Lesson Plan

Name of the faculty: Sh. Rajesh Kumar, Lecturer in Mechanical Engg.
Discipline: Mechanical
Semester: 6th Mechanical A & B
Subject: METROLOGY AND QUALITY CONTROL
Lesson Plan Duration: 15 weeks (From January, 2025 to May, 2025)
***Work Load (Lecture/ Practical) per week (in hours):** Theory-03 & 02

Week	Theory		Practical	
	Lecture day	**Topic (including assignment / test)**	**Practical Day**	**Topic**
1st	1st	Introduction to inspection, Planning of inspection: W5H principle	1st	Use of dial indicator for measuring taper.
	2nd	Types of inspection: remedial, preventive and operative inspection		
	3rd	incoming, in-process and final inspection	2nd	Use of dial indicator for measuring taper.
	4th	Standards of Measurement - International, national and company standard, line and wavelength standards.		
2nd	1st	Revision	1st	Use of combination set, bevel protector and sine bar for measuring taper.
	2nd	Introduction, Definition, Basic principles used in measurement and gauging		
	3rd	mechanical, optical, electrical and electronic	2nd	Use of combination set, bevel protector and sine bar for measuring taper.
	4th	Slip gauges, Sine bar, clinometers, comparators – mechanical, electrical and pneumatic		
3rd	1st	Revision	1st	Measurement of thread characteristic using vernier and gauges.
	2nd	Types of gauges, Limit gauges: plug, ring, snap, taper, thread		
	3rd	height, depth, form, feeler, wire and their applications for linear,	2nd	Measurement of thread characteristic using vernier and gauges.
4th	1st	angular, surface, thread and gear measurements	1st	Use of slip guage in measurement of center distance between two pins.
	2nd	gauge tolerances. Tool room microscope		
	3rd	profile projector	2nd	Use of slip guage in measurement of center distance between two pins.
5th	1st	Geometrical parameters and errors	1st	Use of tool maker's microscope and components
	2nd	Errors & their effect on quality		
	3rd	concept of errors, measurement of geometrical parameter such as straightness	2nd	Use of tool maker's microscope and components
6th	1st	flatness and parallelism	1st	Plot frequency distribution for 50 turned components
	2nd	Revision		
	3rd	. Sampling Plans, Basic statistical concepts	2nd	Plot frequency distribution for 50 turned components
7th	1st	empirical distribution and histograms	1st	With the help of given

	2nd	Central tendency measures-frequency		data, plot X, R , P and C charts.
	3rd	mean, mode, standard deviation, normal distribution, binomial and Poisson, Simple- examples	2nd	With the help of given data, plot X , R ,P and C charts.
8th	1st	Introduction to control charts,		
	2nd	variable and attribute charts - namely		
	3rd	Revision		
9th	1st	X and R, X bar and nP, P, C charts and their applications		
	2nd	Sampling plans, selection of sample size		
	3rd	method of taking samples, frequency of samples		
10th	1st	Acceptance Sampling, Inspection plan format and test reports		
	2nd	Concept of total quality management (TQM)		
	3rd	Revision		
11th	1st	National and International Codes.		
	2nd	ISO-9000, concept and its evolution		
	3rd	Revision		
12th	1st	QC tools- Fish Bone diagram		
	2nd	Cause and Effect Diagram		
	3rd	Revision		
13th	1st	scatter Diagram		
	2nd	Histogram Introduction to Kaizen, 5S and Quality Circle		
	3rd	Revision		
14th	1st	Transducers – Its different types		
	2nd	Measurement of mechanical quantities such as displacement		
	3rd	Revision		
15th	1st	vibration, frequency, pressure temperature by electro mechanical		
	2nd	transducers of resistance, capacitance & inductance type		
	3rd	Revision		