國立宜蘭大學113學年度第一學期園藝學系

第2次系課程委員會會議紀錄

1. 時間：113年10月04日(星期五)，12:10
2. 地點：園藝學系745會議室
3. 主席：高建元 主任 紀錄：劉安礎
4. 出席人員：張允瓊老師、鄔家琪老師、黃志偉老師、劉天珠老師、巫羽婷(研究生代表)、賴黃羿(大學生代表)。
5. 上次課程委員會會議執行情形：詳如附件1
6. 主席報告：略
7. 提案討論：

提案一：113學年度第二學期擬開一門全英文碩士班選修課程「生物防治」，提請 討論。(陳韻如老師)

說 明：

(一)「生物防治」為碩士班全英課程，並提供大學部修課。

(二) 檢附課程計畫表，詳如附件2。

擬 辦：討論通過後續送院課程委員會會議。

決 議：修正後通過。

提案二：113學年度第二學期擬新開一門碩士班選修課程「智慧園藝技術應用」，提請 討論。(劉天珠老師)

說 明：

(一)「智慧園藝技術應用」為碩士班課程，並提供大學部修課。

(二) 檢附課程計畫表，詳如附件3。

擬 辦：討論通過後續送院課程委員會會議。

決 議：修正後通過。

1. 臨時動議： 無。

散會:12：35

**附件1**

**國立宜蘭大學113學年度第1學期第1次系課程委員會會議執行追踨表**

**會議日期：113年09月12日**

|  |  |  |  |
| --- | --- | --- | --- |
| **提案** | **案由及決議事項** | **提案人** | **執行情形** |
| 一 | 案由：113學年度第一學期擬新開一門碩士班暑期選修課程「自然療癒在高齡科技應用與效用評估」，提請 追認。  決議：通過。 | 張允瓊 | 依照會議決議辦理。 |

**國立宜蘭大學　　教學大綱**

**附件2**

|  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 開課學制 | 日間課程 | | 開課學年度/學期 | | | 113-2 | | | | 開課班級 | 大學部3,4 年級 碩士班 |
| 開課系所 | 園藝系 | | 選課編號 | | | R3HC010002 | | | |
| 課程名稱 | 生物防治  Biological Control | | | | | | | | | 合開 | □是 ■否 |
| 教學目標 | 生物防治是一種利用自然天敵等來控制害蟲及其他有害生物的方法。在這門課程中，學生將學習到生物防治的基本概念、原理和實踐，並探索不同的自然敵對象，如寄生蟲、掠食者和病原體，如何有效地抑制害蟲族群的增長。課程還將涵蓋生物防治在農業中的應用、成功案例以及其在可持續農業發展中的重要性。 | | | | | | | | | 任課教師 | 所屬系所：園藝學系  教師姓名：陳韻如 |
| 先修科目 | 無 | | | | | | | | |
| 學分數 | 2 | 演講時數 | | 2 | 實習時數 | | | | 0 |
| 上機 | □是 ■否 | | 課程性質：□必修 ■選修 | | | | | | |
| 實習 | □是 ■否 | | 上課教室 | | |  | | | | 上課時間 |  |
| 教科書目 | 自編講義：■是 □否 | | | | | | | 圖資館館藏：□是 ■否 | | | |
| 自編教材 | | | | | | | | | | |
| 參考書目 | Biological Control in Plant Protection. Helyer Brown Cattlin. The Royal Horticultural Society. ISBN: 1874545286  園藝果蔬害蟲。2020。溫宏治。國立臺灣大學出版中心。ISBN：9789863503811  害物整合管理原理。2023。楊秀珠，黃莉欣，許如君，陳秋男。五南圖書。ISBN13：9786263435278 | | | | | | | | | | |
| 考試及成績  計算方式 | 期中考: 35%  期末考: 35%  平時成績: 30% | | | | | | | | | 上課方式 | 英文授課  講授討論，有作業 |
| 本課程核心能力雷達圖 | | | | | | | 本課程核心能力權重 | | | | |
| 開課後會依據核心能力權重，由系統自動產生 | | | | | | | R1：具備園藝作物育種、生產與管理能力(70%)  R2：具備園藝產品採收後處理與加工能力(0%)  R3：具備自然生態與休閒遊憩理念之景觀造園能力(20%)  R4：綜合能力(20%) | | | | |

