

Name of Institute: Indus Institute of Technology and Engineering

Name of Faculty: Mr. Jinesh Kamdar

Course code:AU0521

Course name: Modern Quality Tools

Pre-requisites: Total Quality management

Credit points: 3

Offered Semester: 5TH

Course Coordinator (weeks 01 - 12)

Full Name:Mr. Jinesh Kamdar

Department with sitting location: Automobile Department

Telephone:+919825097371

Email:jineshkamdar.am@indusuni.ac.in

Consultation times: 04.20 PM – 05:00 PM (Tuesday and Friday)

09.00 AM – 10.00 AM (Working Saturdays)

Course Lecturer (weeks 01 - 12)

Full name: Mr. Jinesh Kamdar

Department with sitting location: Automobile Department

Telephone: +919825097371

Email:jineshkamdar.am@indusuni.ac.in

Consultation times: 04.20 PM – 05:00 PM (Tuesday and Friday)

09.00 AM – 10.00 AM (Working Saturdays)

Students will be contacted throughout the Session via Mail with important information relating to this Course.

Course Objectives

By participating in and understanding all facets of this Course a student will:

1. To understand the various practices of Quality Management followed in Automobile Industries.
2. To understand the tools & techniques for continuous process improvement
3. To learn the importance of ISO/TS 16949 and Quality systems, Audit systems

Course Outcomes (CO)

At the end of this course students will be able to:

- To understand Quality concepts
- To understand maintenance concepts
- To understand Reliability concepts
- To understand the modern practices in maintenance.
- Gain knowledge in quality tools inculcation in the industries
- Gain knowledge in the proper working of the quality requirements

Course Outline:

INTRODUCTION

Principles of TQM by Deming, Crosby and Juran, SWOT Analysis, Quality management in automobile industries, Quality & ISO/TS 16949, Difference with ISO 9001, Importance of Quality Management, QC Tools, Six Sigma, 5S, Ishikawa(Cause and effect Diagram)

COST OF QUALITY

Characteristics of Quality cost, Micro analysis of Quality cost, Cost of quality – prevention / appraisal / failure; Optimum Cost Relationship with Quality. Measurement of Quality

QUALITY TOOLS

Seven Quality management tools, Continuous Improvement Strategies: Deming wheel, Zero defects Concept, Bench marking.. **Preventive Techniques:** Failure Mode Effect Analysis (FMEA). Poka Yoke,, Quality Ambiance: 5S, Time Management.

ISO/TS 16949 REQUIREMENT

Management responsibility, Quality Systems, Contract review, Design control, Document and data control, Purchasing, Product identification & traceability, Inspection and testing, Control of non conforming product, Corrective and preventive actions, Control of records, Internal audit, Training.

IMPLEMENTING ISO/TS 16949

Coherence check, Cultural analysis, System analysis, Process analysis, System Integration, Third party assessment

AUTOMOTIVE CORE TOOLS

Advance product quality planning, Production part approval process, statically process control, Measurement system analysis, Failure Mode effect and analysis

SUPPLY CHAIN MANAGEMENT

What is SCM, Importance of SCM, Objectives of SCM, Application of Supply chain management, Implementation Procedure.

LEAN MANUFACTURING

Value Stream Mapping, JIT, Kaizen, TPM, Kanban; Six Sigma, Lean Six Sigma

Method of delivery

1. Chalk and talk
2. PowerPoint Presentations
3. Self-study material

Study time

hours per week Lectures

CO-PO Mapping (PO: Program Outcomes)

	PO 1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
CO1	1	-	2	-	-	-	-	-	-	3	3	-
CO2	1	1	2	-	-	-	-	2	3	-	-	-
CO3	1	-	-	1	-	-	1	-	-	2	-	-
CO4	1	-	-	-	-	-	-	1	-	1	1	1
CO5	1	-	-	1	-	1	-	-	-	2	-	-
CO6	1	-	2	-	-	-	-	-	-	3	3	-

1-Lightly Mapped 2- Moderately Mapped 3- Highly Mapped

Blooms Taxonomy and Knowledge retention (For reference)

(Blooms taxonomy has been given for reference)

