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**Department of Food Technology**

**College of Agricultural Engineering sciences**

**University of Salahaddin**

**Subject: Food Microbiology**

**Course Book – Second Class -2nd semester**

**Lecturer's name Dr. Payman Ali Kareem**

**Academic Year: 2021/2022**

**Course Book**

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| **1. Course name** | **Food Microbiology- Theory** | |
| **2. Lecturer in charge** | **Payman Ali Kareem** | |
| **3. Department/ College** | **Food Technology Dep. /Agricultural Engineering sciences** | |
| **4. Contact** | **e-mail:** [**Payman.kareem@su.edu.krd**](mailto:Payman.kareem@su.edu.krd)  **Tel: (optional)** | |
| **5. Time (in hours) per week** | **For example Theory: 2**  **Practical: 3** | |
| **6. Office hours** | **Availability of the lecturer to the student during the week** | |
| **7. Course code** |  | |
| **8. Teacher's academic profile** | Lecturer in food technology dep  Food Microbiology | |
| **9. Keywords** |  | |
| **10. Course overview:**  **History of food microbiology. Types of microorganisms generally associated with food- mold, yeast, and bacteria, physical and chemical factors influencing destruction of microorganisms. Microorganisms in natural food products and their control. Biochemical changes caused by microorganisms, deterioration, and spoilage of various types of food products, microbial food fermentation. Food poisoning and microbial toxins, Foodborne intoxicants, and mycotoxins.** | | |
| **11. Course objective:**  **Upon course completion, students will be able to:**  **1. Understand the relationships between microorganisms and food and their role in food spoilage, food manufacturing, and food safety.**  **2. Understand how intrinsic and extrinsic factors affect microbial growth and survival in foods and how they can be used to control microbial populations in food.**  **3. Be familiar with common foodborne pathogens and their modes of action in the food.**  **4. Understand the beneficial role of microorganisms in fermented foods and beverages.**  **5. Understand the role of microorganisms in agricultural microbial products.**  **6. Develop critical analysis and research skills through the preparation of written reports and oral discussion.**  **7. Study the food preservation methods .** | | |
| **12. Student's obligation**  1 - Attendance at lectures and labs is required.  2-The student will write notes on their notebook  3-Every lecture have a quiz. | | |
| **13. Forms of teaching**  1- Data show  2-Power point  3- White board  4-Words(مه‌لزه‌مه‌) | | |
| **14. Assessment scheme**  ❖ Examinations: -  Theory 15  Ten on the monthly exam  Two for Report  Two for Quiz  One for class Activity  **Mark Distribution**  **Monthly Exam 50% (Theoretical 15% + Practical 35%) Final Exam 50% Theoretical = Final**  **Mark 100%.** | | |
| **15. Student learning outcome:**  This course is new for students so they will learn new information about Food microbiology. | | |
| **16. Course Reading List and References‌:**  **References:** -  1- Adams, M.R. and Moss, M.O. 2010. Food Microbiology, Third Edition.  2- Jay. James M; Loessner, Martin J; Golden, David A. (2005). Modern food microbiology. 7th edition. Springer press. USA.  3- Ray, Bibek. (2004). Fundamental Food Microbiology. Third edition. CPC press LLC.  4- Microbial food spoilage. Campden & Chorleywood Food Research Association.  5- Academic Lectures from the net | | |
| **17. The Topics:** | | **Lecturer's name** |
| **1-** Bravely History of microorganism in food  Notes about Student Reports Preparation  **2-** Review of Basic Microbiology  Introduction of food microbiology  **3-** Important Microorganisms in Food- Molds, Yeast.  **4-** Important Microorganisms in Food- Bacteria  **5-** Factors Influencing Growth of Microorganisms in Food (Intrinsic factors) Factors Influencing Growth of Microorganisms in Food (Extrinsic factors)  **6-** Food Spoilage Microorganisms, l Microbial Flora of Foods Shelf-Life Indicators, measuring compounds associated with microbial growth:  **7-** Source of Microorganisms in Food  **8-** Microbial food spoilage Some of the essential microorganisms responsible for spoilage of food.  **9-** Highly Correlated Microbial Indicators with Food Quality.  Microbial Metabolites that Correlate with Food Quality  **10-** Food preservation (microbial control).  Bio preservation  **11-** Foodborne diseases, Food poisoning, and microbial toxins  **12-** Probiotics and prebiotics | | **Assist.Prof.Dr. Payman Ali Kareem**  ex: (2 hrs) |
| **18. Practical Topics (If there is any)** | |  |
| 1-Coursebook, microscope ,simple staining,Gram staining and Isolation technique .  2- Preparation of Sample.  3- Microbiology of water.  4- Microbiology of egg.  5- Exam  6- Microbiology of meat.  7- Microbiology of fruit.  8- Microbiology of canned food.  9- Microbiology of Bread.  10- Microbiology of nuts and Seeds.  11- Microbiology of Salads.  12- Microbiology of Honey.  13- Microbial examination of eating utensils. | | Khanda Omer  (3-4 hrs)  ex: 14/10/2015 |
| **19. Examinations:**  ***1. Compositional:***  **Pattern of questions** | | |
| **20. Extra notes:**  Here the lecturer shall write any note or comment that is not covered in this template and he/she wishes to enrich the course book with his/her valuable remarks. | | |
| **21. Peer review پێداچوونه‌وه‌ی هاوه‌ڵ**  This course book has to be reviewed and signed by a peer. The peer approves the contents of your course book by writing few sentences in this section.  *(A peer is person who has enough knowledge about the subject you are teaching, he/she has to be a professor, assistant professor, a lecturer or an expert in the field of your subject).*  ئه‌م کۆرسبووکه‌ ده‌بێت له‌لایه‌ن هاوه‌ڵێکی ئه‌کادیمیه‌وه‌ سه‌یر بکرێت و ناوه‌ڕۆکی بابه‌ته‌کانی کۆرسه‌که‌ په‌سه‌ند بکات و جه‌ند ووشه‌یه‌ک بنووسێت له‌سه‌ر شیاوی ناوه‌ڕۆکی کۆرسه‌که و واژووی له‌سه‌ر بکات.  هاوه‌ڵ ئه‌و که‌سه‌یه‌ که‌ زانیاری هه‌بێت له‌سه‌ر کۆرسه‌که‌ و ده‌بیت پله‌ی زانستی له‌ مامۆستا که‌متر نه‌بێت.‌‌ | | |