QUALITY ENGINEERING & MANAGEMENT – EL 2
Semester II (Production Engineering) SUB CODE: MEPR206-B
Teaching Scheme (Credits and Hours)

Teaching Scheme				Total Credit	Evaluation Scheme					Total Marks
					THEORY		IE	CIA	PR. / VIVO	
L	T	P	Total		Hrs	Marks	Marks	Marks	Marks	
Hrs	Hrs	Hrs	Hrs							
2	0	0	2	2	3	70	30	20	0	120

LEARNING OBJECTIVES:
The objective of this course is

- To learn various concepts related to quality
- To have an overview of various quality techniques.

LESSON PLANNING

SR.NO	CHAPTER NO	DATE/WEEK	%WEIGTAGE
1	1,8	1^{st} 2^{nd} 3^{rd}	20
2	2,3	4^{th} 5^{th} 6^{th}	20
3	4	7^{th} 8^{th} 9^{th}	20
4	5,6	10^{th} 11^{th} 12^{th}	20
5	7	13^{th} 14^{th} 15^{th}	20

Total hours (Theory): 30, Total hours (Practical):00, Total hours: 30

DETAILED SYLLABUS

Chap. No.	Topic
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 fd, 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

INSTRUCTIONAL METHOD AND PEDAGOGY (Continuous Internal Assessment (CIA) Scheme)

- At the start of course, the course delivery pattern, prerequisite of the subject will be discussed
- Lecture may be conducted with the aid of multi-media projector, black board, OHP etc. & equal weightage should be given to all units while conducting teaching & examination.
- Attendance is compulsory in lectures and Tutorial.
- Viva Voce will be conducted at the end of the semester of 30 Marks.
- One internal exam of 30 marks is conducted as a part of Mid semester evaluation.

STUDENTS LEARNING OUTCOMES:

At the end of the course

- The students will gain an experience in the implementation of quality concepts for continuous improvement.

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) Pvt. 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 pubslishing House.
9. Total Quality Management – Dr. S. Kumar, Laxmi Publication Pvt. Ltd.