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**國立高雄科技大學**  
**NATIONAL KAOHSIUNG**  
**UNIVERSITY OF SCIENCE**  
**AND TECHNOLOGY**

**授課大綱 Syllabus**

部別：日間部博士

112學年度第2學期

列印日期：2024/03/01

中文課程名稱：微生物發酵技術 英文課程名稱：Microbial Fermentation Technology 授課教師：SINGHANIA R. R  
 開課班級：水產科技博班二甲 學分：3.0 授課時數：3.0  
 合班班級： 實習時數：0.0

**1. 中文教學目標(Chinese Teaching objectives)**

To make students learn about microbial fermentation technology which is applied in the food and pharmaceutical industries. It is a key to understand microbial behavior to be exploited for the benefits of mankind.

**2. 英文教學目標(English Teaching objectives)**

To make students learn about microbial fermentation technology which is applied in the food and pharmaceutical industries. It is a key to understand microbial behavior to be exploited for the benefits of mankind.

**3. 中文教學綱要(Chinese CourseDescription)**

I will help to understand the basics of fermentation process as well as the recent developments taking place in Fermentation technology.

**4. 英文教學綱要(English CourseDescription)**

I will help to understand the basics of fermentation process as well as the recent developments taking place in Fermentation technology.

**5. 中文核心能力**

核心能力名稱	核心能力百分比
1 生物資源永續	25%
2 產銷管理能力	25%
3 整合與研究能力	25%
4 創新溝通能力	25%

**6. 英文核心能力**

核心能力名稱	核心能力百分比
1 Biological resource sustainability	25%
2 Production and sales management capabilities	25%
3 Integration and research skills	25%
4 Innovative communication skills	25%

**7. 教科書**

1 中文書名： 英文書名：Fermentation Microbiology and Biotechnology, fourth edition

中文作者： 英文作者：El-Mansi, E.M.T., Nielsen, J., Mousdale, D., Allman, T., Carlson, R., (Eds.)

中文出版社： 英文出版社：CRC Press, Taylor and Francis, New York

出版日期： 年 月 備註：

## 8. 參考書

中文書名：Node 英文書名：Node

中文作者： 英文作者：

1 中文出版社： 英文出版社：

出版日期： 年 月 備註：

## 9. 教學進度表

週次或項目 Week or Items	中文授課內容 Chinese Course Content	英文授課內容 English Course Content	分配節次 Assigned Classes	備註 Note
1	Basic of Microbial fermentation	Basic of Microbial fermentation	3	
2	Solid-state Fermentation	Solid-state Fermentation	3	
3	Submerged fermentation	Submerged fermentation	3	
4	Types of Submerged fermentation	Types of Submerged fermentation	3	
5	Modes of fermentation	Modes of fermentation	3	
6	Modes of fermentation	Modes of fermentation	3	
7	Case Studies for SSF	Case Studies for SSF	3	
8	Case Studies for SmF	Case Studies for SmF		
9	Mid Examination	Mid Examination	3	
10	Fermenter design for various Bioprocess	Fermenter design for various Bioprocess	3	
11	Stirred Tank Bioreactor	Stirred Tank Bioreactor	3	
12	Bubbled column reactor	Bubbled column reactor	3	
13	Air Lift fermenter	Air Lift fermenter	3	

14	Parts of fermenter	Parts of fermenter	3
15	Impeller Design	Impeller Design	3
16	Stirrer type	Stirrer type	3
17	Aerobic and anaerobic fermentations basic differences with respect to bioreactor design	Aerobic and anaerobic fermentations basic differences with respect to bioreactor design	3
18	Final exam	Final exam	3

#### 10. 中文成績評定(Chinese Evaluation method)

Assigments and written test

#### 11. 英文成績評定(English Evaluation method)

Assigments and written test

#### 12. 中文課堂要求(Chinese Classroom requirements)

Assigments and written test

#### 13. 英文課堂要求(English Classroom requirements)

Assigments and written test

#### 14. 本課程與SDGs相關項目(This course is relevant to these of SDGs as following)

3. 良好健康和福祉(Good Health and Well Being);7. 可負擔的潔淨能源(Affordable and Clean Energy);

**「遵守智慧財產權」；「不得非法影印」！**