

TOTAL QUALITY MANAGEMENT



G. Murugesan

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SYLLABUS

UNIT I: INTRODUCTION

Definition of quality - Dimensions of quality, quality planning, quality costs - Analysis techniques for quality costs, Basic concepts of TQM, Historical review, principles of TQM, Leadership concepts, Role of senior Management, quality council, quality statements, strategic planning, Deming philosophy, Barriers to TQM implementation.

UNIT II: TQM PRINCIPLES

Customer satisfaction - Customer perception of quality, Customer complaints, Service quality, Customer retention, Employee involvement - Motivation, Empowerment, Teams, Recognition and Reward, Performance Appraisal, Benefits, Continuous Process Improvement - Juran Trilogy, PDSA cycle, 5S, Kaizen, Supplier Partnership - Partnering, Sourcing, Supplier selection, Supplier rating, Relationship development, Performance Measures-Basic concepts, Strategy, performance measure.

UNIT III: STATISTICAL PROCESS CONTROL

The seven tools of quality, statistical fundamentals - Measures of central tendency and dispersion, population and sample, normal curve, control charts for variables and attributes, process capability, concept of six sigma, new seven management tools.

UNIT IV: TQM TOOLS

Benchmarking - Reasons to Benchmark, Benchmarking Process, Quality Function Deployment (QFD) - House of Quality, QFD Process, Benefits, Taguchi Quality Loss Function, Total Productive Maintenance (TPM) - Concept, Improvement Needs, FMEA - Stages of FMEA.

UNIT - V: QUALITY SYSTEMS

Needs for ISO 9000 and other quality systems, ISO 9000: 2000 quality system - Elements, Implementation of quality system, Documentation, quality auditing, QS 9000, ISO 14000 - concepts, requirements and benefits.

PREFACE

It is indeed a great pleasure and proud privilege for me to present this treatise on 'Total Quality Management' to the immediate benefit of final year engineering students of all branches. This book is written in tune with the latest syllabus of various universities and we have taken the syllabus as guidelines for the organization of this book.

In writing this book, the author has constantly kept in mind the tremendous amount of ground which the student and the practicing engineers of today is expected to cover. No effort has been spared to enrich the book with simple language and self-explanatory diagrams.

The author's responsibility here is to stress abundantly that we lay on no claim to the original research in preparing this text. Many of the subject matters that are available in the works of eminent authors have been made freely. Perhaps, what we may claim, in all modesty, is that we have tried to fashion the vast amount of materials available from primary and secondary sources into coherent body of description and analysis.

I am very thankful to Dr. A. Shanmugasundram, Chancellor of Vinayaka Missions University, Salem, Tamil Nadu. Dr. A. Nagappan, Principal, Prof. P. Ganasekaran, Dean, Placement, V.M.K.V. Engineering College, Periya Seeragapadi, Salem, Tamil Nadu. It's my great pleasure to express my heartfelt gratitude to my wife and my daughter who have shouldered my burdens for the successful completion of my book.

—Author

Unit **1** ***INTRODUCTION***

1.1 MEANING OF QUALITY

Quality refers to the end-use of the product. Quality is the requirement of customers.

For example, the gear used in the sugarcane juice extracting machine may not possess good surface finish, tolerance and accuracy as compared with one used in the headstock of a lathe.

1.2 DEFINITION OF QUALITY

“Quality is the totality of features and characteristics of a product or service at bear on its ability to satisfy stated or implied needs”.

—ISO 8402

“Quality is fitness for use”.

—Juran

“Quality is a predictable degree of uniformity and dependability at low cost and suited to the market”.

—Deming

1.3 DIMENSIONS OF QUALITY

Quality has nine different dimensions. These are explained under the table.

Total Quality Management



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