GUJARAT TECHNOLOGICAL UNIVERSITY

Syllabus for Master of Business Administration (Part-Time), 4th Semester

Specialization: Production and Operations Management

Subject Name: Quality Management

Subject Code: 5549933

1. Learning Outcomes:

Learning Outcome Component	Learning Outcome (Learner will be able to)
Business Environment and Domain Knowledge (BEDK)	• *Explain* the different meanings of the quality concept and its influence. • *Describe*, *distinguish* and *use* the several techniquesand quality management tools.
Critical thinking, Business Analysis, Problem Solving and Innovative Solutions (CBPI)	• *Predict* the errors in the measuring process, distinguishing its nature and the root causes. • *Justify* whether or not a measuring process fulfils the established quality requirements.
Global Exposure and Cross-Cultural Understanding (GECCU)	• *Identify* the elements that are part of the quality measuring process in the global industry.
Social Responsiveness and Ethics (SRE)	• *Prioritize* and critically *analyze* ethical issues in quality management.
Effective Communication (EC)	• *Explain* the regulation and the phases of a qualitysystem certification process.
Leadership and Teamwork (LT)	• *Lead* and *manage* quality circles, and other quality improvement processes and systems.

LO – PO Mapping: Correlation Levels:

1 = Slight (Low); 2 = Moderate (Medium); 3 = Substantial (High), "-"= no correlation

Sub. Code: 5549933	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9
LO1: *Explain* the different meanings of the quality concept and its influence.	3	2	-	2	1	1	-	1	1
LO2: *Describe*, *distinguish* and *use* the several techniques and quality management tools.	2	2	1	2	1	-	-	2	2
LO3: *Predict* the errors in the measuring process, distinguishing its nature and the root causes.	1	2	1	1	3	-	1	1	1
LO4: *Justify* whether or not a measuring process fulfils the established quality requirements.	3	1	3	1	-	2	-	1	1
LO5: *Identify* the elements that are part of the quality measuring process in the global industry.	2	2	2	-	3	-	-	1	-
LO6: *Prioritize* and critically *analyze* ethical issues in quality management.	3	1	2	-	-	3	3	-	2
LO7: *Explain* the regulation and the phases of a quality system certification process.	1	2	-	1	1	1	3	-	1
LO8: *Critically evaluate* the practices to Lead and manage quality circles, and other quality improvement processes and systems among different industry	1	2	2	1	1	3	-	-	-

2. Course Duration: The course duration is of **40 sessions of 60 minutes each.**

3. Course Contents:

Module No:	Content	No. of Sessions	70 Marks (External Evaluation)

I	**Defining and Understanding Quality:**
	• Perspectives of defining quality
	  ○ Product, User, Value, Manufacturing, Customer, Transcendental
	  ○ Quality of design, performance and conformance
	• Costs of quality
	  ○ Prevention, appraisal, internal and external failure, hidden failure costs
	• Customer Driven Quality
	  ○ Meeting Customer needs and Expectations
	  ○ Kano Model
	• Quality and Productivity
	• Quality Philosophies
	  ○ W. Edward Deming's philosophy
	  ▪ Deming Cycle (PDCA)
	  ▪ 14 – point philosophy
	  ▪ Seven deadly diseases of management
	  ○ Philip B. Crosby's Philosophy
	  ▪ Four absolutes of quality management
	  ▪ 14 points for quality improvement
	  ○ Joseph M. Juran's philosophy
	  ▪ Quality trilogy
		10	18

II	**Quality Improvement Tools:**
	• Kaizen and Gemba Kaizen, 5S
	• Quality Function Deployment
	  ○ Introduction, reasons to implement QFD
	  ○ QFD implementation (four phases)
	  ▪ Product Definition
	  ▪ Product Development
	  ▪ Process Development
	  ▪ Process Quality Control
	  ○ House of Quality
	• Total Productive Maintenance
	  ○ Overall Equipment Effectiveness
	  ▪ Six losses
	  ▪ Underlying components – Availability, Performance, Quality
	  ○ Calculating OEE, OEE benchmarks
	• Failure Mode and Effect Analysis
	  ○ Design FMEA and Process FMEA
	  ○ Why, When and How to perform FMEA
	  ○ Stages of FMEA
	  ○ Risk Priority Number (RPN)
	• Taguchi Loss Function
	  ○ Concept
		10	18

