ISOM3210: Information Systems Analysis and Design (Fall 2023)

Lecture: Dr. Xiaojun Zhang

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Office Hours: 9am − 12:00pm on Thursday and by appointment

Lab (LA1, LA2, LA3 and LA4): Mr. Chris S H TSE

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Office: LSK 4065

Office Hours: By appointment

Class Schedule[1]	:	*Tuesday & Thursday*	*Venue:*
L1 :		12:00pm – 1:20pm	
L2 :		3:00pm – 4:20pm	*4582, Academic Building*
L3 :		1:30pm – 2:50pm	

Lab Schedule :	*Wednesday*	*Thursday*	*Venue:*
LA1 :	4:30pm – 5:50pm		LSK 1034
LA2 :		9:00am – 10:20am	LSK G011
LA3 :	6:00pm – 7:20pm		LSK 1011
LA4 :		10:30am – 11:50am	LSK 1014

Course Website: http://canvas.ust.hk

Textbooks (for reference to topics only):

1. "System Analysis and Design with UML: An Object-Oriented Approach", by Alan Dennis, Barbara Haley Wixom and David Tegarden; 5th ed., 2015; John Wiley & Sons; ISBN 9-781118-804674.
2. AUCM: "Advanced Use Case Modeling," 2nd printing, by Frank Armor and Granville Miller, Pearson, April 2001. ISBN 0201615924.

1. Introduction

In today's digital era where IT renovation and innovation are driven by larger societal and technological changes, organizations must become adept in bringing in new information systems and managing the challenges that go along with implementing the systems. This course provides an overview of planning

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[1] For detailed information about class schedule, please refer to the table at the end of the syllabus.

the development of information systems through clearly understanding and specifying what a system should do and how various components of a system should work together. In addition, students will learn the fundamentals of IS development and apply them to solve business problems through analyzing the requirements of information systems and designing such systems.

2. Key Components of the Course

The course includes the following three key components:

- *Lectures (online and offline):* explain and discuss the key topics on system analysis and design and work on exercises and cases relevant to the topics
- *Labs:* mainly to guide students to work on advanced and practical system analysis problems
- *Team project:* provide students with hands-on experience in applying knowledge and skills learned in class to model an information system

3. Learning Outcomes (Adapted from Outcome Based Education (OBE): PILOs-BBA-IS)

Student learning outcomes:

- Analyze the core issues and identify critical factors for IS development-related decision-making
- Solve business problems using analytical IS development methodologies
- Understand how IS interact with other business areas
- Demonstrate substantial knowledge and understanding of system analysis and modeling paradigms
- Apply IS development frameworks and tools to resolve business problems in the IS sector of an organization and other business sectors relying on IS
- Understand key IS development management issues and make sound IS development decisions as business managers

In addition, throughout the semester, students will have opportunities to develop ability to:

- Learn the course fundamentals on their own
- Produce professional quality business documents
- Deliver a professional quality presentation
- Communicate ideas persuasively to inform and convince others
- Understand team dynamics and the various roles played within the team
- Contribute to the successful and timely completion of a group project in line with their roles in teams
- Collaborate positively by actively seeking and engaging in discussion of the views of others while showing sensitivity to opposing views
- Lead a team to success

4. Grading

- Comprehensive Assessment (50%)
  - Midterm (20%)
  - Final (30%)
- In-Class Assessment (10%)
- Online Learning and Exercises (10%)
- Team Project (30%)

Comprehensive Assessment

Comprehensive assessment will be conducted in the middle and at the end of the semester to measure the degree to which students <u>individually</u> have understood the key concepts covered in the course. Alternative assessment method will be allowed only in cases of documented health or family emergencies or for official, university-sanctioned activities. The instructor reserves the right to use a percentage score of the other assessment methods to make up for the missed comprehensive exercise. Advanced notification of missing the comprehensive assessment is required. If you fail to complete the comprehensive assessment, you will receive a score of 0.

In-Class Assessment

Students are expected to come to class and lab prepared and participate in discussions and group tasks. We highly value your inputs, and so in-class assessment marks will be awarded to those who make an effort to actively engage in discussions and group tasks. Both quality and quantity of your contribution will determine the credit for in-class assessment.

Online Learning and Exercises

Students are required to study course materials posted on Canvas and complete the corresponding online exercises.

Team Project

Students have to complete a team project requiring them to perform analysis and design activities on a proposed system. More details about the project will be provided.

5. Lab

Students are required to work on more advanced and practical system analysis problems during lab sessions. You are expected to apply concepts that are learnt from online and offline lectures into lab sessions for these problems. You should attend lab sessions on time, engage actively in discussions and complete the assigned lab tasks.

6. Academic Integrity

Academic integrity entails absolute honesty in one's intellectual effort. In general, students who are found cheating or plagiarizing other people's work, regardless of whether such behaviors take place online or offline, will immediately fail the course and be subject to further disciplinary actions. In addition, uploading, distributing or reselling this course's materials to any individuals and/or online platforms is considered copyright infringement and violation of Student Conduct Code for encouraging or facilitating academic dishonesty and misconduct.

