |
| **4. The date this description was prepared** | |
| **1/9/2023** | |
| **5. Available attendance forms** | |
| **Attendance only** | |
| **6. Number of study hours (total) / number of units (total)** | |
| 150 hours/6 units | |
| **7. Name of the course administrator (if more than one name is mentioned)** | |
| **Name: M. Hayder Nasser Salman Al Tamimi**<br>**Email: hayderN@fosc,uoqasim.edu.iq** | |
| **8. Course objectives** | |
| Objectives of the study subject | 1. An introductory introduction to the food industries and food technology and the most important areas of food technology as well as the types of food industries in Iraq.<br>2. Understanding traditional and modern techniques in food manufacturing and the stages of food processing.<br>3. Learn about food processing and meal preparation methods.<br>4. This is the basic topic of safety in food manufacturing and the concept of food packaging.<br>5. Understand the Interactions and What happened to food components in During operations Food processing. |
| **9. Teaching and learning strategies** | |
| **The strategy** | Theoretical and practical lectures<br>Conduct scientific discussions<br>Conduct various research during the semester<br>Trying to deal with the scientific material in a way that makes the student highly focused through the latest teaching methods<br>Actively involve students in the course of the lesson.<br>Evaluating and discussing quarterly scientific reports.<br>Voluntary supervision of students in graduation projects.<br>Conduct discussions among students. |

**10. Course structure**

| the week | hours | Required learning outcomes | Name of the unit or topic | Learning method | Evaluation method |
|---|---|---|---|---|---|

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

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

**11. Course evaluation**

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

**12. Learning and teaching resources**

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

Course description form

| | |
|---|---|
| **1. Course Name** | |
| Nanotechnology | |
| **2. Course Code** | |
| FST24021 | |
| **3. Semester/year** | |
| **2023-2024** | |
| **4. The date this description was prepared** | |
| **1/9/2023** | |
| **5. Available attendance forms** | |
| **Attendance only** | |
| **6. Number of study hours (total) / number of units (total)** | |
| 150 hours/6 units | |
| **7. Name of the course administrator (if more than one name is mentioned)** | |
| **Name: A. Dr. Sharaf Al-Din Muhammad Thamer**<br>**Email:** dr.sharaf@biotech.uoqasim.edu.iq | |
| **8. Course objectives** | |
| Objectives of the st subject | 1. Give a basic understanding of the subject matter<br>2. Introduction to Nanotechnological science<br>3.Learn about methods of manufacturing Products And nanomaterials<br>4. Identify the materials and requirements of Nanotechnological<br>5. Identify the devices used in the Nanotechnological |
| **9. Teaching and learning strategies** | |
| **The strategy** | Transferable general and qualifying skills (other skills related to employment and personal development). Using videos, using presentation, laboratory experiments, field experiments<br>Interactive lessons by looking at simple types of experiments that include some sampling activities of interest to students. |

**10. Course structure**

| the week | hours | Required learning outcomes | Name of the unit or topic | Learning method | Evaluation method |
|---|---|---|---|---|---|
| 1 | 4 hours | Introduction to nanotechnology | Introduction to nanotechnology | Lectures | Short tests |

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

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

**11. Course evaluation**

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

**12. Learning and teaching resources**

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

Course description form

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

**10. Course structure**

| the week | Hours | Required learning outcomes | Name of the unit or topic | Learning method | Evaluation method |
|---|---|---|---|---|---|
| 1 | 4 hours | Introduction On basis concept cells | Introduction On basis concept cells | Lectures | Short tests |

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

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

**11. Course evaluation**

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

**12. Learning and teaching resources**

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

| | |
|---|---|
| **1. Course Name** | |
| Biotechnology | |
| **2. Course Code** | |
| FST48326 | |
| **3. Semester/year** | |
| **2023-2024** | |
| **4. The date this description was prepared** | |
| **1/9/2023** | |
| **5. Available attendance forms** | |
| **Attendance only** | |
| **6. Number of study hours (total) / number of units (total)** | |
| 150 hours/6 units | |
| **7. Name of the course administrator (if more than one name is mentioned)** | |
| **Name: A.M. Dr. Sharaf Al-Din Muhammad Thamer Email:** dr.sharaf@biotech.uoqasim.edu.iq | |
| **8. Course objectives** | |
| Objectives of the st subject | 1. Give a basic understanding of the subject matter<br>2. Introduction to biotechnology<br>3.Learn about methods of extracting biological products<br>4. Identifying the materials and requirements of biotechnology<br>5. Identify the devices used in biotechnology |
| **9. Teaching and learning strategies** | |
| **The strategy** | Transferable general and qualifying skills (other skills related to employment and personal development). Using videos, using presentation, laboratory experiments, field experiments<br>Interactive lessons by looking at simple types of experiments that include some sampling activities of interest to students. |

