

SUBJECT OUTLINE DETAILS

1. Subject: BIOTECHNOLOGY SEMINAR

- **Code:** BT198C
- **Credits:** 01
- **Hours:** 15 theory hours, and 30 self-study hours.

2. Management Unit:

- Department of Microbial Biotechnology
- Biotechnology Research and Development Institute.

3. Prerequisites: none

4. Subject objectives:

4.1. Knowledge:

Students will develop knowledge and understanding of:

- 4.1.1. Help students to understand principles of biotechnology
- 4.1.2. Students will obtain a basic knowledge of biotechnology including traditional, pre-modern and modern biotechnology.

4.2. Skill: students will be able to

- 4.2.1. increases awareness of different levels of thinking: comprehension, application, and evaluation.
- 4.2.2. apply investigative and problem-solving skills.
- 4.2.3. apply effective skills in communication to exchange and sharing biotechnology knowledge.
- 4.2.4. work individually and in teams by finding knowledge on web

4.3. Attitude:

- 4.3.1. Actively participate in class seminar activities and in working in teams
- 4.3.2. Students are encouraged to develop positive values and informed critical attitudes.
- 4.3.3. Develop a sense of independent learning and an inquiry mind for self-study.

4.4 Brief description of subject content: This course will acquaint students with the principles of biotechnology. Topics include the Applied and Industrial Microbiology; Microbial biotechnology; Plant, Medical, Food, and Environment biotechnology.

4.5 Subject content structure:

Contents	Hours	Objectives
PART I. TRADITIONAL BIOTECHNOLOGY (choose one of two)	3	4.1.1; 4.1.2; 4.2.1; 4.2.2; 4.2.3; 4.2.4; 4.3;
1. Topic 1: Traditional Fermentation - Introduction (by Lecturer) - Seminar (by Students)	1 2	
2. Topic 2: Classical breeding techniques (plant, animal, microorganisms) - Introduction (by Lecturer) - Seminar (by Students)	1 2	
PART II. PRE-MODERN BIOTECHNOLOGY (choose two of three)	6	4.1.1; 4.1.2; 4.2.1; 4.2.2; 4.2.3; 4.2.4; 4.3;
3. Topic 3: Amino acid and Antibiotic production - Introduction (by Lecturer) - Seminar (by Students)	1 2	
4. Topic 4: Enzyme production from micro-organisms - Introduction (by Lecturer) - Seminar (by Students)	1 2	
5. Topic 5: Vaccine production technology - Introduction (by Lecturer) - Seminar (by Students)	1 2	
PART II. MODERN BIOTECHNOLOGY (choose two of four)	6	4.1.1; 4.1.2; 4.2.1; 4.2.2; 4.2.3; 4.2.4; 4.3;
6. Topic 6: Genetic Engineering, GMO, GMF - Introduction (by Lecturer) - Seminar (by Students)	1 2	
7. Topic 7: Medical and Nano Biotechnology - Introduction (by Lecturer) - Seminar (by Students)	1 2	
8. Topic 8: Environmental Biotechnology - Introduction - Seminar	1 2	
9. Topic 9: Food Biotechnology - Introduction (by Lecturer) - Seminar (by Students)	1 2	

7. Teaching methods:

- Introducing and explaining.
- Providing supplements, media resources, websites...
- Encourage students self- learning and - searching knowlegde for seminars

8. Duties of student:

- Lecture/Class attendance: not allow to absent more than 20% of lectures.
- Seminar attendance: mandatory.
- Discussion and homeworks: mandatory

9. Assessment of student learning outcomes:

9.1. Assessment

No.	Point components	Rules and Requirement	Weights
2	Midterm exam/ Seminars	Tests/ Oral presentation	30%
3	Final exam	Tests/ Oral presentation	70%