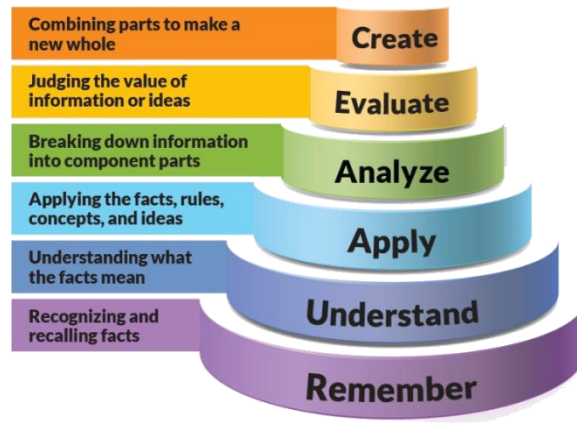


Figure 1: Blooms Taxonomy

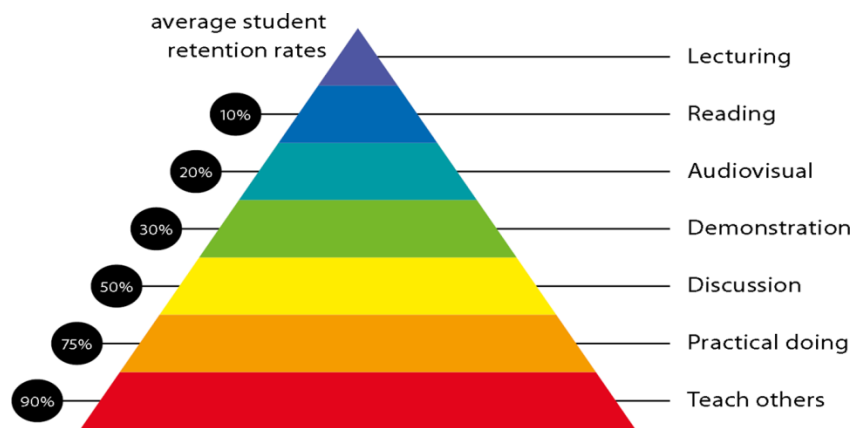


Figure 2: Knowledge retention

Graduate Qualities and Capabilities covered

General Graduate Qualities	Specific Department of Automobile Engineering Graduate Capabilities
<p>Informed</p> <p>Have a sound knowledge of an area of study or profession and understand its current issues, locally and internationally. Know how to apply this knowledge. Understand how an area of study has developed and how it relates to other areas.</p>	<p>1 Professional knowledge, grounding & awareness</p>

<p>Independent learners</p> <p>Engage with new ideas and ways of thinking and critically analyze issues. Seek to extend knowledge through ongoing research, enquiry and reflection. Find and evaluate information, using a variety of sources and technologies. Acknowledge the work and ideas of others.</p>	<p>2 Information literacy, gathering & processing</p>
<p>Problem solvers</p> <p>Take on challenges and opportunities. Apply creative, logical and critical thinking skills to respond effectively. Make and implement decisions. Be flexible, thorough, innovative and aim for high standards.</p>	<p>4 Problem solving skills</p>
<p>Effective communicators</p> <p>Articulate ideas and convey them effectively using a range of media. Work collaboratively and engage with people in different settings. Recognize how culture can shape communication.</p>	<p>5 Written communication</p>
	<p>6 Oral communication</p>
	<p>7 Teamwork</p>
<p>Responsible</p> <p>Understand how decisions can affect others and make ethically informed choices. Appreciate and respect diversity. Act with integrity as part of local, national, global and professional communities.</p>	<p>10 Sustainability, societal & environmental impact</p>

Lecture/tutorial times

LECTURE	TUESDAY
LECTURE	WEDNESDAY
LECTURE	THURSDAY

Attendance Requirements

The University norms states that it is the responsibility of students to attend all lectures, tutorials, seminars and practical work as stipulated in the Course outline. Minimum attendance requirement as per university norms is compulsory for being eligible for mid and end semester examinations.

Details of referencing system to be used in written work

1. Text Books and Reference Books
2. Tutorials
3. Online Resources

Text books

1. Hansen, B.L. and Ghare, P.M. “Quality control and application”, Prentice-Hall of Indian Private Limited, Edition 1, 1987.
2. Dale H. Besterfiled, et at., “Total Quality Management”, Pearson Education Asia, Third Edition, Indian Reprint, Edition 3, 2006.

Additional Materials

1. Oakland, J.S. “TQM – Text with Cases”, Butterworth – Heinemann Ltd., Oxford, 3rd Edition, 2006.
2. Janakiraman,B and Gopal, R.K, “Total Quality Management – Text and Cases”, Prentice Hall (India) Pvt. Ltd, Edition 1, 2006
3. Mitra, A. “Fundamentals of quality control and improvement”, Prentice Hall (India) Pvt. Ltd, Edition 2, 1998.

