

# PADMASHREE KRUTARTHA ACHARYA INSTITUTE OF ENGINEERING & TECHNOLOGY, BARGARH



## LESSON PLAN Session-2022-2023

Discipline: Metallurgical Engg. Semester: 4<sup>th</sup>

Name of the Teaching Faculty: Shashank Sekhar Bhoi

Subject: Material Testing No. of Days/per week class allotted 04

Semester From Date: 14/02/2023 To Date: 23/05/2023 No. of Weeks: 15

Week	Class Day	Theory /Practical Topics
01	1	Introduction to Hardness Test
	2	Explain and derive expression for Brinell Hardness Test.
	3	Vicker Hardness Test
	4	Rockwell Hardness Test
02	1	Rebound Hardness with reference to Shore's Scleroscope.
	2	Scratch hardness
	3	mho's scale
	4	Imperial relationship of hardness with strength
03	1	overall topic discussion
	2	Doubt clearance
	3	Introduction to Tensile Test
	4	Draw stress strain curve.

*Shashank Saxena Bhoi*  
Signature of the Faculty

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Week	Class Day	Theory /Practical Topics
04	1	Explain stress strain curve.
	2	modulus of elasticity.
	3	proof stress.
	4	Discuss Yield point phenomenon.
05	1	Schematic representation of Yield point phenomenon.
	2	Explain true stress strain curve.
	3	Ductility and toughness.
	4	<del>Introduction to</del> Explain True Stress curve.
06	1	Introduction to Impact test.
	2	Define impact strength.
	3	Discuss Charpy test.
	4	Izod impact test.

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Week	Class Day	Theory / Practical Topics
07	1	Transition temperature and ductility
	2	Brittle fracture.
	3	Introduction to Fatigue test.
	4	Different stress cycle.
08	1	Fatigue failure.
	2	S.N Curve.
	3	Endurance limit.
	4	Procedure of fatigue testing.
09	1	Fatigue testing machine.
	2	Different metallurgical factors that affect fatigue behavior.
	3	Introduction to creep test and its importance.
	4	Engineering creep curve, constant stress creep curve and andrad concept.

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Week	Class Day	Theory / Practical Topics
10	1	Explain equilibrium temperature.
	2	Factors affecting creep.
	3	Describe creep testing machine.
	4	Discuss stress rupture test.
11	1	Introduction to Non destructive Testing.
	2	Visual testing.
	3	Leakage Testing.
	4	Dye Penetration testing.
12	1	Development of crack in dye penetration.
	2	Ultrasonic testing through Transmission.
	3	Pulse-Echo method of ultrasonic testing.
	4	Eddy Current Testing.

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Week	Class Day	Theory /Practical Topics
13	1	X-ray diffraction.
	2	physical principles of X-ray Radiography
	3	Application of X-ray Radiography.
	4	overall discussion of chapter
14	1	Doubt clearance.
	2	Introduction to temperature measurement and calibration.
	3	Basic principle of pyrometry.
	4	Types of pyrometer.
15	1	Thermocouples.
	2	Overall chapter discussion.
	3	Doubt clearance.
	4	Doubt clearance.

*Shashank Sengupta Bhose*  
Signature of the Faculty