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] Molecular biology and biotechnology (1 56081 569 8) / ROBERT A MEYERS: VCH Publishers, 1995, 1 56081 569 8.- 572.803/ M718	<u>KH000269</u>
[2] Food biotechnology / Roger Angold, Gordon Beech, John Taggart.- Cambridge: Cambridge University Press, 1989.- 171 p., 24 cm (Cambridge Studies in Biotechnology 7), 0521266319.- 664.024/ A592	<u>CN.001830</u>
[3] Biotechnology in the food industry / M P Tombs.- 1st.- Milton Keynes: Open Univ, 1990, 189p., 0 471 93276 0.- 644/ T656	Viện NC và PT công nghệ SH
[4] Agricultural biotechnology in developing countries / John Komen, Gabrielle Persley.- The Netherland: ISNAR, 1993, 45p., 92 9118 011 9.- 630.274/ K81	<u>NN.013578</u>
[5] Biotechnology research and applications / J. Gavora ... [et al.].- London: Elsevier applied science, 1988.- 321p., 24cm, 1851062707.- 660.6/ B615	<u>CN.001851</u>
[6] Basic biotechnology (0 521 77074 2) / COLIN RATEDGE; Biên tập, hiệu đính: COLIN RATLEDGE, Bjorn Kristiansen: Cambridge, 2001, 0 521 77074 2.- 660.62/ B311	MON.102641
[7] Biotechnology A guide to genetic engineering / Pamela Peters.- 1st.- Boston, Massachusetts: McGraw-Hill, 1993, 253p, 0 697 12063 5.- 660.65/ P483	<u>KH000519; NN000220</u>
[8] Biotechnology Secondary metabolites / Biotechnology, K G RAMAWAT, J. M. Mé rillon.- 1st.- Enfield, New Hampshire: Science, 1999, 393p, 1 57808 057 6.- 660.6/ B615	<u>NN000303</u>
[9] Environmental biotechnology / ALAN SCRAGG.- 1st.- Edinburg Gate, England: Longman, 1999, 249p, 0 582 27682 9.- 628.5/ S433	<u>NN000273</u>
[9] Industrial microbiology / Samuel Cate Prescott, Cecil Gordon Dunn.- New York : McGraw-Hill , 1959 .- 660.62/ P933	MON.111955

- [10] Công nghệ vi sinh vật; T3 Thực phẩm lên men truyền thống / Nguyễn Đức Lượng.- 1st.- Tp. HCM: Trường Đại Học Bách Khoa, 1996, 207tr.- 660.62/ L561/T3 CN000125; NN.006451; MOL.021155; MOL.021156
- [11] Các phương pháp lên men thực phẩm truyền thống ở Việt Nam và các nước trong vùng / Nguyễn Hữu Phúc.- Thành Phố Hồ Chí Minh: Nông Nghiệp, 1998.- 259 tr., 21x30 cm.- 664/ Ph506 NN.015176
- [12] Food, fermentation, and micro-organisms / Charles W.Bamforth.- Oxford: Blackwell Science, 2005.- 216 p., 25 cm, 9780632059874.- 664.024/ B199 MT.000046
- [13] Công nghệ vi sinh vật : Vi sinh vật học công nghiệp / Nguyễn Đức Lượng.- Thành phố Hồ Chí Minh: Trường Đại Học Bách Khoa, 1996.- 235 tr.- 660.62/ L561/T.2 CN000124; NN.006445; MOL.021152
- [14] Food Fermentation- Part 1 / Tjakko Abee [et. al.] ; editor: Siemen Schoustra.- Netherland: Wageningen Agricultural, 1999.- 197 tr. ; ill., 30 cm.- 664/ F686/P.1 MON.038486
- [15] Microbial biotechnology Fundamentals of applied microbiology / Alexander N Glazer, Hiroshi Nikaido.- 1st.- New York: W. H. Freeman, 1994, 662p., 0 7167 2608 4.- 660.62/ G553 Viện NC và PT công nghệ SH
- [16] Applications of biotechnology to traditional fermented foods: Report of an AD HOC Panel of the Board on Science and Technology for International Development / Office of International Affairs, National Research Council.- 1st.- Washington, D.C: National Academic Press, 1992, 199p., 0 309 04685 8.- 664.028/ O.32 Viện NC và PT công nghệ SH
- [17] Handbook of enzyme biotechnology / Alan Wiseman.- 2nd ed.- London: Ellis Horwood Limited, 1985.- 457 p., 24 cm, 0853124205.- 660.634/ W814 CN.001862
- [18] Applied plant biotechnology / Applied plant biotechnology; Biên tập, hiệu đính: V L CHOPRA ...[et al.].- 1st.- Enfiel, New Hampshire: Science, 1999, 384p, 1 57808 033 9.- 630/ A648 NN000250
- [19] Bacteria in biology, biotechnology and medicine / Paul Singleton.- 3rd.- Chichester: John Wiley and Sons, 1995, 319p., 0 471 95811 5.- 589.9/ S617 Viện NC và PT công nghệ SH

