

計算機程式

114-2 開課

收藏

加入預選

流水號
32571

課號
ME2009

課程識別碼
502 10100

班次 03

2 學分

必修
機械工程學系 / 智慧工程科技全英語學士學位學程

林以凡

四 3, 4, 5

機械系計中

2 類

修課總人數 55 人
本校 55 人

無領域專長

英文授課

[NTU COOL](#)

[核心能力與課程規劃關聯圖](#)

目 備註

機械系 本課程以英語授課。第一堂課需分組做Lab，故第一次上課未到者視同放棄。上課地點：機械系館208教室。

全英工學士 本課程以英語授課。第一堂課需分組做Lab，故第一次上課未到者視同放棄。

↗ 本校選課狀況

| 已選上 | 剩餘名額 | 已登記 |
|---------------------------|-----------|----------|
| 28 / ₅₅ | 27 | 0 |

目 課程概述

This is an introductory course to computer programming in Python. Introduction to programming basics (what it is and how it works), binary computation, problem-solving methods and algorithm development. Includes procedural and data abstractions, program design, debugging, testing, and documentation. Covers data types, control structures, functions, parameter passing, library functions, arrays, inheritance and object oriented design.

🕒 課程目標

The objective of this course is that by the end of the semester, you will have

- understood why Python is a useful scripting language for developers;
- expressed how to design and program Python applications;
- identified how to use lists, tuples, and dictionaries in Python programs;
- described how to identify Python object types;
- demonstrated how to use indexing and slicing to access data in Python programs;
- defined the structure and components of a Python program;
- employed how to write loops and decision statements in Python;
- explained how to write functions and pass arguments in Python;
- illustrated how to build and package Python modules for reusability;
- learned how to read and write files in Python;
- elaborated how to design object-oriented programs with Python classes;
- performed how to use class inheritance in Python for reusability;
- formulated how to use exception handling in Python applications for error handling.

☰ 課程要求

🕒 預期每週課前或/與課後學習時數

3

🗓 Office Hour

📖 指定閱讀

Tony Gaddis, Starting Out with Python, Pearson, 4th Ed, Global Edition, ISBN: 9781292225753, 2019.

📖 參考書目

Python Tutorial <https://docs.python.org/3.7/tutorial/>

📊 評量方式

15% Homework

Use AI to do the homework! For each topic, ask AI to give you four types of related questions: a basic question (with code limited to 10 lines), a fill-in-the-blank question, a debugging question, and a worked-out problem. Submit your results with your own comments in the code and the AI usage history. You must submit your homework within ONE week through NTU COOL. Make sure you beat the clock! The deadline is on Wednesdays before midnight (11:59 pm). 50% off for the late submission in WEEK TWO. 0 points for WEEK THREE and so on. *If you copy other people's work, you will get 0 points.

20% Team Lab Presentation

Lab Presentation is an opportunity for students to practice skills, apply knowledge, review and build on past learning, and extend learning. Form a team with AT MOST 4 members with different role tasks. Starting from WEEK 5, one team gives their reviews on the chosen topic for 40 minutes in the lab session. During the presentation, each team should first review the topic by giving examples, indicating some common mistakes, etc. Then, design some practical, easy questions that other students can practice for up to five minutes. Be creative. Use games or something fun like Kahoot! The same topic can only be chosen twice. 5% will be the peer evaluation, and another 5% will be the other team evaluation.

15% Quiz

(5% each). The quizzes are scheduled on

- Quiz I: March 19 in class.
- Quiz II: April 23 in class.
- Quiz III: May 21 in class.

The quiz will be 30 minutes long at the beginning of the class. You will answer some short questions or complete part of the codes on NTU COOL.

30% Midterms

(15% each). The midterms are scheduled on

- Midterm I: April 02 in class.
- Midterm II: May 28 in class.

The midterm will be a two-hour computer-based exam, closed-book, and closed-note. No electronics, including calculators, cell phones, or smart watches are allowed. Midterms will be used to assess the demonstration of the learning objectives.

20% Final Team Project

With the same team members, choose a topic that reflects your interests and what you have learned. A project gallery appreciation with a five-minute presentation will be on June 11.

0% Class Participation

Attend the class and discuss with your classmates for some class exercises. Demonstrate your code and explain your thought process in class. Also, be active in class by asking questions and solving the class exercises on the blackboard.

1. 本校尚無訂定 A+ 比例上限。
 2. 本校採用等第制評定成績，學生成績評量辦法中的百分制分數區間與單科成績對照表僅供參考，授課教師可依等第定義調整分數區間。詳見 [學習評量專區](#)。
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 針對學生困難提供學生調整方式

 補課資訊

 課程進度

02/26 Input, Variables, Calculations, Operators, Data Outputs
第 1 週

03/05 Decision Structures and Boolean Logic
第 2 週

03/12 Repetition Structures
第 3 週

03/19 Functions
第 4 週

03/26 Functions and Modules
第 5 週

04/02 Midterm I

第 6 週

04/09 Files

第 7 週

04/16 Recursion and Exceptions

第 8 週

04/23 Lists and Tuples

第 9 週

04/30 Strings

第 10 週

05/07 Dictionaries and Sets

第 11 週

05/14 Numpy and Matplotlib

第 12 週

05/21 Class

第 13 週

05/28 Midterm II

第 14 週

06/04 Fun Topics

第 15 週

06/11 Final Project Gallery Appreciation

第 16 週

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