







## W.E. UPJOHN INSTITUTE

## Aligning KRESA EFE/CTE Course Offerings with Local Business Needs

### **Results of Two Studies**

# **Appendix C and D: Tables**

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The Kalamazoo Regional Educational Service Agency (KRESA) Education for Employment/Career and Technical Education (EFE/CTE) Program 1819 E Milham Ave, Portage, MI 49002 269-250-9200

Prepared by

W.E. Upjohn Institute for Employment Research 300 South Westnedge Avenue Kalamazoo, MI 49007 269-343-5541

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	Appendix C - Table 1											
	CIP Code / Course	52.0299 Busine	ess Administrati	on Management	and Operations	5	Very critical/c	10.8%				
		Kalamazoo,	Portage MSA		Michigan			U.S.				
Occupation code	Related occupations from the survey	Education typically required for entry into the occupation	2019 Annual Wage	Percent change in employment 2016- 2019		Percent change in Annual Wage employment 2016- 2019				Percent change in employment 2019- 2029		
11.3010	Administrative Services and Facilities Managers	Bachelor's degree	\$ 91,370	47.4	\$ 96,900	38.1	1.0	\$ 106,550	15.4	6.5		
43.1011	First-Line Supervisors of Office and Administrative Support Workers	High school diploma or equivalent	\$ 57,470	31.3	\$ 57,570	5.8	(6.4)	\$ 60,130	3.1	(3.0)		
43.4161	Human Resources Assistants, Except Payroll and Timekeeping	Associate's degree	\$ 37,530	-	\$ 39,630	(2.0)	(8.6)	\$ 42,620	(14.4)	(5.0)		

	Appendix C - Table 2											
	CIP Code / Course	52.0800 F	inance	e and Finai	ncial Manageme	nt Services		Very critical/c	13.8%			
				Kalamazoo/I	Portage MSA		Michigan			U.S.		
Occupation code	Related occupations from the survey	Education typically required for entry into the occupation	2019 A		Percent change in employment 2016- 2019	2019 Annual Wa	Percent change in e employment 2016- 2019	Percent change in employment 2018- 2028			Percent change in employment 2019- 2029	
13.2072	Loan Officers	Bachelor's degree	\$	58,360	(36.7)	\$ 73,79		4.8	\$ 76,200	0.9	3.2	
13.2081	Tax Examiners and Collectors, and Revenue Agents	Bachelor's degree				\$ 72,75	3.3	(12.2)	\$ 60,960	(8.0)	(4.1)	
13.2082	Tax Preparers	High school diploma or equivalent	\$	47,280	66.7	\$ 42,70	) (56.1)	(1.9)	\$ 49,550	(4.8)	(0.6)	
41.3031	Securities, Commodities, and Financial Services Sales Agents	Bachelor's degree	\$	75,540	91.7	\$ 73,84	33.5	0.4	\$ 93,090	23.8	3.7	
43.3021	Billing and Posting Clerks	High school diploma or equivalent	\$	39,570	18.4	\$ 38,93	) (15.9)	2.4	\$ 40,620	(3.9)	1.9	
43.3031	Bookkeeping, Accounting, and Auditing Clerks	Some college, no degree	\$	38,490	(10.1)	\$ 39,97	) (4.8)	(8.5)	\$ 42,960	(3.5)	(5.7)	
Cells that are high	ells that are highlighted in grey indicates that the OES survey did not identify wage and salary workers in that occupation											

	Appendix C - Table 3											
	CIP Code / Course		52.1701	Very critical/c	11.1%							
			Kalamazoo	/Portage MSA		Michigan			U.S.			
Occupation code	Related occupations from the survey	Education typically required for entry into the occupation	2019 Annual Wag	Percent change in employment 2016- 2019	2019 Annual Wage	Percent change in employment 2016- 2019	Percent change in employment 2018- 2028	2019 Annual Wage	Percent change in employment 2016- 2019	Percent change in employment 2019- 2029		
13.1031	Claims Adjusters, Examiners, and Investigators	High school diploma or equivalent	\$ 57,670	(33.3)	\$ 68,030	-	(10.0)	\$ 68,940	4.9	(6.4)		
13.1032	Insurance Appraisers, Auto Damage	Postsecondary nondegree award			\$ 65,900	(5.3)	4.5	\$ 66,240	(9.1)	(4.0)		
43.9041	Insurance Claims and Policy Processing Clerks	High school diploma or equivalent	\$ 38,820	(73.3)	\$ 40,830	18.1	(1.2)	\$ 43,280	(6.3)	(2.2)		
Cells that are highl	Cells that are highlighted in grey indicates that the OES survey did not identify wage and salary workers in that occupation											

Appendix C - Table 4												
	CIP Code / Course	11.020	1 Computer P	rogramming/Prog	rammer		Very critical/c	22.9%				
			Kalamazoo/Portage MSA Michigan						U.S.	U.S.		
Occupation code	Related occupations from the survey	Education typically required for entry into the occupation	2019 Annual Wa	Percent change in employment 2016- 2019	2019 Annual Wage	Percent change in employment 2016- 2019	Percent change in employment 2018- 2028	2019 Annual Wage	Percent change in employment 2016- 2019	Percent change in employment 2019- 2029		
15.1251	Computer Programmers	Bachelor's degree	\$ 78,70	0 16.7	\$ 73,860	1.3	(15.7)	\$ 92,610	(26.4)	(9.4)		
15.1256	Software Developers and Software Quality Assurance Analysts and Testers	Bachelor's degree	\$ 87,79	0 10.0	\$ 92,070	25.1	9.0	\$ 111,620	16.9	21.5		
15.1232	Computer User Support Specialists	Some college, no degree	\$ 48,68	0 11.4	\$ 50,320	(2.0)	2.5	\$ 56,550	7.4	8.0		

	Appendix C - Table 5											
	CIP Code / Course 11.0801 Digital/Multimedia and Information Resources Design Very critical/critical - Very high/high growth score											
	Related occupations from the survey		Kalamazo	o/Portage MSA		Michigan			U.S.			
Occupation code		Education typically required for entry into the occupation	2019 Annual Wa	Percent change in ge employment 2016- 2019	2019 Annual Wage	Percent change in employment 2016- 2019	Percent change in employment 2018- 2028	2019 Annual Wage	Percent change in employment 2016- 2019	Percent change in employment 2019- 2029		
15.1257	Web Developers and Digital Interface Designers	Associate's degree	\$ 61,6	0 (50.0)	\$ 66,070	(11.0)	2.0	\$ 82,370	14.5	8.0		
27.1024	Graphic Designers	Bachelor's degree	\$ 47,7	0 (28.6)	\$ 49,250	2.9	(2.4)	\$ 56,510	2.5	(3.8)		

	Appendix C - Table 6												
	CIP Code / Course	11.0901 Computer Systems Networking and Telecommunications								Very critical/critical - Very high/high growth score			
				Kalamazoo/	Portage MSA			Michigan			U.S.		
Occupation code	Related occupations from the survey	Education typically required for entry into the occupation	2019	9 Annual Wage	Percent change in e employment 2016- 2019		019 Annual Wage employment 2016- 2019		Percent change in employment 2018- 2028			Percent change in employment 2019- 2029	
15.1211	Computer Systems Analysts	Bachelor's degree	\$	79,010	(12.8)	\$	\$ 86,320	(5.9)	(2.4)	\$ 96,160	3.5	7.4	
15.1212	Information Security Analysts	Bachelor's degree				\$	\$ 91,750	-	19.9	\$ 104,210	29.6	31.2	
15.1241	Computer Network Architects	Bachelor's degree	\$	96,560	с	\$	\$ 102,780	40.9	(4.2)	\$ 115,110	(3.0)	5.0	
-	ells that are highlighted in grey indicates that the OES survey did not identify wage and salary workers in that occupation ells that are marked with a C are cells for which the estimates were suppressed for confidentiality reasons												

	Appendix C - Table 7												
	CIP Code / Course	11.1001 System Administration/Administrator								Very critical/critical - Very high/high growth score			
•		ed		Kalamazoo/I	Portage MSA			Michigan			U.S.		
Occupation code	Related occupations from the survey	2019 4	Annual Wage	Percent change in employment 2016- 2019			Percent change in employment 2016- 2019				Percent change in employment 2019- 2029		
15.1244	Network and Computer Systems Administrators	Bachelor's degree	\$	76,810	(22.6)	\$	78,840	(20.9)	(2.4)	\$ 88,410	(5.9)	4.3	
15.1231	Computer Network Support Specialists	Associate's degree	\$	65,330	(70.0)	\$	62,900	(60.4)	(1.7)	\$ 68,860	(1.8)	6.4	
15.1221	Computer and Information Research Scientists	Master's degree				\$	98,070	(63.2)	5.3	\$ 127,460	15.8	15.4	
Cells that are high	tells that are highlighted in grey indicates that the OES survey did not identify wage and salary workers in that occupation												

	Appendix C - Table 8											
	CIP Code / Course     11.1003 Computer and Information Systems Security/Information Assurance     Very critical/critical - Very high/high growth score     2											
Occupation		Education typically required	Kalamazoo,	Portage MSA		Michigan						
code	Related occupations from the survey	for entry into the occupation	2019 Annual Wage	Percent change in employment 2016- 2019	2019 Annual Wage	Percent change in employment 2016- 2019	Percent change in employment 2018- 2028	2019 Annual Wage	Percent change in employment 2016- 2019	Percent change in employment 2019- 2029		
15.1245	Database Administrators and Architects	Bachelor's degree	\$ 74,130	(37.5)	\$ 85,300	5.6	0.7	\$ 96,110	10.3	9.7		

	Appendix C - Table 9												
	CIP Code / Course	52.1999 Specialized N	ng, Sa	Very critical/c	20.8%								
			Kalam	azoo/P	Portage MSA			Michigan			U.S.		
Occupation code	Related occupations from the survey	Education typically required for entry into the occupation	2019 Annual		Percent change in employment 2016- 2019		al Wage	Percent change in employment 2016- 2019	Percent change in employment 2018- 2028		Percent change in employment 2016- 2019		
41.2031	Retail Salespersons	No formal educational credential	\$ 29	,420	(20.4)	\$	29,350	(7.6)	(5.8)	\$ 29,360	(4.7)	(0.6)	
41.4011	Sales Representatives, Wholesale and Manufacturing, Technical and Scientific Products	Bachelor's degree	\$ 123	,530	37.5	\$ 1	03,030	(29.3)	(0.5)	\$ 92,980	(6.5)	4.1	
41.4012	Sales Representatives, Wholesale and Manufacturing, Except Technical and Scientific Products	High school diploma or equivalent	\$ 60	,690	(5.7)	\$	72,610	(12.9)	(1.6)	\$ 71,110	(4.2)	0.9	
41.9022	Real Estate Sales Agents	High school diploma or equivalent	с		(68.8)	\$	57,170	(19.1)	(1.9)	\$ 62,060	6.9	2.3	
Cells that are marked with a C are cells for which the estimates were suppressed for confidentiality reasons													

			Appendix	x C - Table	10					
	CIP Code / Course	47.0101 Electrical/E	lectronics Equip	ment Installatio	n and Repair Ge	neral	Very critical/c	ritical - Very higl score	n/high growth	37.8%
			Kalamazoo/	Portage MSA		Michigan			U.S.	
Occupation code	Related occupations from the survey	Education typically required for entry into the occupation	2019 Annual Wage	Percent change in employment 2016- 2019		Percent change in employment 2016- 2019			Percent change in employment 2016- 2019	
49.2092	Electric Motor, Power Tool, and Related Repairers	High school diploma or equivalent	с	с	\$ 40,410	(36.2)	-	\$ 46,620	(6.8)	4.1
49.9099	Installation, Maintenance, and Repair Workers, All Other	High school diploma or equivalent	\$ 46,680	(53.3)	\$ 44,710	(6.7)	2.5	\$ 43,800	9.7	2.5
Cells that are mark	ed with a C are cells for which the estimates were suppre	ssed for confidentiality reasons								

			Append	ix C - Table	11					
	CIP Code / Course	48.050	1 Machine To	ol Technology/M	achinist		Very critical/c	ritical - Very hig score	n/high growth	22.6%
<b>.</b>			Kalamazo	/Portage MSA		Michigan			U.S.	
Occupation code	Related occupations from the survey	Education typically required for entry into the occupation	2019 Annual Wa	Percent change in e employment 2016- 2019		Percent change in employment 2016- 2019			Percent change in employment 2016- 2019	Percent change in employment 2019 2029
51.4021	Extruding and Drawing Machine Setters, Operators, and Tenders, Metal and Plastic	High school diploma or equivalent	\$ 38,26	D C	\$ 33,18	0 0.7	(4.6)	\$ 37,770	6.9	(10.5
51.4022	Forging Machine Setters, Operators, and Tenders, Metal and Plastic	High school diploma or equivalent			\$ 41,95	0 (34.8)	(20.4)	\$ 41,200	(14.8)	(21.1
51.4023	Rolling Machine Setters, Operators, and Tenders, Metal and Plastic	High school diploma or equivalent	gh school diploma or equivalent \$ 42,900 (58.0) (10.9) \$ 41,920 11.7							(11.3
51.4031	Cutting, Punching, and Press Machine Setters, Operators, and Tenders, Metal and Plastic	High school diploma or equivalent         \$ 31,710         275.9         \$ 39,720         25.7         (5.8)         \$ 37,310         1.2						(8.3		
51 4032	Drilling and Boring Machine Tool Setters, Operators, and Tenders, Metal and Plastic	High school diploma or equivalent			\$ 39,78	0 (38.0)	(13.9)	\$ 42,630	(11.6)	(19.0
51.4033	Grinding, Lapping, Polishing, and Buffing Machine Tool Setters, Operators, and Tenders, Metal and Plastic	High school diploma or equivalent	\$ 42,67	D C	\$ 38,99	0 31.6	(6.7)	\$ 37,860	3.0	(8.2
51.4034	Lathe and Turning Machine Tool Setters, Operators, and Tenders, Metal and Plastic	High school diploma or equivalent			\$ 40,13	0 23.6	(5.4)	\$ 41,990	(17.1)	(10.1
51.4035	Milling and Planing Machine Setters, Operators, and Tenders, Metal and Plastic	High school diploma or equivalent			\$ 47,87	0 -	(20.0)	\$ 44,820	6.7	(18.6
51.4041	Machinists	High school diploma or equivalent	\$ 47,62	0 16.0	\$ 43,90	0 0.2	3.1	\$ 46,120	(2.0)	4.2
51.4081	Multiple Machine Tool Setters, Operators, and Tenders, Metal and Plastic	High school diploma or equivalent	\$ 32,79	D C	\$ 40,96	0 16.8	2.5	\$ 38,410	25.3	2.1
51.4191	Heat Treating Equipment Setters, Operators, and Tenders, Metal and Plastic	High school diploma or equivalent			\$ 38,19	0 (9.0)	(11.7)	\$ 39,840	(1.1)	(10.3
51.4192	Layout Workers, Metal and Plastic	High school diploma or equivalent	High school diploma or equivalent         \$ 50,400         (63.2)         (9.1)         \$ 48,900         (10.1)							

