

LESSON PLAN

Subject Name- Inspection & Metrology	Branch- Production Engineering
Subject Code- BPE05002	Semester- 5th

S/N	Module	Topic(s)	Period/ Hours
1	I	Metrology: Need of Inspection, Precision and accuracy, Accuracy and cost	1
2	I	Sources of error, Types of error	2
3	I	Geometry of form on shape, Line standard, end standard	3
4	I	Limits, fits, tolerances-Hole & shaft basis system	4
5	I	Interchangeability, selective assembly, ISO system for limits & fits	5
6	I	Limit gauges-Snap, plug, ring, taper, position gauges-Gauge design, Taylor's principle	6-7
7	I	Wear allowance, Screw allowance Screw thread gauge, thread pitch gauge	8-9
8	I	Tutorial	10
9	II	Comparators- Characteristics	11
10	II	Relative Advantages of various types of comparators-Mechanical, optical pneumatic, Fluid displacement type	12-13
11	II	Measurement by light wave Interference optical flat	15
12	II	Tutorial	16
13	II	Measurement of straightness- Autocollimator flatness testing measurement of circularity-types of irregularities	17-18
14	II	Angular measurement-Sine bar, Sine center, angle gauges, measurement of angle of tapered hole	19-20
15	II	Tutorial	21
16	III	Surface Measurements- Roughness and waviness	22

S/N	Module	Topic(s)	Period/ Hours
17	III	Surface texture, cut off length, RMS & CLA values	23
18	III	Surface roughness measuring instruments, Principle of working	24-25
19	III	Tutorial	26
20	IV	Metrology of screw thread- Errors in threads	27
21	IV	Measurement of element of threads, 2-wire & 3-wire methods	27-28
22	IV	Measurement & testing of gears-Measurement of error, rolling test, gear tooth caliper, base tangent comparator	29-31
23	IV	Tutorial	32
25	V	Nondestructive testing- X-ray examination radiography, Ultrasonic inspection,	33-34
24	V	Magnetic test	35
25	V	Machine vision system-principle, application	36-37
26	V	Laser inspection	38
27	V	Tutorial	39
28		Revision discussion of Modules 1-5	40