

GOVERNMENT POLYTECHNIC JAJPUR

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DEPARTMENT OF METALLURGICAL ENGINEERING

LESSON PLAN

Discipline: I Metallurgy	Semester: 4th	Name of the Teaching faculty: SUVENDU MUDULI, Lect. in Metallurgy.	
Subject: Material Testing	No of Days/Week class alloted: 4	Semester from Date: wef 14-02-2023	To Date: to 23-05-2023
Week	Class Day	Topics	
1st	1st	Introduction to MT	
	2nd	Comparison DT & NDT	
	3rd	hardness test.	
	4th	Moh's scale.	
2nd	1st	Scratch hardness.	
	2nd	Brinell test	
	3rd	Vickers test.	
	4th	Rockwell test.	
3rd	1st	Relation between hardness & strength.	
	2nd	Tensile test.	
	3rd	Describe UTM.	
	4th	tensile testing procedure.	
4th	1st	stress strain example.	
	2nd	% elongation % Reduction in area.	
	3rd	Draw stress-strain diagram.	
	4th	Impact test.	
	1st	Charpy sample	
	2nd	Izod sample	

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5th	3rd	Calculation of Impact energy
	4th	Impact m/c procedure
6th	1st	factors affecting Impact test value
	2nd	Critical speed, notch value.
	3rd	Fatigue test.
	4th	Stress cycles diagrams.
7th	1st	different amplitude ratio
	2nd	Stress ratio, Sinusoidal cycle.
	3rd	Fatigue test method.
	4th	Draw - SN curve
8th	1st	SN curve for ferrous metals
	2nd	SN curve for Nonferrous metals
	3rd	factors affecting Fatigue test.
	4th	Calculation, Problem of Stress cycles.
9th	1st	Creep test.
	2nd	Application of Creep test.
	3rd	Creep curve
	4th	Stage - 1 of curve describe
10th	1st	Stage 2 of curve describe
	2nd	Stage - 3 of curve describe
	3rd	Creep testing method.
	4th	Factors affecting Creep
11th	1st	Stress rupture test.
	2nd	All diagrams of Creep test methods.
	3rd	NDT
	4th	Advantages & examples.
12th	1st	Visual test
	2nd	Leakage test.
	3rd	Pressure test.
	4th	Dye penetrant test.
	1st	Different methods of dye appl

13th	2nd	Appl ⁿ of liquid penetrant.
	3rd	Eddy Current method.
	4th	Appl ⁿ and method.
	1st	Magnetic particle test.
14th	2nd	What is magnaflux.
	3rd	Flaw detection method.
	4th	Ultrasound testing method.
	1st	pulse echo method.
15th	2nd	Double probe flaw detector.
	3rd	Radiography test.
	4th	X-Ray.
	1st	Gamma-Ray.
16th	2nd	Radiography merits & demerits.
	3rd	Revision of old chapters.
	4th	Revision of old chapters.

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