	○ Nominal, smaller-the-better, larger-the-better ○ Formula • Benchmarking ○ Concept, reasons to benchmark, benchmarking process Pareto diagrams, flowcharts, scatter plots		
III	**Statistical Quality Control (theory only):** • Statistical Process Control ○ Variations and causes, patterns in control charts ○ Basis for sampling, sampling size and frequency ○ Location of control limits • Control charts for Variables ○ Variation between samples (X- bar chart) ○ Variation within samples (R – chart) • Control charts for Attributes ○ Yes/No data ▪ p, np charts ○ Counting data ▪ c, u charts **Quality Management Systems:** • Concept, obstacles to QMS and overcoming them • Standardized systems (in brief – most important feature) ○ ISO certifications, such as ISO 9000/9001, ISO 13485, ISO 14000/14001, ISO 14971, ISO 17025, ISO 22000, HACCP, TS 16949; TL 9000; AS9100; cGxP, 21 CFR Part 11, QSRTitle 21 Part 820, A2LA, or OHSAS 18001 Capability Maturity Model (CMM). • Six Sigma (in brief) ○ Principles of six sigma, meaning of DMAIC • Quality Circles • TQM **International Quality Excellence Programs:** • Balridge Excellence Framework and Award • Deming Award (for TQM) • Rajiv Gandhi National Quality Award • China Quality Award • Kitemarks	10	17
	Total Quality Management: • History, Concept, Benefits • Eight Principles of TQM • Quality training and education • Quality engineering & quality control		

IV	• Quality culture
	  ○ Quality in design
	  ○ Quality in procurement
	  ○ safety aspect in Quality (specially petroleum industries)
	  ○ Quality in service
	  ○ Quality in manufacturing
	  ○ Quality in marketing
	  ○ Quality in after sales service
	• Generic strategy model for implementing TQM
	• TQM strategies
	  ○ TQM element approach
	  ○ Guru approach
	  ○ Organization model approach
	  ○ Japanese total quality approach
	  ○ Award criteria approach
	  ○ Business Process Reengineering (BPR)
		10	17

V	**Practical:** • Analyze quality department procedure and tests conducted for product of any manufacturing industry. • Prepare a documentation and requirement report forISO 9000 for any retail / manufacturing industry, already having ISO certification. • Study and benchmarking of customer satisfaction for any four life insurance industry/ Banking companies • Prepare a report suggesting an zero defect program by use of quality tools for any industry • Prepare a report with parameters study (for quality assurance in manufacturing process / raw materials) for a company suggesting necessary implementation of TQM approach with procedure indicating practical benefits. • Six sigma implementation in small scale or medium scale industry	---	(30 marks CEC)

4. **Pedagogy:**
   - ICT enabled Classroom teaching
   - Case study
   - Practical / live assignment
   - Interactive class room discussions
5. **Evaluation:**

Students shall be evaluated on the following components:

A	**Internal Evaluation**	**(Internal Assessment- 50 Marks)**
	• Continuous Evaluation Component	30 marks
	• Class Presence & Participation	10 marks
	• Quiz	10 marks
B	**Mid-Semester examination**	**(Internal Assessment-30 Marks)**
C	**End –Semester Examination**	**(External Assessment-70 Marks)**

6. Reference Books:

No.	Author	Name of the Book	Publisher	Year of Publication / Edition
1	R. Paneerselvam, P. Sivasankaran	Quality Management	PHI	2014
2	James R. Evans, William M. Lindsay	Managing for Quality and PerformanceExcellence	South Western	2015 / 9th
3	James R. Evans	Quality and PerformanceExcellence	Cengage	2012 / 6th
4	Kanishka Bedi	Quality Management	Oxford University Press	2006
5	Rajesh K. Jain, Himanshu M. Trivedi	Quality Management for Zero Defect and Zero Effect: A Compendium of Case Studies and BestPractices	ASQ India	2018 / 1st
6	Howard Gitlow, Rosa Oppenheim, Alan Oppenheim, David Levine	Quality Management	McGraw Hill	2017 / 3rd
7	James R. Evans	Total QualityManagement	Cengage	2007
8	Sunil Sharma	Total Quality Management: Concepts, Strategy and Implementationfor Operational Excellence	Sage	2018 / 1st
9	Dale H. Besterfield, Carol Besterfield, Glen H.Besterfield, Mary Besterfield, Hemant Urdhwareshe, Rashmi Urdhwareshe	Total QualityManagement	Pearson	2018 / 5th
10	Poornima M. Charantimath	Total QualityManagement	Pearson	2017 / 3rd
11	Amitava Mitra	Fundamentals of Quality Control and Improvement	Wiley	2013 / 3rd

Note: Wherever the standard books are not available for the topic appropriate print and online resources, journals and books published by different authors may be prescribed.

7. List of Journals/Periodicals/Magazines/Newspapers / Web resources, etc.

1. International Journal of Productivity and Quality Management
2. Quality Management Journal
3. The TQM Journal
4. International Journal for Quality Research
5. Quality Management Magazine
6. Quality India Magazine
7. Quality Council of India - https://www.qcin.org/
8. National Quality / Business Excellence Awards in different countries: https://www.nist.gov/document/nationalqualitybusinessexcellenceawardsindifferentcountriesxls