

MOHAMMED SATHAK A J COLLEGE OF ENGINEERING

Siruseri IT Park, OMR, Chennai - 603103

| LESSON PLAN | | | | | | | |
|--|---|--------|------------------|---|----------------------|-----|----------|
| Department of Electrical and Electronics Engineering | | | | | | | |
| Name of the Subject | Total Quality Management | | | Name of the handling Faculty | C.Archana | | |
| Subject Code | GE 8077 | | | Year / Sem | IV/VIII | | |
| Acad Year | 2022-2023 | | | Batch | 2019-2023 | | |
| Course Objective | | | | | | | |
| • To facilitate the understanding of Quality Management principles and process | | | | | | | |
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| Course Outcome | | | | | | | |
| To understand the frame work of Total Quality Management emphasizing the importance of Quality and Customers | | | | | | | |
| To understand the TQM principles with reference to qualities of Leadership, Involvement and Team work for the continuous process improvement | | | | | | | |
| To understand and apply the conventional and new management tool procedures for total quality Management | | | | | | | |
| To learn the various tools of Performance measures for the implementation of quality management | | | | | | | |
| To understand the need for quality regulatory system and its documentation procedures | | | | | | | |
| Lesson Plan | | | | | | | |
| Sl. No. | Topic(s) | T / R* | Periods Required | Mode of Teaching (BB / PPT / NPTEL / MOOC / etc) | Blooms Level (L1-L6) | CO | PO |
| | | Book | | | | | |
| UNIT I - INTRODUCTION | | | | | | | |
| 1 | Introduction - Need for quality | T1 | 1 | BB | L2 | CO1 | PO1-PO12 |
| 2 | Evolution of quality - Definitions of quality | T1 | 1 | BB | L2 | CO1 | PO1-PO12 |
| 3 | Dimensions of product and service quality | R2 | 2 | BB | L2 | CO1 | PO1-PO12 |
| 4 | Basic concepts of TQM | T1 | 1 | BB | L2 | CO1 | PO1-PO12 |
| 5 | TQM Framework, Contributions of Deming | R2 | 2 | BB | L2 | CO1 | PO1-PO12 |
| 6 | Contribution of Juran and Crosby | R2 | 2 | BB | L2 | CO1 | PO1-PO12 |
| 7 | Barriers to TQM | T1 | 1 | BB | L2 | CO1 | PO1-PO12 |
| 8 | Quality statements - Customer focus | R2 | 1 | BB | L2 | CO1 | PO1-PO12 |
| 9 | Customer orientation, Customer satisfaction | R2 | 1 | BB | L2 | CO1 | PO1-PO12 |
| 10 | Customer complaints, Customer retention | R2 | 1 | BB | L2 | CO1 | PO1-PO12 |
| Suggested Activity: Assignment | | | | | | | |
| Evaluation method:Assignments on Customer Satisfaction and Quality | | | | | | | |
| UNIT II - TQM PRINCIPLES | | | | | | | |
| 11 | Leadership – Quality Statements | T1 | 1 | BB | L2 | CO2 | PO1-PO12 |
| 12 | Strategic Quality Planning - Quality Councils | T1 | 1 | BB | L3 | CO2 | PO1-PO12 |
| 13 | Employee involvement | R1 | 1 | BB | L2 | CO2 | PO1-PO12 |
| 14 | Motivation, Empowerment | R1 | 2 | BB | L3 | CO2 | PO1-PO12 |

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| 15 | Team and Teamwork, Recognition and Reward | T1 | 2 | BB | L3 | CO2 | PO1-PO12 |
| 16 | Performance appraisal | T1 | 1 | BB | L3 | CO2 | PO1-PO12 |
| 17 | Continuous Process Improvement | T1 | 1 | BB | L3 | CO2 | PO1-PO12 |
| 18 | PDCA cycle | R2 | 1 | BB | L3 | CO2 | PO1-PO12 |
| 19 | 5S, Kaizen | R2 | 2 | BB | L3 | CO2 | PO1-PO12 |
| 20 | Supplier partnership – Partnering, Supplier selection, Supplier Rating. | R2 | 2 | BB | L3 | CO2 | PO1-PO12 |

