

## Lesson Plan

Name of the Faculty: Ms. Nitish Munjal

Discipline: Department of Applied Sciences and Humanities

Semester: Diploma 1<sup>st</sup> Sem

Subject: General Workshop Practice-I

Work Load (Lecture/Practical) per week (in hours): Lectures-00, Practicals-06

Week	Theory		Practical	
	Lecture day	Topic (including assignment/test)	Practical day	Topic
1 <sup>st</sup>			1 <sup>st</sup>	<b>WELDING SHOP – I:-</b> Introduction and importance of welding process as compared to other material joining processes. Specifications and type of ARC welding machines, parts identification, classification, selection and coding of electrodes, welding parameters, welding joints and welding positions. Common weldable Materials, safety precautions, use of PPEs, welding screens, Hazards and remedies during welding, Elementary symbolic representations, demo of types of welding defects
			2 <sup>nd</sup>	
2 <sup>nd</sup>			3 <sup>rd</sup>	Job I -Practice of striking arc (Minimum 4 continuous beads on 100 mm long M.S. flat). Job II -Practice of depositing beads on plate at different current levels. (Minimum 4 beads on M.S. plate at four setting of current level and differentiating their characteristics).
			4 <sup>th</sup>	Types of joints and their edge preparations: Job III- Preparation of lap joint using arc welding process. Job IV- Preparation of butt joint using arc welding process. (100 mm long). Job V- Preparation of T Joint using arc welding (100mm x 6 mm M.S. Flat).
3 <sup>rd</sup>			5 <sup>th</sup>	<b>FITTING SHOP – I:-</b> Introduction and Practical Importance of fitting jobs, Basic deburring processes, Introduction to fitting shop tools, marking and measuring devices/equipment, Identification of materials. (Iron, Copper, Stainless Steel, Aluminium etc.)
			6 <sup>th</sup>	Identification of various steel sections (flat, angle, channel, bar etc.), Introduction to various fitting shop operations/processes (Hacksawing, Drilling, Chipping and Filing). Demonstration of wrong fitting practices causing damage to filed surfaces

			(outsized, out angled etc.) and tool/blade breakages
4 <sup>th</sup>		7 <sup>th</sup>	Job I -Marking of job, use of marking tools and various types of files, use of tri square, surface plate, filing and use of measuring instruments. (zero error and least count of Vernier calliper, Micrometer and Vernier height gauge)
		8 <sup>th</sup>	Job II-Filing a rectangular/square piece to maintain dimensions within an accuracy of $\pm 0.5$ mm. Job III -Making a cut-out from a square piece of MS flat using hand hacksaw and chipping
5 <sup>th</sup>		9 <sup>th</sup>	<b>SHEET METAL SHOP – I:-</b> Introduction and practical importance of sheet metal jobs, use of hand tools and accessories e.g. different types of hammers, hard and soft mallet, sheet and wire gauge, necessary allowance required during job fabrication, selection of material
		10 <sup>th</sup>	Introduction and demonstration of hand tools used in sheet metal shop, Introduction and demonstration of various machines and equipment used in sheet metal shop e.g. Shearing Machine, Bar Folder, Burring Machine, Turning Machine, Wiring Machine, Setting Down Machine, Forming Machine, Stake etc.
6 <sup>th</sup>		11 <sup>th</sup>	Job I- Shearing practice on a sheet using hand shears. Job II- Prepare a seam joint of G.I. Sheet
		12 <sup>th</sup>	Job III- Practice on making Single/(double) riveted lap joint/Butt Joint. Job IV- Development of sheet for preparation of cubical container(300x150x25 mm)
7 <sup>th</sup>		13 <sup>th</sup>	<b>ELECTRIC SHOP – I:-</b> Study, demonstration and identification of common electrical materials with standard ratings and specifications such as wires, cables, switches, MCB & ELCB, fuses, cleats, clamps and allied items, tools and accessories
		14 <sup>th</sup>	Job I -Identification of phase, Neutral and Earth wires for connection to domestic electrical appliances and their connections to three pin plugs. Difference between series and parallel wiring. Job II -Carrying out house wiring circuits using fuse, switches, sockets, ceiling rose etc. in batten or P.V.C. casing-caping. Demo of conduit wiring through junctions Job III- To prepare a three level Godown wiring circuit with PVC conduit wiring system.
8 <sup>th</sup>		15 <sup>th</sup>	Introduction to the construction of lead acid battery, its working and its specification parameters(maH, specific gravity), precautions while handling battery, Introduction to battery charger and its functioning. Types of charging

			Job IV- Installation of battery and connecting two or three batteries in series and parallel and its effect. Charging a battery and testing with hydrometer and cell tester
		16 <sup>th</sup>	Introduction to solar energised lighting or water heater system and their defects. Job V- Installation of Solar cells, costing according to capacity
9 <sup>th</sup>		17 <sup>th</sup>	<b>CARPENTRY SHOP – I:-</b> Name and use of raw materials used in carpentry shop : wood & alternative materials(board, plywood), Names, uses, care, precautions and maintenance of hand tools such as different types of Saws, C-Clamp, Chisels, Mallets, Carpenter's vices, Marking gauges, Try-squares, Rulers and other commonly used tools and materials used in carpentry shop by segregating as cutting tools, supporting tools, holding tools , measuring tools etc., Specification of tools used in carpentry shop
		18 <sup>th</sup>	Job 1- Marking, sawing, planning to size , chiselling and their practice Job II- Half Lap Joint (cross, L or T – any one)
		19 <sup>th</sup>	Job III- Mortise and Tenon joint (T-Joint) Job IV -Dove tail Joint (Half lap dovetail joint or Bridle Joint)
10 <sup>th</sup>		20 <sup>th</sup>	<b>SMITHY SHOP – I:-</b> Purpose of Smithy shop, Different types of Hearths used in Smithy shop, Types of fuel used and maximum temperature obtained, Purpose, specifications, uses, care and maintenance of various tools and equipments used in hand forging by segregating as cutting tools, supporting tools, holding tools, measuring tools, punches etc., types of raw materials used in Smithy shop
11 <sup>th</sup>		21 <sup>st</sup>	Practice of firing of hearth/Furnace, Cleaning of Clinkers and Temperature Control of Fire, Practice of Simple Heat treatment processes like Tempering, Normalizing, and Hardening etc
		22 <sup>nd</sup>	Job I -Making a cold / hot, hexagonal flat chisel including tempering of edges.
12 <sup>th</sup>		23 <sup>rd</sup>	Job II -Production of utility goods e.g. hexagonal bolt / square shank boring tool, fan hook Job III -To prepare a cube from a M.S. round by forging method
		24 <sup>th</sup>	<b>PAINTING SHOP:-</b> Introduction to painting shop and its necessity. Different types of paints. Introduction of powder coating plant and spray painting with their uses.

<b>13<sup>th</sup></b>		<b>25<sup>th</sup></b>	Job I Preparation of surface before painting such as cleaning, sanding, applying putty, filling procedure and application of primer coat and painting steel item. Job II- Painting practice by brush on MS sheet
		<b>26<sup>th</sup></b>	Job III- Practice of dip painting Job IV- Practice of lettering: name plates / sign board Job V- Polishing and painting on wooden and metallic surfaces
<b>14<sup>th</sup></b>		<b>27<sup>th</sup></b>	Job VI- Practical demonstration of powder coating Job VII- Practical demonstration of spray painting on a utility object
		<b>28<sup>th</sup></b>	Revision
<b>15<sup>th</sup></b>		<b>29<sup>th</sup></b>	Revision
		<b>30<sup>th</sup></b>	Revision