AE-310: Quality Management & Six Sigma Applications										
L	**T**	**P**	Credit	Area		**CWS**	**PRS**	**MTE**	**ETE**	**PRE**
3	0/1	2/0	4	DEC		15/25	25/-	20/25	40/50	-

Objectives: To familiarize the student with quality, statistical control of processes, sampling process, ISO standards for six sigma quality, life testing and reliability design

AE-310: Quality Management & Six Sigma Applications		Contact Hours
Unit-1	**Introduction to Quality:** Definition of Quality- product, user, value, and manufacturing based perspectives, Dimensions of Quality, Quality Planning, Quality costs- optimization of quality costs, seven tools of quality control; Philosophies of Quality Gurus- Deming, Juran, Crosby, Feigenbaum, Ishikawa, Taguchi. Comparison of Quality Philosophies.	**8**
Unit-2	**Statistical Process Control:** Introduction to Quality characteristics- variables and attributes, Types and causes of variations, Control Charts for variables and attributes, Process capability.	**6**
Unit-3	**Acceptance Sampling:** Sampling process and lots formation; Advantages and applications of acceptance sampling; characteristics of O.C. Curve; Single, double, multiple, sequential sampling; ASN, ATI, AOQL, AOQ, AQL, LQL, Producer's and Consumer's risks.	**6**
Unit-4	**Six Sigma and ISO 9000:2000:** Principles of Six Sigma, Statistical basis, Tools and techniques, DMAIC principle, application of six sigma in manufacturing and service organizations, structure of ISO standards, Factors leading toISO, Implementation and registration, Benefits of ISO.	**8**
Unit-5	**Life Testing-Reliability: Life** testing: objective, failure data analysis, MTTF, MTBF, hazard rate, exponential and Weibull models, system reliability-series, parallel and mixed configurations, Markov model.	**8**
Unit-6	**Reliability Design and Allocation:** Design for reliability, reliability improvement techniques, active redundancy and standby redundancy, K-out-of-N redundancy and maintenance policies.	**6**
	Total	**42**

Reference Books:

1	J R Evans and W M, "Lindsay The Management and Control of Quality", Cengage learning, India, ISBN-10: 0538452609/ISBN-13: 978-0538452601
2	KanishkaBedi," Quality Management Oxford higher education", Oxford University Press, 2006, ISBN 0195677951, 9780195677959
3	Besterfield, "Total Quality Management", Pearson Education India, 2011, ISBN 8131732274, 9788131732274
4	F M Gryna, R C H Chua, J A DefeoJura," Quality Planning and Analysis for Enterprise Quality", Tata McGraw-Hill, ISBN-10: 0072966629ISBN-13: 978- 0072966626

Course Outcomes

CO1	To understand the concept of quality, Quality costs and Philosophies of Quality
CO2	To understand Process Controlin Statistical way and Process capability.
CO3	To understand Sampling process and lots formationProducer's and Consumer's risks.
CO4	To understand Principles of Six Sigmaand ISO 9000:2000standard
CO5	To understand the life testing-reliability life different configuration and models.
CO6	Student will able to do reliability Design and Allocation

CO-PO/PSOMatrix

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
CO1	3	3	3	2	2	0	0	0	0	0	0	2	2	1	1
CO2	3	3	2	3	1	0	0	0	0	0	0	1	2	1	1
CO3	3	3	3	3	1	0	0	0	0	0	0	2	3	3	2
CO4	3	3	3	3	1	0	0	0	0	0	0	1	3	3	2
CO5	2	2	2	2	2	0	0	0	0	0	0	1	2	2	2