

The Hong Kong University of Science and Technology
Department of Information Systems, Business Statistics and Operations Management
Fall 2024 **ISOM 3730**

Name of Course:	Quality and Process Management		
Number of Credits:	3 credits		
Prerequisites:	There is no prerequisite except that students should be experienced in basic statistics (as covered in ISOM 2500)		
Class Meetings:	L1	Wed 9:00 – 10:20 am	Room 4582
	L2	Tue 10:30 – 11:50 am	Room 4582
Instructor:	Dr. Ki Ling Cheung Phone: 23587737 Zoom ID: 806 675 0866	Office – LSK 4021 Email: imcheung@ust.hk Office hours: By appointment	
Teaching Assistant:	Sherry Chen Wu Phone: 23588746 Office hours: By appointment	Office – LSK 4065 Email: imwuc@ust.hk	

Course Objective:

The objective of the course is to provide a systematic survey on the theory and implementations of quality control and management activities for different industries (mainly manufacturing and service). The concepts and methodologies of quality management can be implemented by the students in their future careers.

Blending Learning:

Quality and process management is a very practical and “hands-on” course, in the sense that each topic that we cover can be readily applied to solve some kind of real problems for companies. So there are ample applications and opportunities for learning in class from this problem solving point of view. In addition, some topics are more like engineering involving mathematics and statistics, while other are managerial and involves no mathematics at all. Because of such characteristics, the teaching approach is integrative and interactive in nature, with exercises, case discussion, simulation games and project presentation involved in class. This course will enhance your learning experience by adopting a new blended learning approach.

Our goal of using a blended approach is to leverage the best aspects of both face-to-face and online learning for your benefit. Instead of using classroom time for presentation of materials that you can easily learn on your own, we will use the class time to engage you in more in-depth discussions and deepen your understanding of the topics through cases and games. You will further enhance your understanding in certain topics by completing a group projects. Students are required to follow the weekly online video schedule. Class meetings are opportunities for the students to apply what they have learned and to interact with their peers and instructors. Weekly class meetings are entirely participatory-based, to encourage student engagement with an experiential learning approach. During weekly class meetings, students can engage in games, simulations, case studies, exercises, and a mix of these activities. Through this approach, the instructor is in a better position to evaluate the participation of students in case discussion based on the frequency and relevancy of their responses.

Intended Learning Outcomes:

At the end of this course, students should be able to:

1. Identify and analyze some of the most important problems in quality management in different industries; (ILO 1, 4)
2. Create quality management solutions that have been used in practices; (ILO 1, 4)
3. Apply a strategic quality management perspective to different companies. (ILO 1, 4)

This course also provides students with the opportunities to develop their abilities to:

4. Work effectively in a team and lead a team; (ILO 5)
5. Work with other functions in making quality improvement; (ILO 3)

6. Communicate effectively in oral English in assigned task contexts. (ILO 2)

Project:

You have to organize a team of 4 members. Please sign up on canvas (People > Project group) by the end of the first month of semester. There is one final projects about a company's quality problem. Working on a business case of Uber, you have to provide analysis and recommendations. A 15-minute presentation should be delivered.

Free-Riding Exclusion Policy:

Free-riding occurs when a group member relies on other group members to complete group tasks, and does not contribute to group work. If you feel that a member of your group is a free-rider, please report to your TA. A group member will receive a zero once when the free-riding case is confirmed.

Examinations:

All quiz and exam are open book/notes. The quiz will be held on October 22. The final exam covers everything taught after the quiz.

Assessment Scheme: Your course grade is determined by

Class Paticipation	2 %	4 points
On-line Quiz	3 %	6 points
Simulation Game	5 %	10 points
Final Project	15 %	30 points
Quiz	30 %	60 points
<u>Final exam</u>	<u>45 %</u>	<u>90 points</u>
Total	100%	200 points

Earning attendance points: Your active in-class participation will earn you the participation points. 1 point per class.