			Appendi	x C - Table	12					
	CIP Code / Course	48.0	0508 Welding, I	Brazing and Sold	ering		Very critical/c	ritical - Very higi score	n/high growth	22.9%
			Kalamazoo,	Portage MSA		Michigan			U.S.	
Occupation code	Related occupations from the survey	Education typically required for entry into the occupation	2019 Annual Wage	Percent change in employment 2016- 2019		Percent change in employment 2016- 2019				Percent change in employment 2019- 2029
51.4121	Welders, Cutters, Solderers, and Brazers	High school diploma or equivalent	\$ 42,090	90.0	\$ 41,050	19.1	0.2	\$ 45,190	7.3	3.1
51.4122         Welding, Soldering, and Brazing Machine Setters, Operators, and Tenders         High school diploma or equivalent         \$ 40,270         C         \$ 40,360							(7.1)	\$ 40,240	(25.2)	(6.8)
Cells that are mark	ed with a C are cells for which the estimates were suppre	essed for confidentiality reasons				·			·	

	CIP Code / Course		14.4201	Mechatronics			Very critical/c	ritical - Very higl score	n/high growth	22.2%
			Kalamaz	o/Portage MSA		Michigan			U.S.	
Occupation code	Related occupations from the survey	Education typically required for entry into the occupation	2019 Annual W	Percent change in ge employment 2016- 2019			Percent change in employment 2018- 2028		Percent change in employment 2016- 2019	
11.3051	Industrial Production Managers	Bachelor's degree	\$ 119,1	/0 (11.1)	\$ 118,260	23.2	2.8	\$ 115,110	10.3	0.9
17.3023	Electrical and Electronic Engineering Technologists and Technicians	Associate's degree	с	с	\$ 58,640	(27.0)	(2.4)	\$ 66,240	(9.1)	1.5
17.3024	Electro-Mechanical and Mechatronics Technologists and Technicians	Associate's degree			\$ 55,570	(38.2)	3.0	\$ 61,420	4.2	3.0
17.3025	Environmental Engineering Technologists and Technicians	Associate's degree			\$ 47,010	(48.0)	5.9	\$ 54,740	8.8	7.5
17.3026	Industrial Engineering Technologists and Technicians	Associate's degree	\$ 48,2	- 20	\$ 56,630	(11.3)	2.5	\$ 59,400	6.2	1.5
17.3027	Mechanical Engineering Technologists and Technicians	Associate's degree	\$ 56,6	20 (45.5)	\$ 57,510	3.1	2.4	\$ 59,160	(5.9)	3.1
17.3031	Surveying and Mapping Technicians	High school diploma or equivalent			\$ 38,920	(12.5)	-	\$ 48,500	(1.7)	0.7
17.3098	Calibration Technologists and Technicians and Engineering Technologists and Technicians, Except Drafters, All Other	Associate's degree	\$ 65,0	30 C	\$ 66,140	0.4		\$ 65,940	18.9	2.1
19.4099	Life, Physical, and Social Science Technicians, All Other	Associate's degree			\$ 42,420	(62.4)	4.5	\$ 53,670	(6.2)	4.7

			A	opendi	k C - Table	14						
	CIP Code / Course		15.00	000 Engine	ering Technolog	у			Very critical/c	ritical - Very high score	n/high growth	24.3%
				Kalamazoo/	Portage MSA			Michigan			U.S.	
Occupation code	Related occupations from the survey	Education typically required for entry into the occupation	2019	Annual Wage	Percent change in employment 2016- 2019		Annual Wage		Percent change in employment 2018- 2028		Percent change in employment 2016- 2019	
17.3026	Industrial Engineering Technologists and Technicians	Associate's degree	\$	48,220	-	\$	56,630	(11.3)	2.5	\$ 59,400	6.2	1.5
17.3027	Mechanical Engineering Technologists and Technicians	Associate's degree	\$	56,620	(45.5)	\$	57,510	3.1	2.4	\$ 59,160	(5.9)	3.1
19.4051	Nuclear Technicians	Associate's degree				\$	99,460	(14.3)	(11.8)	\$ 82,710	(6.1)	(18.9)
Cells that are high	lighted in grey indicates that the OES survey did not iden	ify wage and salary workers in that occup	pation									

			Appendix	k C - Table	15					
	CIP Code / Course		15.1306 Mech	anical Drafting			Very critical/c	ritical - Very high score	n/high growth	14.3%
			Kalamazoo/	Portage MSA		Michigan			U.S.	
Occupation code	Related occupations from the survey	Education typically required for entry into the occupation	2019 Annual Wage	Percent change in employment 2016- 2019			Percent change in employment 2018- 2028			Percent change in employment 2019- 2029
17.3013         Mechanical Drafters         Associate's degree         \$ 55,510         50.0         \$ 58,870         (42.7)         (7.8)         \$ 60,500						(13.23)	(8.3)			

			Appendi	c C - Table	16						
	CIP Code / Course	01.0000 Agricult	ure, Agricultura	Operations and	l Related	Science	es	Very critical/c	ritical - Very high score*	ı/high growth	
			Kalamazoo/	Portage MSA			Michigan			U.S.	
Occupation code	Related occupations from the survey										
11.9013	Farmers, Ranchers, and Other Agricultural Managers	High school diploma or equivalent	chool diploma or equivalent \$ 65,890 50.0 (8.2) \$ 80,360 11.0								(6.5)
13.1074	Farm Labor Contractors	No formal educational credential			\$	-	-		\$ 62,060	(80.2)	10.4
19.5012	Occupational Health and Safety Technicians	High school diploma or equivalent			\$	51,460	65.2		\$ 56,470	24.3	4.8
45.2011	Agricultural Inspectors	Bachelor's degree         \$         56,250          \$         47,160         (6.5)								1.8	
45.2021	Animal Breeders	High school diploma or equivalent			\$	-	-		\$ 46,420	26.8	(3.2)
* The percentage o	f firms reporting that offering a course is critical or very c	ritical and that they expect growth in re	ated occupations to	be high or very high o	over the ne	ext five yea	ars was not reported i	f there were fewer t	han 10 respondents		•

\* The percentage of firms reporting that offering a course is critical or very critical and that they expect growth in related occupations to be high or very high over the next five years was not reported if there were fewer than 10 cells that are highlighted in grey indicates that the OES survey did not identify wage and salary workers in that occupation

			Appendi	x C - Table	17						
	CIP Code / Course	01.0601 App	lied Horticulture	e and Horticultu	ral Operations		Very critical/c	ritical - Very higi score*	n/high growth		
			Kalamazoo/	Portage MSA		Michigan			U.S.		
Occupation code	Related occupations from the survey										
37.3012	Pesticide Handlers, Sprayers, and Applicators, Vegetation	High school diploma or equivalent			\$ 34,56	(27.9)	2.3	\$ 39,230	2.2	8.3	
37.3019	Grounds Maintenance Workers, All Other	No formal educational credential			\$ 56,09	(31.3)	-	\$ 37,870	(5.7)	6.5	
45.1011       First-Line Supervisors of Farming, Fishing, and Forestry Workers       High school diploma or equivalent       \$ 50,400       C       \$ 57,580       (25.7)       (1.1)       \$ 52,520       15.4											
* The percentage of firms reporting that offering a course is critical or very critical and that they expect growth in related occupations to be high or very high over the next five years was not reported if there were fewer than 10 respondents Cells that are highlighted in grey indicates that the OES survey did not identify wage and salary workers in that occupation Cells that are marked with a C are cells for which the estimates were suppressed for confidentiality reasons											

			Appendi	x C - Table	18											
	CIP Code / Course	01.090	03 Animal Healtl	h & Veterinary So	ciences		Very critical/c	ritical - Very higł score*	n/high growth							
			Kalamazoo/	Portage MSA		Michigan			U.S.							
Occupation code	Related occupations from the survey	Education typically required for entry into the occupation	2019 Annual Wage	Percent change in employment 2016- 2019		Percent change in employment 2016- 2019				Percent change in employment 2019- 2029						
29.2056	Veterinary Technologists and Technicians	Associate's degree	\$ 34,060	с	\$ 37,810	(14.0)	17.0	\$ 36,670	11.3	16.2						
31.9096	Veterinary Assistants and Laboratory Animal Caretakers	High school diploma or equivalent	\$ 24,360	6.7	\$ 28,150	43.8	20.1	\$ 29,690	21.3	15.8						
			lated occupations to	be high or very high o	over the next five ye	ars was not reported	ercentage of firms reporting that offering a course is critical or very critical and that they expect growth in related occupations to be high or very high over the next five years was not reported if there were fewer than 10 respondents at a re marked with a C are cells for which the estimates were suppressed for confidentiality reasons									

			Append	ix C - Table	19							
	CIP Code / Course	03.000	0 Natural Res	ources and Conse	rvation		Very critical/c	ritical - Very high score*	n/high growth			
			Kalamazoo	/Portage MSA		Michigan			U.S.			
Occupation code	Related occupations from the survey       for entry into the occupation       2019 Annual Wage       Percent change in employment 2016- 2019       Percent change in											
19.4071	19.4071       Forest and Conservation Technicians       Associate's degree       \$ 46,630       (45.2)       \$ 45,860       (36.7)											
37.1012	First-Line Supervisors of Landscaping, Lawn Service, and Groundskeeping Workers	High school diploma or equivalent	\$ 39,93	) (31.3)	\$ 49,260	-	3.9	\$ 52,340	0.5	11.4		
45.4011	Forest and Conservation Workers	High school diploma or equivalent			\$ -	-		\$ 32,790	(5.7)	(0.5)		
45.4023	Log Graders and Scalers	High school diploma or equivalent			\$ 42,360	-		\$ 39,110	9.3	(11.4)		
51.9199	Production Workers, All Other	High school diploma or equivalent	\$ 29,76	400.0	\$ 30,630	(13.8)	2.5	\$ 33,830	(11.7)	2.1		
53.7081	53.7081 Refuse and Recyclable Material Collectors No formal educational credential \$ 34,570 C \$ 41,300 (1.1) 3.9 \$ 41,400 5.8 8.8											
Cells that are highl	e percentage of firms reporting that offering a course is critical or very critical and that they expect growth in related occupations to be high or very high over the next five years was not reported if there were fewer than 10 respondents s that are highlighted in grey indicates that the OES survey did not identify wage and salary workers in that occupation s that are marked with a C are cells for which the estimates were suppressed for confidentiality reasons											

			Appendi	x C - Table	20					
	CIP Code / Course		26.1201 Bi	otechnology			Very critical/c	ritical - Very higi score*	h/high growth	
			Kalamazoo/	Portage MSA		Michigan			U.S.	
Occupation code	Related occupations from the survey	Education typically required for entry into the occupation	2019 Annual Wage	Percent change in employment 2016- 2019		Percent change in e employment 2016- 2019	Percent change in employment 2018- 2028			Percent change in employment 2019- 2029
19.4010	19.4010 Agricultural and Food Science Technicians Associate's degree $$43,350$ (20.8) <b>4.3</b> $$44,440$ <b>7.1 4.1</b>									
	percentage of firms reporting that offering a course is critical or very critical and that they expect growth in related occupations to be high or very high over the next five years was not reported if there were fewer than 10 respondents that are highlighted in grey indicates that the OES survey did not identify wage and salary workers in that occupation									

			Арр	pendix	c C - Table	21					
	CIP Code / Course	15.1301 C	Drafting a	& Desigr	n Technology/Ar	chitectural		Very critical/c	ritical - Very high score	n/high growth	27.8%
			Ka	alamazoo/I	Portage MSA		Michigan			U.S.	
Occupation code       Related occupations from the survey       Education typically required for entry into the occupation       Percent change in employment 2016- 2019       Percent change in employment 2016- 2019									Percent change in employment 2019- 2029		
17.3011	Architectural and Civil Drafters	Associate's degree	\$	49,370	-	\$ 51,580	8.1	(2.7)	\$ 58,080	2.1	(2.5)
17.3012	Electrical and Electronics Drafters	Associate's degree	\$	56,940	с	\$ 53,310	(7.4)	1.9	\$ 65,720	(9.8)	0.5
Cells that are marl	ed with a C are cells for which the estimates were suppre	ssed for confidentiality reasons									

			Append	ix C - Table	22					
	CIP Code / Course		46.0000 Cor	struction Trades			Very critical/c	ritical - Very higl score	n/high growth	55.6%
			Kalamazoo/Portage MSA Michigan						U.S.	
Occupation code	Related occupations from the survey	Education typically required for entry into the occupation	2019 Annual Wa	Percent change in e employment 2016 2019			Percent change in employment 2018- 2028			Percent change in employment 2019- 2029
17.3022	Civil Engineering Technologists and Technicians	Associate's degree	\$ 53,05	(16.7)	\$ 54,870	(38.4)	(0.6)	\$ 55,480	(4.5)	2.5
47.1011	First-Line Supervisors of Construction Trades and Extraction Workers	High school diploma or equivalent	\$ 64,38	86.1	\$ 69,970	29.0	5.2	\$ 71,440	16.3	4.8
47.2031	Carpenters	High school diploma or equivalent	) (27.8)	\$ 49,280	12.8	2.8	\$ 52,850	8.4	(0.4)	
47.4011	Construction and Building Inspectors	High school diploma or equivalent         \$         53,440         100.0         \$         53,880         41.2         (1.1)         \$					\$ 64,390	16.3	3.2	

			Appendi	x C - Table	23					
	CIP Code / Course		48.0701 Wood	working Genera	l		Very critical/c	ritical - Very higl score	n/high growth	40%
Kalamazoo/Portage MSA     Michigan     U.S.										
Occupation code	Related occupations from the survey	Education typically required for entry into the occupation	2019 Annual Wage	Percent change in employment 2016- 2019		Percent change in employment 2016- 2019				Percent change in employment 2019- 2029
51.7042       Woodworking Machine Setters, Operators, and Tenders, Except Sawing       High school diploma or equivalent       \$ 33,710       0.4       -       \$ 32,180       3.6							(2.4)			
Cells that are high	that are highlighted in grey indicates that the OES survey did not identify wage and salary workers in that occupation									

			Append	ix C - Table	24					
	CIP Code / Course	46.0301 El	ectrical and Po	wer Transmission	Installation		Very critical/c	ritical - Very high score	n/high growth	23.7%
			Kalamazoo	/Portage MSA		Michigan			U.S.	
Occupation code	Related occupations from the survey	Education typically required for entry into the occupation	2019 Annual Wag	Percent change in e employment 2016 2019			Percent change in employment 2018- 2028			Percent change in employment 2019- 2029
47.2111	Electricians	High school diploma or equivalent	\$ 59,55	8.3	\$ 62,480	9.9	5.5	\$ 60,370	13.4	8.4
49.1011	First-Line Supervisors of Mechanics, Installers, and Repairers	High school diploma or equivalent	\$ 77,73	21.9	\$ 71,120	3.8	0.8	\$ 70,550	7.1	2.7
49.2095	Electrical and Electronics Repairers, Powerhouse, Substation, and Relay	Postsecondary nondegree award	\$-	с	\$ 88,940	19.5	(1.2)	\$ 81,280	(1.8)	(3.2)
49.9012	Control and Valve Installers and Repairers, Except Mechanical Door	High school diploma or equivalent	\$-	с	\$ 70,080	58.2	(1.7)	\$ 59,920	14.3	0.2
49.9051	Electrical Power-Line Installers and Repairers	High school diploma or equivalent			\$ 72,860	(31.0)	2.2	\$ 71,960	(5.1)	1.7
51.8013	Power Plant Operators	High school diploma or equivalent	\$-	с	\$ 84,770	(9.7)	(7.7)	\$ 79,370	(4.0)	(15.1)
•	that are highlighted in grey indicates that the OES survey did not identify wage and salary workers in that occupation that are marked with a C are cells for which the estimates were suppressed for confidentiality reasons									

