

Tamkang University Academic Year 105, 1st Semester Course Syllabus

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| Course Title | SOFTWARE ENGINEERING | Instructor | FENG-CHENG CHANG |
| Course Class | TQICB4A DIVISION OF SOFTWARE ENGINEERING, DEPARTMENT OF INNOVATIVE INFORMATION AND TECHNOLOGY (ENGLISH- TAUGHT PROGRAM), 4A | 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>Combining the fundamental knowledge of information systems and the experiences of programming, learn how to develop high quality software by engineering approaches.</p> <p>Due to the diversity of program development capability, the actual learning schedule of each student is different. The listed topics are for reference.</p> <p>Note that this course comes with extra 18 service-learning hours.</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 | Learn what is software engineering | C2 | D |
| 2 | Learn the related software engineering methodologies and tools | P4 | D |
| 3 | Develop software by a certain process, including the analysis/design techniques | P4 | D |

Teaching Objectives, Teaching Methods and Assessment

| No. | Teaching Objectives | Teaching Methods | Assessment |
|-----|---|---|--|
| 1 | Learn what is software engineering | Lecture, Discussion | Written test, Report, Participation |
| 2 | Learn the related software engineering methodologies and tools | Lecture, Discussion, Practicum, Problem solving | Written test, Practicum, Report, Participation |
| 3 | Develop software by a certain process, including the analysis/design techniques | Lecture, Discussion, Practicum, Problem solving | Written test, Practicum, Report, Participation |
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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 | 105/09/12 ~ 105/09/18 | Introduction | |
| 2 | 105/09/19 ~ 105/09/25 | Software Life Cycle | |
| 3 | 105/09/26 ~ 105/10/02 | Software Process | |
| 4 | 105/10/03 ~ 105/10/09 | Software Modeling | |
| 5 | 105/10/10 ~ 105/10/16 | Unified Modeling Language | |
| 6 | 105/10/17 ~ 105/10/23 | Identify Requirements | |
| 7 | 105/10/24 ~ 105/10/30 | Specify Requirements | |
| 8 | 105/10/31 ~ 105/11/06 | Analysis Phase | |
| 9 | 105/11/07 ~ 105/11/13 | Design Phase | |
| 10 | 105/11/14 ~ 105/11/20 | Midterm Exam Week | |
| 11 | 105/11/21 ~ 105/11/27 | Implementation Phase | |
| 12 | 105/11/28 ~ 105/12/04 | Software Testing | |

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| 13 | 105/12/05 ~ 105/12/11 | Object-oriented Analysis | |
| 14 | 105/12/12 ~ 105/12/18 | Object-oriented Design | |
| 15 | 105/12/19 ~ 105/12/25 | Introduction to Design Patterns | |
| 16 | 105/12/26 ~ 106/01/01 | Case Study (1) | |
| 17 | 106/01/02 ~ 106/01/08 | Case Study (2) | |
| 18 | 106/01/09 ~ 106/01/15 | Final Exam Week | |
| Requirement | <p>There will be at least 6 assignments and 4 quizzes. Additional rules about the grading are: (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 evaluation method. The staff will submit the exclusion list on behave of the teacher when you violate the regulation.</p> | | |
| Teaching Facility | Computer, Projector | | |
| Textbook(s) | R. S. Pressman, Software Engineering: A Practitioner's Approach, 7th Ed., International Edition 2010, McGraw-Hill. I. Sommerville, Software Engineering, 9th Ed., International Edition, 2011, Pearson. | | |
| Reference(s) | D. A. Gustafson, Schaum's Outline of Theory and Problems of Software Engineering, McGraw-Hill, 2002. E. Gamma et al., Design Patterns: Elements of Reusable Object-Oriented Software, Addison Wesley Longman, Inc., 1994. | | |
| Number of Assignment(s) | 6 (Filled in by assignment instructor only) | | |
| Grading Policy | ◆ Attendance : % ◆ Mark of Usual : 40.0 % ◆ Midterm Exam : 25.0 % ◆ Final Exam : 25.0 % ◆ Other (service learning) : 10.0 % | | |
| 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> | | |