**10. Course structure**

| the week | hours | Required learning outcomes | Name of the unit or topic | Learning method | Evaluation method |
|---|---|---|---|---|---|
| 1 | 4 hours | What is biotechnology? ( classic and modern) | What is biotechnology? ( classic and modern) | Lectures | Short tests |
| 2 | 4 hours | The nature of genes, clones and recombinant DN | The nature of genes, first clo and recombinant DNA | Lectures | Short tests |

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

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

| **11. Course evaluation** |
|---|
| Distributed as follows:35 degree monthly and daily exams for theory.15 score for monthly and daily exams for practical and lab And. 50 marks for the theoretical and practical final exam. |

| **12. Learning and teaching resources** | |
|---|---|
| Required course books (methodol if any) | Food Biotechnology |
| Main references (sources) | Food Science and Food Biotechnology |
| Recommended supporting books and references (scientific journals, reports.....) | International scientific research and studies with accredited specializations |
| Electronic references, Internet site | International scientific research and studies with specializations, approved by journ with influential and scientifically accredited laboratories |

Course description form

| **1. Course Name** |
|---|
| **Food analysis** |
| **2. Course Code** |

| |
|---|
| **FST36132** |
| **3. Semester/year** |
| **2023-2024** |
| **4. The date this description was prepared** |
| **1/9/2023** |
| **5. Available attendance forms** |
| **Attendance only** |
| **6. Number of study hours (total) / number of units (total)** |
| |
| **7. Name of the course administrator (if more than one name is mentioned)** |
| **Name: Dr. Mahdi Hassan Hussein**<br>**Email: Dr.mahdihassan@fosci.uoqasim.edu.iq** |
| **8. Course objectives** |

| | |
|---|---|
| Objectives of the st subject | Recognizing the scientific terminology of the subject.<br>**.1. Providing cadres High efficiency there is chance analysis Food To work in production laboratories, border crossings, or health control**<br>**2.Providing job opportunities for specialists in the field of Food manufacturing**<br>**3.**gain**StudentsAbilities to work in the field of Food analysis.**<br>**-4. Developing scientific research in the field of analysis and benefit from the expertise of faculty members to cooperate with institutions Related In this field**<br>**-5. Developing the necessary skills to develop food products in line with consumer desires and food health and safety** |

| | |
|---|---|
| **9. Teaching and learning strategies** | |
| **The strategy** | Theoretical lectures<br>Conduct scientific discussions<br>Conduct various research during the semester<br>Trying to deal with the scientific material in a way that makes the student highly focused through the latest teaching methods<br>Actively involve students in the course of the lesson.<br>Evaluating and discussing quarterly scientific reports.<br>Voluntary supervision of students in graduation projects.<br>Conduct discussions among students. |

**10. Course structure**

| the week | hours | Required learning outcomes | Name of the unit or topic | Learning method | Evaluation method |
|---|---|---|---|---|---|
| 1 | 4 hours | Definition of student importance of food anal | Introduction and definition importance of food analysis | Lectures | Short tests |

| | | | | | |
|---|---|---|---|---|---|
| 2 | 4 hours | Definition of stu Preparatory processes food analysis | Preparatory processes in f analysis | Lectures | Short tests |
| 3 | 4 hours | Learn about spectroscop | Spectroscopic analysis of fo | Lectures | Short tests |
| 4 | 4 hours | Flame analysis and ato absorption | Flame analysis and ato absorption of foods | Lectures | Short tests |
| 5 | 4 hours | | First exam | | |
| 6 | 4 hours | Infrared | The use of infrared rays in f analysis | Lectures | Short tests |
| 7 | 4 hours | Chromatographic | Using a chromatogra device in food analysis | Lectures | Short tests |
| 8 | 4 hours | Separation by light l and column method | Using light layer and colu technology in food analysis | Lectures | Short tests |
| 9 | 4 hours | Ion exchange and chromatography | Using ion exchange f analysis technology and chromatography process | Lectures | Short tests |
| 10 | 4 hours | Fractionation chromatography | The use of fractiona chromatography in f analysis | Lectures | Short tests |
| 11 | 4 hours | | Second exam | | |