Earning online quiz points: For online learning using the Canvas platform, you are required to complete the quizzes at the end of each learning module. Each correct answer worths 0.5 point. A maximum of 6 points can be earned during the semester. Week 1 and Week 2 quizzes are practice quizzes and will not be counted towards your course grade.

Textbook: S. Thomas Foster and John W. Gardner, "*Managing Quality Integrating the Supply Chain*", 7th edition, Wiley (2022). The textbook is *required* rather than optional, hardcopies and eBook are available at the University bookstore. Students can purchase the eBook directly via the Campus bookstore website. It will require students to login with their student account in order to process further. They can search with the ISBN (978-1-119-88381-4).

Cases and Lecture Notes:

Please visit canvas for downloading cases and lecture notes. Six cases are used in this course.

1. Samsung Electronics: Analyzing Qualitative Complaint Data
2. Quality Wireless (A) and (B): Call Center Performance
3. Din Tai Fung: The Art of Dumpling
4. Comtec Electronics (A)
5. Body Scans and Bottlenecks: Optimizing Hospital CT Process Flows
6. Uber: Applying Machine Learning to Improve the Customer Pickup Experience (For final project)

There are two online simulation games (Quality Analytics Simulation Game and Behihana Simulation Game).

Laptop Policy: Your laptop should only be used for class activities such as working on an in-class simulation, taking notes, or referring to a spreadsheet. You should not conduct any non-class activities such as social networking or web surfing in class, and turn off your smartphone.

Use of Generative AI: You are prohibited from using generative artificial intelligence (AI) to produce any materials or content related to the assessment task.

Course Schedule

- The deadlines of all online quizzes (Tuesdays 10:30 am) are already listed on canvas. Please observe the deadlines closely.

Course Schedule

	Week	L1	L2	Topic
Module 1: Definitions and Measurements of Quality	1	4 Sept	3 Sept	In-class: Course Introduction Online: History of Quality Management and What is Quality? Reading: Pages 4-7, 30
	2	11 Sept	10 Sept	In-class: Samsung Electronics Case Online: Graphical Tools and Quality Cost Reading: Pages 94-98, 238-256
	3/4	18 Sept 25 Sept	17 Sept	In-class: Quality Cost and Fishbone Diagram Exercises Online: Statistical Process Control Reading: Pages 279-294, 300-305
Module 2: Statistical Quality Control	4/5	Oct 2	24 Sept 1 Oct	In-class: Quality Analytics Simulation Game (Bring laptop computer) Online: Statistical Process Control, Process Capability Analysis and Six Sigma Reading: Pages 306-311, 318-328, 341-346
	6	9 Oct	8 Oct	In-class: Quality Wireless Case Online: Acceptance Sampling
	7	16 Oct	15 Oct	In-class: Process Capability Analysis and Six Sigma Exercises Online: Economics of Acceptance Sampling
Module 3: Total Quality Management and Final Project	8	23 Oct	22 Oct	No class (Quiz on 22 Oct, 7-8pm) Online: Quality Theory Reading: <i>Leading Contributors to Quality Theory: W. Edwards Deming</i> Pages 31-36 <i>Leading Contributors to Quality Theory: Kaoru Ishikawa</i> Pages 38-39 <i>Viewing Quality Theory from a Contingency Perspective</i> Pages 45-49
	9	30 Oct	29 Oct	In-class: Din Tai Fung Case and Economics of Acceptance Sampling Exercises Online: Quality Function Deployment Reading: Pages 166-171
	10	6 Nov	5 Nov	In-class: Quality Function Deployment Exercises Online: Service Quality and Gap Analysis Reading: Pages 5-6, 118-120, 189-202
	11	13 Nov	12 Nov	In-class: Benihana Simulation Game Online: Comtec Case
	12	20 Nov	19 Nov	In-class: Final Project Presentation Online: Body Scans and Bottlenecks Case
	13	27 Nov	26 Nov	In-class: Final Project Presentation

Caveat: The instructor may modify the syllabus if deemed necessary.