			Appendix	x C - Table	25					
	CIP Code / Course		46.0503 Plumb	oing Technology			Very critical/c	ritical - Very higi score	h/high growth	23.5%
			Kalamazoo/Portage MSA Michigan				U.S.			
Occupation code	Related occupations from the survey	Education typically required for entry into the occupation	Dercent change in Dercent change in Dercent change in Derce							Percent change in employment 2019- 2029
47.2152Plumbers, Pipefitters, and SteamfittersHigh school diploma or equivalent\$ 68,83044.6\$ 62,5302.67.4\$ 59,8007.5						4.3				

			Арр	endix	c C - Table	26					
	CIP Code / Course	47.0201 Heatin	g, Air Co	nditioni	ng, Ventilation a	und Refrigeratio	n	Very critical/c	ritical - Very high score	n/high growth	35.0%
			Ка	alamazoo/F	Portage MSA		Michigan			U.S.	
Occupation code	Related occupations from the survey		Percent change in employment 2016- 2019		Percent change in employment 2016- 2019	Percent change in employment 2018- 2028			Percent change in employment 2019- 2029		
47.2211	Sheet Metal Workers	High school diploma or equivalent	\$	69,000	(33.3)	\$ 55,190	(15.8)	3.7	\$ 54,480	(2.3)	1.3
49.9021	Heating, Air Conditioning, and Refrigeration Mechanics and Installers	Postsecondary nondegree award	\$	55,530	(40.6)	\$ 50,150	10.3	8.0	\$ 51,420	16.1	4.0
49.9071	Maintenance and Repair Workers, General	High school diploma or equivalent	\$	40,170	4.7	\$ 38,760	(2.4)	1.7	\$ 41,960	6.5	4.2
51.8021	51.8021       Stationary Engineers and Boiler Operators       High school diploma or equivalent       \$ 63,070       (31.7)       -       \$ 65,970       (3.6)								2.2		
Cells that are highl	lighted in grey indicates that the OES survey did not iden	tify wage and salary workers in that occup	pation			•			•		•

			Appendix	c C - Table	27						
	CIP Code / Course	10.0202 R	adio & Televisio	n Broadcasting	Fechnology	,		Very critical/c	ritical - Very higi score*	1/high growth	
			Kalamazoo/	Portage MSA			Michigan			U.S.	
Occupation code	Related occupations from the survey	Education typically required for entry into the occupation	Percent change in Percent chan								
27.4012	Broadcast Technicians	Associate's degree			\$ 43	3,230	(25.6)	(8.2)	\$ 46,800	(5.5)	3.1
27.4031	Camera Operators, Television, Video, and Film	Bachelor's degree			\$ 46	5,260	(45.2)	-	\$ 64,960	(1.0)	14.0
27.4032	Film and Video Editors	Bachelor's degree			\$ 58	3,620	(17.6)	4.5	\$ 87,300	(7.7)	21.6
49.2091	Avionics Technicians	Associate's degree	Associate's degree \$ \$ \$ 66,970 25.5							4.4	
49.2097	Audiovisual Equipment Installers and Repairers	Postsecondary nondegree award	ostsecondary nondegree award \$ 39,910 (30.8) (6.5) \$ 42,130 0.2								(2.8)
	The percentage of firms reporting that offering a course is critical or very critical and that they expect growth in related occupations to be high or very high over the next five years was not reported if there were fewer than 10 respondents ells that are highlighted in grey indicates that the OES survey did not identify wage and salary workers in that occupation										

			Appendi	x C - Table	28					
	CIP Code / Course	10.0301 Graphi	cs and Printing	Technology and	Communicatio	ıs	Very critical/c	ritical - Very high score	n/high growth	33.3%
			Kalamazoo/	Portage MSA		Michigan			U.S.	
Occupation code	Related occupations from the survey	Education typically required for entry into the occupation	Percent change in Percent							
27.1013	Fine Artists, Including Painters, Sculptors, and Illustrators	Bachelor's degree			\$ 52,87		(4.4)	\$ 63,030	7.2	1.0
43.9031	Desktop Publishers	Associate's degree			\$ 44,18	(73.2)	(13.6)	\$ 48,740	(33.2)	(19.0)
51.5111	Prepress Technicians and Workers	Postsecondary nondegree award	\$ 48,620	20.0	\$ 42,97	) (41.0)	(25.3)	\$ 42,540	(9.2)	(20.7)
51.5112	Printing Press Operators	High school diploma or equivalent	\$ 43,630	10.0	\$ 37,11	22.0	(13.6)	\$ 39,100	2.1	(13.3)
Cells that are highl	ighted in grey indicates that the OES survey did not iden	tify wage and salary workers in that occup	pation							

			Appendi	x C - Table	29					
	CIP Code / Course		50.0101 Visual 8	& Performing Art	S		Very critical/c	ritical - Very high score	n/high growth	10.0%
			Kalamazoo/	Portage MSA		Michigan			U.S.	
Occupation code	Related occupations from the survey	Education typically required for entry into the occupation	Percent change i				Percent change in employment 2018- 2028			Percent change in employment 2019- 2029
27.1013	Fine Artists, Including Painters, Sculptors, and Illustrators	Bachelor's degree			\$ 52,870	-	(4.4)	\$ 63,030	7.2	1.0
27.4011	Audio and Video Technicians	Postsecondary nondegree award	Postsecondary nondegree award				(3.3)	\$ 51,260	6.2	12.3
27.4021	Photographers	High school diploma or equivalent         \$ 49,850         (5.2)         (12.3)         \$ 45,440         4.0						(3.6)		
Cells that are highl	Its that are highlighted in grey indicates that the OES survey did not identify wage and salary workers in that occupation									

			Appendix	x C - Table	30					
	CIP Code / Course		Industri	ial Design			Very critical/c	ritical - Very high score	n/high growth	11.1%
Kalamazoo/Portage MSA Michigan U.S.										
Occupation code	Related occupations from the survey	Education typically required for entry into the occupation	2019 Annual Wage	Percent change in employment 2016- 2019			Percent change in employment 2018- 2028			Percent change in employment 2019- 2029
27.1021 Commercial and Industrial Designers Bachelor's degree \$ 59,470 C \$ 76,640 (31.5) 2.5 \$ 73,820 2.9								(3.5)		
Cells that are mark	ed with a C are cells for which the estimates were suppre	ssed for confidentiality reasons								

			Appendix	k C - Table	31					
	CIP Code / Course		47.0607 Airfra	me Technology			Very critical/c	ritical - Very higi score*	n/high growth	
Occupation Education typically required Kalamazoo/Portage MSA Michigan U.S.										
Occupation code	Related occupations from the survey								•	
S1.2011       Aircraft Structure, Surfaces, Rigging, and Systems Assemblers       High school diploma or equivalent       \$ 49,670       -       (15.4)       \$ 56,460       2.2									(17.4)	
* The percentage of firms reporting that offering a course is critical or very critical and that they expect growth in related occupations to be high or very high over the next five years was not reported if there were fewer than 10 respondents Cells that are highlighted in grey indicates that the OES survey did not identify wage and salary workers in that occupation										

			Appendix	x C - Table	32					
	CIP Code / Course	47.0	608 Power Plant	t Technology (Ai	rcraft)		Very critical/c	ritical - Very higl score*	n/high growth	
			Kalamazoo/	Portage MSA		Michigan			U.S.	
Occupation code	Related occupations from the survey	Education typically required for entry into the occupation	2019 Annual Wage	Percent change in employment 2016- 2019		Percent change in age employment 2016 2019	Percent change in - employment 2018- 2028			Percent change in employment 2019- 2029
49.3011	Aircraft Mechanics and Service Technicians	Postsecondary nondegree award	\$-	с	\$ 57,4	10 41.4	-	\$ 67,110	3.7	4.6
53.6051	53.6051         Transportation Inspectors         High school diploma or equivalent         \$ 85,820         35.5         (2.4)         \$ 77,530         9.4								2.4	
Cells that are highl	* The percentage of firms reporting that offering a course is critical or very critical and that they expect growth in related occupations to be high or very high over the next five years was not reported if there were fewer than 10 respondents Cells that are highlighted in grey indicates that the OES survey did not identify wage and salary workers in that occupation Cells that are marked with a C are cells for which the estimates were suppressed for confidentiality reasons									

	Appendix C - Table 33											
	CIP Code / Course	47.06	509 Avionics Ma	intenance Techn	ology		Very critical/c	ritical - Very higl score*	n/high growth			
	Kalamazoo/Portage MSA Michigan U.S.											
Occupation code	Related occupations from the survey	Education typically required for entry into the occupation		Percent change in employment 2016- 2019		Percent change in employment 2016- 2019			Percent change in employment 2016- 2019			
49.2091	49.2091 Avionics Technicians Associate's degree \$\$\$\$\$\$\$\$\$\$\$\$\$\$\$\$\$\$\$\$\$\$\$\$\$\$\$\$\$\$\$\$\$\$											
	he percentage of firms reporting that offering a course is critical or very critical and that they expect growth in related occupations to be high or very high over the next five years was not reported if there were fewer than 10 respondents ls that are highlighted in grey indicates that the OES survey did not identify wage and salary workers in that occupation											

			Appendix	x C - Table	34					
	CIP Code / Course	49.0101 Aeronau	utics/Aviation/A	erospace Scienc	e and Technolo	gy	Very critical/c	ritical - Very higl score*	n/high growth	
			Kalamazoo/	Portage MSA		Michigan			U.S.	
Occupation code	Related occupations from the survey	Education typically required for entry into the occupation	2019 Annual Wage	Percent change in employment 2016- 2019		Percent change in employment 2016- 2019	Percent change in employment 2018- 2028		Percent change in employment 2016- 2019	
53.2012         Commercial Pilots         High school diploma or equivalent         \$ 88,350         (1.7)         0.8         \$ 102,870         (3.0)							9.1			
* The percentage of firms reporting that offering a course is critical or very critical and that they expect growth in related occupations to be high or very high over the next five years was not reported if there were fewer than 10 respondents Cells that are highlighted in grey indicates that the OES survey did not identify wage and salary workers in that occupation										

			Appendi	x C - Table	35						
	CIP Code / Course		13.0000 Edu	cation General			Very critical/c	ritical - Very high score*	n/high growth		
			Kalamazoo/	Portage MSA		Michigan			U.S.		
Occupation code	Related occupations from the survey	Education typically required for entry into the occupation	2019 Annual Wage	Percent change in employment 2016- 2019		Percent change in employment 2016- 2019			Percent change in employment 2016- 2019		
25.2011	Preschool Teachers, Except Special Education	Associate's degree	\$ 37,280	(4.8)	\$ 34,790	28.4	7.9	\$ 34,650	11.9	2.5	
25.9045	25.9045 Teaching Assistants, Except Postsecondary Some college, no degree \$ 25,230 (10.1) \$ 28,610 (3.9) 4.1 \$ 29,640 6.6 3.6										
* The percentage o	e percentage of firms reporting that offering a course is critical or very critical and that they expect growth in related occupations to be high or very high over the next five years was not reported if there were fewer than 10 respondents										

			Appendi	x C - Table	36					
	CIP Code / Course		46.0303 L	ine Worker			Very critical/c	ritical - Very higl score*	h/high growth	
			Kalamazoo/	Portage MSA		Michigan			U.S.	
Occupation code	Related occupations from the survey	Education typically required for entry into the occupation	2019 Annual Wage	Percent change in employment 2016- 2019		Percent change in employment 2016- 2019	Percent change in employment 2018- 2028			Percent change in employment 2019- 2029
49.1011	First-Line Supervisors of Mechanics, Installers, and Repairers	High school diploma or equivalent	\$ 77,730	21.9	\$ 71,120	3.8	0.8	\$ 70,550	7.1	2.7
49.9051	Electrical Power-Line Installers and Repairers	High school diploma or equivalent			\$ 72,860	(31.0)	2.2	\$ 71,960	(5.1)	1.7
	The percentage of firms reporting that offering a course is critical or very critical and that they expect growth in related occupations to be high or very high over the next five years was not reported if there were fewer than 10 respondents cells that are highlighted in grey indicates that the OES survey did not identify wage and salary workers in that occupation									

			Appen	dix C - Table	37					
	CIP Code / Course	26	5.0102 Biom	dical Sciences, Ge	ieral		Very critical/c	ritical - Very higi score*	n/high growth	
			Kalama	oo/Portage MSA		Michigan			U.S.	
Occupation code	Related occupations from the survey	Education typically required for entry into the occupation	2019 Annual V	Percent change in age employment 2016 2019		Percent change in employment 2016- 2019				Percent change in employment 2019- 2029
19.4031	Chemical Technicians	Associate's degree	\$ 46,	80 55.6	\$-	(16.5)	(0.4)	\$ 52,910	0.4	2.8
29.2052         Pharmacy Technicians         High school diploma or equivalent         \$ 32,710         32.4         \$ 33,850         23.0         0.1         \$ 35,250         4.9								3.6		
* The percentage of firms reporting that offering a course is critical or very critical and that they expect growth in related occupations to be high or very high over the next five years was not reported if there were fewer than 10 respondents										

			Appendi	x C - Table	38						
	CIP Code / Course	51.0000 Health	Sciences/Allied	Health/Health S	ciences, (	General	I	Very critical/c	ritical - Very higl score	h/high growth	57.1%
			Kalamazoo/	Portage MSA			Michigan			U.S.	
Occupation code	Related occupations from the survey	Education typically required for entry into the occupation	2019 Annual Wage	Percent change in employment 2016- 2019		ual Wage	Percent change in employment 2016- 2019	Percent change in employment 2018- 2028		Percent change in employment 2016- 2019	Percent change i employment 201 2029
29.1124	Radiation Therapists	Associate's degree	\$ 74,330	с	\$	81,140	9.5	-	\$ 91,620	2.3	7.
29.1141	Registered Nurses	Bachelor's degree	\$-	с	\$	73,200	4.6	9.8	\$ 77,460	4.4	7.
29.2051	Dietetic Technicians	Associate's degree	\$-	с	\$	27,460	(13.2)	-	\$ 31,180	(9.3)	5.
29.2053	Psychiatric Technicians	Postsecondary nondegree award			\$	38,670	114.0	3.6	\$ 37,550	27.1	13.
29.1126	Respiratory Therapists	Associate's degree			\$	58,870	9.7	13.0	\$ 63,950	4.2	19.
29.2055	Surgical Technologists	Postsecondary nondegree award	\$ 46,560	с	\$	44,590	21.1	(1.6)	\$ 50,110	3.1	6.
29.2061	Licensed Practical and Licensed Vocational Nurses	Postsecondary nondegree award	\$ 51,190	(34.0)	\$	50,300	(5.6)	(0.8)	\$ 48,500	(0.7)	9.
31.2011	Occupational Therapy Assistants	Associate's degree	\$ 55,270	-	\$	53,040	7.9	16.7	\$ 61,880	17.9	34.
31.2021	Physical Therapist Assistants	Associate's degree	\$ 58,900	33.3	\$	54,220	(10.6)	7.0	\$ 58,520	13.2	32.
31.9011	Massage Therapists	Postsecondary nondegree award	\$ 51,860	с	\$	45,830	1.8	12.1	\$ 47,180	11.9	20.
31.9091	Dental Assistants	Postsecondary nondegree award	\$ 42,830	41.7	\$	39,340	1.4	(2.1)	\$ 41,170	7.4	6.
31.9092	Medical Assistants	Postsecondary nondegree award	\$ 32,640	45.7	\$	33,760	10.2	8.8	\$ 35,720	14.3	19.
31.9093	Medical Equipment Preparers	High school diploma or equivalent	\$ 36,290	с	\$	37,070	(2.1)	(2.0)	\$ 39,530	8.4	5.
31.9099	Healthcare Support Workers, All Other	High school diploma or equivalent			\$	29,810	40.7	(1.4)	\$ 40,010	(0.6)	6.
51.9081	Dental Laboratory Technicians	High school diploma or equivalent			\$	45,490	21.5	25.6	\$ 44,330	(7.1)	9.