| | | | | | |
|---|---|---|---|---|---|
| 12 | 4 hours | Electromigration | Using electromigra technology in food analysis | Lectures | Short tests |
| 13 | 4 hours | Enzymatic methods | The use of enzymatic meth in food analysis | Lectures | Short tests |
| 14 | 4 hours | Microbial analysis | Using a microbial metho analyze foods | Lectures | Short tests |

| **11. Course evaluation** |
|---|
| Distributed as follows:35 degree monthly and daily exams for theory.15 score for monthly and daily exams for practical and lab And. 50 marks for the theoretical and practical final exam. |

| **12. Learning and teaching resources** | |
|---|---|
| Required course books (methodology, if any) | 1-Food analysis. By Dr. Basil Kamil Dalaly and Sadik Hassan Al-Hakem. 1987.Ministry of Higher Education and Scientific Research - University of Mosul – |
| Main references (sources) | -Food analysis.By Dr.S.Suzanne Nielson.2012.fourth edition.USA |
| Recommended supporting books and references (scientific journals, reports.....) | Methods of analysis of food components and additives.BySemih Otles.2011.second edition |
| Electronic references, Internet sites | |

Course description form

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

| | |
|---|---|
| **1/9/2023** | |
| **5. Available attendance forms** | |
| **Attendance only** | |
| **6. Number of study hours (total) / number of units (total)** | |
| 150 hours/6 units | |
| **7. Name of the course administrator (if more than one name is mentioned)** | |
| **the name: M. Enas Majed**<br>**Email: inasmajid@fosci.uoqasim.edu.iq** | |
| **8. Course objectives** | |
| Identify the technological approach to the water filtration process<br>Learn about the importance of water sterilization, types of sterilizers, and examination methods<br>Water treatment for food industries and soft water production<br>Identify food factory waste and its environmental impacts<br>Understanding the stages of treating various types of waste | Objectives of the st subject |
| **9. Teaching and learning strategies** | |
| Theoretical and practical lectures<br>Conduct scientific discussions<br>Conduct various research during the semester<br>Trying to deal with the scientific material in a way that makes the student highly focused through the latest teaching methods<br>Actively involve students in the course of the lesson.<br>Evaluating and discussing quarterly scientific reports.<br>Voluntary supervision of students in graduation projects.<br>Conduct discussions among students. | **The strategy** |

**10. Course structure**

| Evaluation method | Learning method | Name of the unit or topic | Required learning outcomes | hours | the week |
|---|---|---|---|---|---|
| Short tests | Lectures | The importance of filtering purifying water | Learn about methods filtering and locations water withdrawal | 4 hours | 1 |
| Short tests | Lectures | Water filtering procedu removing hardness, producing soft water | Understanding the role chemical softeners and effect of acid func Water filte procedures, remov hardness, and produ soft water | 4 hours | 2 |
| Short tests | Lectures | Chemical and phys transactions | Identify methods physical and chem deposition and ongo examination | 4 hours | 3 |

| | | | | | |
|---|---|---|---|---|---|
| Short tests | Lectures | Sterilization, disinfectants, examination methods | Understanding mechanics of chlo sterilization and advantages of steriliza methods | 4 hours | 4 |
| | | First exam | | 4 hours | 5 |
| Short tests | Lectures | Mechanism of chlorine ac through sterilization and w treatments for food indu purposes | Understanding the reas for treating water for f industry purposes | 4 hours | 6 |
| Short tests | Lectures | Types of food factory waste | Identifying solid, liquid gaseous factory waste | 4 hours | 7 |
| Short tests | Lectures | Initial treatment | Learn the steps preliminary treatment waste Transactions/in l transaction | 4 hours | 8 |
| Short tests | Lectures | Secondary (biological) treatn and advanced treatments | Detailing the importanc secondary (biologi treatment and the role microorganisms in it | 4 hours | 9 |
| Short tests | Lectures | Specialized transactions | Study some special transactions | 4 hours | 10 |
| | | Second exam | | 4 hours | 11 |
| Short tests | Lectures | Examinations BOD And COI | Conducting tests oxidizable substances total organic substances | 4 hours | 12 |
| Short tests | Lectures | Exploiting waste for agricult purposes | About recycling waste benefit from it | 4 hours | 13 |

| | | | | | |
|---|---|---|---|---|---|
| Short tests | Lectures | Review | Environmental impact waste | 4 hours | 14 |

| **11. Course evaluation** |
|---|
| Distributed as follows:35 degree monthly and daily exams for theory.15 score for monthly and daily exams for practical and lab And. 50 marks for the theoretical and practical final exam. |

| **12. Learning and teaching resources** | |
|---|---|
| Water microbiology | Required course books (methodology, if any) |
| Practical environmental engineering<br>Water tests | Main references (sources) |
| All books and resources related to water purification and f<br>factory waste treatment | Recommended supporting books and references (scientific journals, reports.....) |
| The Internet | Electronic references, Internet sites |

