SUBJECT CODE   : GE 2022

SUBJECT TITLE   : TOTAL QUALITY MANAGEMENT

HOURS DISTRIBUTION   : (L T P C 3 0 0 3)

COURSE/ BRANCH   : B.Tech / Information Technology

SEMESTER   : VIII

ACADEMIC YEAR   : 2014 - 2015

FACULTY NAME   : A.SATHYA

OBJECTIVE OF COURSE   :

The student should be made to:

      To introduce the concepts of TQM and the insight of this course will guide the students to specialize in product quality management & how to analyze and solve the quality related problem for effective real life applications in both manufacturing and services.

OUTCOME OF COURSE   :

At the end of the course, the student should be able to:

    a) Develop an understanding on quality management philosophies and frameworks
    b) select and apply appropriate techniques in identifying customer needs, as well as the quality impact that will be used as inputs in TQM methodologies
    c) Learn the applications of quality tools and techniques in both manufacturing and service industry

EASWARI ENGINEERING COLLEGE
DEPARTMENT OF INFORMATION TECHNOLOGY
LESSON PLAN

S.No	Topic	No. of Periods	Reference Books	Page Nos
	UNIT I INTRODUCTION			
	OBJECTIVE: To give the students an overview of quality and TQM and explaining the salient contributions of Quality Gurus like Deming, Juran and Crosby. General barriers in implementing TQM.			
1	Introduction to quality & Need for quality	1	T1	(13-14)
2	Evolution of quality	1	Handouts	
3	Definition of Quality	1	T1	(19-21)
4	Dimensions of manufacturing & service quality	1	Handouts	
5	Basic concepts of TQM	1	T1	14
6	TQM Framework	1	T1	(17-18)
7	Deming philosophy	1	T1	(16-17)
8	Contributions of Deming, Juran & Crosby	1	T1	(39-40)
9	Barriers to TQM	1	T1	(22-25)
	OUTCOME: At the end of the Unit, the student should be able to: CO1. Know the principles of total quality management and peculiarities of their implementation. CO2. Know prerequisites of evolution of total quality management and significance of quality gurus' works to the management of modern organizations.			
	UNIT II TQM PRINCIPLES			
	OBJECTIVE: To understand the TQM concepts like Customer Focus, Employee Focus and their involvement, continuos process improvement and Supplier Management.			
10	**Leadership**: Definition, Characteristics, Concepts, Seven Habits of Highly Effective People	1	**T1**	(29-32)
11	**Quality Planning**:. Strategic Planning –Goals and Objectives & Seven Steps to Planning, **Quality statements**	1	**T1**	(56-64)
12	Customer focus, customer orientation, & customer satisfaction	1	**T1**	(67-85)
13	Customer complaints & customer retention	1	**T1**	(85-97)
14	Employee involvement, Employee empowerment & Motivation	1	**T1**	(101-105)
15	Teamwork	1	**T1**	(109-125)
16	Recognition & Reward, Performance appraisal	1	**T1**	(125-128)

17	Continuous process improvement: PDSA cycle, 5S, & Kaizen	1	**T1**	(137-158)
18	Partnership, supplier selection & supplier rating.	1	**T1**	(165-175)

OUTCOME: At the end of the Unit, the student should be able to:
CO1. Select and apply appropriate techniques in identifying customer needs, as well as the quality impact that will be used as inputs in TQM methodologies.
CO2. Understand the role leadership in implementing TQM in organizations, employee's involvement, the need to build suppliers' partnerships and performance measures, and the important of continuous improvement.

UNIT III   TQM TOOLS & TECHNIQUES I

OBJECTIVE: Exposure to students on the basic and new seven management tools, Quality concepts like Six sigma,Failure mode effect analysis.

19	Seven traditional tools of quality-Pareto diagram, Process flow Diagram, Cause and Effect Diagram, Check Sheets, Histogram	1	**T1**	(473-483)
20	Seven traditional tools of quality-Control Charts, Scatter Diagrams,	1	**T1**	(512-520)
21	New management tools	1	**T1**	(455-465)
22	Six-sigma concept & methodology	1	**Handouts**	
23	Applications of six-sigma to manufacturing & service sectors	1	**Handouts**	
24	Benchmarking & Reasons to benchmarking	1	**T1**	(219-221)
25	Benchmarking process	1	**T1**	(221-223)
26	FMEA Introduction, FMEA Stages, The Design FMEA Document	1	**T1**	(389-406)
27	The Process FMEA Document & other Types	1	**T1**	(406-415)

OUTCOME: At the end of the Unit, the student should be able to:
CO1. Develop in-depth knowledge on various tools and techniques of quality management
CO2. Learn the applications of quality tools and techniques in both manufacturing and service industry
CO3. Understand proven methodologies to enhance management processes, such as benchmarking.

