

UTKALMANI GOPABANDHU INSTITUTE OF ENGINEERING, ROURKELA



LESSON PLAN

SUBJECT- MATERIAL TESTING

SEMESTER- 4TH

PREPARED BY- PARASMITA BISWAL

DEPARTMENT OF METALLURGY ENGINEERING

	Topics covered
WEEK 1	Introduction
	Basic concepts about stress and strain
	Tensile testing
	stress-strain curve
WEEK 2	Details on true strain , engg strain
	modulus of elasticity, proof stress
	UTS & Fracture stress
WEEK 3	ductility and toughness
	Details on true stress, engg stress


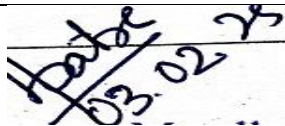
	Solve simple problems
WEEK 4	Class test -01 Doubt clearing class
	yield point phenomenon
	yield point phenomenon in detail
	Hardness of a material
WEEK 5	rebound hardness with reference to shore's Scleroscope
	scratch hardness and explain mho's scale
	Brinel Hardness Test
	Brinel Hardness Test -2
WEEK 6	Rockwell hardness test
	Rockwell hardness test -2
	Vickers hardness test
	Vickers hardness test -2
WEEK 7	Quiz test
	Doubt clearing class
WEEK 8	impact strength
	Charpy impact test
	Izod impact test
WEEK 9	transition temperature
	Charpy impact test -2
	Important question Discussion
WEEK 10	Doubt clear class
WEEK 11	stress cycles
	stress cycles -2
	S-N curve
WEEK 12	endurance limit
	metallurgical factors that affect

	fatigue behaviour
WEEK 13	metallurgical factors that affect fatigue behaviour -2
	scope and elementary idea about different NDT
WEEK 14	Visual testing
	Visual testing-2
	Leakage test
WEEK 15	Magnetic particle testing
	Dye penetration test
	Acoustic methods and ultrasonic testing
	Eddy current testing
WEEK 16	X – ray diffraction
	Analysis the basic principle of pyrometry
	types of pyrometer
WEEK 17	types of thermocouple
	Revision Class-I
	Revision Class-II
	Important question discussion

BOOKS FOR REFERENCE:

- A text book of Mechanical Testing of Engineering Materials by Chinmaya Mohapatra
- Testing of Metallic Material by Surya Narayan

	Prepared by	Approved by
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Signature		
Name	PARASMITA BISWAL	Sri SADASHIBA PATRA
Designation	Lecturer	HOD, Metallurgy
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