

Government Polytechnic for Women, Faridabad

Lesson Plan

Name of Faculty : Mr. Ramkaran Sharma (Theory/Practical)

Discipline : Mechanical Engineering

Semester : 6th

Subject : Inspection and Quality Control

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

Work Load (Lectures/Practical) per week (in hours): Lectures-03, Practical-03

WEEK	THEORY		PRACTICAL	
	Lecture Day	Topic (Including Assignment/ Test)	Practical Day	Topic
1 st	1 st	1.Inspection • Introduction • Units of measurement	1 st	1. Use of dial indicator for measuring taper
	2 nd	• Standard for measurement • Interchangeability	2 nd	Do
	3 rd	Standards • International • National • Company • Line and wavelength standards		
	4 th	Planning of inspection • What to inspect? • When to inspect? • Who should inspect? • Where to inspect?		
2 nd	5 th	Types of inspection • Preventive and operative inspection	3 rd	2. Use of combination set, bevel protector and sine bar for measuring taper
	6 th	• Incoming and in-process • Final inspection		
	7 th	Remedial Study of factors influencing the quality manufacture	4 th	Do
	8 th	Test of chapter-1		

3 rd	9 th	2. Measurement and Gauging Principles used in measurement and gauging • Mechanical • Optical • Electrical • Electronic	5 th	Do
	10 th	Study of various measuring instruments • Calipers • Micrometers	6 th	Do
	11 th	• Dial indicators • Surface plate		
	12 th	• Straight edge • Try square		
4 th	13 th	• Protectors • Sine bar • Clinometers	7 th	Do
	14 th	Comparators • Mechanical • Electrical • Pneumatic	8 th	Do
	15 th	Slip gauges		
	16 th	• Tool room microscope • Profile projectors		
5 th	17 th	Limit Gauges • Plug • Ring • Snap	9 th	3. Measurement of thread characteristics using vernier and gauges
	18 th	• Taper • Thread • Height • Depth	10 th	Do
	19 th	• Form • Feeler • Wire		
	20 th	Applications for • Linear • Angular • Surface		

6 th	21 st	• Thread and gear measurement • Gauge tolerances	11 th	Do
	22 nd	Geometrical Parameters and Errors • Error and their effect on quality		
	23 rd	• Concept of error		
	24 th	Measurement of geometrical parameter • Straightness • Flatness • parallelism	12 th	Do
7 th	25 th	Study of procedure for alignment tests on lathes • Drilling Machine • Milling Machine	13 th	4. Use of slip gauge in measurement of centre distance between two pins.
	26 th	Testing of measuring instruments	14 th	Do
	27 th	Maintenance of measuring instruments Assignment Topic: • Interchangeability • Types of inspection • Limit Gauges • Concept of error		
	28 th	Test of chapter-2		
8 th	29 th	3. Statistical Quality Control • Basic concept • Empirical distribution	15 th	Do
	30 th	• Histogram	16 th	Do
	31 st	• Frequency		
	32 nd	• Mean • Mode		
9 th	33 rd	• Standard deviation	17 th	5. Use of tool maker's microscope and comparator.
	34 th	• Normal distribution		
	35 th	• Binomial		
	36 th	• Poisson	18 th	Do
10 th	37 th	Simple Examples	19 th	Do
	38 th	Introduction to control charts • X chart • R chart		
	39 th	• P chart • C chart	20 th	Do
	40 th	Applications of control charts		

11 th	41 st	Sampling Planes • Selection of sample size • Method of taking samples	21 st	6. Plot frequency distribution for 50 turned components.
	42 nd	• Frequency of samples	22 nd	Do
	43 rd	Inspection plan format and test reports Assignment Topic: • Normal distribution • Standard deviation • Control charts • Sampling plan		
	44 th	Test of chapter-3		
12 th	45 th	4. Modern Quality Concept • Concept of TQM	23 rd	Do
	46 th	• National codes	24 th	Do
	47 th	• International codes		
	48 th	ISO-9000 • Concept • Evolution		
13 th	49 th	QC Tools	25 th	7. With the help of given data plot X, R, P and C charts.
	50 th	Introduction to kaizen		
	51 st	5S		
	52 nd	Test of chapter-4	26 th	Do
14 th	53 rd	5. Instrumentation Measurement of mechanical qualities • Displacement	27 th	Do
	54 th	• Vibration	28 th	Do
	55 th	• Frequency		
	56 th	• Pressure		
15 th	57 th	• Temperature	29 th	Do
	58 th	Electromechanical Transducers and their types • Resistance • Capacitance		
	59 th	• Inductance Assignment Topic: • TQM • ISO-9000 • Kaizen	30 th	Do
	60 th	Test of chapter-5		