IS447: Smart Healthcare in Asia

Instructor(s)	Hwee-Xian TAN Hwee-Pink TAN
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Consultation Hours	By appointment only

COURSE SYNOPSIS

The annual expenditure on healthcare, by both individuals and governments, is expected to continue increasing within the next five years. There is thus an imminent need to stretch the effectiveness of the expenditure, and explore new innovations, which can subsequently serve the needs of the rapidly ageing population, tackle the issues associated with shortage of healthcare professionals, and achieve improved clinical outcomes.

This course will explore the changing needs and trends of the healthcare industry, and how innovation can address the rising costs and inefficiencies in the healthcare systems, with a particular focus on Singapore and Asia. Students can expect to be equipped with knowledge of state-of-the-art smart healthcare technologies, as well as examine the multi-faceted impact of technology on this multi-million dollar industry, through various lenses.

PRE-REQUISITES/ CO-REQUISITES/ MUTUALLY EXCLUSIVE COURSES

None

COURSE AREAS

- Asian Studies Cluster
- Technology Studies Cluster
- Advanced Business Technology Major
- Health Economics and Management Major
- SMU-X
- Technology & Entrepreneurship
- Business Options
- Econ Major Rel/Econ Options
- Bus-Oriented Electives/IS Opt
- IS Depth Electives/IS Options
- Social Sciences/PLE Major-rel

LEARNING OBJECTIVES

Upon completion of the course, students will be able to:

- Gain broad awareness of care landscape and ecosystem in Singapore.
- Understand the importance of, and factors leading to smart healthcare.
- Conceptualize and design an end-to-end technological solution to solve a relevant healthcare problem.
- Gain good understanding of constraints and limitations of operationalizing smart healthcare.

COMPETENCIES

- Explain the concepts and principles of enabling technologies for smart healthcare, such as Internet of Things (IoT), chatbots, and data analytics.
- Identify the challenges and opportunities associated with the use of technology in the healthcare domain.
- Understand and apply the use of technology for eldercare in Singapore.
- Obtain good understanding of constraints and limitations of operationalizing smart healthcare.
- Conceptualize and design a smart healthcare solution for a relevant healthcare problem.

INSTRUCTIONAL METHODS AND EXPECTATIONS

Attendance is compulsory, unless with valid reasons (e.g., MC).

All materials will be provided online, via eLearn.

COURSE ASSESSMENTS

Individual Assessment (50%)	Class Participation	10%	
	Reflections	10%	
	Quizzes (x2)	30%	
Team Assessment (50%)	Project Proposal	5%	
	Mid Term Presentation	10%	
	Final Report	15%	
	Final Presentation	20%	

COURSE ASSESSMENT DETAILS

Class Participation

This component includes pop quizzes, participation in class and discussion forums, etc.

Reflections

Students will be asked to write a reflective journal, based on a site visit.

Quizzes

There are a total of two quizzes, to be done during class-time. These comprise multiple-choice questions, as well as structured questions. The quizzes will test the students on the concepts that have been covered in class, as well as on the application of technology to healthcare applications.

Project

The students will design and conceptualize a technology solution to solve a relevant healthcare problem. They will be expected to pitch their idea to external stakeholders during the mid-term and final presentation (project/demo day). They will also be expected to submit a final report.

****Peer evaluation will form a major component of the project assessment.**

LESSON PLAN

Classes on held on Mondays, 1530 hrs to 1845 hrs.

Week	Theme	Topic	Assessment
1	Smart Healthcare: Outlook, Applications and Stakeholder Perspectives	Overview: What Does Smart Healthcare Look Like?	
2		Site Visit	
3		Smart Eldercare	Reflections
4		Self-Care and Patient Empowerment	
5	Project & Design	eLearning week + project discussions	Project proposal
6		Designing for Smart Healthcare	
7		Mid Term Presentations	Mid-term presentations
8		**RECESS WEEK**	
9	Technology Landscape for Smart Healthcare	Internet of Things (IoT) for Healthcare	
10		Chatbots for Healthcare	Quiz I
11		Data Analytics for Healthcare	
12	Challenges, Issues and Opportunities	Operationalization, Financial Models and Ethics	Quiz II
13		Final Term Presentations	Final presentation
14		**STUDY WEEK**	Final report

*subject to minor amendments

RESOURCES

TBC

OTHER IMPORTANT INFORMATION

Academic Integrity

All acts of academic dishonesty (including, but not limited to, plagiarism, cheating, fabrication, facilitation of acts of academic dishonesty by others, unauthorized possession of exam questions, or tampering with the academic work of other students) are serious offences. All work (whether oral or written) submitted for purposes of assessment must be the student's own work. Penalties for violation of the policy range from zero marks for the component assessment to expulsion, depending on the nature of the offense. When in doubt, students should consult the instructors of the course. Details on the SMU Code of Academic Integrity may be accessed at http://www.smuscd.org/resources.html.

Accessibility and Accommodations

SMU strives to make learning experiences accessible for all. If you anticipate or experience physical or academic barriers due to disability, please let the instructor know immediately. You are also welcome to contact the university's disability support team if you have questions or concerns about academic accommodations: included@smu.edu.sg.

Please be aware that the accessible tables in our seminar room should remain available for students who require them.

Emergency Preparedness for Teaching and Learning (EPTL)

As part of emergency preparedness, Instructors may conduct lessons online via the WebEx platform during the term, to prepare students for online learning. During an actual emergency, students will be notified to access the WebEx platform for their online lessons. The class schedule will mirror the current face-to-face class timetable unless otherwise stated.

Last updated: 01 Jan 2019