
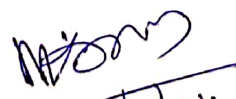


<p style="text-align: center;">GOVERNMENT POLYTECHNIC JAJPUR A/ P: Ragadi, Block: Korei, Dist.: Jajpur, Odisha- 755019 Website: https://www.gpjajpur.org . DEPARTMENT OF METALLURGY</p>		
Discipline: Metallurgy	Semester: 6th	Name of the Teaching faculty: Ashok kumar mishra
Subject: Mechanical metallurgy	No of Days/Week class allotted: 4	Date:16.01.2024 To Date:26.4.2024 No of weeks: 15
Week	Class Day	Topics
1st	1 st	introduction
	2 nd	Dislocation and its types
	3 rd	Dislocation behavior
	4 th	Dislocation role in deformation
2nd	1 st	Dislocation in various crystals
	2 nd	Sources of dislocation
	3 rd	Twinning and deformation
	4 th	Slip and deformation
3rd	1 st	Explain elastic behavior of metals
	2 nd	Explain plastic behavior of metals
	3 rd	Explain yielding criteria
	4 th	Explain yielding criteria
4th	1 st	Derive critically resolved shear stress
	2 nd	Class test
	3 rd	Explain deformation of polycrystalline aggregates
	4 th	Explain deformation of polycrystalline aggregates
5th	1 st	Discussion regarding strengthening mechanism
	2 nd	The role of grain boundary in strengthening mechanism
	3 rd	Define Hall-petch equation
	4 th	Describe yield point phenomenon
6th	1 st	Explain strain aging
	2 nd	Explain solid solution strengthening from fine particles
	3 rd	Describe fiber strengthening
	4 th	Describe martensitic strengthening
7th	1 st	Explain strain hardening
	2 nd	Describe bauschingers effect
	3 rd	Internal 1
	4 th	Classify different metal working process
8th	1 st	Explain hot working of metals
	2 nd	Explain cold working of metals
	3 rd	Advantages of cold and hot working


16/1/24

9th	4 th	Disadvantages of cold and hot working
	1 st	Explain annealing and its importance
	2 nd	Recovery
	3 rd	Recrystallization
10th	4 th	Grain growth
	1 st	How it is affect different properties
	2 nd	Explain principle of rolling
	3 rd	Forces involved in rolling
11th	4 th	Compare between hot rolling and cold rolling
	1 st	Explain type of roll open pass and box pass pass
	2 nd	State different types of rolling defects and their controls
	3 rd	Rolling defect
12th	4 th	Remedies of rolling defect
	1 st	Explain types forging process
	2 nd	Open die forging and closed die forging
	3 rd	Equipment used for forging and properties of forging product
13th	4 th	Defects in forging and remedies
	1 st	Explain the elementary principle of extrusion
	2 nd	Direct and indirect extrusion
	3 rd	Direct and indirect extrusion
14th	4 th	Defects in extruded product
	1 st	Manufacturing of seam less pipe
	2 nd	Elementary principle of wire drawing
	3 rd	Internal examination
15th	4 th	Wire drawing equipment and defects
	1 st	Concept of deep drawing
	2 nd	Bending, Shearing and blanking
	3 rd	Class test
	4 th	Bending, Shearing and blanking


 16/1/24