Lesson Plan

Name of Institute   : Ambala College of Engineering and Applied Research

Faculty member   : Ajay Kumar

Discipline   : Mechanical Engineering

Semester   : 8th

Subject   : Quality Assurance & Reliability

Lesson Plan Duration   : 15 weeks (from Jan 2020 to April 2020)

Work Load   : L-4

Week	Theory	
	Lecture day	Topic (including assignment/ test)
1st	1	Quality-Basic Concepts: Issues in Quality
	2	Factors affecting quality, creating quality by design
	3	Product development cycle, economics of quality
	4	Various definitions, ISO definition of quality and its meanings,
2nd	1	History of Quality methodology
	2	Customers and employees, contribution of quality gurus etc. towards quality concepts.
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	4	Statistical method for quality improvement
3rd	1	Basic statistical concepts, various types of distributions
	2	Variability concept in manufacturing-cycle
	3	Fishbone diagrams, charts in time philosophy
	4	Revision
4th	1	Introduction & definition of Quality Assurance
	2	Management principle in QA
	3	Forms of QA
	4	Different stages of QA
5th	1	Quality Planning
	2	QA Program
	3	QA aspect
	4	Quality in material management
6th	1	Vendor selection & development
	2	Introduction to statistical process control
	3	Concept of variation
	4	Concept of assignable & chance causes
7th	1	Frequency distribution curve and its type
	2	Frequency distribution curve and its type
	3	Normal Distribution curve
	4	Problem on FD curve & ND curve

8th	1	Problem on FD curve & ND curve
	2	Application of SPC
	3	Revision
	4	General theory X and R chart
9th	1	Decision preparatory to the control charts. Trial control limits
	2	Selection of subgroups. Charts with variable subgroups
	3	Reject and Revoke, limits for average on X charts
	4	modified control limits, specification limits, practical limitations
10th	1	Control charts for fraction defectives, calculation and plotting of control limits
	2	Solve Numerical
	3	Sensitivity of p chart, applications. Control charts for Defects, difference between defect and defective
	4	Solve Numerical
11th	1	calculation and plotting of control limits, applications, pi charts and u charts, plotting of charts
	2	Solve Numerical
	3	Tests of various control charts. Process capability- inherent and potential capability.
	4	Revision
12th	1	Purpose of Acceptance by Attributes, Single sampling plans
	2	O.C. curve, selection of sampling plans
	3	Multiple and sequential sampling
	4	A.O.Q.L, Acceptance sampling plans under risk. Design of various sampling plans
13th	1	Determination of process average, Acceptance sampling by variables.
	2	Revision
	3	Control of reliability, factors affecting reliability
	4	pattern of failure, mean time to failure, Fundamental of statistical concepts
14th	1	consideration of reliability in series and parallel system,
	2	Solve Numerical
	3	Solve Numerical
	4	Effect of redundancy and reliability
15th	1	method of reliability evaluation, reliability optimization
	2	Availability and Maintainability, means to improve reliability
	3	Reliability control during manufacture
	4	Revision

(Signature of the teacher concerned with date)