



**C. U. SHAH UNIVERSITY**  
**Wadhwan City**

**FACULTY OF:** - Technology & Engineering  
**DEPARTMENT OF:** - Mechanical Engineering  
**SEMESTER:** - VI  
**CODE:** - 4TE06TQM1  
**NAME** – Total Quality Management

**Teaching & Evaluation Scheme:-**

Subject Code	Name of the Subject	Teaching Scheme (Hours)				Credits	Evaluation Scheme							
		Th	Tu	Pr	Total		Theory				Practical (Marks)			Total
							Sessional Exam		University Exam		Internal		University	
							Marks	Hrs	Marks	Hrs	Pr/Viva	TW	Pr	
4TE06TQM1	Total Quality Management	3	0	0	3	3	30	1.5	70	3	---	---	---	100

**Objectives:-**

1. To understand the philosophy and core values of Total Quality Management (TQM).
2. To apply and evaluate best practices for the attainment of total quality.
3. To determine the voice of the customer and the impact of quality on economic performance and long-term business success of an organization;

**Prerequisites:** - Fundamentals of Industrial Engineering & Management.

**Course outline:-**

Sr. No.	Course Contents	Hours
<b>1</b>	<b>INTRODUCTION</b> Introduction - Basic concepts of TQM, Need and evolution of Quality Management, Dimensions of manufacturing and service quality, TQM Framework, Contributions of Deming, Juran and Crosby, Barriers to TQM, Quality cost estimation and reduction, Quality policy and objectives.	<b>06</b>
<b>2</b>	<b>TQM PRINCIPLES</b> Leadership – Strategic quality planning, Quality statements, Customer focus, Customer orientation, Customer satisfaction, Customer complaints, Customer retention, Employee involvement, Motivation, Empowerment, Team and Teamwork, Recognition and Reward, Performance appraisal, Continuous process improvement, PDSA cycle, 5s, Kaizen, Supplier partnership, Partnering, Supplier selection, Supplier Rating.	<b>08</b>
<b>3</b>	<b>TQM TOOLS &amp; TECHNIQUES</b> The seven traditional tools of quality. New management tools. Six-sigma - Concepts, methodology, applications to manufacturing & service sector, Bench marking and POKA YOKE. FMEA - Stages, Types. Quality circles. Quality Function Deployment (QFD). Taguchi quality loss function. TPM - Concepts, improvement needs. Cost of Quality. Performance measures. Design, process and documentation. Introduction to programming in MATLAB. Case studies of TQM tools & techniques.	<b>10</b>



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<b>4</b>	<b>STATISTICAL PROCESS CONTROL</b> Statistical Concept of Variation, frequency distribution, continuous and discrete, probability distributions viz. Normal, Exponential and weibull distribution, pattern of variation, significance tests, Analysis of variance, statistical aids in limits and tolerances. Construction of control charts for variables and attributes. Process capability – meaning, significance and measurement – Six sigma concepts of process capability. Reliability concepts – definitions, reliability in series and parallel, Product life characteristics curve, Terotechnology. Business process Improvement (BPI) – principles, applications, reengineering process, benefits and limitations.	<b>11</b>
<b>5</b>	<b>REGRESSION ANALYSIS :</b> Linear Regression Analysis, Non Linear Regression Analysis, Correlation Coefficient.	<b>04</b>
<b>6</b>	<b>QUALITY SYSTEMS ORGANIZING AND IMPLEMENTATION :</b> Introduction. Need for ISO 9000-2000 Quality System – Elements, Documentation, Quality auditing. TQM culture, Leadership – quality council, employee involvement, motivation, empowerment, recognition and reward. TQM framework, benefits, awareness and obstacles. QS 9000 – ISO 14000 – Concepts, Requirements and Benefits – Case studies of TQM implementation in manufacturing and service sectors.	<b>06</b>

**Learning Outcomes:-**

1. Understanding on quality management philosophies and frameworks
2. In-depth knowledge on various tools and techniques of quality management
3. Knowledge of quality tools and techniques in both manufacturing and service industry
4. Improvement in analytical skills for investigating and analyzing quality management issues in the industry and to suggest implement able solutions.

**Books Recommended:-**

**Text Books:-**

1. Total Quality Management, **Suganthi,L and Anand Samuel** Prentice Hall (India) Pvt. Ltd.,2006.
2. MATLAB and its applications in Engineering, **Rajkumar Bansal, Ashok kumar Goyal, Manoj kumar Sharma**, Pierson Publishers.

**Reference Books:-**

1. Total Quality Management, **Dale H. Besterfield, et at.** Pearson Education Asia, 3<sup>rd</sup> Edition, Indian Reprint (2006).
2. Total Quality Management, **Dr. S. Kumar** University Science Press.
3. The Management and Control of Quality, **James R. Evans and William M. Lindsay** 6<sup>th</sup> Edition, South-Western (Thomson Learning), 2005.
4. MATLAB programming for Engineers, **Stephen Chapman**, Thomson Publishers.
5. Mastering MATLAB, **Hunselman, Duane**, Pearson Education, New Delhi, 2011
6. Reliability Engineering, **L. S. Srinath**, Affiliated East-west Press Pvt Ltd.