Cells that are marked with a C are cells for which the estimates were suppressed for confidentiality reasons

			Appen	dix (	C - Table	39						
	CIP Code / Course	51.0707 Health In	formation/N	ledical	Records Tech	nnology/Te	chnic	ian	Very critical/c	ritical - Very higi score*	n/high growth	
			Kalama	zoo/Port	tage MSA			Michigan			U.S.	
Occupation code	Related occupations from the survey	Education typically required for entry into the occupation	2019 Annual \		ercent change in nployment 2016- 2019		Wage	U U	Percent change in employment 2018- 2028		Percent change in employment 2016- 2019	Percent change in employment 2019- 2029
29.2098	Medical Dosimetrists, Medical Records Specialists, and Health Technologists and Technicians, All Other	Postsecondary nondegree award	\$ 42,	080	(25.8)	\$ 44	4,690	(2.7)	3.1	\$ 46,590	(0.3)	8.5
31.9094	Medical Transcriptionists	Postsecondary nondegree award	\$	-	с	\$ 33	3,050	(22.0)	(5.3)	\$ 35,210	3.2	(2.2)
43.4051	Customer Service Representatives	High school diploma or equivalent	\$ 34,	010	36.2	\$ 32	7,840	(0.9)	(6.2)	\$ 37,320	7.8	(2.0)
43.6013	Medical Secretaries and Administrative Assistants	High school diploma or equivalent	\$ 35,	640	(5.2)	\$ 3!	5,860	22.6	3.3	\$ 38,090	8.6	9.5
	bercentage of firms reporting that offering a course is critical or very critical and that they expect growth in related occupations to be high or very high over the next five years was not reported if there were fewer than 10 respondents											

Cells that are marked with a C are cells for which the estimates were suppressed for confidentiality reasons

			Ар	pendix	c C - Table	40					
	CIP Code / Course	51.1000 Clinical/Medi	ical Lab	oratory S	cience/Research	and Allied P	ofessions	Very critical/c	ritical - Very higl score*	h/high growth	
				Kalamazoo/	Portage MSA		Michigan			U.S.	
Occupation code	Related occupations from the survey	Education typically required for entry into the occupation	2019 A	innual Wage	Percent change in employment 2016- 2019	2019 Annual W	Percent change in ge employment 2016 2019	Percent change in employment 2018- 2028			Percent change in employment 2019- 2029
29.2010	Clinical Laboratory Technologists and Technicians	Bachelor's degree	Bachelor's degree \$ 54,070 (30.9) \$ 50,870 (9.5) (1.4) \$ 54,780 (0.3)								7.3
29.2031	Cardiovascular Technologists and Technicians	Associate's degree	Associate's degree \$ 56,590 11.4 (2.3) \$ 59,600 4.4							5.4	
29.2032	Diagnostic Medical Sonographers	Associate's degree				\$ 62,9	90 9.5	8.0	\$ 75,780	10.6	16.8
29.2033	Nuclear Medicine Technologists	Associate's degree				\$ 71,9	30 (14.1	(1.5)	\$ 80,240	(7.8)	5.4
29.2034	Radiologic Technologists and Technicians	Associate's degree	\$	62,000	с	\$ 57,5	10 4.8	(1.6)	\$ 63,120	3.3	6.7
29.2035	Magnetic Resonance Imaging Technologists	Associate's degree	\$	-	с	\$ 63,8	50 (18.2	(2.0)	\$ 74,270	5.7	7.0
29.2040	Emergency Medical Technicians and Paramedics	Postsecondary nondegree award	\$	40,270	75.0	\$ 33,7	50 8.8	(3.3)	\$ 38,830	6.4	6.4
31.9097	Phlebotomists	Postsecondary nondegree award	\$	33,330	100.0	\$ 33,6	10 32.3	5.7	\$ 36,480	6.1	17.2
Cells that are high	The percentage of firms reporting that offering a course is critical or very critical and that they expect growth in related occupations to be high or very high over the next five years was not reported if there were fewer than 10 respondents ells that are highlighted in grey indicates that the OES survey did not identify wage and salary workers in that occupation ells that are marked with a C are cells for which the estimates were suppressed for confidentiality reasons										

			Appen	lix C - Table	41					
	CIP Code / Course	12.0500 C	Cooking and	elated Culinary A	ts, General		Very critical/c	ritical - Very higl score	h/high growth	36.4%
			Kalama	oo/Portage MSA		Michigan			U.S.	
Occupation code	Related occupations from the survey	Education typically required for entry into the occupation	2019 Annual W	Percent change in age employment 2016 2019			Percent change in employment 2018- 2028	2019 Annual Wage	Percent change in employment 2016- 2019	
11.9051	Food Service Managers	High school diploma or equivalent	\$ 58,0	00 31.3	\$ 63,770	(2.7)	1.4	\$ 59,820	16.9	0.6
35.1011	Chefs and Head Cooks	High school diploma or equivalent	\$ 48,3	10 83.3	\$ 55,390	(14.0)	2.9	\$ 56,310	(4.5)	6.4
35.1012	First-Line Supervisors of Food Preparation and Serving Workers	High school diploma or equivalent	\$ 36,:	20 12.2	\$ 37,070	11.4	1.7	\$ 36,960	11.3	5.9
35.2012	Cooks, Institution and Cafeteria	No formal educational credential	\$ 29,!	80 3.4	\$ 29,380	7.0	1.3	\$ 29,030	(1.8)	2.0
35.2013	Cooks, Private Household	Postsecondary nondegree award			\$ -	-		\$ 45,600	5.4	(6.3)
35.2014	Cooks, Restaurant	No formal educational credential	\$ 26,0	28.8	\$ 26,820	14.5	5.2	\$ 28,700	15.2	23.1
Cells that are high	Ils that are highlighted in grey indicates that the OES survey did not identify wage and salary workers in that occupation									

			Append	ix C - Table	42					
	CIP Code / Course		12.0400	Cosmetology			Very critical/c	ritical - Very higi score*	n/high growth	
			Kalamazoo	/Portage MSA		Michigan			U.S.	
Occupation code	Related occupations from the survey	Education typically required for entry into the occupation	2019 Annual Wa	Percent change in e employment 2016- 2019		Percent change in employment 2016- 2019			Percent change in employment 2016- 2019	
39.1098	First-Line Supervisors of Personal Service and Entertainment and Recreation Workers, Except Gambling Services	High school diploma or equivalent	\$ 39,91	31.3	\$ 40,620	10.5	4.8	\$ 43,400	14.3	11.2
39.5011	Barbers	Postsecondary nondegree award			\$ 29,300	-	(0.8)	\$ 35,190	26.0	7.5
39.5012	Hairdressers, Hairstylists, and Cosmetologists	Postsecondary nondegree award	\$ 32,88	) (2.9)	\$ 30,320	10.6	1.9	\$ 31,530	9.5	(2.2
39.5091	Makeup Artists, Theatrical and Performance	Postsecondary nondegree award			\$ -	-		\$ 81,600	(5.6)	11.0
39.5092	Manicurists and Pedicurists	Postsecondary nondegree award			\$ 30,560	20.8	1.6	\$ 27,390	23.3	19.2
39.5094	Skincare Specialists	Postsecondary nondegree award	Postsecondary nondegree award         \$ 35,510         (40.0)         \$ 33,820         1.0         1.8         \$ 38,970         28.8							16.6
	e percentage of firms reporting that offering a course is critical or very critical and that they expect growth in related occupations to be high or very high over the next five years was not reported if there were fewer than 10 respondents that are highlighted in grey indicates that the OES survey did not identify wage and salary workers in that occupation									

			Append	ix C - Table	43						
	CIP Code / Course	43.0	100 Public Saf	ety/Protective Se	rvices		Very critical/c	ritical - Very higi score*	n/high growth		
			Kalamazoo	/Portage MSA		Michigan			U.S.		
Occupation code	Related occupations from the survey	Education typically required for entry into the occupation	2019 Annual Wag	Percent change in e employment 2016- 2019	2019 Annual Wa	Percent change in ge employment 2016 2019	Percent change in employment 2018- 2028	2019 Annual Wage			
33.1011	First-Line Supervisors of Correctional Officers	High school diploma or equivalent			\$ 67,7	0 (14.6)	(14.4)	\$ 69,000	7.4	(7.8	
33.1012	First-Line Supervisors of Police and Detectives	High school diploma or equivalent	\$ 79,77	) (23.1)	\$ 83,4	0 (0.4	(1.5)	\$ 94,950	21.1	5.2	
33.1021	First-Line Supervisors of Firefighting and Prevention Workers	Postsecondary nondegree award			\$ 71,5	0 47.3	(2.3)	(2.3) \$ 82,010 21.7			
33.2011	Firefighters	Postsecondary nondegree award	\$ 33,61	c c	\$ 46,0	0 29.1	(1.7)	\$ 54,650	2.8	6.1	
33.2021	Fire Inspectors and Investigators	Postsecondary nondegree award			\$ 65,7	0 100.0	-	\$ 64,730	15.1	5.9	
33.2022	Forest Fire Inspectors and Prevention Specialists	High school diploma or equivalent			\$-	-		\$ 53,350	30.9	24.3	
33.3012	Correctional Officers and Jailers	High school diploma or equivalent			\$ 53,0	0 (8.5	(13.6)	\$ 50,130	(2.0)	(7.5	
33.3021	Detectives and Criminal Investigators	High school diploma or equivalent	\$ 78,63	16.7	\$ 88,5	0 13.6	(4.2)	\$ 86,030	0.6	1.1	
33.3051	Police and Sheriff's Patrol Officers	High school diploma or equivalent	\$ 58,40	40.8	\$ 58,7	0 1.3	(1.8)	\$ 67,600	1.2	5.7	
33.3052	Transit and Railroad Police	High school diploma or equivalent			\$ 50,3	0 -		\$ 71,120	(2.5)	4.0	
33.9021	Private Detectives and Investigators	High school diploma or equivalent	\$ 37,30	c c	\$ 48,0	0 138.7	(2.4)	\$ 57,000	22.9	8.3	
49.2098	Security and Fire Alarm Systems Installers	High school diploma or equivalent			\$ 47,4	0 8.4	8.8	\$ 50,210	5.8	10.3	

Cells that are highlighted in grey indicates that the OES survey did not identify wage and salary workers in that occupation Cells that are marked with a C are cells for which the estimates were suppressed for confidentiality reasons

			Appendi	x C - Table	44					
	CIP Code / Course		Supply chain	management			Very critical/c	ritical - Very high score	n/high growth	24.0%
			Kalamazoo/Portage MSA Michigan						U.S.	
Occupation code	Related occupations from the survey	Education typically required for entry into the occupation	2019 Annual Wage	Percent change in employment 2016- 2019			Percent change in employment 2018- 2028			Percent change in employment 2019- 2029
13.1081	Logisticians	Bachelor's degree	\$ 82,480	85.7	\$ 80,130	10.4	1.0	\$ 78,680	24.6	4.4

			Appendix	x C - Table	45					
	CIP Code / Course	47.0399 Heavy/	Industrial Equip	oment Maintena	nce Technologie	IS	Very critical/c	ritical - Very high score	n/high growth	31.3%
			Kalamazoo/	Portage MSA		Michigan			U.S.	
Occupation code	Related occupations from the survey	Education typically required for entry into the occupation	2019 Annual Wage	Percent change in employment 2016- 2019		Percent change in employment 2016- 2019	Percent change in employment 2018- 2028			Percent change in employment 2019- 2029
49.9041	Industrial Machinery Mechanics	High school diploma or equivalent	\$ 50,570	6.0	\$ 52,370	20.7	7.0	\$ 55,320	15.9	15.6
49.9044	Millwrights	High school diploma or equivalent	с	с	\$ 63,820	15.5	12.0	\$ 57,050	19.3	6.9
Cells that are mark	ells that are marked with a C are cells for which the estimates were suppressed for confidentiality reasons									

			Appendix	x C - Table	46					_
	CIP Code / Course	47.0603	Collision Repair	Technician (ASE	Certified)	Very critical/c	36.4%			
			Kalamazoo/	(alamazoo/Portage MSA Michigan	Michigan			U.S.		
Occupation code	Related occupations from the survey	Education typically required for entry into the occupation	2019 Annual Wage	Percent change in employment 2016- 2019		Percent change in employment 2016- 2019			u u u u u u u u u u u u u u u u u u u	Percent change in employment 2019- 2029
49.3021	Automotive Body and Related Repairers	High school diploma or equivalent	\$ 46,680	7.1	\$ 50,860	1.8	(0.4)	\$ 47,390	0.2	2.9
49.3022	Automotive Glass Installers and Repairers	High school diploma or equivalent			\$ 35,620	-		\$ 37,440	4.3	(0.4)
Cells that are high	Cells that are highlighted in grey indicates that the OES survey did not identify wage and salary workers in that occupation									

	Appendix C - Table 47											
	CIP Code / Course	47.0604 Automobile Technician (ASE Certified)								50.0%		
			Kalamazoo/	Portage MSA		Michigan			U.S.			
Occupation code	Related occupations from the survey	Education typically required for entry into the occupation	2019 Annual Wage	Percent change in employment 2016- 2019	Percent change in 2019 Annual Wage employment 2016- 2019					Percent change in employment 2019- 2029		
49.2093	Electrical and Electronics Installers and Repairers, Transportation Equipment	Postsecondary nondegree award			\$ 62,210	27.3		\$ 63,670	(29.9)	2.4		
49.2096	Electronic Equipment Installers and Repairers, Motor Vehicles	High school diploma or equivalent			\$ 30,980	(53.1)	(14.3)	\$ 38,910	(12.3)	(23.2)		
49.3023	Automotive Service Technicians and Mechanics	Postsecondary nondegree award	\$ 44,660	26.0	\$ 43,980	(10.1)	(4.8)	\$ 44,890	1.2	(3.7)		
Cells that are high	ells that are highlighted in grey indicates that the OES survey did not identify wage and salary workers in that occupation											

