計算機程式
Computer Programming

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Class Info

- **開課單位**：機械系
- **當期課號**：1326
- **永久課號**：DME1584
- **學分數**：3
- **必/選修**：必修

- **先修科目或先備能力**：
  - Introduction to computer science
    計算機概論

Introduction

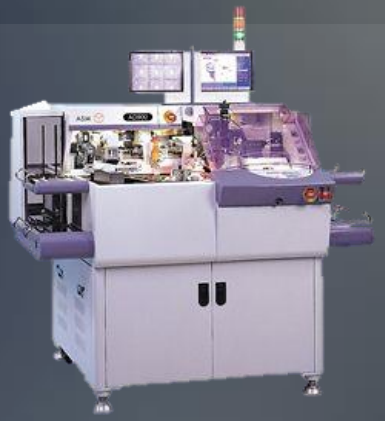
- 1993-1999 NCTU ME
- 2000年工研院機械所國防役 (890092)

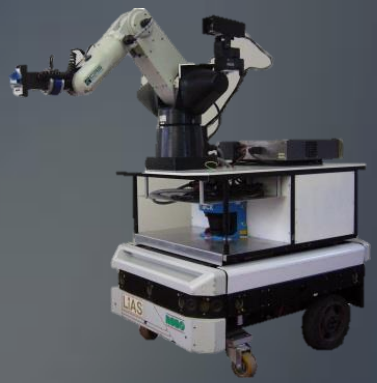
- 比利時魯汶大學博士
  - 指導教授: Prof. Hendrik Van Brussel
  - Behavior-based Mobile Manipulation

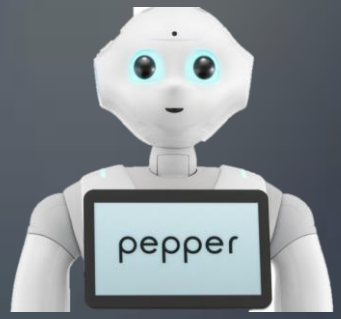
- 工研院機械所機器人組 (A00289)
  - 手眼力協調機器人控制器
  - Robot + applications → 產業應用

- 鴻海精密公司
  - Pepper服務機器人，製造，大陸

- 工研院機械所機器人組 (A50404)
  - ……







Course aims for both

- non-computer science major students who do not have extensive experience in computer programming language, and
- system design engineers who are interested in integrating various pieces of codes together.
- From the stage of system analysis and design, the students will begin to learn the concept of object-oriented programming (OOP) and solve the engineering problem using C/C++. By using the material of each topic, the student will cultivate good programming concept and methodology.
- Finally, there will be a project that the students are required to use version control system and team work to complete the assignment. In this case, students can sharpen their programming skills from problem solving, and also lay the groundwork for advanced programming language.

- 針對首次接觸電腦程式設計的非資訊專業理工科系學生，及有志於整合程式設計與應用專業領域的系統設計工程人員。從系統分析與設計的階段就開始?解物件導向程式設計(OOP)觀念，應用C/C++語言解決各類工程問題，利用主題內容的設計理念，培養良好的程式設計觀念和方法，以應用性問題來引導解題流程，並利用版本控制工具進行團隊合作程式設計，有助發展實務性的解題技能，並透過系統化的學習流程規劃，奠立紮實程式設計基礎。

教科書

- **書籍**
  - 游峰碩, “UML物件導向系統分析與設計”, 博碩文化, 2017
  - W. Savitch (WS), "Absolute C++," 6th ed., ISBN: 0133970787, Addison Wesley, 2016.
  - 陳慶瀚, “C/C++工程師手冊”, 麗文文化, 2005

- 網路資訊
  - Open course material
  - My experience
  - Interactive learning…

成績

- In-class Assignment: 20%
  Homework Assignment: 20%
  Mid-term exam: 30%
  Final Project: 30%

  堂課實作 20%;
  作業 20%;
  期中考試 30%;
  專案實作 30%;

- 助教*2
- e3 platform

Misc.

教學方法及教學相關配合事項
(如助教、網站或圖書及資料庫等)：

- Problem solving skills and ability to implement solution
- Windows and/or Linux OS
- Open source resource
- Material from the internet

進度

1		Review of programming concept and object-oriented programming
3		OOP using UML tool
4		C++ programming introduction and implementation
9		Numerical method
11		Multitasking
13		Introduction to version control system: Git and GitHub
15		Analysis and discussion of project program

[Questions ?]