TENTATIVE ASSESSMENT GUIDELINES(IT MAY CHANGE AS PER COVID-19 SITUATION)

Your final course mark will be calculated from the following:

Sr no	Bifurcation for Theory CIE 60 marks	
a.	Mid Semester Examination	40 MARKS
b.	Attendance	5 Marks
c.	Presentation	5 Marks
d	Assignments	10 Marks

SUPPLEMENTARY ASSESSMENT

Students who receive an overall mark less than 40% in mid semester or end semester will be considered for supplementary assessment in the respective components (i.e mid semester or end semester) of semester concerned. Students must make themselves available during the supplementary examination period to take up the respective components (mid semester or end semester) and need to obtain the required minimum 40% marks to clear the concerned components.

Late Work

Late assignments will not be accepted without supporting documentation. Late submission of the reports will result in a deduction of 10% of the maximum mark per calendar day

Format

All assignments must be presented in a neat, legible format with all information sources correctly referenced. **Assignment material handed in throughout the session that is not neat and legible will not be marked and will be returned to the student.**

Retention of Written Work

Written assessment work will be retained by the Course coordinator/lecturer for two weeks after marking to be collected by the students.

University and Faculty Policies

Students should make themselves aware of the University and/or Faculty Policies regarding plagiarism, special consideration, supplementary examinations and other educational issues and student matters.

Plagiarism - Plagiarism is not acceptable and may result in the imposition of severe penalties. Plagiarism is the use of another person's work, or idea, as if it is his or her own - if you have any doubts at all on what constitutes plagiarism, please consult your Course coordinator or lecturer. Plagiarism will be penalized severely.

Do not copy the work of other students.

Do not share your work with other students (except where required for a group activity or assessment)

Course schedule

Week #	Topic & contents	CO Addressed	Teaching Learning Activity (TLA)
Weeks 1	<i>Principles of TQM by Deming, Crosby and Juran, SWOT Analysis, Quality management in automobile industries, Quality & ISO/TS 16949,</i>	CO1	<ol style="list-style-type: none"> 1. Chalk and talk 2. PowerPoint Presentations 3. Study Material
Weeks 2	<i>Difference with ISO 9001, Importance of Quality Management, QC Tools, Six Sigma, 5S, Ishikawa(Cause and effect Diagram)</i>	CO1	<ol style="list-style-type: none"> 1. Chalk and talk 2. PowerPoint Presentations 3. Study Material
Week 3	<i>Characteristics of Quality cost, Micro analysis of Quality cost, Cost of quality – prevention / appraisal / failure; Optimum Cost Relationship with Quality. Measurement of Quality</i>	CO2	<ol style="list-style-type: none"> 1. Chalk and talk 2. PowerPoint Presentations 3. Study Material
Week 4	<i>Seven Quality management tools, Continuous Improvement Strategies: Deming wheel, Zero defects Concept, Bench marking.. Preventive Techniques</i>	CO2	<ol style="list-style-type: none"> 1. Chalk and talk 2. PowerPoint Presentations 3. Study Material
Week 5	<i>Failure Mode Effect Analysis (FMEA). Poka Yoke,, Quality Ambiance: 5S, Time Management.</i>	CO2	<ol style="list-style-type: none"> 1. Chalk and talk 2. PowerPoint Presentations 3. Study Material
Week 6	<i>Management responsibility, Quality Systems, Contract review, Design</i>	CO2	<ol style="list-style-type: none"> 1. Chalk and talk

	<i>control, Document and data control, Purchasing, Product identification & traceability</i>		<ol style="list-style-type: none"> 2. PowerPoint Presentations 3. Study Material
Week 7	<i>Inspection and testing, Control of non conforming product, Corrective and preventive actions, Control of records, Internal audit, Training.</i>	CO2 CO3	<ol style="list-style-type: none"> 1. Chalk and talk 2. PowerPoint Presentations 3. Study Material
Week 8	<i>Coherence check, Cultural analysis, System analysis, Process analysis, System Integration, Third party assessment</i>	CO3	<ol style="list-style-type: none"> 1. Chalk and talk 2. PowerPoint Presentations 3. Study Material
Week 9	<i>Advance product quality planning, Production part approval process, statically process control, Measurement system analysis, Failure Mode effect and analysis</i>	CO3	<ol style="list-style-type: none"> 1. Chalk and talk 2. PowerPoint Presentations 3. Study Material
Week 10	<i>What is SCM, Importance of SCM, Objectives of SCM, Application of Supply chain management, Implementation Procedure.</i>	CO3	<ol style="list-style-type: none"> 1. Chalk and talk 2. PowerPoint Presentations 3. Study Material
Week 11	<i>Value Stream Mapping, JIT,</i>	CO4	<ol style="list-style-type: none"> 1. Chalk and talk 2. PowerPoint Presentations 3. Study Material
Week 12	<i>Kaizen, TPM, Kanban; Six Sigma, Lean Six Sigma</i>	CO4	<ol style="list-style-type: none"> 1. Chalk and talk 2. PowerPoint Presentations 3. Study Material

