

CURRICULUM MAP
Cluster: Manufacturing
CTE Program of Study: MA 1980 Welding Technology

STANDARD	%	SKILL SET/COMPETENCY	REQUIRED CORE COURSES FOR COMPLETION			
			1 st Course 1862 Welding I	2 nd Course 1863 Welding II	3 rd Course 1864 Welding III	4 th Course 1865 Welding IV
Safety	12%	Identify various welding hazards and safe practices	X			
		Display familiarity with industrial and OSHA safety standards	X			
		Demonstrate knowledge of oxyfuel safety procedures	X			
		Demonstrate knowledge of arc welding and cutting safety procedures	X			
		Demonstrate proper and safe use of PPE, hand tools, and power equipment		X		
Physical Characteristics and Mechanical Properties of Metals	10%	Identify metals by physical characteristics				X
		Explain the pre-heating and post-heating processes				X
		Exhibit understanding of distortion control methods		X		
		Identify basic mechanical properties of metals				X
Weld Fit-Up and Quality	15%	Identify various joint designs (joint geometry) and welding positions	X			
		Clean and prepare materials for groove and fillet welds	X			
		Identify welding defects and/or discontinuities		X		
		Test welds using various techniques		X		
		Use standard measuring and layout tools		X		
		Describe welding industry codes, standards, and procedures		X		
Welding Symbols and Blueprint Reading	7%	Interpret weld and welding symbols			X	

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			1 st Course 1862 Welding I	2 nd Course 1863 Welding II	3 rd Course 1864 Welding III	4 th Course 1865 Welding IV
		Read and interpret blueprints and sketches			X	
Oxyfuel Cutting (OFC)	12%	Identify oxyfuel cutting principles	X			
		Identify and maintain oxyfuel equipment	X			
		Assemble and disassemble oxyfuel equipment	X			
		Handle and store compressed gas cylinders	X			
		Cut and form metal with oxyfuel equipment	X			
Arc Cutting Process (Carbon Arc and Plasma Arc)	11%	Identify arc cutting process principles	X			
		Assemble and disassemble arc cutting equipment	X			
		Identify and maintain arc cutting equipment	X			
		Exhibit an understanding of arc cutting consumables	X			
		Demonstrate appropriate use of arc cutting equipment	X			
Shielded Metal Arc Welding (SMAW)	9%	Explain principles of SMAW		X		
		Set up and maintain SMAW equipment		X		
		Demonstrate selection and application of SMAW consumables		X		
		Perform fillet and groove welds on plate in all positions		X		
Gas Metal Arc Welding (GMAW) and Flux Cored Arc Welding (FCAW)	12%	Explain principles of GMAW and FCAW				X
		Set up and maintain GMAW and FCAW equipment				X
		Demonstrate selection and application of GMAW and FCAW consumables				X
		Perform fillet and groove welds on plate in all positions				X
Gas Tungsten Arc Welding (GTAW)	12%	Explain principles of GTAW ELECTIVE COURSE 1989				X
		Set up and maintain GTAW equipment				X

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		Demonstrate selection and application of GTAW consumables				X
		Perform fillet and groove welds on ferrous and nonferrous metals in all positions				X
Apprenticeship Awareness		Apprenticeship Basics	X			
What is Apprenticeship?		Benefits of Apprenticeships	X			
		Apprenticeship Components and Models	X			
		Businesses and Partners	X			
		Common Apprenticeship Myths	X			
History of Apprenticeship		Apprenticeships Used for Exploitation	X			
		Examples of Early Apprenticeships		X		
		Apprenticeship Expansion in the Industrial Revolution		X		
Apprenticeship Programs Today		Modern Apprenticeship Programs		X		
		Support of Apprenticeship Programs Today		X		
Code of Conduct		Simulated Workplace Manual				
Unions and Apprenticeship Programs		Unions Working with Contractors in Construction Trades			X	
		Construction Trades Unions in West Virginia with Apprenticeship Programs			X	
		Apprenticeship Opportunities in Construction Trades			X	
		Applying for Apprenticeship in the Construction Trades			X	
		Pre-Job Training			X	
		Working on the Jobsite			X	
		Working with your Supervisor and Others				X
		Harassment and Discrimination				X
Are You Apprenticeship Ready?		Qualities of a Successful Apprentice				X
		Interviewing for Apprenticeships in Construction				X

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		Interviewing Tips for Construction Apprenticeships				X
		Common Interview Questions				X