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| --- | --- |
| 週次 | 上 課 進 度 |
| 1 | 課程介紹與生物防治概論 |
| 2 | 生物防治的基本概念 |
| 3 | 生物防治的機制 |
| 4 | 天敵昆蟲的簡介和應用 |
| 5 | 害蟲病原體的介紹 (一) |
| 6 | 害蟲病原體的介紹 (二) |
| 7 | 害蟲病原體的介紹 (三) |
| 8 | 非化學方式進行雜草控制 |
| 9 | 期中考 |
| 10 | 其他有害生物的生物防治方法 |
| 11 | 生物防治中的基因技術 |
| 12 | 生物防治在農業中的應用 |
| 13 | 生物防治在城市與森林管理中的應用 |
| 14 | 生物防治的環境影響與風險評估 |
| 15 | 生物防治的法律與政策 |
| 16 | 生物防治與綠色經濟 |
| 17 | 生物防治的未來與挑戰 |
| 18 | 期末考 |

「請遵守智慧財產權，切勿使用非法影印教科書」。

本課程符合聯合國永續發展目標(SDGs)如下:

目標2、消除飢餓，實現糧食安全，改善營養狀況和促進永續農業。

目標3、確保健康的生活方式，促進各年齡人群的福祉。  
目標15、保育和永續利用陸域生態系統，永續管理森林，防治沙漠化，防止土地劣化，遏止生物多樣性的喪失。

**National I-Lan University Course Outline**

|  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Daytime/Evening Session | Daytime | | Semester | | | 113-2 | | | | Target Students | Undergrads 3nd-4th year  Graduate students |
| Department | Horticulture | | Course Number | | | R3HC010002 | | | |
| Course Title | 生物防治  Biological Control | | | | | | | | | Cooperation | □Y ■N |
| Course Objectives | Biological control is a method of managing pests and other harmful organisms by utilizing their natural enemies. In this course, students will learn the fundamental concepts, principles, and practices of biological control, exploring how various natural enemies—such as parasitoids, predators, and pathogens—can effectively suppress pest populations. The course will also cover the applications of biological control in agriculture, successful case studies, and its significance in sustainable agricultural development. | | | | | | | | | Instructor | Department： Horticulture  Instructor：Yun-Ru Chen |
| Prerequisites | NA | | | | | | | | |
| Credit(s) | 2 | Lecture Hours | | 2 | Practicum Hours | | | | 0 |
| Computer Lab | □Y ■N | | Required/ Elective | | | □Required  □Elective | | | |
| Practicum | □Y ■N | | Class room | | |  | | | | Class Time |  |
| Textbooks | Handout：■Y □N | | | | | | | Library [collection](http://tw.websaru.com/collection.html)：□Y ■N | | | |
| Self-edited lecture notes | | | | | | | | | | |
| References | Biological Control in Plant Protection. Helyer Brown Cattlin. The Royal Horticultural Society. ISBN: 1874545286  園藝果蔬害蟲。2020。溫宏治。國立臺灣大學出版中心。ISBN：9789863503811  害物整合管理原理。2023。楊秀珠，黃莉欣，許如君，陳秋男。五南圖書。ISBN13：9786263435278 | | | | | | | | | | |
| Grading Policy | Midterm Exam: 35%  Final Exam: 35%  Class Participation: 0% | | | | | | | | | Teaching Method | Teaching in English.  Lectures and discussions in-class. There will be assignments. |
| Radar Chart | | | | | | | Correspondence Between Course Content and Core Competency | | | | |
| 開課後會依據核心能力權重，由系統自動產生 | | | | | | | R1：The ability to breed, produce, and manage horticultural crops (70%)  R2：The ability of post-harvest processing and handling of horticultural products (0%)  R3: landscape design skills that incorporate the concepts of natural ecology and recreational activities (10%)  R4：Integrated capability (20%) | | | | |