			Appendiz	x C - Table	48					
	CIP Code / Course	47.0606	Very critical/c	25.0%						
			Kalamazoo/Portage MSA Michigan			U.S.				
Occupation code	Related occupations from the survey	Education typically required for entry into the occupation	2019 Annual Wage	Percent change in employment 2016- 2019			Percent change in employment 2018- 2028		Percent change in 2019 Annual Wage employment 2016- 2019	
49.3051	Motorboat Mechanics and Service Technicians	High school diploma or equivalent			\$ 40,130	8.8	0.8	\$ 43,440	13.2	0.8
49.3053	Outdoor Power Equipment and Other Small Engine Mechanics	High school diploma or equivalent	\$ 34,960	с	\$ 38,380	25.0	4.0	\$ 37,670	(2.6)	3.8
Cells that are highlighted in grey indicates that the OES survey did not identify wage and salary workers in that occupation Cells that are marked with a C are cells for which the estimates were suppressed for confidentiality reasons										

	Appendix C - Table 49											
	CIP Code / Course	47.0613 Me	edium/Heavy Tru	uck Technician (A	ASE Certified)		Very critical/c	43.8%				
		Kalamazoo/Portage MSA Michigan			U.S.	U.S.						
Occupation code	Related occupations from the survey	Education typically required for entry into the occupation		Percent change in employment 2016- 2019		Percent change in employment 2016- 2019				Percent change in employment 2019- 2029		
49.3051	Motorboat Mechanics and Service Technicians	High school diploma or equivalent			\$ 40,130	8.8	0.8	\$ 43,440	13.2	0.8		
Cells that are high	ells that are highlighted in grey indicates that the OES survey did not identify wage and salary workers in that occupation											

#### Appendix D - Table 1A

Appendix D - 1	Table 1A. Perce	nt of firms resp	onding that the	CTE course was	relevant to the	ir business by industry		
Course	Total	Construction	Manufacturing	Health	Wholesale and Retail Trade and Transportation and Warehousing	Agriculture, Information, Finance and Insurance, Real Estate and Rental and Leasing and Professional, Scientific and Technical	Education, Social Assistance, and Public Administration	Arts, Entertainment and Recreation, Accomodation and Food Services and Other Services (except Public Administration)
Business Administration and Management Operations								
Business	83%	82%	88%	50%	90%	100%	75%	73%
Finance and Accounting	65%	47%	62%	50%	70%	81%	75%	73%
Insurance	9%	0%	4%	25%	0%	25%	0%	18%
Computer Programming/Programmer	48%	29%	65%	38%	30%	56%	42%	55%
Digital/Multimedia and Information Resources	39%	29%	38%	38%	40%	50%	25%	55%
Computer Systems Networking and Telecommunications	35%	24%	42%	38%	20%	38%	33%	45%
System Administration/Administrator	44%	24%	50%	38%	60%	63%	42%	27%
Computer and Information Systems Security/Information	29%	12%	35%	38%	30%	44%	17%	27%
Marketing and Entrepreneurship Marketing	53%	41%	42%	50%	60%	88%	33%	64%
Manufacturing								
Electrical/Electronics Equipment Installation and Repair	37%	41%	69%	0%	50%	31%	8%	9%
Machine Tool Technology/Machinist	31%	24%	77%	0%	20%	13%	17%	9%
Welding, Brazing and Soldering	35%	59%	65%	0%	30%	13%	8%	18%
Mechatronics	27%	24%	58%	0%	20%	25%	8%	9%
Engineering Technology	37%	47%	73%	0%	20%	31%	8%	18%
Mechanical Drafting	35%	41%	69%	0%	30%	31%	8%	9%
Agriculture, Food and Natural Resources								
Agriculture Agricultural Operations and Related Sciences	7%	0%	15%	0%	10%	13%	0%	0%
Applied Horticulture and Horticultural Operations	5%	0%	8%	0%	10%	13%	0%	0%
Animal Health & Veterinary Sciences	4%	0%	12%	0%	0%	6%	0%	0%
Natural Resources and Conservation	5%	6%	8%	0%	0%	13%	0%	0%
Biotechnology	8%	6%	8%	25%	10%	13%	0%	0%
Arabitantum and Construction								
Architecture and Construction	1.00/	470/	100/	00/	100/	100/	00/	00/
Drafting and Design Technology/Architectural	18%	47%	19%	0%	10%	19%	8%	0%
Construction Trades	27%	76%	27%	0%	10%	25%	17%	0%
Woodworking General	15%	47%	19%	0%	10%	6%	0%	0%
Electrical and Power Transmission Installation	38%	53%	50%	0%	60%	25%	25%	27%
Plumbing Technology	17%	47%	19%	0%	0%	19%	8%	0%
Heating, Air Conditioning, Ventilation and Refrigeration	20%	47%	19%	0%	10%	19%	17%	9%
Arts, A/V Technology, Communications and Design								
Radio and Television Broadcasting Technology	5%	0%	4%	0%	0%	19%	0%	9%
Graphics and Printing Technology and Communications	12%	18%	15%	0%	10%	6%	17%	9%
Visual and Performing Arts	10%	6%	4%	0%	10%	25%	0%	27%
Industrial Design	18%	12%	35%	0%	20%	25%	8%	0%
Aviation								
Airframe Technology	3%	0%	4%	0%	10%	6%	0%	0%
Aeronautics/Aviation/Aerospace Science and Technology	2%	0%	0%	0%	10%	6%	0%	0%
Eduation and Training								
Education	9%	0%	4%	13%	0%	6%	42%	9%
Energy								
Line Worker	7%	18%	8%	0%	0%	6%	8%	0%
Health Science								
Biomedical Sciences, General	8%	0%	12%	38%	0%	6%	8%	0%
Health Sciences/Allied Health/Health Sciences, General	14%	0%	8%	75%	0%	6%	42%	0%
Health Information / Medical Records Technology	9%	0%	8%	38%	0%	6%	25%	0%
Clinical/Medical Laboratory Science/Research and Allied P	6%	0%	8%	25%	0%	6%	8%	0%
Hospitality and Tourism								
Cooking and Related Culinary Arts, General	11%	0%	8%	38%	10%	6%	17%	18%
Personal Services								
Cosmetology	4%	0%	8%	0%	0%	6%	0%	9%
I aus Dublic Safatu Dratation Coming								
Law, Public Safety, Protective Services Public Safety/Protective Services	6%	0%	4%	13%	0%	6%	17%	9%
Supply Chain Management Supply Chain Management	25%	6%	65%	13%	20%	13%	8%	9%
Automotive, Transportation, Distribution and Logistics								
Heavy/Industrial Equipment Maintenance Technologies	16%	12%	27%	0%	30%	6%	8%	18%
Collision Repair Technician (ASE Certified)	11%	0%	15%	0%	10%	6%	25%	18%
Automobile Technician (ASE Cortified)	14%	0%	15%	0%	30%	6%	33%	18%
Automobile Technician (ASE Certified)								
Small Engine and Related Equipment Repair	12%	0%	23%	0%	10%	6%	25%	9%

#### Appendix D - Table 1B

Appendix D - Table 1B. Percent of firms responding that th s	ie CTE course v ize	was relevant to th	neir business by	employment
Course	Total	1 to 9 employees	10 to 49 employees	50 or more employees
Business Administration and Management Operations				
Business	83%	81%	86%	81%
Finance and Accounting	65%	47%	71%	77%
Insurance	9%	3%	12%	12%
Computer Programming/Programmer	48%	38%	43%	69%
Digital/Multimedia and Information Resources	39%	22%	52%	38%
Computer Systems Networking and Telecommunications	35%	19%	33%	58%
System Administration/Administrator	44%	25%	43%	69%
Computer and Information Systems Security/Information Assurance	29%	19%	26%	46%
Narketing and Entrepreneurship				
Marketing	53%	41%	57%	62%
Manufacturing				
Electrical/Electronics Equipment Installation and Repair	37%	47%	26%	42%
Machine Tool Technology/Machinist	31%	34%	24%	38%
Welding, Brazing and Soldering	35%	38%	33%	35%
Mechatronics	27%	28%	21%	35%
Engineering Technology	37%	41%	33%	38%
Mechanical Drafting	35%	38%	33%	35%
Agriculture, Food and Natural Resources				20,0
Agriculture Agricultural Operations and Related Sciences	7%	6%	7%	8%
Applied Horticulture and Horticultural Operations	5%	9%	5%	0%
Animal Health & Veterinary Sciences	4%	3%	5%	4%
Natural Resources and Conservation	4 <i>%</i> 5%	5% 6%	5%	4% 4%
				-
Biotechnology	8%	9%	5%	12%
Architecture and Construction	100/	250/	2404	40/
Drafting and Design Technology/Architectural	18%	25%	21%	4%
Construction Trades	27%	38%	26%	15%
Woodworking General	15%	25%	12%	8%
Electrical and Power Transmission Installation	38%	47%	29%	42%
Plumbing Technology	17%	22%	17%	12%
Heating, Air Conditioning, Ventilation and Refrigeration	20%	25%	19%	15%
Arts, A/V Technology, Communications and Design				
Radio and Television Broadcasting Technology	5%	6%	7%	0%
Graphics and Printing Technology and Communications	12%	9%	17%	8%
Visual and Performing Arts	10%	16%	12%	0%
Industrial Design	18%	19%	14%	23%
Aviation				
Airframe Technology	3%	0%	5%	4%
Aeronautics/Aviation/Aerospace Science and Technology	2%	0%	5%	0%
Eduation and Training				
Education	9%	6%	12%	8%
Energy	570	070	1270	0/0
Line Worker	7%	13%	7%	0%
Health Science	770	1370	770	078
	90/	3%	7%	1 5 0/
Biomedical Sciences, General	8%			15%
Health Sciences/Allied Health/Health Sciences, General	14%	6%	14%	23%
Health Information / Medical Records Technology	9%	3%	7%	19%
Clinical/Medical Laboratory Science/Research and Allied Professions	6%	3%	7%	8%
lospitality and Tourism				
Cooking and Related Culinary Arts, General	11%	13%	7%	15%
Personal Services				
Cosmetology	4%	6%	5%	0%
aw, Public Safety, Protective Services				
Public Safety/Protective Services	6%	6%	7%	4%
Supply Chain Management				
Supply Chain Management	25%	16%	19%	46%
Automotive, Transportation, Distribution and Logistics				
Heavy/Industrial Equipment Maintenance Technologies	16%	16%	14%	19%
Collision Repair Technician (ASE Certified)	11%	6%	14%	12%
Automobile Technician (ASE Certified)	14%	6%	17%	19%
Small Engine and Related Equipment Repair	12%	9%	10%	19%
Medium/Heavy Truck Technician (ASE Certified)	12%	9%	21%	15%

#### Appendix D - Table 2A (part 1)

Appendix D - Table 2A. Of the firms responding that the CTE course was relevant to their business, the
distribution of firms reporting that having KRESA offer the course is very critical, somewhat critical,
moderately critical, low critical or no need, by industry

	All industries									
Course					All Ind	usuries				
		Nun	nber repoi	rting			Per	cent repor	ting	
	Very critical	Somewhat	Moderately	Low Critical	No Need	Very critical	Somewhat	Moderately	Low Critical	No Need
Business Administration and Management Operations	veryendea	critical	critical	Low cirtical	nonceu	· ci y ci ideai	critical	critical		nonceu
Business	9	12	25	31	6	10.8%	14.5%	30.1%	37.3%	7.2%
Finance and Accounting	4	9	21	21	10	6.2%	13.8%	32.3%	32.3%	15.4%
Insurance	1	2	5	1		11.1%	22.2%	55.6%	11.1%	
Computer Programming/Programmer	5	8	15	17	3	10.4%	16.7%	31.3%	35.4%	6.3%
Digital/Multimedia and Information Resources Computer Systems Networking and Telecommunications	4	9 7	7 11	16 15	3 1	10.3% 2.9%	23.1% 20.0%	17.9% 31.4%	41.0% 42.9%	7.7% 2.9%
System Administration/Administrator	6	7	11	11	5	13.6%	15.9%	34.1%	25.0%	11.4%
Computer and Information Systems Security/Information Assurance	4	5	6	11	3	13.8%	17.2%	20.7%	37.9%	10.3%
Marketing and Entrepreneurship Marketing	3	13	14	19	4	5.7%	24.5%	26.4%	35.8%	7.5%
Manufacturing										
Electrical/Electronics Equipment Installation and Repair	4	14	9	6	4	10.8%	37.8%	24.3%	16.2%	10.8%
Machine Tool Technology/Machinist	4	7	13	5	2	12.9%	22.6%	41.9%	16.1%	6.5%
Welding, Brazing and Soldering	8	8 5	10 9	7 5	2 5	22.9%	22.9% 17.9%	28.6%	20.0%	5.7%
Mechatronics Engineering Technology	4	9	13	5 11	5	14.3% 8.1%	24.3%	32.1% 35.1%	17.9% 29.7%	17.9% 2.7%
Mechanical Drafting	1	9	8	10	7	2.9%	25.7%	22.9%	28.6%	20.0%
Agriculture, Food and Natural Resources										
Agriculture Agricultural Operations and Related Sciences	2	2	3			28.6%	28.6%	42.9%	20.051	
Applied Horticulture and Horticultural Operations Animal Health & Veterinary Sciences	1	1 1	2	1		20.0% 75.0%	20.0% 25.0%	40.0%	20.0%	
Natural Resources and Conservation	1	2	2			20.0%	40.0%	40.0%		
Biotechnology	1	2	1	4		12.5%	25.0%	12.5%	50.0%	
Architecture and Construction										
Drafting and Design Technology/Architectural	2	4	3	8	1	11.1%	22.2%	16.7%	44.4%	5.6%
Construction Trades Woodworking General	10 1	9 7	3 4	4 2	1 1	37.0% 6.7%	33.3% 46.7%	11.1% 26.7%	14.8% 13.3%	3.7% 6.7%
Electrical and Power Transmission Installation	6	7	14	9	2	15.8%	18.4%	36.8%	23.7%	5.3%
Plumbing Technology	3	5	4	2	3	17.6%	29.4%	23.5%	11.8%	17.6%
Heating, Air Conditioning, Ventilation and Refrigeration	2	7	6	2	3	10.0%	35.0%	30.0%	10.0%	15.0%
Arts All/Technology Communications and Design										
Arts, A/V Technology, Communications and Design Radio and Television Broadcasting Technology	1	1	1	1	1	20.0%	20.0%	20.0%	20.0%	20.0%
Graphics and Printing Technology and Communications	1	4	4	3	I	8.3%	33.3%	33.3%	25.0%	20.0%
Visual and Performing Arts	1	1	4	4		10.0%	10.0%	40.0%	40.0%	
Industrial Design	2	2	9	3	2	11.1%	11.1%	50.0%	16.7%	11.1%
A station										
Aviation Airframe Technology	1	1	1			33.3%	33.3%	33.3%		
Aeronautics/Aviation/Aerospace Science and Technology	2	T	1			100.0%	55.570	33.370		
Eduation and Training										
Education	3	2	1	3		33.3%	22.2%	11.1%	33.3%	
Francis	_	_								
Energy Line Worker	2	3	1	1		28.6%	42.9%	14.3%	14.3%	
Health Science										
Biomedical Sciences, General	1	4	1	2		12.5%	50.0%	12.5%	25.0%	
Health Sciences/Allied Health/Health Sciences, General	7	2	3	1	1	50.0%	14.3%	21.4%	7.1%	7.1%
Health Information / Medical Records Technology	1	2 1	3 1	2 1	1 2	11.1% 16.7%	22.2% 16.7%	33.3% 16.7%	22.2% 16.7%	11.1% 33.3%
Clinical/Medical Laboratory Science/Research and Allied Professions		T	-	-	2	10.7 %	10.770	10.770	10.770	JJ.J/0
Hospitality and Tourism										
Cooking and Related Culinary Arts, General	3	2	4	1	1	27.3%	18.2%	36.4%	9.1%	9.1%
Demonsul Comission										
Personal Services	1	1	2			25.00/	25 00/	50.0%		
Cosmetology	1	1	2			25.0%	25.0%	50.0%		
Law, Public Safety, Protective Services										
Public Safety/Protective Services	2	1	2	1		33.3%	16.7%	33.3%	16.7%	
Supply Chain Management										
Supply Chain Management	2	5	10	5	3	8.0%	20.0%	40.0%	20.0%	12.0%
Automotive, Transportation, Distribution and Logistics										
Heavy/Industrial Equipment Maintenance Technologies	2	4	3	6	1	12.5%	25.0%	18.8%	37.5%	6.3%
Collision Repair Technician (ASE Certified)	3	3	1	3	1	27.3%	27.3%	9.1%	27.3%	9.1%
Automobile Technician (ASE Certified)	5	3	2	2	2	35.7%	21.4%	14.3%	14.3%	14.3%
Small Engine and Related Equipment Repair	1	3	4	3	1	8.3%	25.0%	33.3%	25.0%	8.3%
Medium/Heavy Truck Technician (ASE Certified)	4	3	3	5	1	25.0%	18.8%	18.8%	31.3%	6.3%