UNIT IV TQM TOOLS & TECHNIQUES II

OBJECTIVE: To explore industrial applications of Quality function deployment, taguchi quality concepts and TPM.

28	Quality circles	1	Handouts	
29	Quality Function Deployment (QFD)-Introduction ,The QFD Team, Benefits, Voice of Customer, Organisation of Information, House of Quality	1	T1	(328-335)
30	Quality Function Deployment (QFD)-Building a House of Quality,QFD Process,Examples	1	T1	(333-335)
31	Taguchi quality loss function	1	T1	(573-580)
32	Taguchi quality loss function –Signal-to-Noise Ratio	1	T1	(587-590)

33	Total Productive Maintenance (TPM)-Concepts.improvement needs	1	T1	(443-450)
34	**Quality Costs**: Categories and Elements-Preventive Cost, Appraisal Cost, Internal & External Failure Cost.	1	T1	(185-203)
35	**Quality Costs**: Collecting & Reporting: System Design, Cost Bases,Report ,Analysis,Optimising Costs, Quality Improvement Strategy	1	T1	(180-183)
36	Performance measures	1	T1	(183-185)

OUTCOME: At the end of the Unit, the student should be able to:
CO1. Choose a framework to evaluate the performance excellence of an organization, and determine the set of performance indicators that will align people with the objectives of the organization.
CO2. Measure the cost of poor quality and process effectiveness and efficiency to track performance quality and to identify areas for improvement;

UNIT V   QUALITY SYSTEMS

OBJECTIVE: Detailed exposure to students on various quality systems like ISO and its standards.

37	**Need for ISO 9000-ISO 9000-2000 Quality System** -Introduction to ISO 9000 and QS 9000, Benefits of ISO 9000,Series of standards, ISO 9000-2000 quality system	1	T1	(265-267)
38	Requirements of Quality System (Contd.,) – Management responsibility, Resource Management, Product Realization.	1	T1	(310-320)
39	Requirements of Quality System (Contd.,)- Measurement, Analysis & Improvement Documentation	1	T1	(285-293)
40	Implementation & Documentation, Case study	1	T1	(285-293)
41	Quality Auditing, Registration	1	T1	(293-301)
42	ISO 14000: Introduction, Series Standards, Benefits and Concepts.	1	T1	(306-308)
43	ISO 14000: Requirements-General, Policy and Planning	1	T1	(308-321)
44	Case study on ISO 9001 implementation	1	T1	282-285
45	TQM implementation in manufacturing and service sectors including IT	1	Handouts	

OUTCOME: At the end of the Unit, the student should be able to:
CO1. Gain the knowledge of the fundamental principles of ISO 9000-2000, ISO 9001, ISO 14000 quality management system.
CO2. Plan quality systems for organizations.

CONTENT BEYOND THE SYLLABUS

1	Defect Detection and Prevention

2	Tools and Techniques for Process improvement
3	Ethics Management Program

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ASSIGNMENT TOPICS

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FIRST ASSIGNMENT
Coverage : Units 1 & 2

1	Q1. Discuss the four absolutes of quality in context to the organization you are working in or are familiar with. Q2. Take the case of the organization you are familiar with and highlight its quality policies, Vision and Mission . Q3. Discuss the advantages and disadvantages of using Kaizen. Support your answer with relevant examples

SECOND ASSIGNMENT
Coverage : Unit 3 and 4

2	Q1. What do you understand by Process capability? Illustrate with the help of an example. Q2. Discuss the role of steering committee. Illustrate with the help of a case of any organization you know. Q3. Discuss the relevance of the need of hierarchy in motivational theory.

THIRD ASSIGNMENT
Coverage : Unit 5

3.	Case study Quality Management in Educational Institutions and Health Care

TEXT BOOKS:

T1. Dale H.Besterfiled, at., "Total Quality Management", Pearson Education Asia, Third Edition, Indian Reprint (2006).

REFERENCES:

R1. James R. Evans and William M. Lindsay, "The Management and Control of Quality", (6ᵗʰ Edition), South-Western (Thomson Learning), 2005.
R2. Suganthi L. and Anand Samuel, "Total Quality Management", Prentice Hall (India) Pvt. Ltd., (2006)
R3. Janakiraman B. and Gopal R.K., "Total Quality Management-Text and cases", Prentice Hall (India) Pvt. Ltd., (2006)
R4.Oakland, J.S. "TQM – Text with Cases", Butterworth – Heinemann Ltd., Oxford, 3ʳᵈ Edition, 2003.

Prepared By   Approved By

Mrs. A.SATHYA   **HOD**

Program Educational Outcomes

1. Graduates will be proficient in utilizing the fundamental knowledge of basic sciences and mathematics to the applications relevant to various streams of Engineering and Technology.

2. Graduates will possess core competencies necessary for application of knowledge of computers and telecommunications equipment to store, retrieve, transmit, manipulate and analyze data in the context of business enterprise.

