

Gautam Buddha University, Greater Noida

School of Engineering (Mechanical Engineering)

Degree	Course Name	Course Code	Marks:100
M. Tech.	Quality Engineering	MEI 502	SM+MT+ET 25+25+50
Semester	Credits	L-T-P	Exam.
II	3	3-0-0	3 Hours

Unit - I

Introduction to Quality Engineering: Quality control concepts and definitions; History of quality control and improvement; Quality philosophies; Basics of inferential and descriptive statistics; Important continuous and discrete distributions. **(07 Hours)**

Unit – II

On-line Statistical Methods for Quality Control: The magnificent seven quality control tools; Control charts for variables and attributes; Special control charts: CUSUM and EWMA charts; Control charts for short production runs and multiple-stream processes. **(08 Hours)**

Unit - III

Off-line Statistical Methods for Quality Control: Process capability analysis; Introduction to designed experiments and Taguchi orthogonal array design and analysis. **(07 Hours)**

Unit - IV

Multivariate Process Monitoring and Control: Introduction of basic matrix algebra; Hotelling T^2 control chart; Multivariate EWMA and CUSUM charts; Multivariate statistical projection based methods. **(08 Hours)**

Unit - V

Engineering Process Control: Process monitoring and process regulation; Process control by feedback adjustment; Combining SPC and EPC. **(07 Hours)**

Unit - VI

Acceptance Sampling: Guidelines for using acceptance sampling; Single – sampling plans for attributes; Double; Multiple and sequential sampling; The Dodge – Romig sampling plans. **(08 Hours)**

Recommended Books:

1. Introduction to Statistical Quality Control; D. C. Montgomery; Wiley.
2. Statistical Quality Control; Grant and Leavarrow; McGraw Hill.
3. Total Quality Management; Dale H. Besterfield; Pearson Education Asia.