表二

# 105 學年度　　商　學院 英語授課課程大綱

| 課程名稱<br>Course Title<br>☑模組 □個別 | (中文) 資料結構 |
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| | (英文) Data Structure |
| 課程目標<br>Course Objectives | The data structure is a logic method to realize how we can operate on a set of data. It is important to the businesses, especially when they are surrounded by massive amount of data nowadays. The objectives of this course are: to give students a basic understanding of important data structures, to provide students a good grasp of how these structures can be implemented in the C language, to reduce the time when trying to develop the solutions to certain kinds of data structures, to implement ideas by using the C language, and to figure out why their program does not work and how it can be improved. |
| 課程大綱<br>Course Description | To achieve above listed objectives, we need to learn how to develop an algorithm and codes to execute some operations on the data in the most efficient way. Thus, this course will introduce the C programming language, the basic data structures including arrays, stacks, queues, trees, graphs, and sorting. More advanced topics such as priority queues and efficient binary search trees will be also covered. |
| 上課進度<br>Weekly Course Schedule | Week 1: Course Overview, Grouping, and Introduction of C<br>Week 2: Introduction to Algorithms and Data Organization, Textbook Chapter 1<br>Week 3: Arrays, Textbook Chapter 2<br>Week 4: Arrays (strings), Textbook Chapter 2<br>Week 5: Stacks and Queues, Textbook Chapter 3<br>Week 6: Linked Lists (singly linked), Textbook Chapter 4<br>Week 7: Linked Lists (doubly linked), Textbook Chapter 4<br>Week 8: Trees (basic facts, binary trees), Textbook Chapter 5<br>Week 9: Trees (search, heap), Textbook Chapter 5<br>Week 10: Graphs (basic facts, representations), Textbook Chapter 6<br>Week 11: Graphs (shortest paths, spanning trees), Textbook Chapter 6<br>Week 12: Project Demonstration<br>Week 13: Internal Sorting (insertion, quick, and merge), Textbook Chapter 7<br>Week 14: Internal Sorting (heap, radix), Textbook Chapter 7<br>Week 15: Hashing, Textbook Chapter 8<br>Week 16: Priority Queues, Textbook Chapter 9<br>Week 17: Efficient Binary Search Trees, Textbook Chapter 10<br>Week 18: Multiway Search Trees, Textbook Chapter 11<br>Week 19: Final Term Exam |

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| 教學方式<br>Instructional Method | Lecture and Lab |
| 課程要求<br>Course Requirements | Students are required to complete the exercises in the labs and submit their assignments on time weekly by the due date. The due time is 12 pm on that day. Unless an extension is authorized by the lecturer (in advance), any assignment handed in later than the specified date and time will receive a range of deductions:<br><br>• up to 1 hour will receive 10% off the assessed grade;<br>• up to 24 hours late will receive 25% off the assessed grade;<br>• up to 48 hours late will receive 50%; and<br>• after 48 hours a zero grade will be given.<br><br>Each student needs to conduct a programming project in a team base environment. However, for completing above mentioned assignment and project, students must comply with the plagiarism regulations stated by National Chengchi University. Any piece of the work submitted by the student(s) for the assignment required by this course must be his or her own work. Copying or paraphrasing of another person's work, either be published or unpublished, without clearly acknowledgment, will be treated as plagiarism and will be heavily penalized.<br><br>The attendance is a bonus, and is worth of up to 10% of the student' total mark. |
| 評量方式<br>Evaluation | Assignments/Labs: 40% (Weekly)<br>Programming Project: 30% (Each team includes 2-3 students. More details will be announced in Week 2)<br>Final Term Exam: 30% (Closed book)<br>Class Participation (Bonus, up to 10%) |
| 教材及參考書目<br>Textbooks &<br>Suggested Materials | Textbook: Fundamentals of Data Structures in C (2nd Edition or the latest)<br>Authors: Ellis Horowitz; Sartaj Sahni; Susan Anderson-Freed<br>Publisher: Silicon Press<br>ISBN: 9780929306407 |
| 課程相關<br>連結網址<br>Course Website | http://soslab.nccu.edu.tw/Courses.html |
| 備註<br>Remarks | |

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