

SEEM4025: QUALITY SYSTEMS AND MANAGEMENT

Effective Term

Summer Term 2023

Part I Course Overview

Course Title

Quality Systems and Management

Subject Code

SEEM - Systems Engineering and Engineering Management

Course Number

4025

Academic Unit

Systems Engineering (SYE)

College/School

College of Engineering (EG)

Course Duration

One Semester

Credit Units

3

Level

B1, B2, B3, B4 - Bachelor's Degree

Medium of Instruction

English

Medium of Assessment

English

Prerequisites

SEEM3053 Quality Improvement Methodologies, or SEEM3102 Quality Engineering, or MEEM3042 Reliability and Quality Engineering, or MEEM3062 (offered until Semester A 2011/12), or SEEM3062 Quality Engineering I

Precursors

Nil

Equivalent Courses

MEEM4025 Quality Systems and Management/ADSE4035 Quality and Environmental System and Management

Exclusive Courses

Nil

Part II Course Details

Abstract

This course aims to provide a broad understanding of Quality Systems and Management in both the manufacturing and servicing environment with strong emphasis on development of quality management systems and application of Total Quality Management (TQM) concepts to enhance organizational competitiveness. Students will be equipped with the ability to apply the knowhow of quality systems and TQM in their future work.

Course Intended Learning Outcomes (CILOs)

CILOs		Weighting (if app.)	DEC-A1	DEC-A2	DEC-A3
1	Define the various dimensions of quality in product and service realization.	10			
2	Outline the evolution and principles of modern quality management theories and practices	15			
3	Apply the concepts and principles of quality management systems, ISO9000, QS9000, etc. in developing company wide quality systems.	30			
4	Apply key elements of Total Quality Management (TQM): strategic quality management, leadership, customer focus and satisfaction, supplier partnership, employee involvement, performance measures, etc.	30	x	x	x
5	Describe the framework and associated issues of implementing TQM systems in the organizations.	15			

A1: Attitude

Develop an attitude of discovery/innovation/creativity, as demonstrated by students possessing a strong sense of curiosity, asking questions actively, challenging assumptions or engaging in inquiry together with teachers.

A2: Ability

Develop the ability/skill needed to discover/innovate/create, as demonstrated by students possessing critical thinking skills to assess ideas, acquiring research skills, synthesizing knowledge across disciplines or applying academic knowledge to real-life problems.

A3: Accomplishments

Demonstrate accomplishment of discovery/innovation/creativity through producing /constructing creative works/new artefacts, effective solutions to real-life problems or new processes.

Teaching and Learning Activities (TLAs)

TLAs	Brief Description	CILO No.	Hours/week (if applicable)
1	Large class activities	During the large-class lectures, students are given a general overview on various aspects of the related topics with support by some small in-class assignments.	1, 2, 3, 4, 5
			2 hours/week

2	Tutorial and Case Studies(Small group)	During the small-group tutorial classes, two group assignments in the form of Student-Centred Activities (SCA) will be given to students. They are expected to work in groups of three to four on two quality related topics. The groups are required to give presentations on their final outcomes of their work, as well as a group report. Each member should explicitly state in the project report about his/her effort and contributions to the overall project result.	3, 4	1 hour/week
3	Consultation Hours	Consultation hours will be used to facilitate discussions of various issues related to the lecture materials, mini-projects, and tutorial questions.	1, 2, 3, 4, 5	1 hour/week

Assessment Tasks / Activities (ATs)

ATs	CILO No.	Weighting (%)	Remarks (e.g. Parameter for GenAI use)
1 In-class Assignments Students need to participate actively in-class activities such as discussion, case study, and exercises that are designed to facilitate their understanding of topics taught in the class	1, 2, 3, 4, 5	6	
2 Individual Report Individual course paper on a self-proposed topic in the scope of quality management. Student will critically examine and contrast the knowledge and practice of the proposed topic.	1, 2, 3, 4, 5	9	

3	Group-based case studies projects, reports and presentation Students will work in groups, study the given topics of modern quality management from multiple information sources and present the findings.	2, 3, 4	16	
4	Quiz Students' learning progress will be assessed via a mid-term quiz	1, 2, 3, 4	9	

Continuous Assessment (%)

40

Examination (%)

60

Examination Duration (Hours)

2

Assessment Rubrics (AR)**Assessment Task**

Class assignment

Criterion

Submitted written work and delivered presentation

Excellent (A+, A, A-)

Strong evidence of original thinking; good organization, capacity to analyse and synthesize; superior grasp of subject matter; evidence of extensive knowledge base.

Good (B+, B, B-)

Evidence of grasp of subject, some evidence of critical capacity and analytic ability; reasonable understanding of issues; evidence of familiarity with literature.

Fair (C+, C, C-)

Evidence that student is profiting from the university experience; understanding of the subject; ability to develop solutions to simple problems in the material.

Marginal (D)

Sufficient familiarity with the subject matter to enable the student to progress without repeating the course.

Failure (F)

Little evidence of familiarity with the subject matter; weakness in critical and analytic skills; limited, or irrelevant use of literature.

Assessment Task

Group-based case studies reports and presentation

Criterion

Submitted written work and delivered presentation

Excellent (A+, A, A-)

Strong evidence of original thinking; good organization, capacity to analyse and synthesize; superior grasp of subject matter; evidence of extensive knowledge base.

Good (B+, B, B-)

Evidence of grasp of subject, some evidence of critical capacity and analytic ability; reasonable understanding of issues; evidence of familiarity with literature.

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Assessment Task

Examination

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Submitted written work

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Part III Other Information

Keyword Syllabus

Definition and Dimensions of Quality

Modern Quality Management development, principles and concepts

Quality Management Systems: ISO9000

Quality Improvement: Six Sigma, Lean

Total Quality Management: Quality Strategy, Leadership, Customer Focus and Satisfaction, Employee Involvement, Supplier Partnership, Performance Measurement
 Organization-wide Quality Improvement Implementation Framework

Reading List

Compulsory Readings

Title	
1	Nil

Additional Readings

Title	
1	"Total Quality Management", 3rd edition by D H Besterfield et al., Prentice-Hall, Englewood, USA, 2010. "
2	"Juran' s Quality Planning and Analysis" , F M Gryna, C H Chua and J A DeFeo, 5th edition, McGraw-Hill, 2007.
3	"Quality Management for Organizational Excellence: Introduction to Total Quality" , by D L Goetsch and S B Davis, Prentice-Hall, c2013.
4	"Quality management: concepts, techniques and systems" , by Bholanath Das., Publisher: New Century Publications, New Delhi, 2013.
5	"Total quality management: text and cases" , by K. Shridhara Bhat, Publisher: Himalaya Pub. House, Mumbai, India, 2010
6	"Exploding the myths surrounding ISO9000 : a practical implementation guide" , by Andrew W. Nichols, Ely, Cambridgeshire, U.K. : IT Governance Pub., 2013
7	"The Six Sigma way : how to maximize the impact of your change and improvement efforts" , by Peter S. Pande, Robert P. Neuman, Roland R. Cavanagh, Publisher : McGraw-Hill, N.Y., second edition, 2014
8	Quality Progress, ASQ monthly publication
9	Quality Management Journal
10	International Journal of Quality and Reliability Management