#### Appendix D - Table 2A (part 2)

	Course	moderately critical, low critical or no need, by industry											
	Course				C	onstructio	n Industrie	es					
			Nun	nber repoi	rting			Per	cent repor	ting			
		Very critical	Somewhat critical	Moderately critical	Low Critical	No Need	Very critical	Somewhat critical	Moderately critical	Low Critical	No Need		
В	usiness Administration and Management Operations												
	Business	3	3	6	1	1	21%	21%	43%	7%	7%		
	Finance and Accounting nsurance	0	1 0	4 0	1 0	2	0%	13%	50%	13%	25%		
	Computer Programming/Programmer	1	1	0	2	1	20%	20%	0%	40%	20%		
	Digital/Multimedia and Information Resources	0	1	2	1	1	0%	20%	40%	20%	20%		
	Computer Systems Networking and Telecommunications	0	1	0	3	0	0%	25%	0%	75%	0%		
	System Administration/Administrator Computer and Information Systems Security/Information Assurance	0 0	0 0	1 0	2 1	1 1	0% 0%	0% 0%	25% 0%	50% 50%	25% 50%		
	larketing and Entrepreneurship Narketing	0	1	4	1	1	0%	14%	57%	14%	14%		
٨	lanufacturing												
	Electrical/Electronics Equipment Installation and Repair	0	4	2	1	0	0%	57%	29%	14%	0%		
	Machine Tool Technology/Machinist	0	2	2	0	0	0%	50%	50%	0%	0%		
	Nelding, Brazing and Soldering Mechatronics	2 0	3 2	3 2	2 0	0 0	20% 0%	30% 50%	30% 50%	20% 0%	0% 0%		
	Engineering Technology	2	1	3	2	0	25%	13%	38%	25%	0%		
	Mechanical Drafting	0	4	2	0	1	0%	57%	29%	0%	14%		
	griculture, Food and Natural Resources												
	Agriculture Agricultural Operations and Related Sciences	0	0	0									
	Applied Horticulture and Horticultural Operations	0	0	0	0						1		
	Animal Health & Veterinary Sciences	0	0	-									
	Natural Resources and Conservation Biotechnology	0	1 0	0 0	1		0% 0%	100% 0%	0% 0%	100%	1		
	Joccimology	Ũ	Ũ	Ŭ	-		0,0	0/0	0,0	100/0			
	rchitecture and Construction	2	3	1	2	0	25%	38%	13%	25%	0%		
	Drafting and Design Technology/Architectural Construction Trades	5	5	2	1	0	25% 38%	38%	13%	25% 8%	0%		
	Noodworking General	0	6	0	2	0	0%	75%	0%	25%	0%		
	Electrical and Power Transmission Installation	3	2	4	0	0	33%	22%	44%	0%	0%		
	Plumbing Technology	2	3	3	0	0	25%	38%	38%	0%	0%		
	Heating, Air Conditioning, Ventilation and Refrigeration	2	4	2	0	0	25%	50%	25%	0%	0%		
	rts, A/V Technology, Communications and Design												
	Radio and Television Broadcasting Technology	0	0 0	0 2	0	0	00/	00/	67%	220/	1		
	Graphics and Printing Technology and Communications /isual and Performing Arts	0	0	2	1 0		0% 0%	0% 0%	100%	33% 0%			
	ndustrial Design	0	0	1	0	1	0%	0%	50%	0%	50%		
	viation												
	Airframe Technology	0	0	0									
	Aeronautics/Aviation/Aerospace Science and Technology	0											
E	duation and Training												
	ducation	0	0	0	0								
F	nergy	1	2	0	0		33%	67%	0%	0%			
	ine Worker	1	2	0	0		3370	0770	078	078			
	ealth Science												
	Biomedical Sciences, General	0	0	0	0								
	Health Sciences/Allied Health/Health Sciences, General	0	0	0	0	0							
	Health Information / Medical Records Technology	0	0	0	0	0							
	Clinical/Medical Laboratory Science/Research and Allied Professions	0	0	0	0	0							
	ospitality and Tourism	-	_	_	-	_							
	Cooking and Related Culinary Arts, General	0	0	0	0	0							
	ersonal Services												
	Cosmetology	0	0	0									
L	w, Public Safety, Protective Services												
	Public Safety/Protective Services	0	0	0	0								
s	upply Chain Management												
	Supply Chain Management	1	0	0	0	0	100%	0%	0%	0%	0%		
	utomotive, Transportation, Distribution and Logistics												
	Heavy/Industrial Equipment Maintenance Technologies	0	1	1	0	0	0%	50%	50%	0%	0%		
	Collision Repair Technician (ASE Certified)	0	0	0	0	0	5,3	5070	5070	0,0	0,0		
	Automobile Technician (ASE Certified)	0	0	0	0	0							
	Small Engine and Related Equipment Repair	0	0	0	0	0							
L	Medium/Heavy Truck Technician (ASE Certified)	0	0	1	0	0	0%	0%	100%	0%	0%		

#### Appendix D - Table 2A (part 3)

Course			mode				moderately critical, low critical or no need, by industry Manufacturing Industries										
course				Ma	anufacturi	ng Industr	ies										
		Nur Somewhat	nber repor Moderately				Per Somewhat	cent repor Moderately									
	Very critical	critical	critical	Low Critical	No Need	Very critical	critical	critical	Low Critical	No Need							
Business Administration and Management Operations Business	1	1	5	15	1	4%	4%	22%	65%	4%							
Finance and Accounting	0	3	5	5	3	4% 0%	19%	31%	31%	19%							
Insurance	0	0	1	0		0%	0%	100%	0%								
Computer Programming/Programmer Digital/Multimedia and Information Resources	0	1	9	6	1	0%	6%	53%	35%	6%							
Computer Systems Networking and Telecommunications	0	3 2	1 3	5 6	1 0	0% 0%	30% 18%	10% 27%	50% 55%	10% 0%							
System Administration/Administrator	0	1	5	5	2	0%	8%	38%	38%	15%							
Computer and Information Systems Security/Information Assurance	1	2	2	3	1	11%	22%	22%	33%	11%							
Marketing and Entrepreneurship Marketing	2	2	4	3	0	18%	18%	36%	27%	0%							
Manufacturing																	
Manufacturing Electrical/Electronics Equipment Installation and Repair	3	6	5	2	2	17%	33%	28%	11%	11%							
Machine Tool Technology/Machinist	3	3	10	3	1	15%	15%	50%	15%	5%							
Welding, Brazing and Soldering	6	4	4	2	1	35%	24%	24%	12%	6%							
Mechatronics	4	2	5	2	2	27%	13%	33%	13%	13%							
Engineering Technology Mechanical Drafting	0	5 3	8 4	6 7	0 3	0% 6%	26% 17%	42% 22%	32% 39%	0% 17%							
	-	5	-	,	5	0/0	1770	22/0	3370	1770							
Agriculture, Food and Natural Resources		4	_			250/	2501	F 00/									
Agriculture Agricultural Operations and Related Sciences Applied Horticulture and Horticultural Operations	1 1	1 0	2 1	0		25% 50%	25% 0%	50% 50%	0%								
Animal Health & Veterinary Sciences	3	0		U		100%	0%	50%	070								
Natural Resources and Conservation	1	0	1			50%	0%	50%									
Biotechnology	1	1	0	0		50%	50%	0%	0%								
Architecture and Construction																	
Drafting and Design Technology/Architectural	0	1	2	2	0	0%	20%	40%	40%	0%							
Construction Trades	4	1	0	2	0	57%	14%	0%	29%	0%							
Woodworking General	1	0	4	0	0	20%	0%	80%	0%	0%							
Electrical and Power Transmission Installation	1	3 2	5 0	4	0	8% 20%	23% 40%	38% 0%	31% 20%	0%							
Plumbing Technology Heating, Air Conditioning, Ventilation and Refrigeration	1 0	1	2	1 1	1 1	20% 0%	40% 20%	40%	20%	20% 20%							
Arts, A/V Technology, Communications and Design	0	0	0	1	0	0%	0%	0%	100%	0%							
Radio and Television Broadcasting Technology Graphics and Printing Technology and Communications	1	2	1	0	0	25%	50%	25%	0%	0%							
Visual and Performing Arts	0	1	0	0		0%	100%	0%	0%								
Industrial Design	0	1	6	2	0	0%	11%	67%	22%	0%							
Aviation																	
Airframe Technology	0	1	0			0%	100%	0%									
Aeronautics/Aviation/Aerospace Science and Technology	0																
Eduation and Training																	
Education	0	0	1	0		0%	0%	100%	0%								
Energy	1	1	0	0		50%	50%	0%	0%								
Line Worker	1	Т	U	U		30%	30%	070	0%								
Health Science Biomedical Sciences, General	1	1	1	0		33%	33%	33%	0%								
Health Sciences/Allied Health/Health Sciences, General	0	0	1	1	0	33% 0%	33% 0%	50%	50%	0%							
Health Information / Medical Records Technology	0	0	1	1	0	0%	0%	50%	50%	0%							
Clinical/Medical Laboratory Science/Research and Allied Professions	0	0	1	1	0	0%	0%	50%	50%	0%							
Hospitality and Tourism																	
Cooking and Related Culinary Arts, General	1	0	0	1	0	50%	0%	0%	50%	0%							
Personal Services																	
Cosmetology	0	1	1			0%	50%	50%									
	-	_	_														
Law, Public Safety, Protective Services																	
Public Safety/Protective Services	0	0	1	0		0%	0%	100%	0%								
Supply Chain Management																	
Supply Chain Management	1	2	10	2	2	6%	12%	59%	12%	12%							
Automotive, Transportation, Distribution and Logistics																	
Heavy/Industrial Equipment Maintenance Technologies	2	2	0	3	0	29%	29%	0%	43%	0%							
Collision Repair Technician (ASE Certified)	0	1	1	2	0	0%	25%	25%	50%	0%							
Automobile Technician (ASE Certified)	0	1	1	1	1	0%	25%	25%	25%	25%							
Small Engine and Related Equipment Repair	0	0	4	2	0	0%	0%	67%	33%	0%							
Medium/Heavy Truck Technician (ASE Certified)	1	0	1	4	0	17%	0%	17%	67%	0%							

#### Appendix D - Table 2A (part 4)

Appendix D - Table 2A. Of the firms responding that the CTE course was relevant to their business, the
distribution of firms reporting that having KRESA offer the course is very critical, somewhat critical,
moderately critical, low critical or no need, by industry

Course			mode	erately critic			need, by inc	ustry		
Couise					Health Ir	ndustries				
		Nun Somewhat	nber repor Moderately	-			Per Somewhat	cent repor Moderately		
Business Administration and Management Operations	Very critical	critical	critical	Low Critical	No Need	Very critical	critical	critical	Low Critical	No Need
Business Administration and Management Operations Business	0	1	1	2	0	0%	25%	25%	50%	0%
Finance and Accounting	0	0	1	2	1	0%	0%	25%	50%	25%
Insurance Computer Programming/Programmer	0	0 0	1 1	1 2	0	0% 0%	0% 0%	50% 33%	50% 67%	0%
Digital/Multimedia and Information Resources	0	0	0	3	0	0%	0%	0%	100%	0%
Computer Systems Networking and Telecommunications	0	0	1	2	0	0%	0%	33%	67%	0%
System Administration/Administrator	0	0	3	0	0	0%	0%	100%	0%	0%
Computer and Information Systems Security/Information Assurance	0	0	2	1	0	0%	0%	67%	33%	0%
Marketing and Entrepreneurship Marketing	0	0	0	3	1	0%	0%	0%	75%	25%
Manufacturing										
Electrical/Electronics Equipment Installation and Repair	0	0	0	0	0					
Machine Tool Technology/Machinist	0 0	0 0	0 0	0 0	0 0					
Welding, Brazing and Soldering Mechatronics	0	0	0	0	0					
Engineering Technology	0	0	0	0	0					
Mechanical Drafting	0	0	0	0	0					
Agriculture, Food and Natural Resources										
Agriculture, Food and National Resources	0	0	0							
Applied Horticulture and Horticultural Operations	0	0	0	0						
Animal Health & Veterinary Sciences	0	0								
Natural Resources and Conservation Biotechnology	0 0	0 1	0 0	1		0%	50%	0%	50%	
biotechnology	Ŭ	1	Ŭ	-		0/0	50/0	0/0	50%	
Architecture and Construction										
Drafting and Design Technology/Architectural	0	0	0	0	0					
Construction Trades Woodworking General	0	0 0	0 0	0 0	0 0					
Electrical and Power Transmission Installation	0	0	0	0	0					
Plumbing Technology	0	0	0	0	0					
Heating, Air Conditioning, Ventilation and Refrigeration	0	0	0	0	0					
Arts, A/V Technology, Communications and Design										
Radio and Television Broadcasting Technology	0	0	0	0	0					
Graphics and Printing Technology and Communications	0	0	0	0						
Visual and Performing Arts Industrial Design	0	0 0	0 0	0	0					
	Ū	0	Ū	Ū	0					
Aviation										
Airframe Technology	0	0	0							
Aeronautics/Aviation/Aerospace Science and Technology	0									
Eduation and Training										
Education	0	0	0	1		0%	0%	0%	100%	
Energy	0	0	0	0						
Energy Line Worker	0	0	0	0						
Health Science	_	_	_							
Biomedical Sciences, General Health Sciences/Allied Health/Health Sciences, General	0 4	2 2	0 0	1 0	0	0% 67%	67% 33%	0% 0%	33% 0%	0%
Health Sciences/Allied Health/Health Sciences, General Health Information / Medical Records Technology	4	2 1	1	0	0	67% 33%	33%	33%	0% 0%	0% 0%
Clinical/Medical Laboratory Science/Research and Allied Professions	1	0	0	0	1	50%	0%	0%	0%	50%
the sector fits and the sector										
Hospitality and Tourism Cooking and Related Culinary Arts, General	0	1	2	0	0	0%	33%	67%	0%	0%
	Ŭ	-	_	Ŭ	Ŭ	575	5570	57.70	5,5	0,0
Personal Services										
Cosmetology	0	0	0							
Law, Public Safety, Protective Services										
Public Safety/Protective Services	1	0	0	0		100%	0%	0%	0%	
	-	Ť	Ŭ	Ŭ		_00/0	0,0	0,0	5,5	
Supply Chain Management										
Supply Chain Management	0	0	0	1	0	0%	0%	0%	100%	0%
Automotive, Transportation, Distribution and Logistics										
Heavy/Industrial Equipment Maintenance Technologies	0	0	0	0	0					
Collision Repair Technician (ASE Certified)	0	0	0	0	0					
Automobile Technician (ASE Certified)	0	0	0	0	0					
Small Engine and Related Equipment Repair Medium (Heavy Truck Technician (ASE Cortified)	0	0 0	0 0	0	0 0					
Medium/Heavy Truck Technician (ASE Certified)	U	U	U	U	U				1	

