

文藻外語大學110學年第2學期教學綱要Wenzao烏爾蘇拉大學  
2022

學年第2學期教學大綱

「觀察智慧財產權觀念、不非法印」

請遵守知識產權法，請勿非法複製受版權保護的材料。



壹、課程基本資料

課程名稱 課程名稱	思維與程序設計 COMPUTATIONAL THINKING AND COMPUTER PROGRAMING			
課程類別 (學制) 學校 制度	日間部四技 4年制日間學院			
開課單位 學術單位	數位內容應用與管理系			
授課教師 Instructor	梁丁文	職稱 學歷	教授	
教官互動 資料	辦公室 辦公室	至善樓 Z0710	辦公室電話 辦公室 電話號碼	校內分機 6322
	電子信箱 E-mail	devin@mail.wzu.edu.tw		
	約談時間 辦公時間	一一 10:00-12:00 每週四 10:00-12:00		
學分 學分	2.0學分	選課別 類別	【 <input checked="" type="checkbox"/> 】必修必修課 【 <input type="checkbox"/> 】選修選修課	
開課類別 課程 長度	【 <input type="checkbox"/> 】學年課 一年制課程(2學期) 【 <input checked="" type="checkbox"/> 】學期課 學期課程(1學期)		開課年級 授課:1 班授課數位 授課:日四年級	
課程內容概要 課程內容 概要	<p>■課程的教學內容概要，學生能夠使用本課程的基本內容、教學內容的基本概念、思想和專業思想的學習所涉及的基本內容。節目。期能通過此課程的能力和利用學生對節目的興趣增強電腦解決問題的能力。</p> <p>本課程為沒有編程背景的學生教授計算機編程的基本概念，邏輯思維和計算思維的能力。從實際項目項目中學習，學生可以開發與其專業相關的簡單應用程序。通過本課程，可以吸引學生在編程方面的注意力，增強通過計算機解決問題的能力。</p> <p>■主要授課語言： 英語(English)</p>			
課程學習目標 課程學習 目標	<p>學習本課程後，學生應能</p> <ol style="list-style-type: none"> <li>1. 一種程序語言，</li> <li>2. 了解程序設計的基礎知識能力，</li> <li>3. 學習到問題解決的方法，</li> <li>4. 具備邏輯思維與思維能力，</li> <li>5. 可以和其主要修改相關的簡單應用程序。</li> </ol> <p>1. 熟悉一門編程語言，</p> <ol style="list-style-type: none"> <li>2. 具備計算機編程的基本能力，</li> <li>3. 學習解決問題的技巧，</li> <li>4. 具備邏輯思維和計算思維的基本能力，</li> <li>5. 了解相關代碼，編寫與其專業相關的簡單應用程序。</li> </ol>			
系啟發目標與核心能力 以及學習目標 Development Goals, Skill Indicator, & Learning Objectives	系激勵目標 發展目標	核心能力指標編碼 技能指標代碼	核心能力 技能指標	學習目標 學習目標
	1. 基礎教育與信息應用為目標，一體化信息處理、以多媒體系統人才、信息應用等方向，結合外語的學習環境，培育信息科技應用。	1-1-1	具備信息應用能力	
	1. 基礎教育與信息應用為目標，一體化信息處理、以多媒體系統人	1-1-2	具備電腦操作與演算能力	

	才、信息應用等方向， 結合外語的學習環境， 培育信息科技應用。		
	其他(其他)		
學生先備知能 必備知識技能	1. 組織和規範文件系統 2. 使用代碼編輯器和格式化程序 3. 創建初級程序		
教學學理基礎 教學 理論基礎	解決問題和任務方法。		
授課資訊 Instructional Inform ation	■課程類型(Top Down)		
	一般課程(Regular course)		
	■教學平台		
	實體教學(Face-to-face instruction)		
	■主要教學策略		
	講授(Lecture) 實作(Hands-on) 問題導向(Problem-based) 方案導向(Project-based)		
評量 Student Assessment	■評量方式與評分比例分配 Evaluation Criteria		
	1. Class attendance, participation, learning attitudes, assigned assignments and others 50% 2. 25% - mid-term exam 3. 25% - final exam/project		
	■課堂要求 Course Requirements & Policies		
	1. Actively participate in class learning activities to achieve the learning objectives and realize the value of the course. 2. Finish assigned pre-reading on time to be able to contribute to and benefit from class discussions. 3. The following behaviors are not permitted in class. (Violators may suffer deduction of non-exam scores.): A. Side chatting B. Eating C. Napping D. Other activities unrelated to this course E. Leaving the classroom without the instructor's permission F. Taking pet(s) or inviting your friend(s) not taking the course to the class 4. Turn off your mobile phone or switch it to the vibration-only mode in class, and put it away in your bag while in class. (Also put your portable computer away if you bring one to the class.) 5. Turn in in-class exercises and homework assignments on time. 6. When sending e-mail messages related to this course to the instructor, format the subject line as "EICT - Subject text". (EICT = English - Information and Communications Technology) 7. If your primary e-mail box is not the school e-mail box, set up automatic forwarding of your school e-mail to your primary e-mail box. 8. Access the e-learning platform and your e-mail box at least every weekend. 9. Illegal copies of the textbook, if any, are NOT permitted in class.		
教材 Learning Materials	「請學生務必使用正版教科書」Please respect copyright and use original textbooks.		
	■教科書 Textbooks		
	尚未輸入。		
	■參考書目或網址 References or Websites		
	尚未輸入。		
教學用軟體 software	免費軟體Freeware SoftwareVisual Studio Code, Anaconda		
補充資料	本科目無相關下載檔案。		

