The Hong Kong University of Science and Technology
Department of Information Systems, Business Statistics and Operations Management
Fall 2020   ISOM 3730

Name of course: Quality and Process Management

Number of credits: 4 credits

Prerequisites: There is no prerequisite except that students should be experienced in basic statistics (as covered in ISOM 2500)

Class meetings: L1   Mon 9:00 – 10:20 am   (Via Zoom)
                        L2   Wed 9:00 – 10:20 am   (Via Zoom)

Tutorials: T1   Thu 12:00 – 12:50 pm   (Via Zoom)

Note: Tutorials are tentatively scheduled on 24 September, 8, 15 October, 12, 19 November.

Instructor: Dr. Ki Ling Cheung   Office – LSK 4021
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                    Office hours: Mon10:30 to 11:30 am or by appointment
                    (Zoom meeting ID: 806 675 0866)

Teaching assistant: Angel So   Office – LSK 4049C
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                    Office hours: Thu 9:30 am – 11:30 am or by appointment
                    (Zoom meeting ID: 303-211-0127)

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.

Zoom:
All in-class meetings will be conducted on Zoom. Zoom is an easy-to-use, web-based conferencing tool on Microsoft Windows and Mac desktop client, as well as mobiles. Users may choose to record session, collaborate on projects and share screens under a single platform. For details, please see:
https://itsc.ust.hk/services/general-it-services/communication-collaboration/zoom-meeting

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)

Projects:
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 are two final projects. Each project is about a company's quality problem. One of them is Benihaha simulation game. For the other one, a case about Uber, you have to provide analysis and recommendations for the company. A 15-minute presentation should be delivered.

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 Participation	1%	2 points
On-line Quiz	4%	8 points
Simulation Game	5%	10 points
Final project	15 %	30 points
Quiz	30 %	60 points
Final exam	45 %	90 points
Total	100%	200 points

Earning participation points: Your in-class participation will earn you the participation points.

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 8 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, "*Managing Quality Integrating the Supply Chain*", sixth edition, Thomson (2017). 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: https://cas.ust.hk/cas/login?service=https%3A%2F%2Flogin.psft.ust.hk%2Fcas%2Flogin%3Fclient_name%3D%2522CAS%2BPSFT%2522. It will require students to login with their student account in order to process further. They can search with the ISBN (Print: 9781292154213 or eBook: 9781292154275)

Cases and lecture notes:
Please visit canvas for downloading cases and lecture notes. Five cases are used in this course.

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

There are two online simulation games (Quality Analytics Simulation Game and Benihana Simulation Game). In addition, one article will be used for discussion: Parasuraman, A. "*Finding Service Gaps in the Age of e-Commerce*," IESE Insight, Issue 17, Second Quarter 2013, pp. 30-37.

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.

Course Schedule for Lecture 1

Module 1:   Definitions and Measurements of Quality
Sept 7   In-class: Course Introduction

               Online: History of Quality Management and What is Quality?
               Reading: Pages 25-29, 51

Sept 14   In-class: Samsung Electronics Case

               Online: Graphical Tools and Quality Cost
               Reading: Pages 112-116, 264-281

Sept 21   In-class: Quality Cost and Fishbone Diagram Exercises

               Online: Statistical Process Control
               Reading: Pages 302-317, 322-324

Module 2:   Statistical Quality Control
Sept 28   In-class: Quality Wireless Case

               Online: Statistical Process Control
               Reading: Pages 339-348

Oct 5   In-class: Quality Analytics Simulation Game (Bring Notebook Computer)

               Online: Process Capability Analysis and Six Sigma
               Reading: Pages 326-331, 362-366

Oct 12   In-class: Process Capability Analysis and Six Sigma Exercises

               Online: Acceptance Sampling
               Reading: Pages 252-258

Oct 19   In-class: Q&A for quiz

               Remark: Quiz from 12:00 to 1:00 pm Oct 22

Oct 26   No Class (Holiday)

               Online: Economics of Acceptance Sampling and Quality Theory

Reading: *Leading Contributors to Quality Theory: W. Edwards Deming* Pages 51-56
Leading Contributors to Quality Theory: Kaoru Ishikawa Pages 60-61
Viewing Quality Theory from a Contingency Perspective Pages 67-71

Module 3:	Total Quality Management
Nov 2	In-class: Din Tai Fung Case and Economics of Acceptance Sampling Exercises

Online: Comtec Case and Quality Function Deployment
Reading: Pages 180-189

Nov 9   In-class: Quality Function Deployment Exercises

Online: Service Quality and Gap Analysis
Reading: Pages 29-30, 135-137, 207-218

Module 4:	Quality Management Projects

Nov 16 In-class: Benihana Simulation Game (Bring Notebook Computer)

Online: Reliability
Reading: Pages 349-353

Nov 23 In-class: Uber Case Presentation

Online: Body Scans and Bottlenecks Case

Nov 30 In-class: Uber Case Presentation

Course Schedule for Lecture 2

Module 1:	Definitions and Measurements of Quality
Sept 9	In-class: Course Introduction

Online: History of Quality Management and What is Quality?
Reading: Pages 25-29, 51

Sept 16 In-class: Samsung Electronics Case

Online: Graphical Tools and Quality Cost
Reading: Pages 112-116, 264-281

Sept 23 In-class: Quality Cost and Fishbone Diagram Exercises

Online: Statistical Process Control
Reading: Pages 302-317, 322-324

Module 2:	Statistical Quality Control
Sept 30	In-class: Quality Wireless Case

Online: Statistical Process Control
Reading: Pages 339-348

Oct 7   In-class: Quality Analytics Simulation Game (Bring Notebook Computer)

Online: Process Capability Analysis and Six Sigma
Reading: Pages 326-331, 362-366

Oct 14   In-class: Process Capability Analysis and Six Sigma Exercises

          Online: Acceptance Sampling
          Reading: Pages 252-258

Oct 21   In-class: Q&A for quiz

          Remark: Quiz from 12:00 to 1:00 pm Oct 22

Oct 28   No Class (Sunchronized with L1)

          Online: Economics of Acceptance Sampling and Quality Theory
          Reading: *Leading Contributors to Quality Theory: W. Edwards Deming* Pages 51-56
          Leading Contributors to Quality Theory: Kaoru Ishikawa Pages 60-61
          Viewing Quality Theory from a Contingency Perspective Pages 67-71

Module 3:   Total Quality Management
Nov 4   In-class: Din Tai Fung Case and Economics of Acceptance Sampling Exercises

          Online: Comtec Case and Quality Function Deployment
          Reading: Pages 180-189

Nov 11   In-class: Quality Function Deployment Exercises

          Online: Service Quality and Gap Analysis
          Reading: Pages 29-30, 135-137, 207-218

Module 4:   Quality Management Projects

Nov 18   In-class: Benihana Simulation Game (Bring Notebook Computer)

          Online: Reliability
          Reading: Pages 349-353

Nov 25   In-class: Uber Case Presentation

          Online: Body Scans and Bottlenecks Case

Dec 2   In-class: Uber Case Presentation

Caveat   The instructor may modify the syllabus if deemed necessary.