Course description form

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

150 hours/6 units

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

**Name: M. Enas Majed**
**Email: inasmajid@fosci.uoqasim.edu.iq**

**8. Course objectives**

| | |
|---|---|
| Recognizing the scientific terminology of the subject.<br>Identify The importance of the steps of grief<br>Identify Storing horticultural crops and storage methods and the influence of factors External On the speed of breathing and the effect of hormones on maturity<br>the Learn about the importance of storage, its impact on crops, and storage methods Dry or refrigerate<br>the definition With types And storage methods Dry or refrigerate<br>Understanding the necessity of providing untimely crops<br>Identify On the basics of refrigeration work<br>And Standards completion of the growth and maturity For fruits | Objectives of the st subject |

**9. Teaching and learning strategies**

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

**10. Course structure**

| Evaluation method | Learning method | Name of the unit or topic | Required learning outcomes | hours | the week |
|---|---|---|---|---|---|
| Short tests | Lectures | The importance of sto horticultural crops | Storage of horticultural cr | 4 hours | 1 |
| Short tests | Lectures | Stages of fruit format growth and ripening | Formation and growth of fr | 4 hours | 2 |
| Short tests | Lectures | Effect of hormones on plants | Contract and hormonal balanc The fruits | 4 hours | 3 |

| | | | | | |
|---|---|---|---|---|---|
| Short tests | Lectures | Standards Stir the fruits | Completeness terms din | 4 hours | 4 |
| | | Fruit treatments after harvest | Harvesting horticultural crops its supplies | 4 hours | 5 |
| Short tests | Lectures | harvest Factors affecting speed of weight loss in fruits | Weight loss in horticultural cr after harvest Factors affec the speed of weight loss in fruit | 4 hours | 6 |
| Short tests | Lectures | Exam | | 4 hours | 7 |
| Short tests | Lectures | Nutrition and organic produc | Factors before harvest and t effects on the life of fruits a harvest | 4 hours | 8 |
| Short tests | Lectures | Antioxidants and min elements | Post-harvest treatment treatmen | 4 hours | 9 |
| Short tests | Lectures | Changes in the content of wa carbohydrates, starch, su and substances in fruits made me cry And the effec hormones | the changesChemicalWhich oc in fruits during growth, ripe and storage | 4 hours | 10 |
| | | Auxins, algebralins, ethyl cytokinins, and abscisic acid | The effect of plant hormones the growth and ripening of fr | 4 hours | 11 |
| Short tests | Lectures | Exam | | 4 hours | 12 |
| Short tests | Lectures | Alternative stores | Fruit and vegetable stores | 4 hours | 13 |

| | | | | | |
|---|---|---|---|---|---|
| Short tests | Lectures | Handling citrus fruits a harvest | Handling fruits after har | 4 hours | 14 |

| **11. Course evaluation** |
|---|
| Distributed as follows:35 degree monthly and daily exams for theory.15 score for monthly and daily exams for practical and lab And. 50 marks for the theoretical and practical final exam. |

| **12. Learning and teaching resources** | |
|---|---|
| Theoretical care and storage of horticultural crops - practical care and storage of fruits and vegetables | Required course books (methodology, if any) |
| Maintaining quality specifications after harvest / University California – Davis | Main references (sources) |
| All books and resources related to care and storage | Recommended supporting books and references (scientific journals, reports.....) |
| http://postharvest.ucdavis. | Electronic references, Internet sites |

Course description form

| Name of the course |
|---|
| Quality control and quality control |
| Course code |
| FST36028 |
| Semester/year |
| ٢٠٢٣-٢٠٢٤ |
| Date this description was prepared |
| ٢٠٢٣/٩/١ |
| Available forms of attendance |
| My presence only |
| Number of study hours (total) / Number of units (total) |
| 150 urs/6 units |
| Name of the course administrator (if more than one name is mentioned) |

Name: M. Haider Nasser Salman Al Tamimi Email: hayderN@fosc,uoqasim.edu.iq

Course objectives

| | |
|---|---|
| Objectives of the study material: To become familiar with the scientific terminology of the subject. | Objectives of the st material: To become fam with the scien terminology of the subject |

Proper use of laboratory equipment to measure food quality and specifications.

