國立東華大學

課　　綱　Course Outline

資訊工程學系資工組

中文課程名稱 Course Name in Chinese	資料庫系統				
英文課程名稱 Course Name in English	Database Systems				
科目代碼 Course Code	CSIEB0290	班 別 Degree	學士班 Bachelor’ s		
修別 Type	學程 Program	學分數 Credit(s)	3.0	時 數 Hour(s)	3.0
先修課程 Prerequisite	none				

課程目標
Course Objectives

Database systems are at the heart of most modern information systems and efficient business. To understand the principles and practices of database systems and design is considered almost a must-have capability for a CSIE student. The goal of this course is to equip the students with the knowledge and skills of modern database systems and application design. Through the class lectures, assignments, lab sessions and term project, each student is expected to develop an understanding of the core concepts of database systems as well as hands-on experience on Web database application design.

系教育目標
Dept.’s Education Objectives

1	具備學科知識、養成專業技能 Acquire academic knowledge, develop professional skills
2	學習創新思考，分析解決問 Inspire innovative thinking, increase analytical problem solving ability
3	培養團隊精神，學習溝通合作 Promote teamw ork spirit, encourage coordination and cooperation
4	提昇專業倫理、承擔社會責任 Sublimate professional ethics, engage social responsibility
5	涵育人文素養、開拓國際視野 Cultivate humanities, broaden global perspective

系專業能力 Basic Learning Outcomes	課程目標與系專業能力相關性 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 technolog	
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

課程大綱
Course Outline

●Introduction
●Databases and database users
●Database system concepts and architecture
●Data modeling using the ER and EER models
●Relational model and constraints
●Relational DB design by ER/EER to relational mapping
●SQL
●Functional dependencies and normalization
●Design algorithms and further dependencies
●Practical design and UML **
●Introduction to PHP and MySQL
●Storage structure and indexing **
●Query processing and optimization
●Physical design and tuning **
●Transaction processing
●Concurrency control
●Recovery **
●Object-based databases **
●XML **
●Advanced Topics: **
●Distributed and parallel databases
●Mobile databases
●Active databases
●Temporal and real-time databases
●Deductive databases
●Multimedia databases
●Data mining and data warehousing

●Databases on the World Wide Web ●Database security **: if time permit
資源需求評估（師資專長之聘任、儀器設備的配合・・・等） Resources Required (e.g. qualifications and expertise, instrument and equipment, etc.)
computer la
課程要求和教學方式之建議 Course Requirements and Suggested Teaching Methods
class lectures, assignments, lab sessions and term project
其他 Miscellaneous