



**Ministry of Higher Education and Scientific Research**

 **Mustansiriyah University /College of Science**

**Department of ..........................**

**(الخطة الدراسية للمساق)**

**Course Plan**

**Course No.:** **one**  **Time Division:** …**two** …. hr. Theoretical and …**Three**…hr. Practical

**Course Name: Fermentation technology Semester & Year: First, 2022 / 2023**

**Course Website:**

**Course Description:**

**This subject presents the study of fermentation process in industrial product like alcohol production and yoghurt product in addition to beverage, pickles, baking and alcohol drinks ., the recent technique in fermentation in food process include vitamins , enzymes , amino acids , single cell protein and others from microorganisms. -------------------**

**Course Intended Outcomes:**

|  |
| --- |
| **the student must knowing the following: 1. the types of fermentation 2. The role of microorganisms in food products.** |

**------------------**

**Course Outline:**

|  |  |
| --- | --- |
| **Week** | **Description depends on the Timing table (Theoretical & Practical)** |
| **1** | Introduction ,types , history of fermentation . practical: microbial fermentation |
| **2** | Raw material for fermentation process . practical : yeast in fermentation |
| **3** | What is fermenter ? types of fermenter process . practical: calculate of sugar in fermentation processes |
| **4** | Types of fermentation ,alcoholic ,butyric and lactic acid . practical : acetobacter fermentation |
| **5** | Industrially important microorganisms . practical : calculate the acetic acid |
| **6** | Media for industrial fermentation .practical : acetic acid production |
| **7** | Exam : practical : exam |
| **8** | L- lysine fermentation . practical : lactic acid bacteria and fermentation |
| **9** | Glutamic acid fermentation . practical : yogurt product . |
| **10** | Production of organic acid , citric acid production . practical :fermentation of bakers |
| **11** | Enzymes production . practical : saccharomyces and biomass |
| **12** | Antibiotic production . practical : beverage fermentation |
| **13** | Propionic acid and butyric acid . practical: drink in industrial . |
| **14** | Exam practical : exam |
| **15** | Food technology: Introduction and definition , practical : food processes |

**Textbooks:**

**[1]:** Saranya ,s. 2011 Industrial fermentation . pelegia library

**[2]:** Adriana ., 2012the metabolism during fermentation . 3. Giang ,. 2011.probiotic.

**Suggested references:**

**[1]:** Bakari ., 2011 . lactic acid bacteria.

**[2]:** Zacarchenco., 2016 . fermented milk

**3:**Yuang., 2018 . pickles and sourkrout.

**Marking:**

|  |  |
| --- | --- |
| **First Semester** | **Final Exam** |
| **1st exam** | **2nd exam** | **Practical** | **Activity** |  |
| **12** | **12** | **12** | **4** |  |

|  |  |  |  |
| --- | --- | --- | --- |
| **Assignment/ Project** | **Description** | **Due Date** | **Marking** |
| **test** | **written exam** | **20/11/2022** | **12** |
| **test** | **written exam** | **28/12/2022** | **12** |

**Instructor(s) information [معلومات الأستاذ]**

**Section: (Biology) ; Lecture Room:[ 304 ] , ; Office No.: ( 13 )**

 **Instructor's Name:** **Dr. Nada Zaki Mahdi**

 **E-Mail**:smnk@uomustansiriyah.edu.iq

**Office Hours : Sun.:[ 11: 30 – 1 : 30 ]**

 **Monday.:[ 8 : 30 – 11 :30 ]**

**NOTES:**

**-Office Hour:Other office hours are available by appointment.**

**-The content of this syllabus not be changed during the current semester.**

**Lecturer Signature Chairman Signature**

 ****