#### Appendix D - Table 2A (part 5)

	moderately critical, low critical or no need, by industry									
Course		W	holesale a	nd Retail T	rade and	Transporta	ation and	Warehous	ing	
									-	
	Very critical	Somewhat	nber repoi Moderately	Low Critical	No Nord	Very critical	Somewhat	Cent repor Moderately	Low Critical	No Nord
Pusinoss Administration and Management Operations	very critical	critical	critical	Low Critical	No Need	very critical	critical	critical	Low Critical	No Need
Business Administration and Management Operations Business	0	2	1	4	2	0%	22%	11%	44%	22%
Finance and Accounting	1	2	4	4	2	0% 14%	0%	57%	44% 14%	22% 14%
Insurance	0	0	0	0	_		• / •			,-
Computer Programming/Programmer	0	1	1	1	0	0%	33%	33%	33%	0%
Digital/Multimedia and Information Resources	1	0	0	2	1	25%	0%	0%	50%	25%
Computer Systems Networking and Telecommunications	0	0	1	1	0	0%	0%	50%	50%	0%
System Administration/Administrator Computer and Information Systems Security/Information Assurance	1 1	2 0	0	2 1	1 1	17% 33%	33% 0%	0% 0%	33% 33%	17% 33%
computer and mornation systems security mornation Assurance	1	0	0	1	1	5570	070	070	5570	5570
Marketing and Entrepreneurship										
Marketing	0	2	1	2	1	0%	33%	17%	33%	17%
Manufacturing										
Electrical/Electronics Equipment Installation and Repair	1	1	1	1	1	20%	20%	20%	20%	20%
Machine Tool Technology/Machinist Welding, Brazing and Soldering	0 0	0 0	1 0	1 3	0 0	0% 0%	0% 0%	50% 0%	50% 100%	0% 0%
Mechatronics	0	0	0	1	1	0%	0%	0%	50%	50%
Engineering Technology	0	0	1	1	0	0%	0%	50%	50%	0%
Mechanical Drafting	0	0	0	2	1	0%	0%	0%	67%	33%
Agriculture, Food and Natural Resources										
Agriculture Agricultural Operations and Related Sciences	0	1	0			0%	100%	0%		
Applied Horticulture and Horticultural Operations	0	0	1	0		0%	0%	100%	0%	
Animal Health & Veterinary Sciences Natural Resources and Conservation	0 0	0 0	0							
Biotechnology	0	0	0	1		0%	0%	0%	100%	
Architecture and Construction										
Drafting and Design Technology/Architectural	0	0	0	1	0	0%	0%	0%	100%	0%
Construction Trades	0	1	0	0	0	0%	100%	0%	0%	0%
Woodworking General	0	1	0	0	0	0%	100%	0%	0%	0%
Electrical and Power Transmission Installation	2 0	1 0	1 0	2 0	0 0	33%	17%	17%	33%	0%
Plumbing Technology Heating, Air Conditioning, Ventilation and Refrigeration	0	0	1	0	0	0%	0%	100%	0%	0%
	Ũ	Ŭ	-	Ŭ	Ũ	0,0	0,0	20070	0,0	0,0
Arts, A/V Technology, Communications and Design										
Radio and Television Broadcasting Technology	0	0	0	0	0					
Graphics and Printing Technology and Communications	0	1	0	0		0%	100%	0%	0%	
Visual and Performing Arts	1	0	0	0		100%	0%	0%	0%	
Industrial Design	0	0	1	1	0	0%	0%	50%	50%	0%
Aviation										
Airframe Technology	1	0	0			100%	0%	0%		
Aeronautics/Aviation/Aerospace Science and Technology	1	0	0			100%	070	070		
Eduation and Training										
Education	0	0	0	0						
Energy	0	0	0	0						
Line Worker										
Health Science										
Biomedical Sciences, General	0	0	0	0						
Health Sciences/Allied Health/Health Sciences, General	0	0	0	0	0					
Health Information / Medical Records Technology	0	0	0	0	0					
Clinical/Medical Laboratory Science/Research and Allied Professions	0	0	0	0	0					
Hospitality and Tourism	_		_	_	_					
Cooking and Related Culinary Arts, General	0	1	0	0	0	0%	100%	0%	0%	0%
Personal Services										
Cosmetology	0	0	0							
Cosmetology	0	U	0							
Law, Public Safety, Protective Services										
Public Safety/Protective Services	0	0	0	0						
Supply Chain Management										
Supply Chain Management	0	1	0	1	0	0%	50%	0%	50%	0%
Automotive, Transportation, Distribution and Logistics										
Heavy/Industrial Equipment Maintenance Technologies	0	0	2	1	0	0%	0%	67%	33%	0%
Collision Repair Technician (ASE Certified)	0 3	1 0	0	0	0 0	0% 100%	100% 0%	0% 0%	0% 0%	0% 0%
Automobile Technician (ASE Certified) Small Engine and Related Equipment Repair	3 0	0	0	0	0	100% 0%	0% 100%	0%	0% 0%	0% 0%
Medium/Heavy Truck Technician (ASE Certified)	2	0	1	0	0	0% 67%	0%	33%	0%	0%
	-	v	L	, ,	, v	3770	0/0	3370	070	0/0

#### Appendix D - Table 2A (part 6)

	Appendix D - Table 2A. Of the firms responding that the CTE course was relevant to their business, t distribution of firms reporting that having KRESA offer the course is very critical, somewhat critical moderately critical, low critical or no need, by industry Agriculture, Information, Finance and Insurance, Real Estate and Rental and Leasing and									
Course	Agri	iculture, In		, Finance a	and Insura	nce, Real	Estate and		nd Leasing	and
		Nur	nber repo		onal, Scier	ntific and T		cent repor	ting	
	Very critical	Somewhat critical	Moderately critical	Low Critical	No Need	Very critical	Somewhat critical	Moderately critical	Low Critical	No Need
Business Administration and Management Operations										
Business Finance and Accounting	1 2	3	8 2	3 5	1 1	6% 15%	19% 23%	50% 15%	19% 38%	6% 8%
Insurance	1	1	2	0	-	25%	25%	50%	0%	070
Computer Programming/Programmer	2	4	1	2	0	22%	44%	11%	22%	0%
Digital/Multimedia and Information Resources Computer Systems Networking and Telecommunications	0	4 1	2 3	2 1	0 0	0% 17%	50% 17%	25% 50%	25% 17%	0% 0%
System Administration/Administrator	4	2	3	1	0	40%	20%	30%	10%	0%
Computer and Information Systems Security/Information Assurance	2	1	2	2	0	29%	14%	29%	29%	0%
Marketing and Entrepreneurship Marketing	0	5	3	6	0	0%	36%	21%	43%	0%
Manufacturing										
Electrical/Electronics Equipment Installation and Repair	0	2	1	1	1	0%	40%	20%	20%	20%
Machine Tool Technology/Machinist	0	0	0	1 0	1	0%	0%	0% 50%	50% 0%	50%
Welding, Brazing and Soldering Mechatronics	0	0	1 1	1	1 1	0% 0%	0% 25%	50% 25%	0% 25%	50% 25%
Engineering Technology	1	2	1	0	1	20%	40%	20%	0%	20%
Mechanical Drafting	0	2	2	0	1	0%	40%	40%	0%	20%
Agriculture, Food and Natural Resources										
Agriculture Agricultural Operations and Related Sciences	1	0	1			50%	0%	50%		
Applied Horticulture and Horticultural Operations Animal Health & Veterinary Sciences	0	1 1	0	1		0% 0%	50% 100%	0%	50%	
Natural Resources and Conservation	0	1	1			0%	50%	50%		
Biotechnology	0	0	1	1		0%	0%	50%	50%	
Architecture and Construction										
Drafting and Design Technology/Architectural	0	0	0	2	1	0%	0%	0%	67%	33%
Construction Trades	1	1	1	0	1	25%	25%	25%	0%	25%
Woodworking General Electrical and Power Transmission Installation	0	0	0 3	0	1 1	0% 0%	0% 0%	0% 75%	0% 0%	100% 25%
Plumbing Technology	0	0	1	1	1	0%	0%	33%	33%	33%
Heating, Air Conditioning, Ventilation and Refrigeration	0	1	1	0	1	0%	33%	33%	0%	33%
Arts, A/V Technology, Communications and Design										
Radio and Television Broadcasting Technology	1	1	0	0	1	33%	33%	0%	0%	33%
Graphics and Printing Technology and Communications	0	0	0	1		0%	0%	0%	100%	
Visual and Performing Arts Industrial Design	0 2	0 1	2 0	2 0	1	0% 50%	0% 25%	50% 0%	50% 0%	25%
Aviation										
Airframe Technology	0	0	1			0%	0%	100%		
Aeronautics/Aviation/Aerospace Science and Technology	1					100%				
Eduation and Training										
Education	0	0	0	1		0%	0%	0%	100%	
Energy	0	0	0	1		0%	0%	0%	100%	
Line Worker										
Health Science										
Biomedical Sciences, General	0	0	0	1		0%	0%	0%	100%	
Health Sciences/Allied Health/Health Sciences, General	0	0 0	0 0	0 0	1 1	0% 0%	0% 0%	0% 0%	0% 0%	100% 100%
Health Information / Medical Records Technology Clinical/Medical Laboratory Science/Research and Allied Professions	0	0	0	0	1	0%	0%	0%	0%	100%
Hospitality and Tourism Cooking and Related Culinary Arts, General	0	0	0	0	1	0%	0%	0%	0%	100%
	Ū	ů	0	Ũ	-	0,0	0,0	0,0	0,0	100/0
Personal Services Cosmetology	0	0	1			0%	0%	100%		
Law, Public Safety, Protective Services	0			4		00/	00/	00/	1000/	
Public Safety/Protective Services	0	0	0	1		0%	0%	0%	100%	
Supply Chain Management										
Supply Chain Management	0	1	0	0	1	0%	50%	0%	0%	50%
Automotive, Transportation, Distribution and Logistics										
Heavy/Industrial Equipment Maintenance Technologies	0	0	0	0	1	0%	0%	0%	0%	100%
Collision Repair Technician (ASE Certified) Automobile Technician (ASE Certified)	0	0	0 0	0 0	1 1	0% 0%	0% 0%	0% 0%	0% 0%	100% 100%
Small Engine and Related Equipment Repair	0	0	0	0	1	0%	0%	0%	0%	100%
Medium/Heavy Truck Technician (ASE Certified)	0	0	0	0	1	0%	0%	0%	0%	100%

#### Appendix D - Table 2A (part 7)

	moderately critical, low critical or no need, by industry									
Course			Educati	on, Social	Assistance	e, and Pub	lic Admini	stration		
		Number reporting					ting			
	Manu addad	Somewhat	Moderately	Low Critical	No Need		Somewhat	cent repor Moderately	Low Critical	No. No. of
	Very critical	critical	critical	Low Critical	No Need	Very critical	critical	critical	Low Critical	No Need
Business Administration and Management Operations	2	2				2201	220/	4404	2201	440/
Business Finance and Accounting	2	2 1	1 2	3	1 2	22% 11%	22% 11%	11% 22%	33% 33%	11% 22%
Insurance	0	0	0	0	2	11/0	11/0	2270	5570	2270
Computer Programming/Programmer	1	0	2	1	1	20%	0%	40%	20%	20%
Digital/Multimedia and Information Resources	1	0	2	0	0	33%	0%	67%	0%	0%
Computer Systems Networking and Telecommunications	0	2	1	0	1	0%	50%	25%	0%	25%
System Administration/Administrator	1	1	2	0	1	20%	20%	40%	0%	20%
Computer and Information Systems Security/Information Assurance	0	1	0	1	0	0%	50%	0%	50%	0%
Marketing and Entrepreneurship										
Marketing	1	0	0	2	1	25%	0%	0%	50%	25%
indirecting.	-	Ũ	Ū	-	-	20/0	0,0	0,0	5676	2070
Manufacturing										
Electrical/Electronics Equipment Installation and Repair	0	1	0	0	0	0%	100%	0%	0%	0%
Machine Tool Technology/Machinist	0	2	0	0	0	0%	100%	0%	0%	0%
Welding, Brazing and Soldering	0	0	1	0	0	0%	0%	100%	0%	0%
Mechatronics	0	0	1	0	1	0%	0%	50%	0%	50%
Engineering Technology	0	0	0	1	0	0%	0%	0%	100%	0%
Mechanical Drafting	0	0	0	1	0	0%	0%	0%	100%	0%
Agriculture, Food and Natural Resources										
Agriculture Agricultural Operations and Related Sciences	0	0	0							
Applied Horticulture and Horticultural Operations	0	0	0	0						
Animal Health & Veterinary Sciences	0	0								
Natural Resources and Conservation	0	0	0							
Biotechnology	0	0	0	0						
Architecture and Construction						00/	00/	00/	40000	00/
Drafting and Design Technology/Architectural	0	0 1	0	1	0	0% 0%	0% 50%	0% 0%	100% 50%	0% 0%
Construction Trades Woodworking General	0	0	0	0	0	0%	50%	0%	50%	0%
Electrical and Power Transmission Installation	0	0	1	1	1	0%	0%	33%	33%	33%
Plumbing Technology	0	0	0	0	1	0%	0%	0%	0%	100%
Heating, Air Conditioning, Ventilation and Refrigeration	0	0	0	1	1	0%	0%	0%	50%	50%
Arts, A/V Technology, Communications and Design										
Radio and Television Broadcasting Technology	0	0	0	0	0					
Graphics and Printing Technology and Communications	0	1	0	1		0%	50%	0%	50%	
Visual and Performing Arts Industrial Design	0	0	0 1	0	0	0%	0%	100%	0%	0%
	Ū	0	1	0	0	070	070	100/0	070	070
Aviation										
Airframe Technology	0	0	0							
Aeronautics/Aviation/Aerospace Science and Technology	0									
Eduation and Training										
Education	2	2	0	1		40%	40%	0%	20%	
-										
Energy	0	0	1	0		0%	0%	100%	0%	
Line Worker										
Health Science										
Biomedical Sciences, General	0	1	0	0		0%	100%	0%	0%	
Health Sciences/Allied Health/Health Sciences, General	3	0	2	0	0	60%	0%	40%	0%	0%
Health Information / Medical Records Technology	0	1	1	1	0	0%	33%	33%	33%	0%
Clinical/Medical Laboratory Science/Research and Allied Professions	0	1	0	0	0	0%	100%	0%	0%	0%
Hospitality and Tourism										
Cooking and Related Culinary Arts, General	0	0	2	0	0	0%	0%	100%	0%	0%
Personal Services	_	_	_							
Cosmetology	0	0	0							
Law Bublic Safatu Brotastiva Samisas										
Law, Public Safety, Protective Services	0	1	1	0		0%	50%	50%	0%	
Public Safety/Protective Services	0	1	T	0		0%	30%	30%	0%	
Supply Chain Management										
Supply Chain Management	0	1	0	0	0	0%	100%	0%	0%	0%
	-	_	-	-	-					2.0
Automotive, Transportation, Distribution and Logistics										
Heavy/Industrial Equipment Maintenance Technologies	0	1	0	0	0	0%	100%	0%	0%	0%
Collision Repair Technician (ASE Certified)	1	1	0	1	0	33%	33%	0%	33%	0%
Automobile Technician (ASE Certified)	1	2	0	1	0	25%	50%	0%	25%	0%
Small Engine and Related Equipment Repair	1	1	0	1	0	33%	33%	0%	33%	0%
Medium/Heavy Truck Technician (ASE Certified)	1	2	0	0	0	33%	67%	0%	0%	0%