For more information, please refer to the following Website:
http://ugadmin.ust.hk/integrity/student-1.html

Class Schedule *(Tentative, last updated on August 10, 2023)*

Week	Pre-Class Online Materials	Real-time Zoom Sessions	Lab	Readings
1	**Course Introduction and Project Initiation**			
	Reading Material: System Request Template and the Concept of Feasibility Analysis	Sep 5: Course Introduction and Project Initiation	Sep 6 & 7: Introduction to the Course Logistics and Project	Ch. 1 Ch. 2
		Sep 7: System Request and Feasibility Analysis		
2	**Requirement Analysis**			
	Lecture Video: 3-1: Requirements analysis CHMS Case Study Video: 01: Functional and Non-Functional Requirements *Online Exercise: Identify the Functional and Non-Functional Requirements for CHMS*	Sep 12: Q&A for Online Materials *(Optional)*	Sep 13 & 14: Project discussion : Idea brainstorming	Ch. 3
		Sep 14: Review and Group Case Study: Requirement Analysis		
	Sep 15: Project Team Formation Due			

3	**Intro to UML and Use Case Modeling / Object-Oriented Modeling**			
	- Base Use Case Description			
	- Elaborated Use Case Description (Alternative and Conditional)			
	Lecture Videos: 4-1: Introduction to UML 4-2: Base Use Case 4-3: Conditional Flow CHMS Case Study Videos: 02a: Actor and Use Case Diagram 02b: Base Use Case 03: Conditional Flow *Online Exercise: Complete the Use Case Diagram and the Base Use Case Forms with Conditional Flows for CHMS*	Sep 19: Q&A for Online Materials *(Optional)* Sep 21: Review, Group Case Study and Exercises: Use Case Modeling	Sep 20 & 21: Project discussion: Requirements Analysis	AUCM Ch. 7 Ch. 8 Ch. 9
	Sep 24: Take-home Exercise: Campus Housing System ; Project Milestone 1 Due			
4	**Object-Oriented Modeling (continued)**			
	- Elaborated Use Case Description (Extending and Included Use Cases)			
	Lecture Videos: 5-1: Extending Use Case 5-2: Included Use Case CHMS Case Study Videos: 04a: Extending Use Case 04b: Included Use Case *Online Exercise: Suggest EUC and Identify IUC for CHMS*	Sep 26: Q&A for Online Materials *(Optional)* Sep 28: Review and Group Exercise: EUC and IUC	Sep 27 & 28: Project discussion : Mapping Requirements into Use Cases	AUCM Ch. 10
	Oct 3: Project Milestone 2 Due			

5	Midterm Overview			
		Oct 3: Midterm Overview	Oct 5: No Lab	
		Oct 5: Midterm Assessment (TBD)		
6	**Class Diagram Overview**			
	Lecture Videos: 8-1: Overview 8-2: Class, Attribute and Method 8-3: Relationship *Online Exercise: Develop the Class Diagram for a Clinic Appointment System*	Oct 10: Q&A for Online Materials *(Optional)*	Oct 11 & 12: Identify class diagram components	Ch. 5
		Oct 12: Summarize Midterm Survey Review Class Diagram Concepts		
	Oct 15 (11:59PM): Project Proposal Due			
7	**Develop Class Diagram from Use Cases**			
	Lecture Videos: 9-1: Rules 9-2: Identification of Classes, Attributes and Methods 9-3: Specification of Relationships	Oct 17: Q&A for Online Materials *(Optional)*	Oct 18 & 19: Class Diagram Practice	Ch. 5
		Oct 19: Group Exercise: Class Diagram of Campus Housing System		
	Oct. 23 (11:59PM): First Peer evaluation due			

8	Sequence Diagram			

	Lecture Videos:
	10-1: Introduction
	10-2: Development
	10-3: Highlights
	
	CHMS Case Study Videos:
	06: Sequence Diagram of
	    CHMS
	
	Online Exercise: Draw a Sequence Diagram for One Use Case of CHMS
		Oct 24: Q&A for Online Materials *(Optional)*
		
		Oct 26: Review and Group Exercise:
		        Sequence Diagram
			Oct 25 & 26: Class Diagram
			          wrap-up and
			          Project
			          discussion
				Ch. 6

9	Behavioral State Machine (BSM)			

	Lecture Videos:
	11-1 Introduction
	11-2 Key Concepts
	
	Online Exercise: Develop BSM for Tune Order and Book Order
		Oct 31: Q&A for Online Materials *(Optional)*
		
		Nov 2: Review and Group Exercise:
		      BSM for Clinic Emergency Care and
		      CHMS
			Nov 1 & 2 Developing Sequence
			          diagram:
				Ch. 6

10	Exercise: Class Diagram, Sequence Diagram and Behavioral State Machine Diagram Final Exam Review			
	Reading Material: Dr. Chris Case	Nov 7: Q&A for Dr. Chris Exercise *(Optional)*	Nov 8 & 9: BSM and UML Summary	
		Nov 9: Wrap up the Key Takeaway of Dr. Chris Exercise and Final Exam Review		
11	Project Work			
		Nov 14 & 16: Project work (No lecture)	Nov 15 & 16: Project logistics	
12	Project Consultation			
		Nov 21 & 23: Project consultation (No lecture)	Nov 22 & 23: Project consultation (No Lab)	
13	Project Submission			
	Nov 28 (11:59PM): Project Final Report and Presentation Slides due Nov 30 (11:59PM): Second Peer Evaluation due			