

Lesson Plan

Name of Faculty : ANIL JAIN
 Discipline : Automobile Engg.
 Semester : 3rd
 Subject : WT-I

Lesson plan duration: 15 weeks (from July 2018 to Nov. 2018)

Week	Theory	
	Lecture Day	Topic (including assignments/tests)
I	I st	Principle of welding, classification of welding processes
	II nd	Advantages & Limitations of welding
	III rd	Industrial application of welding, welding techniques & positions.
	IV th	Welding symbols.
II	I st	Gas welding principle
	II nd	Types of gas welding flames & their applications
	III rd	Gas welding equipments - Gas welding torch, oxy acetylene cutting torch.
	IV th	Blow pipe, pressure regulators, filler rods & fluxes
III	I st	Arc welding principle, arc welding m/c & equipment
	II nd	A.C and D.C. welding
	III rd	Effect of polarity
	IV th	Current regulation & Voltage regulation
IV	I st	Other welding processes - Resistance welding
	II nd	Introduction to spot & seam welding
	III rd	Modern welding method - TIG
	IV th	Modern welding method - MIG

Week	Lecture Day	Topic
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V th	I	Ultrasonic Welding, laser beam welding, robotic welding
	II	Types of welding defects, methods of controlling defects.
	III	Inspection of welding defects
	IV	Revision
VI th	I	Introduction to pattern, their types, materials, allowances & codes as per BIS
	II	Introduction to cores, core boxes & core materials.
	III	Core making procedure
	IV	Core prints & their positioning.
VII th	I	Introduction to mould, moulding sand & their properties, their impact & control of properties
	II	Various types of moulding sand
	III	Types of moulds, mould boxes.
	IV	Hand tools used & mould making
VIII th	I	Moulding Processes
	II	Moulding machines (Types)
	III	Casting processes: charging & furnace.
	IV	Melting & pouring both ferrous & non-ferrous metals.
IX th	I	Cleaning of castings
	II	Principle, working & applications of Die casting
	III	Gating & Riser systems: Elements of gating system
	IV	Pouring basin, sprue, runner & gates
X th	I	Types of risers, location of risers, Directional solidification
	II	Construction & Working of Pit furnace
	III	" " " " Cupola
	IV	Crucible furnace - tilting & Electric furnace
XI th	I	Different types of casting defects:
	II	Testing of defects through magnetic particle inspection.

Week	Lecture Day	Topic
<u>XIth</u>	III	Press Working, types of presses, types of dies.
	IV	Selection of press die, die material. press
<u>XII</u>	I	operations: shearing, piercing, trimming, punching, notching, shaving, gearing, embossing, stamping.
	II	Forging - open die forging, closed die forging - press forging, upset forging.
	III	Swaging, up setters, roll forging.
	IV	Cold and hot forging
<u>XIII</u>	I	Rolling - Elementary theory of rolling, types of rolling mill
	II	Thread rolling, roll press, Rolling defects & their remedies
	III	Extrusion & Drawing - Type of Extrusion - Hot & cold
	IV	Direct & indirect Extrusion.
<u>XIV</u>	I	Pipe drawing, tube drawing, wire drawing
	II	Industrial use of plastics, situation where used
	III	Injection moulding - principle
	IV	Working of injection moulding machine
<u>XV</u>	I	compression moulding - principle, working of complete moulding machine.
	II	Potential and limitations in the use of plastics
	III	Revision
	IV	Revision.