

Tamkang University Academic Year 105, 2nd Semester Course Syllabus

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| Course Title | DATABASE SYSTEMS | Instructor | FENG-CHENG CHANG |
| Course Class | TQICB2A DIVISION OF SOFTWARE ENGINEERING, DEPARTMENT OF INNOVATIVE INFORMATION AND TECHNOLOGY (ENGLISH- TAUGHT PROGRAM), 2A | Details | <ul style="list-style-type: none"> ◆ Required ◆ One Semester ◆ 3 Credits |
| Departmental Aim of Education | | | |
| Cultivate professional talents in developing and applying information system in various fields. | | | |
| Departmental core competences | | | |
| <ul style="list-style-type: none"> A. Capability of computer program coding, process planning, and problem solving B. Capability of applying basic mathematics and information technology related mathematics C. Capability of applying knowledge of internet structure and protocol in communication system D. Capability of developing information system E. Capability of integrating information system | | | |
| Course Introduction | <p>In this course, we will learn the fundamentals of a database. Two major concepts, the relational model and the design method, will be discussed throughout the course. In addition, we will also learn how to programmatically access a database.</p> | | |
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The Relevance among Teaching Objectives, Objective Levels and Departmental core competences

I. Objective Levels (select applicable ones) :

- (i) Cognitive Domain : C1-Remembering, C2-Understanding, C3-Applying,
C4-Analyzing, C5-Evaluating, C6-Creating
- (ii) Psychomotor Domain : P1-Imitation, P2-Mechanism, P3-Independent Operation,
P4-Linked Operation, P5-Automation, P6-Origination
- (iii) Affective Domain : A1-Receiving, A2-Responding, A3-Valuing,
A4-Organizing, A5-Characterizing, A6-Implementing

II. The Relevance among Teaching Objectives, Objective Levels and Departmental core competences :

- (i) Determine the objective level(s) in any one of the three learning domains (cognitive, psychomotor, and affective) corresponding to the teaching objective. Each objective should correspond to the objective level(s) of ONLY ONE of the three domains.
- (ii) If more than one objective levels are applicable for each learning domain, select the highest one only. (For example, if the objective levels for Cognitive Domain include C3, C5, and C6, select C6 only and fill it in the boxes below. The same rule applies to Psychomotor Domain and Affective Domain.)
- (iii) Determine the Departmental core competences that correspond to each teaching objective. Each objective may correspond to one or more Departmental core competences at a time. (For example, if one objective corresponds to three Departmental core competences: A, AD, and BEF, list all of the three in the box.)

| No. | Teaching Objectives | Relevance | |
|-----|---|------------------|-------------------------------|
| | | Objective Levels | Departmental core competences |
| 1 | How to use relational model to describe a collection of data | P3 | E |
| 2 | How to use SQL to manipulate the data in the database | C3 | E |
| 3 | How to design the proper relational data model according to the given application | P4 | E |
| 4 | The role of a data base in a modern information system | C4 | E |
| 5 | How to connect and operate a database by programming APIs | P3 | E |

Teaching Objectives, Teaching Methods and Assessment

| No. | Teaching Objectives | Teaching Methods | Assessment |
|-----|---|---------------------|-------------------------|
| 1 | How to use relational model to describe a collection of data | Lecture | Written test |
| 2 | How to use SQL to manipulate the data in the database | Lecture, Practicum | Written test, Practicum |
| 3 | How to design the proper relational data model according to the given application | Lecture | Written test, Report |
| 4 | The role of a data base in a modern information system | Lecture, Discussion | Written test, Report |
| 5 | How to connect and operate a database by programming APIs | Lecture, Practicum | Written test, Practicum |
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This course has been designed to cultivate the following essential qualities in TKU students

