

Chulalongkorn University
Faculty of Engineering
Department of Computer Engineering

2110-332 Systems Analysis and Design (2ND Semester, 2016)

Course Description:

Data processing systems and systems life cycle; analysis methodology: tools, cost analysis, problem definition, proposal and feasibility study; design methodology: tools, database approach, systems design, file and form design, program design, documentation; implementation methodology: coding, testing and software maintenance.

Course Objectives: The objectives of this course encourage students to

1. Understand and explain information systems and systems life cycle; analysis methodology: tools, cost analysis, problem definition, proposal, and feasibility study; design methodology: UML, database approach, systems design, user interface design, input and output design, documentation; implementation methodology: managing programming, testing; installation: conversion, change management, post-implementation activities.
2. Apply the knowledge studied from this course to do a term project that emphasize on the system analysis and design methodology to develop a prototype system.

Instructors:

Assist. Prof. Nakornthip Prompoon (nakornthip.s@chula.ac.th): Head Instructor
Assoc. Prof. Dr. Pornsiri Muenchaisri (pornsiri.mu@chula.ac.th)
Assoc. Prof. Dr. Twittie Senivongse (twittie.s@chula.ac.th)
Assist. Prof. Dr. Thanarat Chalidabhongse (thanarat.c@chula.ac.th)

Required textbook:

Alan Dennis, Barbara Haley Wixom, David Tegarden “Systems Analysis and Design An Object-Oriented Approach with UML”, 5th Edition, John Wiley and Sons, Inc. 2015

<http://as.wiley.com/WileyCDA/WileyTitle/productCd-EHEP003169.html>

References:

1. Whitten, Jeffrey L., Bentley, Lonnie D., Dittman, Kenvin C. “Systems Analysis and Design Methods” 6th Edition, McGraw-Hill, <http://www.mhhe.com/whitten>
2. Bennett, Simon, McRobb, Steve, and Farmer, Ray “Object-Oriented Systems Analysis And Design Using UML” 3rd Edition, McGraw-Hill, <http://www.mcgraw-hill.co.uk/textbooks/bennett>

Course Evaluation:

Term project (30), Quiz (5), Midterm (30), Final (30), Class attendance (5)

1. Term project 30 %

Term project is an assignment that helps students applied knowledge to the real-world application emphasizes on the system analysis and design phase. Students must work together as a team (5-6 persons) to analyze and design a selected computerized/information system. Each team must submit and present project proposal, progress report, and final analysis and design system. A formal system document including details information for system analysis and design and user interface of prototype software must be submitted according to the required date listed in class schedule table.

• Proposal 5 %

Each group must present and submit a term project proposal in a form of system request (at least should contain a scope of works and plans).

- **Progress 5 %**

Each group must present and submit a term project progress report including use case, class, and interaction diagrams.

- **Technical Review 2%**

Each group will provide to do a technical review and give feedback to the assigned group. The review result will be present in the class and handed in as a technical review document.

- **Final 18%**

Each group must present and submit term project final report including details information for system analysis and design and user interface of the prototype software.

All proposal/reports must be submitted via **Courseville** using **Dropbox** feature by **Monday before 4 PM**. After having feedback from the instructor and your classmates, each group must make a correction and resubmitted the corrected works **within a week**.

Time duration specification for presentation

- Proposal presentation 15 minutes
- Progress report 20 minutes
- Technical review 20 minutes
- Final term project presentation 20 minutes

All late hand-in assignments will be deducted by 10% perday

2. Quiz 4 times 5%

3. Midterm Examination 30%

4. Final Examination 30%

5. Class attendance (Student must attend at least 80 % of study time) 5%

(For example, a student who attends and participate in class activities 5 times from 15 times of total class activities will receive $5/15 = 1.67$ points.)

