هيئة تقويم التعليم والتدريب
Education & Training Evaluation Commission

2023
TP-153

# Course Specification
(Bachelor)

| | |
|---|---|
| **Course Title:** | Food Industries |
| **Course Code:** | ICHM463-2 |
| **Program:** | Bachelor of Science in Industrial Chemistry |
| **Department:** | Department of Physical Sciences |
| **College:** | College of Science |
| **Institution:** | Jazan University |
| **Version:** | TP-153 (2024) |
| **Last Revision Date:** | 11 Feb 2024 |

## Table of Contents

## A. General information about the course:

### 1. Course Identification

**1. Credit hours: ( 2 hrs )**

**2. Course type**

| | | | | | |
|---|---|---|---|---|---|
| **A.** | ☐University | ☐College | ☒ Department | ☐Track | ☐Others |
| **B.** | ☐ Required | | ☒ Elective | | |

**3. Level/year at which this course is offered: (8th / 4thyear)**

**4. Course general Description:**

| Course title | Course code | Contact Hours | | | Credit Hours | Year | Level | Prerequisite | Corequisite |
|---|---|---|---|---|---|---|---|---|---|
| | | Lec | Tut | Lab | | | | | |
| Food Industries | ICHM463-2 | 2 | 0 | 0 | 2 | 4th | 8th | CHEM336-2 + CHEM311-4 | - |

The main purpose for this course is definition of the physical, chemical and functional properties of food components and their importance, reactions and methods of manufacturing, chemical changes and interactions during warehousing and distribution operations.

**5. Pre-requirements for this course** (if any)**:**

CHEM336-2 and CHEM311-4

**6. Co-requisites for this course** (if any)**:**

none

**7. Course Main Objective(s):**

1. Understanding of the value of producing food to benefit society as well as the fundamentals of food manufacturing operations.
2. Recognizing the physical and chemical properties of food components.
3. Explaining the physical, chemical, and biological changes associated with manufacturing, transportation, and storage processes warehousing and distribution operations.
4. Explaining the Fermentation operation and its impact on the food industry
5. Predicting the physical, chemical, and biological tests that indicate a product's quality.

### 2. Teaching mode (mark all that apply)

| No | Mode of Instruction | Contact Hours | Percentage |
|---|---|---|---|
| 1 | Traditional classroom | 30 | 100% |
| 2 | E-learning | | |
| 3 | Hybrid | | |

| No | Mode of Instruction | Contact Hours | Percentage |
|---|---|---|---|
| | • Traditional classroom<br>• E-learning | | |
| 4 | Distance learning | | |

### 3. Contact Hours (based on the academic semester)

| No | Activity | Contact Hours |
|---|---|---|
| 1. | **Lectures** | 30 |
| 2. | **Laboratory/Studio** | |
| 3. | **Field** | |
| 4. | **Tutorial** | |
| 5. | **Others (specify)** | |
| **Total** | | 30 |

## B. Course Learning Outcomes (CLOs), Teaching Strategies and Assessment Methods

| Code | Course Learning Outcomes | Code of CLOs aligned with program | Teaching Strategies | Assessment Methods |
|---|---|---|---|---|
| **1.0** | **Knowledge and understanding;** *Upon completion of the course, students are able to:* | | | |
| 1.1 | **Demonstrate a thorough understanding of the components,physical, chemical properties, of food and raw materials, preservatives, additives, flavorings and antioxidants used in the food industry. (M )** | **K1** | **Lecture, discussion** | • **Periodic Exams**<br>• **Assignments & Classroom activities**<br>• **Final Exam** |
| 1.2 | **Describe the different methods of manufacturing of some food industry, food contaminants and chemical reactions in food. (M )** | **K2** | **Lecture, discussion** | • **Periodic Exams**<br>• **Assignments & Classroom activities**<br>• **Final Exam** |
| **2.0** | **Skills;** *Upon completion of the course, students are able to:* | | | |
| 2.1 | **Explain the Fermentation operation and analyze the specific operations for manufacturing, warehousing and distribution and its impact** | **S1** | **Lecture, discussion, problem solving** | • **Periodic Exams**<br>• **Assignments & Classroom activities**<br>• **Final Exam** |

