Department of Information Systems and Operations Management,
College of Computing and Mathematics
King Fahd University of Petroleum and Minerals
Dhahran, Eastern Province, KSA

ISE 530: Quality Management in Supply Chain Systems (252)

Instructor

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Office hours

Sunday 1:30 PM to 3:00 PM, Tuesday 1:30 PM to 3:00 PM, or by appointment.

Textbook

Foster, S. Thomas, Managing Quality: Integrating the Supply Chain, 6th Ed., Pearson (2017)

References

1. James R. Evans, William M. Lindsay; "Managing for Quality and Performance Excellence", 9th Edition, South-Western, Cengage learning, 2014.
2. Douglas Montgomery; "Statistical Quality Control: A Modern Introduction"; 7th edition; 2018; Wiley
3. Case studies on quality.

Catalog Description

This course adopts the unifying theme of the supply chain to emphasize the interactions and integration among systems, customers, suppliers, technology, and people. Topics will include quality concepts and theory, dimensions and perspectives on quality, supply chain quality standards, strategic quality planning, statistical quality tools such as control charts, process capability, quality design in products and services, quality function deployment in supply chain, six sigma, quality continuous improvement, and case studies. The focus is on the practical application of the underlying principles of quality – how to define it, how to measure it, and how to continuously improve. Course project.

List of e-material

https://asq.org/cert

https://asq.org

https://www.base-uk.org/knowledge/european-foundation-quality-management-efqm

https://www.iso.org/home.html

Prerequisite(s) : OM 530.

Objectives : To provide learners the ability to identify, evaluate, and capture opportunities for quality management and improvement that create value by developing the:

1. Describe broad-ranging knowledge of proven techniques for quality assessment, design, deployment, and improvement.
2. Explain the processes needed to procure, visualize, report, and analyze quality data.
3. Introduce how managers can leverage on quality as an integrated systems approach over all echelons of the supply chain (including suppliers, manufacturers, distributors, and customers) to improve operational, tactical, and strategic efficacy and efficiency of supply chains.
4. Present to the students how to lead and manage quality improvement projects.

Learning Outcomes :

1. Knowledge

1.1 Identify the critical elements for quality systems.
1.2 Describe the state of quality in a specific supply chain.

2. Skills

2.1 Measure quality in the supply chain subsystem.
2.2 Diagnose a quality problem and prescribe remedies.
2.3 Design quality for a specific product or service.

3. Competence

3.1 Use Six Sigma to improve process quality.
3.2 Lead and manage quality projects.

Topics :

- Quality concepts and theory.
- Perspectives and elements of supply chain quality.
- Overview of Quality in different supply chains.
- Strategic quality planning.
- Process control.
- Process capability.
- Quality design.
- Quality function deployment.
- Six sigma (6σ).
- Case studies in quality improvement (DMAIC).
- Students' term projects presentation.

Grade Distribution:

Attendance	**5%**
Assignments	**10%**
Project (presentation and report)	**30%**
Exams	**55%**

- Midterm exam 25%
- Final Exam 30%

COURSE OUTLINE

Classes	Topic	Chapter
1	Differing Perspectives on Quality	1
2	Quality Theory	2
3	Quality and Innovation in Product and Process Design	7
4	Designing Quality Services	8
5	The Tools of Quality	10
6	Statistically Based Quality Improvement for Variable	11
7	Statistically Based Quality Improvement for Attribute	12
	Midterm Exam:	
8	Six Sigma Management and Lean Tools	13
9	Managing Quality Improvement Teams and Projects	14
10	Global Supply Chain and International Quality Standards	3
11	Strategic Quality Planning	4
12	The Voice of the Customer	5
13	Implementing and Validating the Quality System	15
14	**Project Presentations**	