Course: AG 130-Introduction to Agricultural Mechanics

Unit	Objective	CAERT Lesson Plan Library	Unit	Problem Area	Lesson
A. Safety	1. Define safety procedures for laboratory equipment	Ag Mechanics and Technology	A	1	3
	2. Describe the safe use of laboratory tools		A	3	2,3
	3. Identify rules of basic laboratory safety		A	1	3
	4. Apply safety while working in the laboratory		A	1	3
B. Hot Metal Working	1. Identify the procedure for shaping, hardening, and tempering common tools	Ag Mechanics and Technology	A	5	2
	2. Select soldering equipment and tools				
	3. Prepare metals for soldering				
	4. Solder sheet metal joints, seams, and electrical connections				
C. Cold Metal Working	1. Identify hand metal working tools by type and use	Ag Mechanics and Technology	A	3,5	2,3
	2. Read metal working plans				
	3. Identify safe practices for metal striking and machine tools		A	5	3
	4. Determine tap drill sizes		A	5	3
	5. Use files and saw blades		A	5	3,5
	6. Join metal by riveting		A	5	3
	7. Cut threads with tap and die		A	5	3
	8. Layout holes and drill holes using a twist drill				
	9. Operate power tools		A	3	3
	10. Bend sheet and strap metal to angles and/or shapes		A	5	3
D. Tool Reconditioning and Maintenance	1. Select abrasives for use in grinding and sharpening	Ag Mechanics and Technology			
	2. Prepare grinding and sharpening equipment		A	3	4
	3. Identify appropriate shapes and angles of cutting edges for wood and metal cutting tools		A	3	4
	4. Identify safe practices for using keen edge tools and grinding equipment		A	3	4
	5. Sharpen common hand tools		A	3	4
E. Plumbing	1. Identify pipe fittings by type	Ag Mechanics and Technology	A	3	16,18
	2. Select pipe threading and cutting tools		A	3	16,17
	3. Select types of pipe and tubing for specific jobs		A	3	15,16,17
	4. Calculate length of pipe required to complete a project		A	3	16,17,18
	5. Assemble plastic pipe		A	3	18
	6. Thread steel pipe		A	3	16
	7. Connect flare and compression fittings		A	3	16,17
	8. Sweat copper fittings		A	3	17
F. Rope Work	1. List the uses of rope	Ag Mechanics and Technology			
	2. Demonstrate how to tie basic knots				

	3. Construct a rope halter				
G. Fence Construction	1. Design and lay out fences	Ag Mechanics and Technology			
	2. Identify types of fencing				
	3. Discuss construction principles of fences				
	4. Demonstrate proper procedure in maintaining and repairing fences				
H. Painting	1. Select types of paints and painting equipment	Ag Mechanics and Technology	A	3	13,14
	2. Prepare surfaces to be painted		A	3	13
	3. Apply paint properly		A	3	14
	4. Demonstrate safety, maintenance and clean-up procedures		A	3	14
I. Basic Electricity	1. Understand the National Electrical Code requirements for wiring; especially for harsh environments found in agricultural processing, livestock and poultry confinement areas	Ag Mechanics and Technology	A	4	1,7
	2. Describe the relationship of volts, amps, and ohms in terms of Ohm's Law		A	1,4	5,3
	3. Plan an electrical circuit		A	4	6,7
	4. Determine electrical power requirements		A	4	3
	5. Read the kilowatt hour meter				
	6. Identify the function of overcurrent and ground fault protection		A	4	1,4
	7. Measure electrical circuits for voltage, current flow, resistance, and wattage		A	4	3
	8. Install electrical circuits		A	4	7
	9. Trouble-shoot electrical circuits				
J. Tool Identification	1. Properly identify and safely use common hand tools	Ag Mechanics and Technology	A	3	2
	2. Properly identify and safely use common power tools		A	3	3
K. Basics of Welding	1. Identify and follow safe practices in arc welding	Ag Mechanics and Technology	A	5	6
	2. Evaluation of arc welding machines		A	5	6
	3. Select various sizes and types of electrodes		A	5	6
	4. Prepare equipment and materials for arc welding		A	5	6
	5. Demonstrate ability to weld with an arc welding machine		A	5	6
	6. Identify and follow safe practices used in gas welding		A	5	4
	7. Properly assemble gas welding and cutting equipment		A	5	4
	8. Light and adjust the torch flame for specific welding and/or cutting operations		A	5	4
	9. Demonstrate ability to oxy-acetylene weld and cut		A	5	4,5