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| --- | --- |
| Weeks | Course Outline |
| 1 | **Week 1:** Course Introduction and Overview of Biocontrol |
| 2 | **Week 2:** Basic Concepts of Biocontrol |
| 3 | **Week 3:** Mechanisms of Biocontrol |
| 4 | **Week 4:** Insects as Natural Enemies for Pest Control |
| 5 | **Week 5:** Insect Pathogens Introduction and How to Use Them for Biocontrol (1) |
| 6 | **Week 6:** Insect Pathogens Introduction and How to Use Them for Biocontrol (2) |
| 7 | **Week 7:** Insect Pathogens Introduction and How to Use Them for biocontrol (3) |
| 8 | **Week 8:** Non-chemical Strategy for Weed Control |
| 9 | **Week 9:** Midterm Exam |
| 10 | **Week 10:** Biocontrol Methods for Other Pests |
| 11 | **Week 11:** Genetic Techniques in Biocontrol |
| 12 | **Week 12:** Biocontrol in Agriculture |
| 13 | **Week 13:** Biocontrol in Urban and Forest Management |
| 14 | **Week 14:** Environmental Impact and Risk Assessment of Biocontrol |
| 15 | **Week 15:** Laws and Policies in Biocontrol |
| 16 | **Week 16:** Biocontrol and the Green Economy |
| 17 | **Week 17:** Future and Challenges of Biocontrol |
| 18 | **Week 18:** Final Exam |

**“Please Respect Intellectual Property Rights. Do Not Use Illegally Photocopied Textbooks.”**

**This course is in line with the United Nations Sustainable Development Goals (SDGs) as follows:**

**2. Zero Hunger**

**3. Good Health and Well-Being**

**15. Life on Land**

**國立宜蘭大學　　教學大綱**

**附件3**

|  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 開課學制 | 日間學制 | | 開課學年度/學期 | | | 113-2 | | | | 開課班級 | 園藝3,4年級與碩士班 |
| 開課系所 | 園藝學系 | | 選課編號 | | |  | | | |
| 課程名稱 | 中文: 智慧園藝技術應用  英文: Application of Technology in Smart Horticulture | | | | | | | | | 合開 | ■是 □否 |
| 教學目的 | 1. 理解智慧園藝的基本概念及其技術架構。  2. 掌握植物生長發育的基本需求與環境因素。  3. 學習智聯網技術在園藝中的應用。  4. 設計智慧園藝系統。 | | | | | | | | | 任課教師 | 所屬系所：  園藝學系  教師姓名：  劉天珠  所屬系所：  電機工程學系  教師姓名：  王思喨 |
| 先修科目 |  | | | | | | | | |
| 學分數 | 2 | 演講時數 | | 2 | 實習時數 | | | | 0 |
| 上機 | □是 ■否 | | 課程性質：□必修 ■選修 | | | | | | |
| 實習 | □是 ■否 | | 上課教室 | | |  | | | | 上課時間 |  |
| 教科書目 | 自編講義：□是 ■否 | | | | | | | 圖資館館藏：□是 ■否 | | | |
| AI, Edge and IoT-based Smart Agriculture/ 2021/ Abraham, A., Rodrigues, J.J.P.J, and Pani, S.K. (editor)/ Elsevier Inc./ ISBN 9780128236949 | | | | | | | | | | |
| 參考書目 | Internet of Things for Agriculture 4.0/ 2022/ Singh, R., Thakur, A.K., Anita Gehlot, A., and Kaviti, A.K (editor)/ Apple Academic Press, Inc./ ISBN 9781003161097 | | | | | | | | | | |
| 考試及成績  計算方式 | 出席 : 20 %  期中報告: 40 %  期末報告: 40 % | | | | | | | | | 上課方式 | 講授,討論,  與口頭報告 |
| 本課程核心能力雷達圖 | | | | | | | 本課程核心能力權重 | | | | |
| 開課後會依據核心能力權重，由系統自動產生 | | | | | | | R1：具備園藝作物育種、生產與管理能力(40%)  R2：具備園藝產品採收後處理與加工能力(40%)  R3：具備自然生態與休閒遊憩理念之景觀造園能力(0%)  R4：綜合能力(20%) | | | | |

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| --- | --- |
| 週次 | 上 課 進 度 |
| 1 | 課程介紹 |
| 2 | 智慧園藝的定義,歷史與重要性 |
| 3 | 影響園藝作物生長發育之環境因素 |
| 4 | 園藝作物採收後之品質要項 |
| 5 | 園藝作物採收後處理技術 |
| 6 | 智慧採收系統與應用 |
| 7 | 智慧分級系統與應用 |
| 8 | 課程討論 - 智慧園藝應用情境設定與問題解析 |
| 9 | 期中報告 |
| 10 | 智慧園藝之智聯網導論 |
| 11 | 智慧園藝之感測器原理與架構 |
| 12 | 智慧園藝之無線通訊網路 |
| 13 | 智慧園藝之人工智慧導論 |
| 14 | 智慧園藝之機器學習與演算法 |
| 15 | 智慧園藝之人工神經網路 |
| 16 | 智慧園藝之應用案例解說 |
| 17 | 課程討論 - 智慧園藝系統設計 |
| 18 | 期末報告 |