Suggested Activity: Quiz

Evaluation method : Quiz on Leadership

UNIT III - TQM TOOLS AND TECHNIQUES - I

| | | | | | | | |
|----|--|----|---|-----------|-----------|-----|----------|
| 21 | The Seven Traditional Tools Of Quality | R1 | 2 | BB | L3 | CO3 | PO1-PO12 |
| 22 | New Management Tools | R1 | 2 | BB | L3 | CO3 | PO1-PO12 |
| 23 | Six Sigma: Concepts & Methodology | R1 | 1 | BB | L3 | CO3 | PO1-PO12 |
| 24 | Six Sigma : Applications To Manufacturing, Service Sector Including IT | T1 | 2 | BB | L3 | CO3 | PO1-PO12 |
| 25 | Bench Marking - Reason To Bench Mark | T1 | 1 | BB | L3 | CO3 | PO1-PO12 |
| 26 | Bench Marking Process | T1 | 1 | BB | L3 | CO3 | PO1-PO12 |
| 27 | FMEA – Stages, Types. | R1 | 2 | BB | L3 | CO3 | PO1-PO12 |

Suggested Activity: Assignment

Evaluation method : Assignment on Benchmarking

UNIT IV - TQM TOOLS AND TECHNIQUES - II

| | | | | | | | |
|----|-----------------------------------|-----------|----------|-----------|-----------|-----|----------|
| 28 | Quality Circles | T1 | 1 | BB | L2 | CO4 | PO1-PO12 |
| 29 | Cost of Quality | T1 | 1 | BB | L2 | CO4 | PO1-PO12 |
| 30 | Quality Function Deployment (QFD) | T1 | 2 | BB | L3 | CO4 | PO1-PO12 |
| 31 | Taguchi Quality loss function | R1 | 1 | BB | L2 | CO4 | PO1-PO12 |
| 32 | TPM – Concepts | R1 | 1 | BB | L2 | CO4 | PO1-PO12 |
| 33 | Improvement needs | R1 | 1 | BB | L2 | CO4 | PO1-PO12 |
| 34 | Performance Measures | R1 | 1 | BB | L3 | CO4 | PO1-PO12 |

Suggested Activity: Assignment / Case Studies / Tuorials/ Quiz / Mini Projects / Model Developed/others Planned if any

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| Evaluation method : Assignment on Cost of Quality | | | | | | | | | | |
| UNIT V - QUALITY MANAGEMENT SYSTEM | | | | | | | | | | |
| 35 | Introduction—Benefits of ISO Registration | T1 | 1 | BB | L2 | CO5 | PO1-PO12 | | | |
| 36 | ISO 9000 Series of Standards | T1 | 1 | BB | L2 | CO5 | PO1-PO12 | | | |
| 37 | Sector-Specific Standards - AS 9100 | T1 | 1 | BB | L3 | CO5 | PO1-PO12 | | | |
| 38 | Sector-Specific Standards- TS16949 | T1 | 1 | BB | L3 | CO5 | PO1-PO12 | | | |
| 39 | Sector-Specific Standards- TL 9000 | T1 | 1 | BB | L3 | CO5 | PO1-PO12 | | | |
| 40 | ISO 9001- Requirements—Implementation Documentation—Internal Audits— Registration | T1 | 2 | BB | L3 | CO5 | PO1-PO12 | | | |
| 41 | Introduction - Environmental Management System | T1 | 1 | BB | L2 | CO5 | PO1-PO12 | | | |
| 42 | ISO 14000 Series Standards—Concepts & Requirements of ISO 14001 | T1 | 2 | BB | L3 | CO5 | PO1-PO12 | | | |
| 43 | Benefits of EMS | T1 | 1 | BB | L2 | CO5 | PO1-PO12 | | | |
| Suggested Activity: MCQ | | | | | | | | | | |
| Evaluation method : MCQ on Environmental Management System | | | | | | | | | | |
| Content Beyond the Syllabus Planned | | | | | | | | | | |
| 1 | Management competencies & Quality maintain | | | | | | | | | |
| 2 | Self management & Team building | | | | | | | | | |
| Text Books | | | | | | | | | | |
| 1 | Total Quality Management - Dale H.Besterfield, Carol B.Michna,Glen H. Besterfield,Mary B.Sacre,Hemant Urdhwareshe and Rashmi Urdhwareshe | | | | | | | | | |
| Reference Books | | | | | | | | | | |
| 1 | James R. Evans and William M. Lindsay, “The Management and Control of Quality”, 8th Edition, First Indian Edition, Cengage Learning, 2012. | | | | | | | | | |
| 2 | Janakiraman. B and Gopal .R.K., “Total Quality Management – Text and Cases”, Prentice Hall (India) Pvt. Ltd., 2006. | | | | | | | | | |
| 3 | Suganthi.L and Anand Samuel, “Total Quality Management”, Prentice Hall (India) Pvt. Ltd., 2006. | | | | | | | | | |
| Website / URL References | | | | | | | | | | |
| 1 | https://nptel.ac.in/courses/110/104/110104085/ | | | | | | | | | |
| Blooms Level | | | | | | | | | | |
| Level 1 (L1) : Remembering | | Lower Order Thinking | Fixed Hour Exams | Level 4 (L4) : Analysing | | | | Higher Order Thinking | Projects / Mini Projects | |
| Level 2 (L2) : Understanding | | | | Level 5 (L5) : Evaluating | | | | | | |
| Level 3 (L3) : Applying | | | | Level 6 (L6) : Creating | | | | | | |
| Mapping syllabus with Bloom’s Taxonomy LOT and HOT | | | | | | | | | | |
| Unit No | Unit Name | L1 | L2 | L3 | L4 | L5 | L6 | LOT | HOT | Total |
| Unit 1 | INTRODUCTION | 0 | 10 | 0 | 0 | 0 | 0 | 10 | 0 | 10 |
| Unit 2 | TQM PRINCIPLES | 0 | 2 | 8 | 0 | 0 | 0 | 10 | 0 | 10 |