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

**Course structure**

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

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

**Course evaluation**

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

**Learning and teaching resources**

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

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

Course description form

| |
|---|
| 1. Name of the course |
| Date technology |
| 2. Course code |
| FST36030 |
| 3. Semester/year |
| ٢٠٢٤-٢٠٢٣ |
| 4. The date this description was prepared |
| ٢٠٢٣/٩/١ |
| 5. Available forms of attendance |
| My presence only |
| 6. Number of study hours (total) / number of units (total) |
| 150 hours/6 units |
| 7. Name of the course administrator (if more than one name is mentioned) |
| Name: M. Luay Salam Khalifa Email: luaysalam@fosci.uoqasim.edu.iq |

| **Course objectives** | |
|---|---|
| ١-Learn and understand the chemical composition and nutritional value of dates and the differences between their types.<br>٢- Changes that occur to dates during processing, manufacturing, and maintaining their quality.<br>٣-The student learns how to store dates and preserve their nutritional value<br>٤-Manufacture of high-quality date products using correct scientific methods free of harmful industrial additives.<br>٥-Learn methods for detecting fraud and evaluating food and industrial dates products.<br>٦-Enabling the student to work in date laboratories and factories by learning the latest programs and manufacturing tools. | ectives of the study subject |

| **Teaching and learning strategies** | |
|---|---|
| Interactive teaching: by encouraging students to interact with the educational materials through group discussion, collaborative activities, opening questions, and brainstorming.<br>Peer Learning: This approach involves encouraging students to learn from each other through the exchange of knowledge and skills<br>Active learning: It revolves around involving students in thinking processes and interacting with educational materials through simulation activities and scientific experiments<br>Educational technology: includes the use of computers, the Internet, and multimedia to enhance the learning experience<br>Providing constructive feedback: by providing students with effective feedback about their performance that helps them improve performance and understanding<br>Cooperative Learning: Encourages cooperation among students through group work on educational projects and activities<br>Flipped learning: In which the student studies the subject or topic at home independently and | **Strategy** |

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

**Course structure**

| Evaluation method | Learning method | Name of the unit or topic | Required learning outcomes | hours | week |
|---|---|---|---|---|---|
| Short tests | Lectures | ieties, types and products of dates | erstanding the chemical position of dates and ways to deal with them. | 4 hours | 1 |
| Short tests | Lectures | ritional value of dates and emical content of the kernels | erstanding the chemical position of dates and ways to deal with them. | 4 hours | 2 |
| Short tests | Lectures | culations of sugary sweets meals | erstands the physical, mical and biochemical perties of dates and their products. | 4 hours | 3 |
| Short tests | Lectures | cifications of dates produced nd methods of manufacturing | | 4 hours | 4 |
| | | First exam | knowledge of the entages added to dates, cautions of increasing n, and adherence to ral methods to maintain ity and adherence to food legislation. | 4 hours | 5 |
| Short tests | Lectures | ficial ripening and date treatments | | 4 hours | 6 |
| Short tests | Lectures | most important date manufacturing industries | etects methods of fraud ugh lineage tification, analyzes and tests for dates. | 4 hours | 7 |
| Short tests | Lectures | es of vinegar and methods of making it | nufacturing various apeutic and nutritional products with rovement according to the consumer market. | 4 hours | 8 |

| | | | | | |
|---|---|---|---|---|---|
| Short tests | Lectures | Drying dates | ufacturing various apeutic and nutritional products with rovement according to the consumer market. | 4 hours | 9 |
| Short tests | Lectures | age of dates and the changes that occur during storage | etects methods of fraud ugh lineage tification, analyzes and tests for dates. | 4 hours | 10 |
| | | Second exam | osing appropriate age methods for dates food and industrial date products. | 4 hours | 11 |
| Short tests | Lectures | reality and prospects of e date products, technically and economically | | 4 hours | 12 |
| Short tests | Lectures | erials manufactured from palm trees and its products | erstands the physical, mical and biochemical perties of dates and their products. | 4 hours | 13 |
| Short tests | Lectures | Biofuel production from dates | | 4 hours | 14 |

