ISOM3210: Information Systems Analysis and Design (Fall 2020)

Lecture: Dr. Xiaojun Zhang

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Office Hours: 10:30am − 2:00pm and 1:30pm – 3:00pm on Tuesday and by appointment

Lab (LA1 and LA2): Mr. Samuel S Y LAI

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Office Hours: By appointment

Lab (LA3 and LA4): Ms. Adrienne Y S LEE

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Office Hours: By appointment

Class Schedule[1]**:** L1: Tuesday & Thursday 4:30pm – 5:50pm Venue: Online

L2: Tuesday & Thursday 3:00pm – 4:20pm Venue: Online

L3: Tuesday & Thursday 9:00am – 10:20am Venue: Online

Lab Schedule: LA1: Monday 4:30pm – 5:20pm (Samuel)

LA2: Monday 12:00pm – 12:50pm (Samuel)

LA3: Monday 9:00am – 9:50am (Adrienne)

LA4: Monday 10:30am – 11:20am (Adrienne)

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.

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

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 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

- Assignment (20%)
- Final Exam (30%)
- Participation (10%)
- Online Learning and Exercises (7%)
- Team Project (33%)

Assignment

Students are required to complete 2 assignments on their own and submit the assignments 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.

Final Exam

A final exam will be administered in the official final exam period. The exam is expected to measure the degree to which students individually have understood the key concepts covered in the course. To help prepare for the exam, review session will be offered. Makeup exam 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 exam. Advanced notification of missing the exam is required. Any uncoordinated absence from an exam will result in a score of 0.

Participation

Students are expected to come to class and lab prepared and participate in discussions and group tasks. We highly value your inputs, and so participation 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 participation.

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 will immediately fail the course and be subject to further disciplinary actions. For more information, please refer to the following Website:

http://ugadmin.ust.hk/integrity/student-1.html

Class Schedule *(Tentative, last updated on August 25 2020)*

Week	Pre-Class Online Materials	Real-time Zoom Sessions	Lab	Readings
1	**Course Introduction and Project Initiation**			
		Sep 8: Course Introduction	Sep 9: No Lab	
		Sep 10: Project Identification and Initiation		Ch. 1 Ch. 2
2	**System Request and Feasibility Analysis**			
	<u>Reading Material:</u> System Request Template and the Concept of Feasibility Analysis	Sep 15: Review and Group Case Study: System Request and Feasibility Analysis	Sep 16: Introduction to Online Self-Study and Course Grading Criteria	Ch. 2
		Sep 17: System Request and Feasibility Analysis of CHMS		
		Sep 20: Project Team Formation Due		
3	**Requirement Analysis**			
	<u>Lecture Video:</u> 3-1: Requirements analysis <u>CHMS Case Study Video:</u> 01: Functional and Non-Functional Requirements *Online Exercise: Identify the Functional and Non-Functional Requirements for CHMS*	Sep 22: Q&A for Online Materials *(Optional)*	Sep 23: Requirement Collection	Ch. 3
		Sep 24: 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)			
	<u>Lecture Videos:</u> 4-1: Introduction to UML 4-2: Base Use Case 4-3: Conditional Flow <u>CHMS Case Study Videos:</u> 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 29: Review, Group Case Study and Exercises: Use Case Modeling Oct 1: Public Holiday	Sep 30: Wireframe	AUCM Ch. 7 Ch. 8 Ch. 9
	Oct 5: Take-home Group Exercise: Campus Housing System Due (Submit in project groups) 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*	Oct 6: Q&A for Online Materials *(Optional)*	Oct 7: Tips on Project Proposal	AUCM Ch. 10
		Oct 8: Review and Group Exercise: EUC and IUC		
	Oct 11 (11:59PM): Assignment 1 Due			
6	Project Proposal Meeting			
		Oct 13: Project Proposal Meeting I	Oct. 14: Project Proposal Meeting II	
		Oct 15: Project Proposal Meeting III		
7	Midterm Overview and Project Proposal			
		Oct 20: Midterm Overview	Oct. 21: Project Work	
		Oct 22: Project Proposal		
	Oct 22 (11:59PM): Project Proposal Due			

8	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 27: Q&A for Online Materials *(Optional)*	Oct. 28: No Lab	Ch. 5
		Oct 29: Summarize Midterm Survey Review Class Diagram Concepts and Introduce Inheritance		
9	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 Nov 5*): 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 Nov 5 and Due on Nov 11*)	Nov 3: Q&A for Online Materials *(Optional)*	Nov. 4: Class Diagram I	Ch. 5
		Nov 5: Group Exercise: Class Diagram of Campus Housing System		

10	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
		Nov 10: Q&A for Online Materials *(Optional)*
		
		Nov 12: Review and Group Exercise:
		            Sequence Diagram
			Nov. 11: Class Diagram II	Ch. 6

11	Behavioral State Machine (BSM)			

	Lecture Videos:
	
	11-1 Introduction
	11-2 Key Concepts
	
	Online Exercise: Develop BSM for Tune Order and Book Order
		Nov 17: Q&A for Online Materials *(Optional)*
		
		Nov 19: Review and Group Exercise:
		            BSM for Clinic Emergency Care and
		            CHMS
			Nov. 18: Sequence Diagram	Ch. 6

	<center>Nov 22 (11:59PM): Assignment 2 Due</center>			

12	Exercise: Class Diagram, Sequence Diagram and Behavioral State Machine Diagram Final Exam Review		
	Reading Material: Dr. Samuel Case	Nov 24: Q&A for Dr. Samuel Case *(Optional)*	Nov. 25: Tips on Project Presentation
		Nov 26: Wrap up the Key Takeaway of Dr. Samuel Exercise Final Exam Review	
	Nov. 30 (11:59PM): Presentation Slides and Final Project Report Due		
13	Project Presentation		
		Dec 1: Project Presentation I	
		Dec 3: Project Presentation II	