

Lesson Plan		
Name of Faculty		: Manish kumar
Discipline		: Mechanical Engineering
Subject		: WT-I
Lesson Plan duration		:16Weeks(From Sept. 2022 to Jan 2023)
Work load (Lecture/Practical) per week (in hours):Lectures-03,Practicals-00		
Week	Lecture day	Theory
		Topic(Including assignment/test)
1	1	Principle of welding, Classification of welding processes, Advantages and limitations of welding
	2	Industrial applications of welding, Welding positions and techniques, symbols. Safety precautions in welding.
	3	Principle of operation, Types of gas welding flames and their applications, Gas welding equipment - Gas welding torch, cutting torch, Blow pipe, Pressure regulators, Filler rods and fluxes and personal safety equipment for welding.
2	1	Principle of operation, Arc welding machines and equipment. A.C. and D.C. arc welding,
	2	Effect of polarity, current regulation and voltage regulation, Electrodes: Classification, B.I.S. specification and selection
	3	Flux for arc welding. Requirements of pre heating, post heating of electrodes and work piece Welding defects and their testing methods
3	1	Resistance welding: Principle, advantages, limitations, working and applications of spot welding
	2	seam welding, projection welding and percussion welding, Atomic hydrogen welding
	3	Shielded metal arc welding, submerged arc welding, Welding distortion welding defects, methods of controlling welding defects and inspection of welded joints.
4	1	Methods, Principle of operation, advantages, disadvantages and applications of, Tungsten inert gas (TIG) welding
	2	Metal inert gas (MIG) welding,
	3	Thermit welding, Electro slag welding Electron beam welding, Ultrasonic welding
5	1	Laser beam welding, Robotic welding
	2	ASSIGNMENT
	3	REVISION
6	1	Types of pattern, Pattern material, Pattern allowances, Pattern codes as per B.I.S., Introduction to cores,
	2	Different types of casting defects
	3	Core prints, positioning of cores Properties of moulding sand, their impact and control of properties viz. permeability
7	1	refractoriness, adhesiveness, cohesiveness, strength, flow ability, collapsibility
	2	Various types of moulding sand, Testing of moulding sand. Safety precautions in foundry.
	3	Types of moulds, Step involved in making a mould Molding boxes, hand tools used for mould making
8	1	Molding processes: Bench molding, floor molding
	2	pit molding and machine molding, Molding machines squeeze machine
	3	Jolt squeeze machine and sand slinger.Charging a furnace, melting and pouring both ferrous and non ferrous metals
9	1	cleaning of castings, Principle, working and applications of Die casting
	2	hot chamber and cold chamber, Centrifugal casting
	3	Elements of gating system Pouring basin, sprue, runner
10	1	gates, Types of risers, location of risers, Directional solidification
	2	Construction and working of Pit furnace, Cupola furnace
	3	Crucible furnace – tilting type, Electric furnace Different types of casting defects
11	1	Testing of defects: radiography,
	2	magnetic particle inspection and ultrasonic inspection.
	3	ASSIGNMENT
12	1	REVISION
	2	Press Working - Types of presses, type of dies, selection of press die, die material.
	3	Press Operations-Shearing, piercing, trimming, punching, notching,shaving, gearing, embossing, stamping
13	1	Forging - Open die forging, closed die forging
	2	Press forging, upset forging, swaging
	3	Up setters, roll forging, Cold and hot forging Rolling - Elementary theory of rolling
14	1	Types of rolling mills, Thread rolling, roll passes
	2	Rolling defects and remedies
	3	Extrusion and Drawing Type of extrusion- Hot and Cold
15	1	Direct and indirect
	2	Pipe drawing, tube drawing, wire drawing
	3	Industrial use of plastics, and applications- Advantages use of plastics
16	1	Injection moulding-principle
	2	working of injection moulding machine
	3	Compression moulding-principle,working of compression moulding machine.