


**國立東華大學**  
**教學計劃表 Syllabus**

|                                    |                                    |                             |                                 |                                    |
|------------------------------------|------------------------------------|-----------------------------|---------------------------------|------------------------------------|
| 課程名稱(中文)<br>Course Name in Chinese | 編譯程式                               |                             | 學年/學期<br>Academic Year/Semester | 106/2                              |
| 課程名稱(英文)<br>Course Name in English | Compiler Design and Implementation |                             |                                 |                                    |
| 科目代碼<br>Course Code                | CSIE33900                          | 系級<br>Department & Year     | 學三                              | 開課單位<br>Course-Offering Department |
| 修別<br>Type                         | 學程 Program                         | 學分數/時間<br>Credit(s)/Hour(s) | 3.0/3.0                         |                                    |
| 授課教師<br>Instructor                 | / 雍忠                               |                             |                                 |                                    |
| 先修課程<br>Prerequisite               |                                    |                             |                                 |                                    |

課程描述 Course Description

This course is intended for undergraduate students in computer science. Compilers for high-level programming languages are large complex software systems. Their functionalities are well defined and the corresponding theories are taken over from the theory of formal languages and automata. We will discuss the various subtasks of compilation with extensive studies.

課程目標 Course Objectives

修習程式語言語式(syntax)和語義(semantics)的正規表示法，以從事程式編譯器的設計與實際製作。

|   | 系專業能力<br>Basic Learning Outcomes   | 課程目標與系專業能力相關性<br>Correlation between Course Objectives and Dept.' s Education Objectives |
|---|--|--|
| A | 資訊專業終身學習能力 Ability of lifetime learning in information profession                                | ●  |
| B | 實驗驗證資訊科學能力 Ability of validate experimental result validation in information science field       | ○  |
| C | 資訊工具整合運用能力 Ability of integrated applications of information technology                          | ●  |
| D | 資訊系統應用設計開發能力 Ability of information application system design and development                    | ●  |
| E | 團隊合作溝通協調能力 Ability of teamwork, communication, and coordination                                  | ○  |
| F | 資通訊科技問題解決能力 Ability of problem solving regarding information and communication technology        | ○  |
| G | 瞭解資訊科技多元影響能力 Ability to understand information technology' s multiple influences                 | ○  |
| H | 肩負資訊人社會責任能力 Ability of bearing the social responsibilities being among information professionals |  |

圖示說明 Illustration : ● 高度相關 Highly correlated ○ 中度相關 Moderately correlated

授課進度表 Teaching Schedule & Content

| 週次 Week | 內容 Subject/Topics | 備註 Remarks |
|---------|-------------------|------------|
| 1       | Course Overview   |            |
| 2       | Introduction      |            |

|    |                               |  |
|----|-------------------------------|--|
| 3  | A Simple Compiler             |  |
| 4  | Scanning                      |  |
| 5  | Formal Grammars and Parsing   |  |
| 6  | (Ching-Ming Festival)         |  |
| 7  | Programming Assignment #1     |  |
| 8  | Programming Assignment #1 due |  |
| 9  | Midterm Exam                  |  |
| 10 | Top-Down Parsing              |  |
| 11 | Bottom-Up Parsing             |  |
| 12 | LR Parsing                    |  |
| 13 | Syntax-Directed Translation   |  |
| 14 | Programming Assignment #2     |  |
| 15 | Programming Assignment #2     |  |
| 16 | Final Exam                    |  |
| 17 | (Department Project Festival) |  |
| 18 | Programming Assignment #2 due |  |

教學策略 Teaching Strategies

- 課堂講授 Lecture     
  分組討論 Group Discussion     
  參觀實習 Field Trip  
 其他 Miscellaneous:

學期成績計算及多元評量方式 Grading & Assessments

| 配分項目<br>Items                    | 配分比例<br>Percentage | 多元評量方式 Assessments |          |          |          |          |          |          |    |
|----------------------------------|--------------------|--------------------|----------|----------|----------|----------|----------|----------|----|
|                                  |                    | 測驗<br>會考           | 實作<br>觀察 | 口頭<br>發表 | 專題<br>研究 | 創作<br>展演 | 卷宗<br>評量 | 證照<br>檢定 | 其他 |
| 平時成績 General Performance         | 20%                | ✓                  |          |          |          |          |          |          |    |
| 期中考成績 Midterm Exam               | 25%                | ✓                  |          |          |          |          |          |          |    |
| 期末考成績 Final Exam                 | 35%                | ✓                  |          |          |          |          |          |          |    |
| 作業成績 Homework and/or Assignments | 20%                |                    | ✓        |          |          |          |          |          |    |
| 其他 Miscellaneous (_____)         | 0%                 |                    |          |          |          |          |          |          |    |

評量方式補充說明

Grading & Assessments Supplemental instructions

None

教科書與參考書目 (書名、作者、書局、代理商、說明)  
Textbook & Other References (Title, Author, Publisher, Agents, Remarks, etc.)

(Textbook) Crafting a Compiler, by C. N. Fischer, R. K. Cytron, and R. J. LeBlanc, Jr., Pearson Press, 2010.

(Reference) Compilers Principles, Techniques, and Tools, 2nd Edition, by A. V. Aho, M. S. Lam, R. Sethi, and J. D. Ullman, Addison Wesley Press, 2007.

課程教材網址 (教師個人網址請列在本校內之網址)  
Teaching Aids & Teacher's Website (Personal website can be listed here.)

[www.elearn.ndhu.edu.tw](http://www.elearn.ndhu.edu.tw)

其他補充說明 (Supplemental instructions)

None