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| Unit 3 | | TQM TOOLS AND TECHNIQUES I | | | | 0 | 0 | 7 | 0 | 0 | 0 | 7 | 0 | 7 |
| Unit 4 | | TQM TOOLS AND TECHNIQUES I | | | | 0 | 5 | 2 | 0 | 0 | 0 | 7 | 0 | 7 |
| Unit 5 | | QUALITY MANAGEMENT SYSTEM | | | | 0 | 4 | 5 | 0 | 0 | 0 | 9 | 0 | 9 |
| Total | | | | | | 0 | 21 | 22 | 0 | 0 | 0 | 43 | 0 | 43 |
| Total Percentage | | | | | | 0 | 49 | 51 | 0 | 0 | 0 | 100 | 0 | 100 |
| CO PO Mapping | | | | | | | | | | | | | | |
| | PO1 | PO2 | PO3 | PO4 | PO5 | PO6 | PO7 | PO8 | PO9 | PO10 | PO11 | PO12 | PSO1 | PSO2 |
| CO1 | | | | 1 | 1 | 2 | 1 | 2 | 2 | 1 | 2 | 2 | 1 | |
| CO2 | | | | | 2 | 2 | 1 | 2 | 3 | 2 | 2 | 2 | | 1 |
| CO3 | 1 | 2 | 2 | 1 | 3 | 1 | | 1 | 2 | 1 | 3 | 1 | | |
| CO4 | 1 | 2 | 3 | 2 | 2 | | | 1 | | | 1 | 1 | 1 | 1 |
| CO5 | | 1 | | | 2 | 2 | 1 | 1 | 1 | 1 | 1 | 2 | | |
| Avg | 0.4 | 1 | 1 | 0.8 | 2 | | 0.6 | | | | | 1.6 | | 0.4 |
| Justification for CO-PO mapping | | | | | | | | | | | | | | |
| CO1 | High correlation for PO1-P12 is given as the CO1 can be used to apply in Managing, Identify , formulate and provide solutions | | | | | | | | | | | | | |
| CO2 | High correlation for PO1-P12 is given as the CO2 can be used to apply in Planning, Identify , formulate and provide solutions | | | | | | | | | | | | | |
| CO3 | High correlation for PO1-P12 is given as the CO3 can be used to apply in organizing, Identify , formulate and provide solutions | | | | | | | | | | | | | |
| CO4 | High correlation for PO1-P12 is given as the CO4 can be used to apply in Directing, Identify , formulate and provide solutions | | | | | | | | | | | | | |
| CO5 | High correlation for PO1-P12 is given as the CO5 can be used to apply Controlling, Identify , formulate and provide solutions | | | | | | | | | | | | | |
| 3 | | High level | | | 2 | | Moderate level | | | 1 | | Low level | | |
| Name & Sign of Faculty Incharge :Ms.C.Archana | | | | | | | | | | | | | | |
| Name & Sign of Subject Expert :Dr.J.Jeha | | | | | | | | | | | | | | |
| Head of the Department Dr.J.Jeha : | | | | | | | | | | | | | | |

Format No :231