

GUJARAT TECHNOLOGICAL UNIVERSITY

M.E. Semester: III

Mechanical (Production Engineering)

Subject Name: **Quality Engineering and Management**
(Major Elective - IV)

Subject Code: **732803**

Sr No.	Course Content
1	Basics of quality – process capability analysis – quality gurus and their philosophies. TQM
2	Quality standards – ISO 9000 series and 14000 series – Design of experiments – Anova analysis
3	Statistical process control: Concepts, Various SPC tools, Fishbone diagram, measures of central tendency, measures of dispersion, skewness, kurtosis, line of regression, binomial, poisson and normal distribution, acceptance sampling, SPC limitations
4	Reliability : Failure rate analysis, Mean failure rate, Mean time to failure (MTTF), Mean time between failures (MTBF). Graphical representation of f_d , Z and R. Generalization in graphic and integral form. Hazard model. System reliability, availability, maintenance – reliability centered maintenance (RCT), total preventive maintenance (TPM), and overall equipment effectiveness (OEE) model.
5	IS2500 plans – MIL STD 105E – Taguchi methods
6	Quality function deployment – FMEA, Poka Yoke.– Quality circles - Total quality management –Kaizen.
7	Quality of design: Concurrent engineering, its benefits, design for manufacturing, concepts of JIT, value engineering, agile manufacturing & lean manufacturing. Quality Planning: SWAT Analysis, strategic planning, Organization culture.
8	New Concepts: Introduction to 6 Sigma, Business Process Re-Engineering, bench marking

Reference Books:

1. Juran J.M and Frank MGryna “Quality Planning and analysis”, Tata Mc Graw Hill,1990.
2. Genichi Taguchi et all., “Quality Engineering in Production System”, Mc Graw Hill, 1989.
3. Gabriel A Pall,, “Quality Process Management”, Prentice Hall,1987.
4. Total Quality Management: Poornima M. Charantimath, Pearson education (Singapore) Pte. Ltd.
5. Managing for Total Quality: N. Logothetis, Prentice Hall of India Pvt. Ltd.
6. Competitive Manufacturing Management : John M. Nicholas, Mcgraw Hill
7. Managing Quality : Barrie G. Dole, Blackwell publishing
8. TQM – an integrated approach – Samunel K Ho, Crest publshing House.
9. Total Quality Management – Dr. S. Kumar, Laxmi Publication Pvt. Ltd.