3. Graduates will be capable of thinking logically, pursue lifelong learning and will have the capacity to understand technical issues related to computing systems and design optimal solutions.

4. Graduates will be able to develop hardware and software systems by understanding the importance of social, business and environmental needs in the human context.

5. Graduates will gain employment in organizations and establish themselves as professionals by applying their technical skills to solve real world problems and meet the diversified needs of industry, academia and research.

6. Graduates will be aware of professional ethics of the software industry and equip themselves with communication skills essential for working in community.

Program Outcomes

(a) Ability to apply knowledge of computing and mathematics appropriate to Information Technology .

(b) Ability to analyze a problem, and identify computing requirements appropriate to its solution .

(c) Ability to design, implement, and evaluate a system, process, component, or program to meet specific requirements

(d) Ability to interpret and synthesis data to provide valid conclusions

(e) Ability to function effectively as a team member to achieve a common goal

(f) Ability to understand professional, ethical and social issues and responsibilities

(g) Ability to communicate effectively with a diverse groups

(h) Ability to analyze the local and global impact of Information Technology on society

(i) Ability to recognize and engage in continuing professional development and life long learning

(j) Ability to use current techniques, skills, and tools necessary to accomplish projects related to Information Technology.

 (k) Ability to understand the impact of the professional engineering solutions in societal and   environmental contexts for sustainable development.

 (l) Ability to understand engineering and management principles to manage projects in   multidisciplinary environment.

UNITS	COURSE OUTCOME	PEO1	PEO 2	PEO 3	PEO 4	PEO 5	PEO 6	PO a	PO b	PO c	PO d	PO e	PO f	PO g	PO h	PO i	PO j	PO k	PO l
INTRODUCTION	CO1. Know the principles of total quality management and peculiarities of their implementation.		W			S	S		S			S	S	S	M	S	S		S
	CO2.Know prerequisites of evolution of total quality management and significance of quality gurus' works to the management of modern organizations.		W	M		S	S		S	S	S	S	S	S	M	S	S	M	S

UNITS	COURSE OUTCOME	PEO1	PEO 2	PEO 3	PEO 4	PEO 5	PEO 6	PO a	PO b	PO c	PO d	PO e	PO f	PO g	PO h	PO i	PO j	PO k	PO l
TQM PRINCIPLES	CO1. Select and apply appropriate techniques in identifying customer needs, as well as the quality impact that will be used as inputs in TQM methodologies.			S	M	S	S		S	S	M	S	S	S	M	S	S	M	S
	CO2. Understand the role leadership in implementing TQM in organizations, employee's involvement, the need to build suppliers' partnerships and performance measures, and the important of continuous improvement.		M	M	M	S	S		S	S	M	S	S	S	M	S	S	M	S

UNITS	COURSE OUTCOME	PEO1	PEO 2	PEO 3	PEO 4	PEO 5	PEO 6	PO a	PO b	PO c	PO d	PO e	PO f	PO g	PO h	PO i	PO j	PO k	PO l
TQM TOOLS & TECHNIQUES I	CO1. Develop in-depth knowledge on various tools and techniques of quality management	W	M	M	S	S	S	M	S	S	S	S	S	S	M	S	S	M	S
	CO2. Learn the applications of quality tools and techniques in both manufacturing and service industry	M	M	M	M	S	S	M	S	S	M	S	S	S	M	S	S	M	S
	CO3. Understand proven methodologies to enhance management processes, such as benchmarking.		M		M	M	M		M	M	S	M	M	M	S		S	S	M

UNITS	COURSE OUTCOME	PEO1	PEO 2	PEO 3	PEO 4	PEO 5	PEO 6	PO a	PO b	PO c	PO d	PO e	PO f	PO g	PO h	PO i	PO j	PO k	PO l
TQM TOOLS & TECHNIQUES II	CO1. Choose a framework to evaluate the performance excellence of an organization, and determine the set of performance indicators that will align people with the objectives of the organization.			M	M	S	S	W	M	M	M	S	S	S	M	S	S	M	S
	CO2. Measure the cost of poor quality and process effectiveness and efficiency to track performance quality and to identify areas for improvement	M	M		M	S	S	M	M	M	S	S	S	S		S	S	M	S

UNITS	COURSE OUTCOME	PEO1	PEO 2	PEO 3	PEO 4	PEO 5	PEO 6	PO a	PO b	PO c	PO d	PO e	PO f	PO g	PO h	PO i	PO j	PO k	PO l
QUALITY SYSTEMS	CO1. Gain the knowledge of the fundamental principles of ISO 9000-2000, ISO 9001, ISO 14000 quality management system.			M		S	S		M	M	M	S	S	S		S	S		S
	CO2. Plan quality systems for organizations.	M		M		S	S	M	S	S	S	S	S	S		S	S	M	S