Additional Remark
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## 貳、課程內容與進度 (Course Content &amp; Schedule)

週次 Week	上課日期 Date	單元名稱 Units	授課方式 Instructional Approaches	作業、報告、 考試 或其它 Assignments, Tests and Others	備註 Remarks
1	111/02/21 ~ 111/02/27	Course Introduction Tools & requirements	Lecture & Demonstration		
2	111/02/28 ~ 111/03/06	String, Number, Operator	Computer- based drills	Exercise 1 - Input & Check the ID string	
3	111/03/07 ~ 111/03/13	Randomness, Conditional: If- else, Loop: for, while	Problem-based learning	Exercise 2 - Rock Paper Scissors	
4	111/03/14 ~ 111/03/20	Randomness, Function	Problem-based learning	Exercise 3 - Cows and Bulls	Reference: <a href="https://www.practicepython.org/exercise/2014/07/05/18-cows-and-bulls.html">https://www.practicepython.org/exercise/2014/07/05/18-cows-and-bulls.html</a>
5	111/03/21 ~ 111/03/27	Read/Write file	Computer- based drills	Exercise 4 - Add a quote to a file with the date string.	
6	111/03/28 ~ 111/04/03	Decode A Web Page - Libraries, requests, BeautifulSoup	Problem-based learning	Exercise 5 - List the article titles in CNA	
7	111/04/04 ~ 111/04/10	Decode A Web Page - Libraries, requests, BeautifulSoup	Problem-based learning	Exercise 6 - Get invoice bonus numbers from the web	
8	111/04/11 ~ 111/04/17	Decode A Web Page - Libraries, requests, BeautifulSoup	Problem-based learning	Exercise 7(1) Get all the articles of an assigned author from wiki source.  or Exercise 7(2) Find an articles that are separated into multiple pages, combine main contents in	

				all pages into one page.	
9	111/04/18 ~ 111/04/24	Middle Term Exam			
10	111/04/25 ~ 111/05/01	Read/write Excel/CSV/JSON Tools: Pandas	Problem-based learning	Exercise 8 - Get the government's open data from web and write into an Excel file.	<a href="https://www.learncodewithmike.com/2020/12/read-excel-file-using-pandas.html">https://www.learncodewithmike.com/2020/12/read-excel-file-using-pandas.html</a> <a href="https://kknews.cc/zh-tw/code/jjp6xxy.html">https://kknews.cc/zh-tw/code/jjp6xxy.html</a>
11	111/05/02 ~ 111/05/08	Charts Tools: Matplotlib	Problem-based learning	Exercise 9 - Get the government's open data and draw a static chart.	
12	111/05/09 ~ 111/05/15	Multidimensional data Tools: Numpy	Computer-based drills	Exercise 10: Practice for arranged questions	<a href="https://blog.techbridge.cc/2020/08/24/numpy-zen-intro-tutorial/">https://blog.techbridge.cc/2020/08/24/numpy-zen-intro-tutorial/</a> <a href="https://ithelp.ithome.com.tw/articles/10203624">https://ithelp.ithome.com.tw/articles/10203624</a> <a href="https://blog.happycoding.today/pythonbeginner-ep9/">https://blog.happycoding.today/pythonbeginner-ep9/</a> <a href="https://www.runoob.com/numpy/numpy-tutorial.html">https://www.runoob.com/numpy/numpy-tutorial.html</a>
13	111/05/16 ~ 111/05/22	Pandas Series Tools: Pandas	Computer-based drills	Exercise 11	
14	111/05/23 ~ 111/05/29	Pandas Data Frame Tools: Pandas	Computer-based drills	Exercise 12	
15	111/05/30 ~ 111/06/05	Project 1	Problem-based learning	Project(1) Tic-Tac-Toe Game	<a href="https://data-flair.training/blogs/python-tic-tac-toe/">https://data-flair.training/blogs/python-tic-tac-toe/</a>
16	111/06/06 ~ 111/06/12	Project 2	Problem-based learning	Project(2) Convert Text to Speech in Python	<a href="https://data-flair.training/blogs/python-text-to-speech/">https://data-flair.training/blogs/python-text-to-speech/</a>
17	111/06/13 ~ 111/06/19	Project 3	Problem-based learning	Project(3) TBD	
18	111/06/20 ~ 111/06/26	Final Report			