CURRICULUM MAP
Cluster: Manufacturing
CTE Program of Study: MA 1780 Electronics Technician

STANDARD	%	SKILL SET/COMPETENCY	REQUIRED CORE COURSES FOR COMPLETION			
			1st Course 1666 DC Circuit Concepts	2nd Course 1667 AC Circuit Concepts	3rd Course 1668 Analog Circuits and Systems	4th Course 1669 Digital and Computer Concepts
Safety Practices	**9%**	• Demonstrate safe working procedures	X			
		• Explain the purpose of OSHA and how it promotes safety on the job	X			
		• Identify electrical hazards and how to avoid or minimize them in the workplace.	X			
		• Explain safety issues concerning lockout/tagout procedures	X			
		• Safely discharge electronic equipment	X			
Fundamental Electrical Principles and Theory	**16%**	• Explain basic electrical theory, including Ohm's Law, Wyatt's Law, Kirchhoff's Laws	X			
		• Describe magnetism and electromagnetism	X			
		• Identify schematic symbols	X			
		• Identify sources of electricity, including renewable sources	X			
		• Interpret component values		X		
		• Describe conductors, resistors, insulators, and semiconductors		X		
		• Apply proper engineering notations; SI and metric prefixes	X			
Digital Electronic Circuits	**14%**	• Identify and compare digital to analog signals and circuits				X
		• Demonstrate knowledge of different number systems				X
		• Convert between different number systems			X	
		• Demonstrate knowledge of fundamental logic gates and functions			X	
		• Demonstrate knowledge of Boolean logic				X

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		• Demonstrate knowledge of sequential logic (flip flops)				X
		• Demonstrate knowledge of digital circuitry				X
Electronic Device Analysis and Applications	**20%**	• Identify diodes, rectifier, and power supply circuits		X		
		• Identify bipolar transistors and bipolar transistor circuits		X		
		• Demonstrate knowledge of Field Effect Transistors (FETs) and FET circuits		X		
		• Demonstrate knowledge of thyristors and control circuits		X		
		• Identify optoelectronic devices and light functions		X		
		• Identify Op-Amps, principles, and applications		X		
		• Describe circuit protection methods including Electromagnetic Interference (EMI)		X		
		• Interpret a manufacturer's data sheet		X		
Electronic Testing Equipment	**9%**	• Identify, select, and demonstrate proper hand tool use			X	
		• Display knowledge and proper use of multimeters			X	
		• Display knowledge and proper use of oscilloscopes			X	
		• Display knowledge and proper use of function generators, frequency counters, and testers			X	
Direct Current (DC) Circuit Analysis	**3%**	• Analyze and troubleshoot DC series circuits	X			MA1795
		• Analyze and troubleshoot DC parallel circuits	X			MA1795
		• Demonstrate knowledge of inductors and capacitors in DC circuits	X			

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		• Analyze and troubleshoot DC combination circuits	X			
Alternating Current (AC) Analysis	**15%**	• Analyze AC circuits and waveforms	X			
		• Troubleshoot and AC circuit	X	X		
		• Demonstrate knowledge of inductance, capacitance, and resonance	X			
		• Identify, analyze, and troubleshoot filter circuits	X			
		• Explain current and voltage phase relationships		X		
		• Describe the operation of transformers, including troubleshooting		X		
Prototyping and Fabrication Techniques	**7%**	• Layout components on a printed circuit board according to a schematic				X
		• Demonstrate knowledge of proper soldering and de-soldering techniques				X
		• Repair or replace a component or foil on a printed circuit board				X
		• Prototype electrical circuits using schematics and breadboards				X