	National University of Sciences and Technology	
	Course Description	
Course Title Quality and Reliability Management	**Course Code** DME 839	**Credit Hours** **3 – 0**

Textbook:

- Total Quality Management, Organization and Strategy by James R. Evans & James W Dean, Jr, 3rd Edition, THOMSON South Western (2003) or latest edition.
- The Management and Control of Quality, by James Robert Evans, William M. Lindsay , Thomson Learning (latest edition)
- Taguchi methods from latest books

Reference Books:

- The Basics of FMEA, by Robin E. McDermott, Michael R. Beauregard, and Raymond J. Mikulak, Productivity Press (1996)
- Statistical Methods for Quality Improvement, by Hitoshi Kume, edited 3 A Corporation, Productivity Press (1987)
- Six Sigma Tool Navigator, The Master Guide for Teams by Walter J. Michalski with Dana G. King (Editor), Productivity Press (2003)
- Using Lean for Faster Six Sigma Results: A Synchronized Approach, by Mark Nash, Sheila Poling and Sophronia Ward, Productivity press (2006)

Course Objective:

- This module provides the understanding of quality strategies and systems. The student also acquires the necessary skills to understand process variations, measurement techniques and develop an action plan to minimize the variation to improve product quality and customer satisfaction.

Course Outline:

- Introduction: Introduction to the Course, Origin of Quality. Quality Statements and Philosophies & Corporate Responsibility. Continuous Process Improvement, Kaizen & Quality Awards. Quality Management Systems. Customer Perception of Quality & Employee Involvement. Supplier Partnerships & Benchmarking. Product Design for Quality. SPC & other Quality Tools. Seven Quality Tools & Problem Solving, Statistical Process Control, Development of Control Charts, Control Charts for Attributes with Examples, Control charts for Variables with Examples, Control charts for Very Small Variations, Manufacturing Process Variation, Monitoring & Control, Process Capability Analysis, Sampling plans, Six Sigma & its Application, Taguchi methods: Quality Improvement in Product/ Process Design, Design of Experiments, Method & Illustrative Problems, Quality Function Deployment, Quality Costs, Product Liability, Reliability & Safety. Case Studies Exercises.

ASSESSMENTS

Description	Percentage Weightage (%)
Assignments	05-10%
Quizzes	10-15%
Mid Semester Exams	30-40%
End Semester Exam	40-50%