NIRMA UNIVERSITY
INSTITUTE OF TECHNOLOGY, SCHOOL OF ENGINEERING

(Open Elective)

L	T	P	C
3	0	0	3

Course Code	2MEOE03
Course Title	Basics of Quality Management

Course Outcomes (CO):

After successful completion of the course, student will be able to-
1. define the quality management,
2. illustrate the use of statistical quality control,
3. justify the use of various quality improvement concepts, tools with examples,
4. discuss the quality tools, techniques and philosophies through case studies.

Syllabus   **Teaching hours: 45**

UNIT - I   **Introduction to Quality Management**   **10 hours**

Introduction to quality, need of quality, evolution of quality, definitions of quality, dimension of product and service quality, facet of quality, inspection, quality control, quality assurance, cost of quality, contribution of quality gurus, quality statement,

UNIT - II   **Statistical Quality Control**   **14 hours**

Basic statistical measure / terms, source of variation, chance and assignable causes, measures of central tendency, measures of dispersion, normal distribution, control charts for variable and attribute, process capability, pareto principle, introduction to acceptance sampling

UNIT - III   **Quality Improvement Tools & Techniques**   **14 hours**

5S, Quality Circle, PDCA Cycle, Kaizen, Seven New Management Tools, Quality Function deployment (QFD), Failure Mode Effect & Critical Analysis (FMECA), Poka-yoke, Benchmarking, and others

UNIT - IV   **Associated Concepts with Quality Management**   **07 hours**

Introduction to ISO, Importance of ISO certification, ISO 9001 Quality Management System, ISO 14001 Environment Management System, OHSAS 18001, Integrated management System (IMS), Lean, Six Sigma and Lean Six

Sigma Methodology, TPM, Business Excellence Model like Deming Award, Malcolm Baldrige National Quality Award, Ramkrishna Bajaj National Quality Award, Introduction to ZED Maturity Assessment Model for Indian MSMEs.

Self - Study   The self-study contents will be declared at the commencement of semester. Around 10% of the questions will be asked from self-study contents.

Suggested Readings:
1. Charantimath P.M., Total Quality Management, Pearson Education India.
2. Besterfield, D. H., Besterfield-Michna, C., Besterfield, G. H., Besterfield-Sacre, M., Urdhwareshe, H., & Urdhwareshe, R. Total Quality Management, Pearson Education India.
3. Mitra, A. Fundamentals of Quality Control and Improvement. John Wiley & Sons.
4. Montgomery, D. C. Introduction to Statistical Quality Control. John Wiley & Sons.

L=Lecture T= Tutorial P=Practical, C=Credit

w.e.f. academic year 2020-21 and onwards