SCHEME OF COURSE WORK

Course Title	: Total Quality Management		
Course Code	: 13ME2110	L P C	: 4 0 3
Program:	: M.Tech.		
Specialization:	: CAD/CAM		
Semester	: I		

Course Outcomes (COs):

At the end of the course, the student will be able to

1	Explain quality standard and need for standardization
2	Implement quality measurement systems in various applications
3	Prepare and use control charts for SQC
4	Implement six sigma approach for various industrial applications
5	Appraise the collaborative engineering and translate different formats of CAD/CAM data exchange

Program Outcomes (POs)

At the end of the program, the students in CAD/CAM will be able to

1. acquire fundamentals in the areas of computer aided design and manufacturing
2. apply innovative skills and analyze computer aided design and manufacturing problems critically
3. identify, formulate and solve design and manufacturing problems
4. carry out research related to design and manufacturing
5. use existing and recent CAD/CAM software
6. collaborate with educational institutions, industry and R&D organizations in multidisciplinary teams
7. apply project and finance management principles in engineering projects
8. prepare technical reports and communicate effectively
9. engage in independent and life-long learning and pursue professional practice in their specialized areas of CAD/CAM
10. exhibit accountability to society while adhering to ethical practices
11. act independently and take corrective measures where necessary

Course Outcome versus **Program Outcomes:**

COs	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
CO-1	S	S	M	M	M	M						
CO-2	S	S	S	M	S	M	M		M			
CO-3	S	S	S	S	S	M	M		M			
CO-4	M	M							M			
CO-5	M		M	M	M	M			M			

S - Strongly correlated, *M* - *Moderately* correlated, *Blank* - *No correlation*

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Teaching-Learning and Evaluation

WEEK	TOPIC / CONTENTS	COURSE OUTCOMES	SAMPLE QUESTIONS	TEACHING-LEARNING STRATEGY	ASSESSMENT METHOD & SCHEDULE
1	Introduction to quality,Definitions,TQM,Overview, History.	CO1	1.Explain the concept of internal and external customers. 2.Explain the stages of evolution elements. 3. Explain about inspection.	Lectures , CAD software, PPT, Seminar	Assignment (week 7)
2	Stages of evolution elements, Definitions.	CO1			
3	Continuous improvement, Objectives.	CO1			
4	Internal and External customers, Customer satisfaction and Customer delight.	CO1			
5	Quality standards, Needof Standardization, Institutions, Bodies of Standardization, ISO 9000 series,ISO 14000 series.	CO2	1. Explain about the Quality measurement systems. 2. Explain about ISO 9000 series and ISO 14000 series.	Lectures , CAD software, PPT, Seminar	
6	Other Contemporary Standards, Quality models such as KANO, Westinghouse.	CO2			
7	Quality Measurement Systems (QMS), Developing and Implementing QMS.	CO2			
8	Non Conformance Database, Inspection, Nonconformity reports, QC, QA, quality costs, tools of quality.	CO2			
9	Mid-Test 1	CO-1, CO-2			

10	Problem solving, Problem solving process, Corrective action, Order of precedence, System Failure Analysis Approach, Flow chart, Fault tree analysis.	CO3	1. Explain about the focus team approach. 2. Describe the Quality function development. 3Explain about the cause and effect analysis.	Lectures , CAD software, PPT, Seminar	Seminar (week 11-16)
11	Failure mode assessment and assignment matrix, Organizing failure mode analysis, Pedigree analysis, Cause and effect analysis, FMEA case studies.	CO3			
12	Quality circles, Organization, Focus team approach, Statistical process control, Process chart.	CO4	1. Explain about the reliability models. 2. Explain the concept of SQC. 3. Explain about Taguchi analysis.	Lectures , CAD software, PPT, Seminar	
13	Ishikawa diagram, Preparing and using control charts, SQC, Continuous improvement, 5 S approaches, Kaizen, reengineering concepts , Quality function development (QFD, bench marking	CO4			
14	Taguchi analysis , Taguchi design of experiments, Reliability models, Reliability studies	CO4			
15	Value improvement elements , Value improvement assault , Supplier teaming, Vendor Appraisal and Analysis, Lean engineering	CO5	1. Explain about the value improvement and value improvement assault. 2. Explain the vendor appraisal and analysis. 3. Explain about the concept of Six sigma approach. 4. What are the applications of six sigma approach to various industrial situations?	Lectures , CAD software, PPT, Seminar	

16	Six sigma approach, Application of six sigma approach to various industrial situations, Case studies.	CO5			
18	Mid-Test 2	CO-3, CO-4, CO-5			
19/20	END EXAM	All Cos			