ISOM3210: Information Systems Analysis and Design (Fall 2022)

Lecture: Dr. Xiaojun Zhang
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Office Hours: 3:00pm − 6:00pm 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 :		9:00am – 10:20am	9:00am – 10:20am	*5620, Academic Building*
L2 :		1:30pm – 2:50pm	1:30pm – 2:50pm	*Lift 31/32*
L3 :		10:30am – 11:50am	10:30am – 11:50am	

Lab Schedule	:	*Tuesday*	*Wednesday*	*Venue:*
LA1 :			12:30pm – 1:20pm	*LSK 1009*
LA2 :			6:00pm – 6:50pm	*LSK 1033*
LA3 :		6:00pm – 6:50pm		*LSK 1007*
LA4 :		4:30pm – 5:20pm		*Academic Building 2304 Lift 17/18*

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

- Assignments (20%)
- Comprehensive Assessment (30%)
- In-Class Assessment (8%)
- Online Learning and Exercises (7%)
- Team Project (35%)

Assignments

Students are required to work in pairs (i.e., groups of two people) to complete 2 assignments and submit them on or before the specified deadlines. In cases of documented health or family emergencies or for official, university-sanctioned activities, students may request for an extension of the deadlines. Students who fail to submit an assignment by the deadline will result in a score of 0.

Comprehensive Assessment

A comprehensive exercise is expected to measure the degree to which students individually have understood the key concepts covered in the course. To help prepare for the exercise, review session will be offered. 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 exercise is required. If you fail or delay to submit the comprehensive exercise, 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 22, 2022)*

Week	Pre-Class Online Materials	Real-time Zoom Sessions	Lab	Readings
1	**Course Introduction and Project Initiation**			
		Sep. 1: Course Introduction and Project Initiation	Aug. 31: No Lab	Ch. 1 Ch. 2
2	**System Request and Feasibility Analysis**			
	Reading Material: System Request Template and the Concept of Feasibility Analysis	Sep. 6: Review and Group Case Study: System Request and Feasibility Analysis	Sep. 6 & 7: Introduction to the Course Logistics and Project	Ch. 2
		Sep. 8: System Request and Feasibility Analysis of CHMS		
	Sep. 18: Project Team Formation Due			
3	**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. 13: Q&A for Online Materials *(Optional)*	Sep. 13 & 14: Project discussion 1: Idea brainstorming	Ch. 3
		Sep. 15: Review and Group Case Study: Requirement Analysis		
4	**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. 20: Q&A for Online Materials *(Optional)* Sep. 22: Review, Group Case Study and Exercises: Use Case Modeling	Sep. 20 & 21: Project discussion 2: Project Kickoff Meeting and Requirements Analysis	AUCM Ch. 7 Ch. 8 Ch. 9
	Sep. 26: Take-home Exercise: Campus Housing System Due			
5	**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. 27: Q&A for Online Materials *(Optional)* Sep. 29: Review and Group Exercise: EUC and IUC	Sep. 27 & 28: Project discussion 3: Mapping Requirements into Use Cases	AUCM Ch. 10
6	**Midterm Overview**			
		Oct. 4: Public Holiday	Oct. 5: No Lab	

		Oct. 6: Midterm Overview		
		Oct. 8 (11:59PM): Assignment 1 Due		
7	**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. 11: Q&A for Online Materials *(Optional)* Oct. 13: Summarize Midterm Survey Review Class Diagram Concepts	Oct. 11 & 12: No Lab	Ch. 5
		Oct. 15 (11:59PM): Project Proposal & First Peer Evaluation Due		
8	**Develop Class Diagram from Use Cases**			
	Lecture Videos: 9-1: Rules 9-2: Identification of Classes, Attributes and Methods 9-3: Specification of Relationships CHMS Case Study Videos (*Released After Oct. 19*): Develop the Class Diagram for CHMS: 05a: Register as a Member 05b: Reserve Facilities 05c: Relationships *Online Exercise: Complete the Class Diagram for CHMS (Released on Oct. 19 and Due on Oct. 24)*	Oct. 18: Q&A for Online Materials *(Optional)* Oct. 20: Group Exercise: Class Diagram of Campus Housing System	Oct. 18 & 19: Class Diagram I	Ch. 5

9	**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. 25:　Q&A for Online Materials *(Optional)* Oct. 27:　Review and Group Exercise: 　　　　　Sequence Diagram	Oct. 25 & 26:　Class Diagram II	Ch. 6
10	**Behavioral State Machine (BSM)**			
	Lecture Videos: 11-1 Introduction 11-2 Key Concepts *Online Exercise: Develop BSM for Tune Order and Book Order*	Nov. 1:　Q&A for Online Materials *(Optional)* Nov. 3:　Review and Group Exercise: 　　　　　BSM for Clinic Emergency Care and 　　　　　CHMS	Nov. 1 & 2:　Sequence Diagram	Ch. 6

11	**Exercise: Class Diagram, Sequence Diagram and Behavioral State Machine Diagram** **Final Exam Review**			
	Reading Material: Dr. Chris Case	Nov. 8: Q&A for Dr. Chris Exercise *(Optional)*	Nov. 8 & 9: BSM	
		Nov. 10: Wrap up the Key Takeaway of Dr. Chris Exercise and Final Exam Review		
	Nov. 9 (11:59PM): Assignment 2 Due			
12	**Project Consultation**			
		Nov. 15 & 17: Project consultation	Nov. 15 & 16: Project Report Requirement Walkthrough and Presentation Rubrics	
	Nov. 21 (11:59PM): Presentation Slides and Final Project Report Due			
13	**Project Presentation**			
		Nov. 22 & 24: Project presentation	Nov. 22 & 23: No Lab	
	Nov. 25: Second Peer Evaluation Due			