中臺科技大學通識教育微學分課程簡介

Course Syllabus

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| 開課學期 | | 107-1 | | | 部別 | | 日間部 | |
| 開課系科 | | 通識教育中心 | | | 學制 | | 大學部（二技、四技） | |
| 課程名稱 | | 自製環保清潔劑 | | | 授課教師 | | 張瓊云 | |
| 課程類別 | | □學理基礎 ■應用實作  □跨領域探索  □其他：＿＿＿＿＿＿＿＿ | | | 授課方式 | | ■授課□演講□參訪□工作坊  □遠距教學■實作研習營  □其他：＿＿＿＿＿＿＿ | |
| 學分數 | | 0.4 | | | 授課時間 | | □週五上午1-4節，  ■週三下午5-8節，7.8週 | |
| 科目代碼 | |  | | | 請益時間 | | W5 (5-6) | |
| 開課代號 | |  | | | 聯絡方式 | | cychang3@ctust.edu.tw | |
| 課程描述  Course Description | | | | | | | | |
| 認識科學對生活與環境的重要性，瞭解環境汙染與環境荷爾蒙對全球環境的危害，學習製作清潔劑的原理與操作技巧，啟發對科學實作的興趣，建立積極參與課室內外學習活動的態度。 | | | | | | | | |
| 課程目標  Course Objectives | | | | | | | | |
| 強化對科學整合性學習活動之正確理念，促進科學專業知識與概念之統整，培養設計與操作實作活動之能力，學習將理論與實作經驗應用於生活中，提升實作之實務技能。 | | | | | | | | |
| 授課進度  Course Schedule | | | | | | | | |
| 第7週 | 環境汙染之危害 | | | 水汙染、土壤汙染、地下水汙染、廢棄物汙染對生態、環境、與人體健康的影響。 | | | | |
| 動手做純天然洗碗精 | | | 利用檸檬、柑橘、柚子等天然植物果皮，自製低成本且無汙染的洗碗精。 | | | | |
| 第8週 | 環境荷爾蒙之危害 | | | 防腐劑、塑化劑、人工色素、人工果香精對生態、環境與人體健康的影響。 | | | | |
| 動手做純天然肥皂 | | | 利用椰子油、棕櫚油、蓖麻油等天然植物油，自製低成本且無汙染的肥皂。 | | | | |
| 教學方式  Teaching Method | | | | | | | | |
| 藉由「做中學，學中做」的學習模式，將傳統「想像」的學習方式，轉變為「實作」的學習課程，除了學習生活科學相關知識，也能從實作課程中享受動手做的樂趣與成就感，並將科學知識實踐到日常生活中。 | | | | | | | | |
| 學習評量方式與配分 Evaluation Methods & Ratio | | | | | | | | |
| □隨堂作業 \_\_\_\_\_\_ % ■上課參與度 20 % ■出席 20 % ■書面報告 20 %  ■實作精神 30 % ■實作結果 30 % | | | | | | | | |
| 教科書(書名、作者、出版社、備註) Textbook (Title, Author, Publisher, Remarks ) | | | | | | | | |
| 書名 Title | | | 作者 Author | | | 出版社  Publisher | | 備註  Remarks |
| 自編教材 | | | 張瓊云 | | |  | |  |
| 參考書目(書名、作者、出版社、期刊、備註) Reference Materials (Title, Author, Publisher/Journal, Remarks ) | | | | | | | | |
| 書名 Title | | | 作者 Author | | | 出版社/期刊  Publisher/  Journal | | 備註  Remarks |
| 化學實驗−生活實用版 | | | 莊麗貞 | | | 新文京開發出版有限公司 | |  |

Central Taiwan University of Science and Technology

General Education Micro Credit Course Syllabus

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| Academic Year/Semester | | 107-1 | | Day/Night School | | | Day | |
| Department | | Center for General Education | | Program | | | University department | |
| Course Title | | DIY Environmentally friendly Detergents | | Instructor | | | Chiung-Yun Chang | |
| Course type | | □ Theoretical Foundation  ■ Application and Implementation  □ Interdisciplinary Learning  □ Other：＿＿＿＿＿＿＿＿ | | Teaching methods | | | ■ Teaching □ Speech □ Visit □ Workshop□ Distance Learning ■ Practical Study Camp  □ Other： \_\_\_\_\_\_\_ | |
| Credit Hour | | 0.4 | | Hour(s) | | | □W5，Section 1-4，  ■W3，Section 5-8，7th .8th week | |
| Course Code | |  | | Advisory Time | | | W5 (5-6) | |
| Subject Code | |  | | Email | | | cychang3@ctust.edu.tw | |
| Course Description | | | | | | | | |
| In order to recognize the importance of science for life and the environment, students must understand the harm of environmental pollution and environmental hormones to the global environment, and learn the principles and operating techniques of producing detergents, They can increase their interest in scientific practice and establish an attitude of active participation in learning. | | | | | | | | |
| Course Objectives | | | | | | | | |
| Students can strengthen the correct concept of scientific knowledges, and cultivate the ability to design and operate practical activities. They can learn to apply some theories and practical experiences into life, and enhance practical skills. | | | | | | | | |
| Course Schedule | | | | | | | | |
| 7th week | The harm of environmental pollutions. | | | | DIY natural dish detergents. | | | |
| 8th week | The harm of environmental hormones. | | | | DIY natural soap. | | | |
| Teaching Method | | | | | | | | |
| Through the "doing by learning, learning by doing" learning mode and the practical courses. Students can learn life science related knowledges, and enjoy learning from the practical courses. They can have fun and a sense of accomplishment. They can practice scientific knowledges into everyday life. | | | | | | | | |
| Evaluation Methods & Ratio | | | | | | | | |
| 1. participation discussions 20%  2. Attendance and absence in class 20%  3. experimental reports 20%  4. learning attitudes 20%  5. experimental results 20% | | | | | | | | |
| Textbook (Title, Author, Publisher, Remarks ) | | | | | | | | |
| Title | | | Author | | | Publisher | | Remarks |
| Practical life scientific laboratory | | | Chiung-Yun Chang | | |  | |  |
| Reference Materials (Title, Author, Publisher/Journal, Remarks ) | | | | | | | | |
| Title | | | Author | | | Publisher/  Journal | | Remarks |
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