| Code | Course Learning Outcomes | Code of CLOs aligned with program | Teaching Strategies | Assessment Methods |
|---|---|---|---|---|
| | on natural components for food. (M ) | | | |
| 2.2 | Communicate scientific information and research findings effectively in writing research papers or orally, using clear and concise scientific language. ( M) | S5 | writing research papers or Oral presentation | Classroom activities |
| **3.0** | **Values, autonomy, and responsibility;** *Upon completion of the course, students are able to:* | | | |
| 3.1 | Recognize a chemist's ethical and scientific responsibilities. (M ) | V2 | cooperative learning | Classroom activities |

## C. Course Content

| No | List of Topics | Contact Hours |
|---|---|---|
| 1. | Introduction to the food industry | 2 |
| 2. | Food components | 4 |
| 3. | Raw materials in the food industry | 4 |
| 3. | Preservatives and additives | 2 |
| 4. | Basics and methods of food preservation | 4 |
| 5. | Fermentation and its impact on the food industry | 4 |
| 6. | Important chemical reactions in food | 4 |
| 7. | Food contaminants and the impact of pesticides on food | 2 |
| 8. | Examples of some food industry | 4 |
| | Total | 30 |

## D. Students Assessment Activities

| No | Assessment Activities * | Assessment timing (in week no) | Percentage of Total Assessment Score |
|---|---|---|---|
| 1. | *Periodic Exams* | *During Semester* | *30%* |
| 2. | *Assignments & Classroom Activities* | *During Semester* | *20%* |
| 6. | *Final Exam* | *16-17* | *50%* |
| | *Total* | | *100%* |

*Assessment Activities (i.e., Written test, oral test, oral presentation, group project, essay, etc.).

## E. Learning Resources and Facilities

### 1. References and Learning Resources

| | |
|---|---|
| **Essential References** | **O. R. Fennema "Food Chemistry (Food Science and Technology) 4th Ed 2007, CRC Press.** |
| **Supportive References** | **1. Y. Velisek. " The Chemistry of Food " 2014, Wiley-Blackwell.<br>2. Titus A. M. Msagati. " The Chemistry of Food Additives and Preserva 2012, Wiley-Blackwell.<br>3. Belitz H-D, Grosch W, Schieberle P (2004) Food Chemistry, revised ed. Springer Berlin, Heidelberg, New York** |
| **Electronic Materials** | **- https://simplicable.com/economics/food-industry<br>- https://medium.com/@realfoodheaven01/importance-of-food-processing-in-our-daily-life-9f3fd478d286** |
| **Other Learning Materials** | |

### 2. Required Facilities and equipment

| Items | Resources |
|---|---|
| **facilities**<br>(Classrooms, laboratories, exhibition rooms, simulation rooms, etc.) | Lecture room(s) for groups of 50 students |
| **Technology equipment**<br>(projector, smart board, software) | Smart board, Data show, Black board, internet |
| **Other equipment**<br>(depending on the nature of the specialty) | |

## F. Assessment of Course Quality

| Assessment Areas/Issues | Assessor | Assessment Methods |
|---|---|---|
| Effectiveness of teaching | Student | Likert-type Survey CES) Indirect |
| Effectiveness of Students' assessment | Instructor & Course coordinator | Class room evaluation (direct & indirect |
| Quality of learning resources | Program coordinator | Indirect |
| The extent to which CLOs have been achieved | Assessment committee | Indirect |
| Other | | |

Assessors (Students, Faculty, Program Leaders, Peer Reviewers, Others (specify)

Assessment Methods (Direct, Indirect)

## G. Specification Approval

| | |
|---|---|
| **COUNCIL /COMMITTEE** | Physical Sciences Department Council |
| **REFERENCE NO.** | Meeting (3) |
| **DATE** | 12/03/2024 -02/09/1445 |