

Tamkang University Academic Year 104, 1st Semester Course Syllabus

| | | | |
|---|---|------------|--|
| Course Title | SPECIAL TOPICS IN DATABASE MANAGEMENT SYSTEMS | Instructor | CHICHANG JOU |
| Course Class | TLMXM1A MASTER'S PROGRAM, DEPARTMENT OF INFORMATION MANAGEMENT, 1A | Details | <ul style="list-style-type: none"> ◆ Selective ◆ One Semester ◆ 3 Credits |
| D e p a r t m e n t a l A i m o f E d u c a t i o n | | | |
| <p>Devoting to the integration and research of information technology and business management knowledge, and cultivating, for the society, middle and higher level managers with both information capabilities and modern management skills.</p> | | | |
| D e p a r t m e n t a l c o r e c o m p e t e n c e s | | | |
| <ul style="list-style-type: none"> A. Use of modern management knowledge. B. Logical thinking. C. Critical analysis. D. Integration of information technology and business management. E. Research and innovation. F. Theory and applications of data analysis. G. Information and communication security management. H. Verbal and Writing Communication skills. | | | |
| Course Introduction | <p>The course discusses the fundamental and advanced topics about database management systems, including data model, data storage, data retrieval, query optimization, transaction management, crash recovery, distributed databases, and new applications for NOSQL databases.</p> | | |
| | | | |

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 | Understand NoSQL database and user' s big-data requirements, and translate those requirements into a valid database design. | C4 | DFH |
| 2 | Understand relational database and user' s database requirements, and translate those requirements into a valid database design. | C4 | DFH |

Teaching Objectives, Teaching Methods and Assessment

| No. | Teaching Objectives | Teaching Methods | Assessment |
|-----|--|---|--|
| 1 | Understand NoSQL database and user' s big-data requirements, and translate those requirements into a valid database design. | Lecture, Discussion, Practicum, Problem solving | Written test, Practicum, Report, Participation |
| 2 | Understand relational database and user' s database requirements, and translate those requirements into a valid database design. | Lecture, Discussion, Practicum, Problem solving | Written test, Practicum, Participation |
| | | | |

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 | 104/09/14 ~ 104/09/20 | Course overview and database fundamentals | |
| 2 | 104/09/21 ~ 104/09/27 | Database analysis & E-R model | |
| 3 | 104/09/28 ~ 104/10/04 | Database analysis & E-R model | |
| 4 | 104/10/05 ~ 104/10/11 | Database analysis & E-R model | |
| 5 | 104/10/12 ~ 104/10/18 | Advanced database analysis | |
| 6 | 104/10/19 ~ 104/10/25 | Advanced database analysis | |
| 7 | 104/10/26 ~ 104/11/01 | Relational database design | |
| 8 | 104/11/02 ~ 104/11/08 | Relational database design | |
| 9 | 104/11/09 ~ 104/11/15 | Relational database design | |
| 10 | 104/11/16 ~ 104/11/22 | Midterm Exam | |
| 11 | 104/11/23 ~ 104/11/29 | Physical database design | |
| 12 | 104/11/30 ~ 104/12/06 | Structured Query Language | |

| | | | |
|-------------------------|--|---------------------------|--|
| 13 | 104/12/07 ~ 104/12/13 | Structured Query Language | |
| 14 | 104/12/14 ~ 104/12/20 | Structured Query Language | |
| 15 | 104/12/21 ~ 104/12/27 | NoSQL database | |
| 16 | 104/12/28 ~ 105/01/03 | NoSQL database | |
| 17 | 105/01/04 ~ 105/01/10 | NoSQL database | |
| 18 | 105/01/11 ~ 105/01/17 | Final Exam | |
| Requirement | | | |
| Teaching Facility | Computer, Projector | | |
| Textbook(s) | Database Systems: Design, Implementation, & Management, 11th Ed., Coronel & Morris, Cengage Learning, 2014 Related papers | | |
| Reference(s) | MongoDB: The Definitive Guide, Kristina Chodorow, O'Reilly, 2013 | | |
| Number of Assignment(s) | 5 (Filled in by assignment instructor only) | | |
| Grading Policy | ◆ Attendance : 15.0 % ◆ Mark of Usual : % ◆ Midterm Exam : 30.0 % ◆ Final Exam : 30.0 % ◆ Other <Project> : 25.0 % | | |
| Note | 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 . ※ Unauthorized photocopying is illegal. Using original textbooks is advised. It is a crime to improperly photocopy others' publications. | | |