11. Self-study Guide:

Week	Content	Theory (hours)	Students' duties
1	PART I. TRADITIONAL BIOTECHNOLOGY (choose one of two)	3	Based on each Topic:
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2	1. Topic 1: Traditional Fermentation - Introduction (by Lecturer) - Seminar (by Students)	3	- Reading: [10][11] from 1.1 to 1.6. +Investigate [3] fruit juice -Studying: [14][9] to understand more 1.2 to 1.6. - Finding and accessing: contents/ theory from the internet, books, handouts, lectures... preparing PPT and carrying out the seminar (in group), discuss and answer the questions from other groups.
	2. Topic 2: Clasical breeding techniques (plant, animal, microorganisms) - Introduction (by Lecturer)	3	-Reading: [7] from 3.1 to 3.3 -Reviewing: topic 1 . -Studying: [5][9][5] to understand more 3.1 to 3.3 - Finding and accessing:

	- Seminar (by Students)		contents/ theory from the internet, books, handouts, lectures... preparing PPT and carrying out the seminar (in group), discuss and answer the questions from other groups.
	PART II. PRE-MODERN BIOTECHNOLOGY (choose two of three)	6	Based on each Topic:
2	3. Topic 3: Amino acid and Antibiotic production technology - Introduction (by Lecturer) - Seminar (by Students)	3	-Reading:[8]: from 4.1 to 4.3 -Reviewing: topic 2 . -Studying: [7] and [9][13] to understand more 4.1; 4.2. -Finding and accessing: contents/ theory from the internet, books, handouts, lectures... preparing PPT and carrying out the seminar (in group), discuss and answer the questions from other groups.
3			
4	4.Topic 4: Enzyme production from micro-organisms - Introduction (by Lecturer) - Seminar (by Students)	3	-Reading: [17]: from 5.1-5.3, -Reviewing: topic 3 . -Studying [13] and [6][13] to understand more 5.1 to 5.3. -Finding and accessing: contents/ theory from the internet, books, handouts, lectures... preparing PPT and carrying out the seminar (in group), discuss and answer the questions from other groups.
5			
	5.Topic 5: Vaccine production technology - Introduction (by Lecturer) - Seminar (by Students)	3	-Reading: [9]: from 6.1-6.2; + - Reviewing topic 4 . -Studying: [3]; [6][15] to understand more 6.1; 6.2; -Finding and accessing: contents/ theory from the internet, books, handouts, lectures... preparing PPT and carrying out the seminar (in group), discuss and answer the questions from other groups.
	PART II. MODERN BIOTECHNOLOGY (choose two of four)	6	Based on each Topic:
5	6 Topic 6: Genetic Engineering, GMO, GMF - Introduction (by Lecturer) - Seminar (by Students)	3	-Reading: [7]: from 8.1-8.3 -Reviewing: topic 5 -Studying: [1][5] to understand more 8.1 to 8.3; -Finding and accessing: contents/ theory from the internet, books, handouts,

6			lectures... preparing PPT and carrying out the seminar (in group), discuss and answer the questions from other groups.
6	7. Topic 7: Medical and Nano Biotechnology	3	-Reading: [19]: from 9.1-9.2. -Reviewing: topic 6 -Studying:[1][5] to understand more 10.1 to 10.4; -Finding and accessing: contents/ theory from the internet, books, handouts, lectures... preparing PPT and carrying out the seminar (in group), discuss and answer the questions from other groups.
-	- Introduction (by Lecturer)		
7	- Seminar (by Students)		
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8			
-			
	8. Topic 8: Environmental Biotechnology	3	-Reading: [2]: from 11.1-11.3 -Reviewing: topic 7 -Studying: [3][10] to understand more 11.1 to 11.3; -Finding and accessing: contents/ theory from the internet, books, handouts, lectures... preparing PPT and carrying out the seminar (in group), discuss and answer the questions from other groups.
9	- Introduction (by Lecturer)		
	- Seminar (by Students)		
	9. Topic 9: Food Biotechnology	3	-Reading: [2] from 11.1-11.3 -Reviewing: topic 8 -Studying: [3][10] to understand more 11.1 to 11.3; -Finding and accessing: contents/ theory from the internet, books, handouts, lectures... preparing PPT and carrying out the seminar (in group), discuss and answer the questions from other groups.
	- Introduction (by Lecturer)		
	- Seminar (by Students)		
	Total	15	
10			Taking the Final exam

Can Tho,/...../20...

**ON BEHALF OF RECTOR
DEAN/ DIRECTOR**

HEAD OF DEPARTMENT