

Lesson Plan

Name of faculty member		PAWAN KUMAR BALODA		
Discipline		MECHANICAL ENGINEERING		
Semester		6th		
Subject		INSPECTION AND QUALITY CONTROL		
Lesson plan duration		15 week		
Work Load (Lecturer/ Practical) per week (In hours)		Lectures-03, Practicals-02 (each group)		
Week	Theory		Practical	
	Lecturer day	Topic (including assignment/test)	Practical day	Topic
1st	1st	Unit 1- Inspection Introduction, units of measurement	1st	Use of dial indicator for measuring taper (Groups-G1, G2 and G3)
	2nd	standards for measurement and interchangeability		
	3rd	International, national and company standard		
2nd	4th	line and wavelength	2nd	Use of combination set, bevel protector and sine bar for measuring taper(Groups- G1, G2 and G3)
	5th	Planning of inspection: what to inspect? When to inspect? Who should inspect? Where to inspect?		
	6th	Types of inspection: remedial, preventive and operative inspection		
3rd	7th	incoming, in-process and final inspection	3rd	Revision of 1st experiment
	8th	Study of factors influencing the quality of manufacture		
	9th	Unit 2 Measurement and Gauging Basic principles used in measurement and gauging, mechanical, optical, electrical and electronic		
4th	10th	Study of various measuring instruments like: calipers, micrometers	4th	Revision of 2nd experiment
	11th	dial indicators, surface plate		
	12th	straight edge, try square, protectors, sine bar		
5th	13th	clinometer, comparators – mechanical	5th	Measurement of thread characteristic using vernier and gauges(Groups-G1, G2 and G3)
	14th	electrical and pneumatic comparators		
	15th	Slip gauges		
6th	16th	tool room microscope, profile projector	6th	Use of slip gauge in measurement of center distance between two pins.(Groups-G1, G2 and G3)
	17th	Limit gauges: plug, ring, snap, taper, thread, height, depth, form, feeler, wire and their applications for linear, angular, surface		
	18th	Measurements, gauge tolerances. Geometrical parameters and errors: Errors & their effect on quality, concept of errors, measurement of geometrical parameter such as straightness, flatness and parallelism.		
7th	19th	Study of procedure for alignment tests on lathes, drilling and milling	7th	Revision of 3rd experiment
	20th	Testing and maintenance of measuring instruments		
	21st	Unit 3 Statistical Quality Control Basic statistical concepts		
8th	22nd	empirical distribution and histograms, frequency, mean	8th	Revision of 4th experiment
	23rd	mode, standard deviation		
	24th	normal distribution, binomial		
9th	25th	Poisson, Simple- examples	9th	Use of tool maker's microscope and comparator(Groups-G1, G2 and G3)
	26th	Introduction to control charts		
	27th	X, R, P and C charts and their applications.		
10th	28th	Sampling plans, selection of sample size	10th	Plot frequency distribution for 50 turned components(Groups-G1, G2 and G3)
	29th	method of taking samples, frequency of samples		
	30th	Inspection plan format and test reports		
11th	31st	Revision of X ,R Charts	11th	Revision of 5th experiment
	32nd	Revision of histograms and frequency mean		
	33rd	Assignment of topic standard deviation, normal distribution and poisson ratio.		
12th	34th	Unit 4 Modern Quality Concepts Concept of total quality management	12th	Revision of 6th experiment
	35th	National Codes.		
	36th	International Codes.		

13th	37th	ISO-9000, concept and its evolution	13th	With the help of given data, plot X, R, P and C charts(Groups-G1, G2 and G3)
	38th	QC tools		
	39th	Introduction to Kaizen		
14th	40th	5S	14th	Revision of 7th experiment
	41st	Unit 5 Instrumentation Measurement of mechanical quantities such as displacement		
	42nd	vibration,frequency		
15th	43rd	pressure temperature by electro mechanical transducers of resistance	15th	Revision of 3rd and 5th experiment
	44th	capacitance & inductance type		
	45th	Revision of 5s		