「請遵守智慧財產權，切勿使用非法影印教科書」。

本課程符合聯合國永續發展目標(SDGs)如下:

目標2 消除飢餓，實現糧食安全，改善營養狀況和促進永續農業

目標3 確保健康的生活方式，促進各年齡人群的福祉

目標8 促進持久、包容和永續經濟增長，促進充分的生產性就業和人人獲得適當工作

目標9 建設具防災能力的基礎設施，促進具包容性的永續工業化及推動創新

目標12 確保永續的消費和生產模式

**National I-Lan University Course Outline**

|  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Daytime/Evening Session | Daytime | | Semester | | | 113-2 | | | | Target Students | 園藝3,4年級與碩士班 |
| Department | Horticulture | | Course Number | | |  | | | |
| Course Title | 中文: 智慧園藝技術應用  英文: Application of Technology in Smart Horticulture | | | | | | | | | Cooperation | ■Y □N |
| Course Objectives | 1. Understand the basic concepts and technical architecture of smart horticulture. 2. Understand the basic needs and environmental factors for plant growth and development. 3. Learn the application of internet of things and artificial intelligence in horticulture. 4. Design smart horticulture systems. | | | | | | | | | Instructor | Department：Horticulture  Instructor：  劉天珠  Margo Sulistio  Department：Electrical Engineering  Instructor：  王思喨  Szu-Liang Wang |
| Prerequisites |  | | | | | | | | |
| Credit(s) | 2 | Lecture Hours | | 2 | Practicum Hours | | | | 0 |
| Computer Lab | □Y ■N | | Required/ Elective | | | □Required  ■Elective | | | |
| Practicum | □Y ■N | | Classroom | | |  | | | | Class Time |  |
| Textbooks | Handout：□Y ■N | | | | | | | Library [collection](http://tw.websaru.com/collection.html)：□Y ■N | | | |
| AI, Edge and IoT-based Smart Agriculture/ 2021/ Abraham, A., Rodrigues, J.J.P.J, and Pani, S.K. (editor)/ Elsevier Inc./ ISBN 9780128236949 | | | | | | | | | | |
| References | Internet of Things for Agriculture 4.0/ 2022/ Singh, R., Thakur, A.K., Anita Gehlot, A., and Kaviti, A.K (editor)/ Apple Academic Press, Inc./ ISBN 9781003161097 | | | | | | | | | | |
| Grading Policy | Participation : 20 %  Midterm Presentation : 40 %  Final Presentation : 40 % | | | | | | | | | Teaching Method | Lecture, discussion, and presentation |
| Radar Chart | | | | | | | Correspondence Between Course Content and Core Competency | | | | |
| 開課後會依據核心能力權重，由系統自動產生 | | | | | | | R1：具備園藝作物育種、生產與管理能力(40%)  R2：具備園藝產品採收後處理與加工能力(40%)  R3：具備自然生態與休閒遊憩理念之景觀造園能力(0%)  R4：綜合能力(20%) | | | | |

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| Weeks | Course Outline |
| 1 | Introduction |
| 2 | Definition, history, and the importance of smart horticulture |
| 3 | Environmental factors influencing the growth and development of horticultural crops |
| 4 | Quality attributes of postharvest horticultural crops |
| 5 | Postharvest technology of horticultural crops |
| 6 | Smart harvesting system and applications |
| 7 | Smart grading system and applications |
| 8 | Discussion – scenario and problem analysis for smart horticulture |
| 9 | Midterm presentation |
| 10 | Introduction to AIoT in smart horticulture |
| 11 | Sensors and architectures in smart horticulture |
| 12 | Wireless communication networks in smart horticulture |
| 13 | Introduction to AI in smart horticulture |
| 14 | Machine learning and algorithms for smart horticulture |
| 15 | Artificial neural networks in smart horticulture |
| 16 | Case study in smart horticulture |
| 17 | Discussion - system design for smart horticulture |
| 18 | Final presentation |

**“Please Respect Intellectual Property Rights. Do Not Use Illegally Photocopied Textbooks.”**

This course is in line with the United Nations Sustainable Development Goals (SDGs) as follows:

2. Zero Hunger

3. Good Health and Well-Being

8. Decent Work and Economic Growth

9. Industry, Innovation and Infrastructure

12. Responsible Consumption and Production