

City University of Hong Kong

**Information on a Course
offered by Department of Information Systems
with effect from Semester A in 2012 /13**

Part I

Course Title:	Systems Analysis and Design
Course Code:	IS5411
Course Duration:	One Semester (13 weeks)
No. of Credit Units:	Three
Level:	P5
Medium of Instruction:	English
Prerequisites:	Nil
Precursors:	Nil
Equivalent Courses:	Nil
Exclusive Courses:	Nil

Part II

1. Course Aims:

This course focuses on systems analysis and design with an emphasis on the development of information systems. Methods of system documentation are examined through the use of object-oriented and structured analysis tools and techniques for describing processes, use cases, data structures, system objects, file designs, input and output designs, and program specifications.

2. Course Intended Learning Outcomes (CILOs)

Upon successful completion of this course, students should be able to:

No.	CILOs	Weighting (if applicable)
1.	Explain the need for modelling in IS analysis and design.	2
2.	Identify the necessary interactions between users, customers and managers involved in a real world system development project.	2
3.	Identify, and apply the different analysis and design methods for business applications.	1
4.	Critically analyze the suitability of a modelling formalism in the context of a specific task, and a specific application domain.	1
5.	Operate effectively within a team environment demonstrating team building and project management skills in information systems analysis and design.	3
6.	Communicate information effectively in presentations with oral, written and electronic formats using media formats widely adopted for information systems development in business and government.	3

(1: most important 3: relatively less important)

3. Teaching and learning Activities (TLAs)

(designed to facilitate students' achievement of the CILOs)

Lecture: 13 hours

Workshop: 26 hours

TLA1: Lecture

Concepts of traditional structured systems analysis and design methods and object-oriented systems analysis and design methods, associated modelling techniques are explained using activities designed to enable students to differentiate between structured and object-oriented methods, to apply different modelling techniques, and to select appropriate requirements gathering techniques.

TLA2: Laboratory

During laboratory sessions, the following activities are used to reinforce and practice of various modelling techniques learnt in lectures:

- *Exercises:* Hands-on activities using a CASE tool (e.g., Microsoft Visio) as part of systems modelling exercises such as requirement gathering using interviews, use case models, functional models, structural models and behavioral models.
- *Discussion:* Discussion on implications of various concepts learnt in lectures, and how they can be applied to a typical information system analysis and design project.
- *Presentations:* Members of project team will make presentation of their project work, and the rest of the tutorial group and the instructor will comment and offer suggestions for improvements.

TLA3: Project

Students will complete a group project to perform systems analysis and design activities aimed at capturing requirements of an information system in business sector and finding suitable solutions. The group project work will be submitted at different phases for review and comments by the instructor/tutors.

ILO No	TLA1: Lecture	TLA2: Laboratory	TLA3: Project	Hours/week (if applicable)
CILO 1	1	2	2	---
CILO 2	1	2	2	---
CILO 3	2	2	2	---
CILO 4	2	2	2	---
CILO 5		1	2	---
CILO 6		1	2	--

(1: Minor focus on the ILO; 2: Main focus on the ILO)

4. Assessment Tasks/Activities

(designed to assess how well the students achieve the CILOs)

AT1: Continuous Assessment (15%)

Participation in class and lab sessions in activities such as:

- formative assessment and feedback sessions
- application of systems analysis techniques (including information gathering techniques)
- modelling exercises completed and submitted
- presentation and discussion of partial solutions
- critical analysis & suggestions to requirements models presented

AT2: Project Presentation (10%)

Each project team makes one presentation (about 30 min duration) of their draft project work and the rest of tutorial group members will participate in discussion and offer improvements.

AT3: Project (25%)

This is a team-based activity with typically 4 students per team aimed at gathering requirements of an information system, and modelling those requirements using appropriate techniques.

A generic pattern for the Project work includes:

- Description of detailed business environment and system requirements (functional and non-functional) along with necessary source documents
- Actors and their goals (use case diagram)
- Use case descriptions
- Activity diagram, system sequence diagram
- Class diagram and database design
- User interface design.

AT4: Final Examination (50%, one 2-hour exam)

This closed-book will assess both the conceptual understanding and the modeling skills using one or more small case studies.

** Students must pass both coursework and examination in order to get an overall pass in this course. **

ILO No	AT1: Continuous Assessment (15%)	AT2: Project Presentation (10%)	AT3: Project (25%)	AT4: Final Examination (50%)	Remarks
CILO 1	1		1	2	1: Minor focus on the ILO; 2: Main focus on the ILO)
CILO 2	1		1	2	
CILO 3	1		2	2	
CILO 4	1		2	2	
CILO 5		2	2		
CILO 6		2	2		

Part III

Keyword Syllabus:

Organizational context for information systems. The need to describe IS. Modelling. Systems development life cycle. Different approaches to information and business system creation. Different approaches to information and business systems analysis and design. Structured approach. Object-oriented approach.

Detailed Syllabus:

- Organisational context for information systems.
- The need to describe IS - analysis of existing systems for evolutionary maintenance; design of new systems; communication between users, developers and project managers.
- Modelling - the purpose of a model; abstraction; key concepts; criteria for assessing modelling formalisms.
- Systems development life cycle - overview of business systems planning and business area analysis; detailed focus on systems analysis (requirements specification).
- Different approaches to information and business system creation, application and deployment - application service providers (ASP), buy, make, various partnerships.
- Different approaches to information and business systems analysis and design - structured approach and object-oriented approach.
- Structured approach - process modeling and data modeling.
- Object-oriented approach - use-case modeling and class modeling.

Required Reading

Satzinger, Jackson and Burd, Systems Analysis & Design in a Changing World, 5th Edition, Course Technology, 2009. ISBN: 978-0-324-59377-8.

Recommended Reading

Dennis, A., Wixom, B.H. and Roth, R.M., Systems Analysis and Design, John Wiley, 3rd edition, 2006.

Whitten, J.L. and Bentley, L.D., Systems Analysis and Design Methods, 7th edition, Irwin/McGraw Hill, 2005.

George, J.F., Batra, D., Valacich, J. and Hoffer, J.A., Object-Oriented System Analysis and Design, 1st edition, Prentice Hall, 2004.

Kendall, K.E. and Kendall, J.E., Systems Analysis and Design, 6th edition, Prentice Hall, 2004.

Bennett, S., McRobb, S. and Farmer, R., Object-Oriented Systems Analysis and Design Using UML, 2nd edition, McGraw Hill, 2002.

George, J.F., Batra, D., Valacich, J.S. and Hoffer, J.A., Object-oriented Systems Analysis and Design, Prentice Hall, 2004. ISBN: 0131133268.

Larman, C., Applying UML and Patterns, 2nd edition, Prentice Hall PTR, 2002. ISBN: 0130479500.

Online Resources:

UML Resources - <http://www.uml.org/>

Agile modelling - <http://www.agilemodeling.com/>