| **Course evaluation** | |
|---|---|
| The distribution is as follows: 35 marks for the monthly and daily exams for the first theory. 15 marks for monthly and daily exams for my work. 50 marks for the theoretical and practical final exam. | |
| **Learning and teaching resources** | |
| Dates and Sugar Technology, written by Dr. Adnan Wahab Muzaffar | Required course books (methodology, if any) |
| Dates and sweets production, written by Dr. Hassan Kha Hassan Al-Akidi | Main references (sources) |
| | Recommended supporting books and references (scientific journals, reports.....) |
| | Electronic references, Internet sites |

Course description form

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

| |
|---|
| ٢٠٢٣/٩/١ |
| 5. Available forms of attendance |
| My presence only |
| 6. Number of study hours (total) / number of units (total) |
| 150 hours/6 units |
| 7. Name of the course administrator (if more than one name is mentioned) |
| Name: Dr. Ali Flayeh alsaraj Email: dr.aliflayehalsaraj@fosc,uoqasim.edu.iq |

| 8. Course objectives | |
|---|---|
| Recognizing the scientific terminology of the subject.<br>-١Developing the student's skill in identifying food processing methods in the world and Iraq and modern techniques in this field<br>.٢Preparing the student to have good experience in the field and knowledge of food manufacturing methods and identifying problems and solutions<br>.٣Preparing the student to be experienced in the field of carrying out the various manufacturing operations that accompany the food manufacturing process, using equipment and laboratories, and conducting tests related to the manufacturing of all types of foods.<br>.٤The student should be able to distinguish the types of changes that occur to food as a result of the manufacturing process<br>.٥The student will have the ability to distinguish the changes that occur to a food item before and after the packaging process and how to treat them | Objectives of the study subject |

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

**Course structure**

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

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

| | | | | | |
|---|---|---|---|---|---|
| Short tests | Lectures | ==== | erving food by smoking | 4 hours | 14 |

| **Course evaluation** | |
|---|---|
| The distribution is as follows: 35 marks for the monthly and daily exams for the first theory. 15 marks for monthly and daily exams for my work. 50 marks for the theoretical and practical final exam. | |
| **Learning and teaching resources** | |
| Books for the required course Food Industry, Parts One and T | Required course books (methodology, if any) |
| Food manufacturing book\Food manufacturing book\F industries\Food preservation and safety book | Main references (sources) |
| Food technology book\\\ Oil and fat technology | Recommended supporting books and references (scientific journals, reports.....) |
| https://www. Electronic references and websites.... J.Agr.F Chem | Electronic references, Internet sites |

Course description form

| 1. Name of the course |
|---|
| Meat technology |
| 2. Course code |
| FST48042 |
| 3. Semester/year |
| ٢٠٢٣-٢٠٢٤ |
| 4. The date this description was prepared |
| ٢٠٢٣/٩/١ |
| 5. Available forms of attendance |
| My presence only |
| 6. Number of study hours (total) / number of units (total) |
| 150 hours/6 units |
| 7. Name of the course administrator (if more than one name is mentioned) |
| Name: M. Louay Salam Khalifa Email: luaysalam@fosci.uoqasim.edu.iq |

| **course objectives** | |
|---|---|
| -١Learn and understand the chemical composition and nutritional value of red and white meat and the differences between them.<br>-٢ Changes that occur to meat during processing and maintaining its quality.<br>-٣The student learns methods of storing meat.<br>-٤Manufacture of high-quality meat products using correct scientific methods.<br>-٥Learn methods for detecting fraud and evaluating meat products.<br>-٦Enabling the student to work in meat laboratories and factories by learning the latest programs and manufacturing tools. | ectives of the study subject |
| **Teaching and learning strategies** | |
| Interactive teaching: by encouraging students to interact with the educational materials through group discussion, collaborative activities, opening questions, and brainstorming.<br>Peer learning: This approach involves encouraging students to learn from each other through the exchange of knowledge and skills<br>Active learning: It revolves around involving students in thinking processes and interacting with educational materials through simulation activities and scientific experiments<br>Educational technology: includes the use of computers, the Internet, and multimedia to enhance the learning experience | **Sterategy** |

