MINISTRY OF EDUCATION AND TRAINING
CAN THO UNIVERSITY

SOCIALIST REPUBLIC OF VIETNAM
Independence - Freedom - Happiness

SUBJECT OUTLINE DETAILS

1. Subject: Food Microbiology Lab

- **Code:** FS441C
- **Credits: 1**
- **Hours:** 30 practice hours; 30 seft-study hours

2. Management Unit:

- **Department:** Microbial Biotechnology
- **Institute:** Biotechnology Research and Development Institute

3. Prerequisites: CS113

4. Subject objectives: Students are provided basic and specialized knowledge about dianosis of the presence of microorganisms in food; students have an ability to work in a laboratory independently, quickly analyze and evaluate food quality.

4.1. Knowledge:

4.1.1. Students know how to apply theoretical knowledge to interpret the results obtained in practicing

4.1.2. Students get strongly understands the theoretical knowledge through practical; comprehend some specific characteristics of each group of microbes.

4.1.3. Students know methods to detect and count a particular microorganism in food

4.1.4. Students know the criteria to evaluate the quality of some typical foods.

4.1.5. Students know the role of microorganisms in food process and storage and food preservation methods.

4.2. Skill:

4.2.1. Students can perform basic techniques in the laboratory; keep safely for working in lab condition (wear gloves, masks…)

4.2.2. Students can use equipment in laboratory (microscope, flowing cabinet,…)

4.2.3. Students can identify some typical microorganisms and isolate them

4.2.4. Students can design an experiment and produce typical fermentation products.

4.2.5. Students can write a report about activities they carry out.

4.3. Attitude:

4.3.1. Students must be confident in performing experiments independently and interpreting scientifically what they observe in their experiments.

4.3.2. Students feel interested in studying microbes in food.

5. Brief description of subject content:

The course focuses mainly on major microorganism groups and their biochemical activities related to the food preservation and processing. Beside, students can analyze advantages and spoiled activities of microorganisms during food processing and storage as well as identify the sources of spoiling sources. Different preservation methods will be introduced to prevent food from being damaged and poisoned by microorganisms.

6. Subject content structure:

Practice

	Content	**Hours**	**Objectives**
Unit 1.	Sample dilution	4	4.1.1, 4.1.2, 4.2.1, 4.2.2, 4.2.3, 4.2.5, 4.3.1, 4.3.2
Unit 2.	Viable cell counting	**4**	4.1.1, 4.1.2, 4.1.3, 4.2.1, 4.2.2, 4.2.3, 4.2.5, 4.3.1, 4.3.2
Unit 3.	MPN counting	4	4.1.1, 4.1.2, 4.1.3, 4.2.1, 4.2.2, 4.2.3, 4.2.5, 4.3.1, 4.3.2
Unit 4	The total number of aerobic bacteria	6	4.1.1, 4.1.2, 4.1.3, 4.1.4, 4.1.5, 4.2.1, 4.2.2, 4.2.3, 4.2.4, 4.2.5, 4.3.1, 4.3.2
Unit 5	Yeast and molds	4	4.1.1, 4.1.2, 4.1.3, 4.1.4, 4.1.5, 4.2.1, 4.2.2, 4.2.3, 4.2.4, 4.2.5, 4.3.1, 4.3.2
Unit 6	Lactic bacteria	4	4.1.1, 4.1.2, 4.1.3, 4.1.4, 4.1.5, 4.2.1, 4.2.2, 4.2.3, 4.2.4, 4.2.5, 4.3.1, 4.3.2
Unit 7	Coliforms and *E.coli*	4	4.1.1, 4.1.2,

4.1.3, 4.1.4,
4.1.5, 4.2.1,
4.2.2, 4.2.3,
4.2.4, 4.2.5,
4.3.1, 4.3.2

7. Teaching method:

- Practice and design experiment
- Observe experiment, take note and discuss about different results between different groups

8. Duties of student:

Students have to do the following duties:

- Attend all classes
- Participate in experiment preparation, design and implementation, and all class activities
- Observe experiment, take note, discuss and write a report

9. Assessment of student learning outcomes:

9.1. Assessment

No.	Point components	Rules and Requirement	Weights	Objectives
1	Class attendance	Students attend all classes and participate in all class activities	40%	4.1.1, 4.1.2, 4.1.3, 4.1.4, 4.1.5, 4.2.1, 4.2.2, 4.2.3, 4.3.1, 4.3.2
2	Writing report	Students write a report about class activities with their thinking, comments, explanation and analyze the results from their experiments	60%	4.1.2, 4.1.3, 4.2.4, 4.3.1, 4.3.2

9.2. Grading

- Grading components and final test scores will be marked on a scale of 10 (0 to 10), rounded to one decimal place.
- Subject score is the sum of all the components of the evaluation multiplied by the corresponding weight. The subject score is marked on a scale of 10 and rounded to one decimal place, then is converted to A-B-C-D score and score on a scale of 4 under the academic provisions of the University.

10. Materials:

Materials information	Code number
1. Công nghệ vi sinh vật; T2 Vi sinh vật học công nghiệp / Nguyễn Đức Lượng.- 1st.- Tp. HCM : Trường Đại Học Bách Khoa , 1996 .- 660.62/ L561/T2	MOL.021151; MOL.021152 ; CN000124 ; NN.006445 ;
2. Công nghệ sinh học đại cương- Phần 1 / Trần Phước Đường.- Cần Thơ: Trường đại học Cần Thơ, 2004.- 146 tr., 30 cm..-	DIG.000102 ; CNSH.000163

660.62/ Đ561/P.I/II
3. Food Fermentation- Part 1 / Tjakko Abee [et. al.] ; editor: Siemen Schoustra.- Netherland: Wageningen Agricultural, 1999.- 197 tr. ; ill., 30 cm.- 664/ F686/P.1 DIG.000137; CNSH.000159

11. Self-study Guide:

Week	Content	Theory (hours)	Practice (hours)	Students' duties
1	Sample dilution		3	Conduct experiment and class activities
	Viable cell counting		4	Conduct experiment and class activities
	MPN counting		3	Conduct experiment and class activities
	The total number of aerobic bacteria		4	Conduct experiment and class activities
	Yeast and molds		4	Conduct experiment and class activities
	Lactic bacteria		4	Conduct experiment and class activities
	Coliforms and *E.coli*		4	Conduct experiment and class activities
2	Writing report		4	Write a report

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ON BEHALF OF RECTOR
DEAN/ DIRECTOR

HEAD OF DEPARTMENT