Class Schedule

Week	Date	Lesson/Activity	Assignment
1	5 Jan 2016	Chapter 1: SDLC (SDLC, SD Methodologies + Unified process, SA role and skill	
2	10 Jan 2016	Chapter 2: Project initiation, Feasibility study, PM tools, UML tools	12 Jan: Develop system request (iScale)
	12 Jan 2016	Workshop: develop a system request (iScale)	
3	16-20 Jan 2016	University activity week	No Classes
4	24,26 Jan 2016	Chapter 3: Requirements Determination	
5	31 Jan, 2 Feb 2016	Proposal presentation	Due: Term project's proposal document and presentation
6	7 Feb 2016	Chapter 4: Business Process and Functional Modeling	Due: Term project's revised proposal document
	9 Feb 2016	Workshop: develop activity diagram, use case diagram and use case description (iScale)	
7	14 Feb 2016	Chapter 5: Structural Modeling	
	16 Feb 2016	Workshop: develop class diagram and CRC card (iScale)	

8	21 Feb 2016	Chapter 6: Behavioral Modeling	
	23 Feb 2016	Workshop: develop sequence and state machine diagram (iScale)	
9	27 Feb-3 Mar 2016 Midterm exam.	Midterm examination week Mar 1, 2016, 8:30-11:30	
10	7 Mar 2016	Chapter 7: System Design	
	9 Mar 2016	Workshop: develop system infrastructure and network diagram (iScale)	
11	13-19 Mar 2016	Chula Vichakarn	No Classes
12	21,23 Mar 2016	Analysis phase report presentation	Due: Term project's analysis phase report document and presentation
13	28 Mar 2016	Chapter 8: Class and Method Design	Due revised an analysis document
	30 Mar 2016	Workshop: develop contract and method specification (iScale)	
14	4 April 2016	Chapter 10: Human-Computer Interaction Layer Design	Due technical review of a revised analysis document
	6 April 2016	Chakri day - Holiday	No class
15	11 April 2016	Chapter 10: Human-Computer Interaction Layer Design (cont.)	
	13 April 2016	Songkarn festival - Holiday	No class
16	18,20 April 2016	Chapter 11: Architecture, Chapter 13: Installation and operations	Each group presents the assigned system architecture
17	25,27 Apr 2016	Guest Speaker, Project Wrap-up	
18	2,4 May 2016	Term project final presentation	Due: Term project's final document, prototype, and presentation
19	8-23 May 2016 Final exam.	Final examination May 17, 2016 8:30-11:30	All groups hand in final term project document on May 7 before 4 PM. including: presentation and final term project prototype and document

Recommendation for project topic list in three documents

1. project proposal: The following topics should be included in the project proposal.

project name, introduction, organization background, and problem statement (problem types, problem name, problem description cause, effect, proposed solution), existing system, to-be system, objective, system development constraint, scope (list of requirements), SDLC, Gantt chart, team organization and responsibility, benefit, appendix (result of feasibility study) etc.

2. project analysis phase document: The following topics should be included in the project analysis phase document.

project name, introduction, objective of the analysis document, details of requirements, overview of to-be system context, term definition, list of stakeholders and their responsibilities,

proposed method of systems analysis, Business process modeling (using Activity diagram), Detail Essential Use Case diagram and description, Class diagram and CRC CARD (only entity class), Sequence diagram, State machine, Verifying and validating the analysis models

3. project design phase and installation and operation phase document suggestion for design phase

The following topics should be included in the project design phase document.

project name, introduction, objective of a design document, design criteria and principles, system design constraint, overview of infrastructure design (Network diagram and Deployment diagram), Hardware and Software specification, Detail Real Use Case diagram, and description (applying Package diagram), Class diagram and CRC class (with invariants and applying Package diagram), CRUDE metric, Contract specification, method specification, Verifying and validating class and method design, User interface design principles and techniques, an overall of WND, User interface design, Nonfunctional requirements and physical architecture design, Verifying and validating the physical architecture layer

The following topics should be included in the project system installation and operation phase document

migration plan (conversion plan, change management) post-implementation activities