| Essential Qualities of TKU Students | Description |
|---|---|
| ◇ A global perspective | Helping students develop a broader perspective from which to understand international affairs and global development. |
| ◆ Information literacy | Becoming adept at using information technology and learning the proper way to process information. |
| ◇ A vision for the future | Understanding self-growth, social change, and technological development so as to gain the skills necessary to bring about one's future vision. |
| ◇ Moral integrity | Learning how to interact with others, practicing empathy and caring for others, and constructing moral principles with which to solve ethical problems. |
| ◆ Independent thinking | Encouraging students to keenly observe and seek out the source of their problems, and to think logically and critically. |
| ◇ A cheerful attitude and healthy lifestyle | Raising an awareness of the fine balance between one's body and soul and the environment; helping students live a meaningful life. |
| ◇ A spirit of teamwork and dedication | Improving one's ability to communicate and cooperate so as to integrate resources, collaborate with others, and solve problems. |
| ◇ A sense of aesthetic appreciation | Equipping students with the ability to sense and appreciate aesthetic beauty, to express themselves clearly, and to enjoy the creative process. |

Course Schedule

| Week | Date | Subject/Topics | Note |
|------|--------------------------|---|--|
| 1 | 106/02/13 ~ 106/02/19 | Introduction and preparation of a database environmen | File-based and SQL-based data processing program |
| 2 | 106/02/20 ~ 106/02/26 | Database Fundamentals (1) | File-based and SQL-based data processing program |
| 3 | 106/02/27 ~ 106/03/05 | Database Fundamentals (2) | File-based and SQL-based data processing program |
| 4 | 106/03/06 ~ 106/03/12 | Basic Database Analysis (1) | |
| 5 | 106/03/13 ~ 106/03/19 | Basic Database Analysis (2) | |
| 6 | 106/03/20 ~ 106/03/26 | Advanced Database Analysis (1) | |
| 7 | 106/03/27 ~ 106/04/02 | Advanced Database Analysis (2) | |
| 8 | 106/04/03 ~ 106/04/09 | Relational Database Design (1) | |
| 9 | 106/04/10 ~ 106/04/16 | Relational Database Design (2) | |
| 10 | 106/04/17 ~ 106/04/23 | Midterm Exam Week | |

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|-------------------------|--|--------------------------------|--|
| 11 | 106/04/24 ~ 106/04/30 | Relational Database Design (3) | |
| 12 | 106/05/01 ~ 106/05/07 | Physical Database Design (1) | |
| 13 | 106/05/08 ~ 106/05/14 | Physical Database Design (2) | |
| 14 | 106/05/15 ~ 106/05/21 | Basic SQL (1) | |
| 15 | 106/05/22 ~ 106/05/28 | Basic SQL (2) | |
| 16 | 106/05/29 ~ 106/06/04 | Advanced SQL (1) | |
| 17 | 106/06/05 ~ 106/06/11 | Advanced SQL (2) | |
| 18 | 106/06/12 ~ 106/06/18 | Final Exam Week | |
| Requirement | <p>(1) There is no make-up quiz and assignment if you miss the deadline without a reason. (2) If the periods are the campus-wide roll-calling periods, you will be excluded from the course when the "absence hours" reaches 18. (Article 38.2 of TKU Study Regulations) (2.1) Please note that the "exclusion from the course" is not part of the evaluation of your learning outcome. We consider the "participation" or the "contribution" in the evaluation. However, the administrative team enforces that the campus rule overrides the course evaluation method. The staff will submit the exclusion list on behalf of the teacher when you violate the regulation.</p> | | |
| Teaching Facility | Computer, Projector | | |
| Textbook(s) | Jeffery A. Hoffer et al., Modern Database Management, 12th ed., Pearson Education Limited, 2016. | | |
| Reference(s) | | | |
| Number of Assignment(s) | 6 (Filled in by assignment instructor only) | | |
| Grading Policy | <p>◆ Attendance : % ◆ Mark of Usual : 40.0 % ◆ Midterm Exam : 30.0 % ◆ Final Exam : 30.0 % ◆ Other () : %</p> | | |
| Note | <p>This syllabus may be uploaded at the website of Course Syllabus Management System at http://info.ais.tku.edu.tw/csp or through the link of Course Syllabus Upload posted on the home page of TKU Office of Academic Affairs at http://www.acad.tku.edu.tw/CS/main.php.</p> <p>※ Unauthorized photocopying is illegal. Using original textbooks is advised. It is a crime to improperly photocopy others' publications.</p> | | |