

DEPARTMENT OF INDUSTRIAL ENGINEERING AND MANAGEMENT  
MEHRAN UNIVERSITY OF ENGINEERING AND TECHNOLOGY, JAMSHORO

Title of subject	:	<b>Quality &amp; Reliability Engineering</b>	<b>INM-708 (3+0)</b>
Discipline	:	Industrial Engineering & Management	
Semester	:	2 <sup>nd</sup> Semester 1 <sup>st</sup> Year	
Effective	:	<b>21S-</b> Batch and onwards	
Credit hours	:	Th. 03 & Pr. 00	
Marks	:	Th. 100 & Pr. 00	
Minimum Contact Hours	:	<b>42 (For Theory)</b>	

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**Aim:** To educate the students regarding importance of quality management system by imparting knowledge of various parameters of quality so that they may be able to analyze these parameters in their practical life.

**Objectives:**

- To compete in the national and international market by implementing latest quality techniques, up-lifting their business plans,
- To recognizing their existence in the market and getting name & fame of the organization and generating revenues for future expansion of business.

**Contents:**

**Introduction:** Various definitions of quality, Inspection, Statistical quality control, Quality trilogy, Features & Characteristics of quality, Quality & economics.

**Evaluation of the quality cost concept:** Introduction to quality cost, Objectives of evaluation, Categories of cost of poor quality, analyzing the categories of costs of poor quality.

**Quality assurance:** Concept of quality assurance, Quality audit, Audit of quality plans, Audit of execution versus plans, Planning & performing audits, Product auditing,

**Total quality management (TQM):** Introduction, Total quality management tools, Total quality management vs. Quality circles, Need of total quality management process, Advantages of total quality management, Process improvement cycle, Deming's theory.

**Statistical Process Control:** Sampling, determining sample size, control charts for variables, control charts for attributes.

**ISO standards:** Introduction, Requirements of ISO, Implementation of ISO standards.

**Reliability:** Definition of Reliability, Quality versus Reliability, MTBF, MTTR, Time dependent failure models, Reliability of systems, Series, Parallel combined systems.

**Recommended Books.**

1. Quality Control Hand Book J.M. Juran, MC. Graw Hill Company Latest Edition
2. Production/Operations Management William J. Stevensm, Richard. D. IRWAN. Inc. Toppan Company Latest Edition.
3. Total Quality Control. Armand. V. Feigenbaum, Mc. Graw Hill Book Company, Latest Edition
4. Principles of Quality Control. Jerry Banks, John Wiley & sons Newyork Latest Edition
5. Introduction to Statistical Quality Control. Douglas L.. Montgomery, John Wiley & Sons, Latest Edition
6. ISO 9000 for Small Business. Ray Tricker, Butter Worth- Heine mann, Linacre House, Jordan Hill Oxford Latest Edition

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<b>Approval:</b>	Board of Studies:	Res. No. 3.1	Dated: 27.08.2019
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