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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：產業實務講座	英文課程名稱：Special Topics in Industrial Pollution Prevention	授課教師：狄蘿莉
開課班級：水產科技博班一甲	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)

This is a beginner level course for students who would like to pursue sustainable development and pollution abatement as a career link, introducing them to different kinds of wastes and pollution, identification of pollution sources and available control strategies

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

1. To understand the interactions between industrial development and environment 2. Identify pollution associated with industries 3. Analyze an industrial process for possible pollution point sources 4. Develop a minimal strategy for pollution abatement

3. 中文教學綱要(Chinese CourseDescription)

The concept of industrial pollution, Identification, cataloguing, sampling and characterization of waste. Interactions of waste with the environment and impacts on ecosystems and public health. Industrial pollution control and sustainable development, Legal policies and quality control standards. Water pollution - wastewater from various industries, characterization and treatment strategies. Air pollution - GHGs, gaseous pollutants and particulate matter, removal of air pollutants. Solid wastes - hazardous and non-hazardous wastes and treatment methods. Noise pollution and control. Pollution control by waste minimization - recovery, reuse, and recycle, industrial symbiosis for waste reduction. Process based waste control strategies - Process boundaries, environmental indicators, DAOM (design-analysis, operation and maintenance) of industrial processes for pollution prevention. Product based control strategies - Ecodesign strategies, Life cycle assessment and methodologies, Ecological and environmental indicators.

4. 英文教學綱要(English CourseDescription)

The course curriculum is designed so that the students obtain an outline of the complications of ecological pollution produced by industries, and know the existence of waste minimization strategies development and the remediation technologies.

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

中文書名： 英文書名：Industrial Pollution Control: Issues and Techniques

中文作者： 英文作者：Nancy J. Sell

1 中文出版社： 英文出版社：Wiley

出版日期：年 月 備註：ISBN: 978-0-471-28419-2

8. 參考書

中文書名： 英文書名：Industrial Pollution Prevention. In: Industrial Pollution Prevention. Environmental Engineering. Springer,

中文作者： 英文作者：Thomas T Shen

1 中文出版社： 英文出版社：Springer

出版日期：1995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	The concept of industrial pollution	The concept of industrial pollution	3	
2	Identification, cataloguing, sampling and characterization of waste	Identification, cataloguing, sampling and characterization of waste	3	
3	Interactions of waste with the environment and impacts on ecosystems and public health	Interactions of waste with the environment and impacts on ecosystems and public health	3	
4	Industrial pollution control and sustainable development	Industrial pollution control and sustainable development	3	
5	Legal policies and quality control standards	Legal policies and quality control standards	3	
6	Water pollution - wastewater from various industries	Water pollution - wastewater from various industries	3	
7	Wastewater characterization and treatment strategies	Wastewater characterization and treatment strategies	3	

8	Air pollution - GHGs, gaseous pollutants and particulate matter, removal of air pollutants	Air pollution - GHGs, gaseous pollutants and particulate matter, removal of air pollutants	3
9	Mid term exam	Mid term exam	3
10	Solid wastes - hazardous and non-hazardous wastes	Solid wastes - hazardous and non-hazardous wastes	3
11	Treatment methods of solid wastes	Treatment methods of solid wastes	3
12	Noise pollution and control	Noise pollution and control	3
13	Pollution control by waste minimization - recovery, reuse, and recycle, industrial symbiosis for waste reduction	Pollution control by waste minimization - recovery, reuse, and recycle, industrial symbiosis for waste reduction	3
14	Process based waste control strategies	Process based waste control strategies	3
15	Product based control strategies	Product based control strategies	3
16	Life cycle assessment and methodologies	Life cycle assessment and methodologies	3
17	Ecological and environmental indicators	Ecological and environmental indicators	3
18	Fianl Exam	Fianl Exam	3

10. 中文成績評定(Chinese Evaluation method)

Mid-term - 30% Seminar presentation - 20% Assignment submission - 10% Final exam - 50%

11. 英文成績評定(English Evaluation method)

Mid-term - 30% Seminar presentation - 20% Assignment submission - 10% Final exam - 50%

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

None

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

None

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);6. 潔淨水與衛生(Clean Water and Sanitation);12. 負責任的消費與生產(Responsible Consumption);13. 氣候行動(Climate Action);14. 水下生命(Life Below Water);15. 陸域生命(Life On Land);17. 夥伴關係(Partnerships for the Goals);

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