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

**Course structure**

| Evaluation method | Learning method | Name of the unit or topic | Required learning outcomes | hours | week |
|---|---|---|---|---|---|
| Short tests | Lectures | importance of meat and its nutritional value | erstanding the chemical position of meat and methods of handling it. | 4 hours | 1 |
| Short tests | Lectures | sical composition and emical composition of meat | erstands the physical, mical and biochemical perties of meat and meat products. | 4 hours | 2 |
| Short tests | Lectures | | knowledge of the entages added to meat, cautions of increasing n, and adherence to ral methods to maintain quality. | 4 hours | 3 |
| Short tests | Lectures | nges occurring in meat after the death of the animal | erstands the physical, mical and biochemical perties of meat and meat products. | 4 hours | 4 |
| | | | | 4 hours | 5 |
| Short tests | Lectures | tors affecting the nature and composition of meat | ose appropriate storage hods for meat and meat products | 4 hours | 6 |
| Short tests | Lectures | | ose appropriate storage hods for meat and meat products | 4 hours | 7 |
| Short tests | Lectures | perties or factors of palatability of meat | ose appropriate storage hods for meat and meat products | 4 hours | 8 |

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

| **Course evaluation** | |
|---|---|
| The distribution is as follows: 35 marks for the monthly and daily exams for the first theory. 15 marks for monthly and daily exams for my work. 50 marks for the theoretical and practical final exam. | |
| **Learning and teaching resources** | |
| (Meat and Fish Technology, author Dr. Munir Abboud Jassin | Required course books (methodology, if any) |
| (Meat Technology, author Dr. Majid Bashir Al-Aswad) | Main references (sources) |
| (Meat and Fish Technology, author Dr. Munir Abboud Jassin | Recommended supporting books and references (scientific journals, reports.....) |
| [G__M_Hall]_Fish_Processing_Technology | Electronic references, Internet sites |

Course description form

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

| |
|---|
| My presence only |
| 6. Number of study hours (total) / number of units (total) |
| 150 hours/6 units |
| 7. Name of the course administrator (if more than one name is mentioned) |
| Name: M. Louay Salam Khalifa Email: luaysalam@fosci.uoqasim.edu.iq |

| **Course objective** | |
|---|---|
| -١Learn and understand the composition and structure of industrial microorganisms involved in food manufacturing.<br>-٢ The changes that occur to industrial microorganisms when they are prepared and introduced into manufacturing and to maintain their quality and vitality.<br>-٣The student learns methods of producing and storing industrial food organisms and maintaining their value and quality.<br>-٤Learn how to manufacture them with high quality and correct scientific methods free of harmful industrial additives.<br>-٥Learn methods for detecting fraud and evaluating food artificial biology products.<br>-٦Enabling the student to work in industrial biology laboratories and factories by learning the latest programs and manufacturing tools and methods of dealing with them. | ectives of the study subject |
| **Teaching and learning strategies** | |
| Interactive teaching: by encouraging students to interact with the educational materials through group discussion, collaborative activities, opening questions, and brainstorming.<br>Peer learning: This approach involves encouraging students to learn from each other through the exchange of knowledge and skills<br>Active learning: It revolves around involving students in thinking processes and interacting with educational materials through simulation activities and scientific experiments<br>Educational technology: includes the use of computers, the Internet, and multimedia to enhance the learning experience<br>Providing constructive feedback: by providing students with effective feedback about their performance that helps them improve performance and understanding<br>Cooperative Learning: Encourages cooperation among students through group work on educational projects and activities<br>Flipped learning: In which the student studies the subject or topic at home independently and uses the time in class to discuss questions and apply what he has learned | **sterategy** |

**Course structure**

| Evaluation method | Learning method | Name of the unit or topic | Required learning outcomes | hours | week |
|---|---|---|---|---|---|
| Short tests | Lectures | es of industrial biology in food field and the importance of these projects | rn and understand the position and structure industrial roorganisms involved in food processing. | 4 hours | 1 |
| Short tests | Lectures | hods of feeding industrial organisms | changes that occur to strial microorganisms n they are prepared and oduced into ufacturing and ntain their quality and vitality. | 4 hours | 2 |

