

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R		
1	CLUSTER: MANUFACTURING														Required Equipment List				X	
2	Revised 4-1-12															Specialized Facility		X		
3															CTSO Required		SkillsUSA			
4															CTSO Optional		N/A			
5															Academic Credit					
															(U) Unit/(C) Course/(P) Program Technical Skill Assessment Available					
6	Pathway	Program	Subject Personnel Code	Program Courses	CIP Codes	AL COS	Articulated Credit	Substitute	Embedded	POI	Teacher Cert.	Occu. Prof.	Program Certification	Teacher Credential Necessary for Awarding Student Credential	Student Credential	SEC	PS	HE		
7		CTE Electives	400017	*Entrepreneurship	52.0701	Y				Y	Class B CTE		BIC							
8			400031	Cooperative Education Seminar	52.9999	Y				Y	Class B CTE		BIC		Alabama Career Readiness Certificate	C				
9			400016	Workforce Essentials	32.0111	Y				Y	Class B CTE		BIC							
10			400021	*Personal Finance	19.0402	Y				Y	CTE Certificate		BIC							
11			400023	Senior Career Pathway Project		Y				Y	CTE Certificate		BIC							
12																				
13	Maintenance, Installation, and Repair	Industrial Systems and Maintenance	430004	Architecture, Construction, and Manufacturing		Y				Y	TE	Y	BIC/NCCER							
14			540004	Introduction to Manufacturing	15.0405	Y				Y	TE	Y	BIC/NCCER							
15			540011	Industrial Systems and Maintenance I	47.0303	Y	*			Y	TE	Y	BIC/NCCER							
16			540012	Industrial Systems and Maintenance II	47.0303	Y	*			Y	TE	Y	BIC/NCCER							
17			540013	Industrial Systems and Maintenance III	47.0303	Y	*			Y	TE	Y	BIC/NCCER							
18			540014	Industrial Systems and Maintenance IV	47.0303	Y	*			Y	TE	Y	BIC/NCCER							
19			540015	Semiconductors	47.0303	Y				Y	TE	Y	BIC/NCCER							
20			410011	Safety and Health Regulations		Y				Y	TE/AG/HS	Y	BIC/NCCER							
21														NCCER	NCCER - Industrial Maintenance Electrical & Instrumentation, Industrial Maintenance Mechanic	C	X			
22															NOCTI - Industrial Maintenance Mechanic	P	X			
23															OSHA	U	X			
24															Work Force Ready Mechatronics	P				
25															Work Force Ready Automated Manufacturing Technology	P				
26															Degree		X			
27																				
28	Maintenance, Installation, and Repair	Precision Machining	430004	Architecture, Construction, and Manufacturing		Y				Y	TE	Y	NIMS							
29			540004	Introduction to Manufacturing	15.0405	Y				Y	TE	Y	BIC/NCCER							
30			540041	Introduction to Precision Machining	48.0501	Y	*			Y	TE	Y	NIMS							
31			540042	Introduction to Computer Numerical Control	48.0501	Y	*			Y	TE	Y	NIMS							
32			540043	Intermediate Computer Numerical Control	48.0501	Y	*			Y	TE	Y	NIMS							

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4														CTSO Optional N/A					
5														Academic Credit (U) Unit/(C) Course/(P) Program Technical Skill Assessment Available					
6	Pathway	Program	Subject Personnel Code	Program Courses	CIP Codes	AL COS	Articulated Credit	Substitute	Embedded	POI	Teacher Cert.	Occu. Prof.	Program Certification	Teacher Credential Necessary for Awarding Student Credential	Student Credential	SEC	PS	HE	
33			540044	Computer-Aided Design and Computer-Aided Manufacturing I	48.0501	Y	*			Y	TE	Y	NIMS						
34			540045	Computer-Aided Design and Computer-Aided Manufacturing II	48.0501	Y	*			Y	TE	Y	NIMS						
35			540046	Coordinate Measuring Machine	48.0501	Y	*			Y	TE	Y	NIMS						
36			540047	Introduction to Lathe	48.0501	X	*			Y	TE	Y	NIMS						
37			540048	Introduction To Milling, Drill Press, and Surface and Grinder	48.0501	Y	*			Y	TE	Y	NIMS						
38			540049	Intermediate Lathe and Bench Work	48.0501	Y	*			Y	TE	Y	NIMS						
39			540050	Intermediate Mill and Surface Grinder	48.0501	Y				Y	TE	Y	NIMS						
40			410011	Safety and Health Regulations		Y				Y	TE/AG/HS	Y	NIMS						
41														NIMS	NIMS	C	X		
42															NOCTI - Precision Machining	P	X		
43															Work Force Ready - CNC Milling and Turning Technology	P			
44															OSHA	U	X		
45																			
46	Production	Electronics	430004	Architecture, Construction, and Manufacturing		Y				Y	TE	Y	BIC/NCCER						
47			540004	Introduction to Manufacturing	15.0405	Y				Y	TE	Y	BIC/NCCER						
48			430058	Direct Current	46.0302	Y	X*			Y	TE	Y	BIC/NCCER						
49			430059	Alternating Current	46.0302	Y	X*			Y	TE	Y	BIC/NCCER						
50			540015	Semiconductors	47.0303	Y				Y	TE	Y	BIC/NCCER						
51			540021	Digital Electronics	15.0303	Y				Y	TE	Y	BIC/NCCER						
52			430056	Electromechanical Controls	15.0403	Y				Y	TE	Y	BIC/NCCER						
53			540031	Introduction to Robotics	15.0303	Y				X	TE	Y	BIC						
54			540032	Robotics Applications	15.0303	Y				X	TE	Y	BIC						
55			410011	Safety and Health Regulations		Y				X	TE/AG/HS	Y	BIC/NCCER						
56														NCCER	NCCER - Electronic Systems Technician, Electronics,	P			
57															NOCTI - Electronics, Electronic Technology	P			
58															Electronics Technicians Assn. (ETA) DC (EM1), AC (EM2), Analog (EM3), Digital (EM4)	P			
59															OSHA	U	X		

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60															Work Force Ready - Electronics Application & Technology, Robotics	P			
61															Degree		X	X	