| | | | | | |
|---|---|---|---|---|---|
| Short tests | Lectures | most important industrial ıentations in the field of food and its products | erstanding the hanism of operation of ıstrial fermenters and hods of their agement and production | 4 hours | 3 |
| Short tests | Lectures | menters, their types, uses, methods of preparation and sterilization | student learns methods producing and storing ıstrial food organisms maintaining their value and quality. | 4 hours | 4 |
| | | First exam | | 4 hours | 5 |
| Short tests | Lectures | ironmental conditions of ıenters and methods of controlling them | changes that occur to ıstrial microorganisms n they are prepared and oduced into ufacturing and ntain their quality and vitality. | 4 hours | 6 |
| Short tests | Lectures | n systems, types and conditions | student learns methods producing and storing ıstrial food organisms maintaining their value and quality. | 4 hours | 7 |
| Short tests | Lectures | ducts of primary and ondary metabolism of ıstrial organisms, enzymes and amino acids | student learns methods producing and storing ıstrial food organisms maintaining their value and quality. | 4 hours | 8 |
| Short tests | Lectures | Oriental fermented foods | rn how to manufacture n with high quality and ect scientific methods of harmful industrial additives. | 4 hours | 9 |
| Short tests | Lectures | hods of preparing the cine in the production line, characteristics and features | bling the student to k in industrial biology oratories and factories learning the latest grams, manufacturing s, and methods of dealing with them. | 4 hours | 10 |
| | | Second exam | | 4 hours | 11 |

| | | | | | |
|---|---|---|---|---|---|
| Short tests | Lectures | es of microbial dyes and methods of producing them | rn methods for cting fraud and uating food artificial biology products. | 4 hours | 12 |
| Short tests | Lectures | hods for measuring toxicity and ensuring product safety | | 4 hours | 13 |
| Short tests | Lectures | Polymer-producing microorganisms | bling the student to k in industrial biology ratories and factories learning the latest grams, manufacturing s, and methods of dealing with them. | 4 hours | 14 |

**Course evaluation**

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

**Learning and teaching resources**

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

Course description form

| 1. Name of the course |
|---|
| Human nutrition |
| 2. Course code |
| |
| 3. Semester/year |
| ٢٠٢٤-٢٠٢٣ |
| 4. The date this description was prepared |
| ٢٠٢٣/٩/١ |
| 5. Available forms of attendance |
| My presence only |
| 6. Number of study hours (total) / number of units (total) |
| |
| 7. Name of the course administrator (if more than one name is mentioned) |
| Name: Dr. Ali Flayeh alsaraj Email: dr.aliflayehalsaraj@fosc,uoqasim.edu.iq |

| **Course objective** | |
|---|---|
| Recognizing the scientific terminology of the subject.<br>١. .Providing qualified cadres to advance society in the field of food and nutrition, and improve the health and nutritional status of community members.<br>٢.Providing job opportunities for specialists in the field of food and nutrition<br>٣.Providing students with the capabilities to work in the field of nutrition, which increases job opportunities to educate different segments of society in terms of nutrition.<br>٤.-Developing scientific research in the field of nutrition and benefiting from the expertise of faculty members to cooperate with institutions related to food and nutrition<br>٥.-Developing the necessary skills to develop food products in line with consumer desires and food health and safety | ectives of the study subject |
| **Teaching and learning strategies** | |
| Theoretical lectures<br>Conduct scientific discussions<br>Conduct various research during the semester<br>Trying to deal with the scientific material in a way that makes the student highly focused through the latest teaching methods<br>Actively involve students in the course of the lesson.<br>Evaluating and discussing quarterly scientific reports.<br>Voluntary supervision of students in graduation projects.<br>Conduct discussions among students. | **sterategy** |

**Course structure**

| Evaluation method | Learning method | Name of the unit or topic | Required learning outcomes | hours | week |
|---|---|---|---|---|---|
| Short tests | Lectures | ɒduction and definition of human nutrition | ɒducing the student to concept of nutrition science | 2 hours | 1 |

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

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

| **Course evaluation** | |
|---|---|
| Distribution as follows: 50 marks for the monthly and daily exams for the first theory. And the second | |
| **Learning and teaching resources** | |
| ndations of nutrition - food safety - food and human nutrition - therapeutic nutrition - human nutrition | Required course books (methodology, if any) |
| ndations of nutrition - food safety - food and human ition - therapeutic nutrition - dietary patterns - human ition - food customs and traditions - Internet sites - plete nutrition - vegetarians and their approach to nutrition | Main references (sources) |
| ndations of nutrition - food safety - food and human ition - therapeutic nutrition - dietary patterns - human ition - dietary customs and traditions - Internet sites - powanced nutrition | Recommended supporting books and references (scientific journals, reports.....) |
| | Electronic references, Internet sites |