#### Appendix D - Table 2A (part 8)

	moderately critical, low critical or no need, by industry									,
Course	Arts, Ent	ertainme	nt and Rec	reation, A	ccomodati	ion and Fo	od Service	s and Oth	er Service	s (except
			<u> </u>		ublic Adm	inistratio				
		Nur Somewhat	mber repo Moderately	1	1		ting			
	Very critical	critical	critical	Low Critical	No Need	Very critical	Somewhat critical	Moderately critical	Low Critical	No Need
Business Administration and Management Operations						254			2011	
Business Finance and Accounting	2 0	0 1	3	3 4	0 0	25% 0%	0% 13%	38% 38%	38% 50%	0% 0%
Insurance	0	1	1	4	0	0%	50%	50%	0%	078
Computer Programming/Programmer	1	1	1	3	0	17%	17%	17%	50%	0%
Digital/Multimedia and Information Resources	2	1	0	3	0	33%	17%	0%	50%	0%
Computer Systems Networking and Telecommunications	0	1	2	2	0	0%	20%	40%	40%	0%
System Administration/Administrator Computer and Information Systems Security/Information Assurance	0	1 1	1 0	1 2	0	0% 0%	33% 33%	33% 0%	33% 67%	0% 0%
computer and mornation systems security, mornation assurance	Ŭ	-	Ŭ	2	Ũ	0/0	3370	0/0	0770	0/0
Marketing and Entrepreneurship Marketing	0	3	2	2	0	0%	43%	29%	29%	0%
Manufacturing										
Electrical/Electronics Equipment Installation and Repair	0	0	0	1	0	0%	0%	0%	100%	0%
Machine Tool Technology/Machinist	1	0	0	0	0	100%	0%	0%	0%	0%
Welding, Brazing and Soldering	0	1 0	1 0	0	0 0	0% 0%	50% 0%	50% 0%	0% 100%	0% 0%
Mechatronics Engineering Technology	0	1	0	1	0	0%	50%	0%	50%	0%
Mechanical Drafting	0	0	0	0	1	0%	0%	0%	0%	100%
Agriculture, Food and Natural Resources										
Agriculture Agricultural Operations and Related Sciences	0	0	0							
Applied Horticulture and Horticultural Operations	0	0 0	0	0						
Animal Health & Veterinary Sciences Natural Resources and Conservation	0	0	0							
Biotechnology	0	0	0	0						
Architecture and Construction										
Drafting and Design Technology/Architectural	0	0	0	0	0					
Construction Trades	0	0	0	0	0					
Woodworking General Electrical and Power Transmission Installation	0	0 1	0	0 2	0 0	0%	33%	0%	67%	0%
Plumbing Technology	0	0	0	0	0	070	5570	070	0770	070
Heating, Air Conditioning, Ventilation and Refrigeration	0	1	0	0	0	0%	100%	0%	0%	0%
Arts, A/V Technology, Communications and Design										
Radio and Television Broadcasting Technology	0	0	1	0	0	0%	0%	100%	0%	0%
Graphics and Printing Technology and Communications Visual and Performing Arts	0	0 0	1	0 2		0% 0%	0% 0%	100% 33%	0% 67%	
Industrial Design	0	0	0	0	0	078	078	3370	0778	
Aviation										
Airframe Technology	0	0	0							
Aeronautics/Aviation/Aerospace Science and Technology	0									
Eduction and Training										
Eduation and Training Education	1	0	0	0		100%	0%	0%	0%	
	-	ů	Ŭ	Ũ		10070	0/0	0/0	0/0	
Energy	0	0	0	0						
Line Worker										
Health Science	_	_	_	_						
Biomedical Sciences, General	0	0	0	0	0					
Health Sciences/Allied Health/Health Sciences, General Health Information / Medical Records Technology	0	0	0	0	0					
Clinical/Medical Laboratory Science/Research and Allied Professions	0	0	0	0	0					
Hospitality and Tourism										
Cooking and Related Culinary Arts, General	2	0	0	0	0	100%	0%	0%	0%	0%
Personal Services										
Personal Services	1	0	0			100%	0%	0%		
Cosmetology		U	0			100%	0%	0%		
Law, Public Safety, Protective Services										
Public Safety/Protective Services	1	0	0	0		100%	0%	0%	0%	
Supply Chain Management										
Supply Chain Management	0	0	0	1	0	0%	0%	0%	100%	0%
Automotive, Transportation, Distribution and Logistics	_	_	_	-	_	00/	00/	00/	1000	00/
Heavy/Industrial Equipment Maintenance Technologies	0	0	0	2 0	0	0% 100%	0% 0%	0% 0%	100% 0%	0% 0%
Collision Repair Technician (ASE Certified) Automobile Technician (ASE Certified)	1	0	1	0	0	50%	0%	0% 50%	0%	0%
Small Engine and Related Equipment Repair	0	1	0	0	0	0%	100%	0%	0%	0%
Medium/Heavy Truck Technician (ASE Certified)	0	1	0	1	0	0%	50%	0%	50%	0%

#### Appendix D - Table 2B (part 1)

	Appendix D - Table 2B. Of the firms responding that the CTE course was relevant to their business, the distribution of firms reporting that having KRESA offer the course is very critical, somewhat critical, moderately critical, low critical or no need, by employment size														
Course	1-9 employees									1-9 employees					
		Nun Somewhat	nber repo Moderately				Per Somewhat	Moderately							
Business Administration and Management Operations	Very critical	critical	critical	Low Critical	No Need	Very critical	critical	critical	Low Critical	No Need					
Business	4	4	6	10	2	15%	15%	23%	38%	8%					
Finance and Accounting Insurance	0 1	2 0	6 0	6 0	1	0% 100%	13% 0%	40% 0%	40% 0%	7%					
Computer Programming/Programmer Digital/Multimedia and Information Resources	1 0	1 3	5 0	5 3	0 1	8% 0%	8% 43%	42% 0%	42% 43%	0% 14%					
Computer Systems Networking and Telecommunications	0	1	3	2	0	0%	43% 17%	50%	33%	0%					
System Administration/Administrator Computer and Information Systems Security/Information Assurance	0	1 3	3 1	4	0 0	0% 0%	13% 50%	38% 17%	50% 33%	0% 0%					
Marketing and Entrepreneurship Marketing	1	3	4	5	0	8%	23%	31%	38%	0%					
Manufacturing															
Electrical/Electronics Equipment Installation and Repair	1 1	7 2	4 6	3 1	0 1	7% 9%	47% 18%	27% 55%	20% 9%	0% 9%					
Machine Tool Technology/Machinist Welding, Brazing and Soldering	4	2	4	2	0	33%	18%	33%	9% 17%	9% 0%					
Mechatronics Engineering Technology	1 2	2 5	3 3	2 3	1 0	11% 15%	22% 38%	33% 23%	22% 23%	11% 0%					
Mechanical Drafting	1	5	2	4	0	8%	42%	17%	33%	0%					
Agriculture, Food and Natural Resources			_					-							
Agriculture Agricultural Operations and Related Sciences Applied Horticulture and Horticultural Operations	1	1 1	0 1	0		50% 33%	50% 33%	0% 33%	0%						
Animal Health & Veterinary Sciences	1	0 1	0			100% 50%	0% 50%	0%							
Natural Resources and Conservation Biotechnology	1 0	1	1	1		0%	33%	33%	33%						
Architecture and Construction															
Drafting and Design Technology/Architectural Construction Trades	2 6	3	1 2	2	0 0	25% 50%	38% 25%	13% 17%	25% 8%	0% 0%					
Woodworking General	1	3	2	2	0	13%	38%	25%	25%	0%					
Electrical and Power Transmission Installation Plumbing Technology	3 1	3 3	8 2	1 1	0 0	20% 14%	20% 43%	53% 29%	7% 14%	0% 0%					
Heating, Air Conditioning, Ventilation and Refrigeration	1	4	3	0	0	13%	50%	38%	0%	0%					
Arts, A/V Technology, Communications and Design	0	0	1		0	00/	00/	F.00/	F 00/	0%					
Radio and Television Broadcasting Technology Graphics and Printing Technology and Communications	1	1	1 1	1 0	0	0% 33%	0% 33%	50% 33%	50% 0%	0%					
Visual and Performing Arts Industrial Design	1 0	1 2	2 2	1 1	1	20% 0%	20% 33%	40% 33%	20% 17%	17%					
Aviation															
Airframe Technology Aeronautics/Aviation/Aerospace Science and Technology	0 0	0	0												
Eduation and Training															
Education	1	0	1	0		50%	0%	50%	0%						
Energy Line Worker	1	3	0	0		25%	75%	0%	0%						
Health Science	1	0	0	0		100%	0%	0%	0%						
Biomedical Sciences, General	1	0	1	0	0	50%	0%	50%	0%	0%					
Health Sciences/Allied Health/Health Sciences, General Health Information / Medical Records Technology	0 0	0 0	1 1	0	0 0	0% 0%	0% 0%	100% 100%	0% 0%	0% 0%					
Clinical/Medical Laboratory Science/Research and Allied Professions															
Hospitality and Tourism Cooking and Related Culinary Arts, General	3	1	0	0	0	75%	25%	0%	0%	0%					
Personal Services Cosmetology	1	0	1			50%	0%	50%							
Law, Public Safety, Protective Services Public Safety/Protective Services	2	0	0	0		100%	0%	0%	0%						
Supply Chain Management Supply Chain Management	1	0	3	1	0	20%	0%	60%	20%	0%					
Automotive, Transportation, Distribution and Logistics	_	_			~	0.1	6001	2001	2021	001					
Heavy/Industrial Equipment Maintenance Technologies Collision Repair Technician (ASE Certified)	0 0	3 1	1 0	1 1	0 0	0% 0%	60% 50%	20% 0%	20% 50%	0% 0%					
Automobile Technician (ASE Certified)	0 0	1 0	1 3	0	0 0	0% 0%	50% 0%	50% 100%	0% 0%	0% 0%					
Small Engine and Related Equipment Repair Medium/Heavy Truck Technician (ASE Certified)	0	0	3	0	0	0% 33%	0% 0%	100% 67%	0% 0%	0% 0%					

#### Appendix D - Table 2B (part 2)

			ms reporti	ng that hav	ing KRESA	offer the c	ourse is ve	ry critical,	o their busii somewhat	
Course	moderately critical, low critical or no need, by employment size 10-49 employees									
		Nun	nber repo	rting			rting			
	Very critical	Somewhat critical	Moderately critical	Low Critical	No Need	Very critical	Somewhat critical	Moderately critical	Low Critical	No Need
Business Administration and Management Operations		entitedi	Circlear				erritea	entited		
Business	4	6	14	9	3	11%	17%	39%	25%	8%
Finance and Accounting	2	5	8	8	7	7%	17%	27%	27%	23%
Insurance Computer Programming/Programmer	0 3	1 4	4 4	0 5	2	0% 17%	20% 22%	80% 22%	0% 28%	11%
Digital/Multimedia and Information Resources	4	5	5	6	2	18%	22%	22%	28%	9%
Computer Systems Networking and Telecommunications	1	4	3	6	0	7%	29%	21%	43%	0%
System Administration/Administrator	4	3	5	4	2	22%	17%	28%	22%	11%
Computer and Information Systems Security/Information Assurance	2	2	2	3	2	18%	18%	18%	27%	18%
Marketing and Entrepreneurship Marketing	2	6	6	8	2	8%	25%	25%	33%	8%
Manufacturing										
Electrical/Electronics Equipment Installation and Repair	1	3	3	0	4	9%	27%	27%	0%	36%
Machine Tool Technology/Machinist	0	2	5	2	1	0%	20%	50%	20%	10%
Welding, Brazing and Soldering	2	3	4	3	2	14%	21%	29%	21%	14%
Mechatronics Engineering Technology	0 1	2 2	4 6	0 4	4 1	0% 7%	20% 14%	40% 43%	0% 29%	40% 7%
Mechanical Drafting	0	3	5	2	4	0%	21%	36%	14%	29%
-										
Agriculture, Food and Natural Resources										
Agriculture Agricultural Operations and Related Sciences	1	1	1			33%	33%	33%	500/	
Applied Horticulture and Horticultural Operations Animal Health & Veterinary Sciences	0 1	0 1	1	1		0% 50%	0% 50%	50%	50%	
Natural Resources and Conservation	0	1	1			0%	50%	50%		
Biotechnology	0	0	0	2		0%	0%	0%	100%	
Architecture and Construction				6	_	00/	0.1	222/	670/	
Drafting and Design Technology/Architectural Construction Trades	0 4	0 4	2 1	6 1	1 1	0% 36%	0% 36%	22% 9%	67% 9%	11% 9%
Woodworking General	0	4	0	0	1	0%	80%	0%	0%	20%
Electrical and Power Transmission Installation	2	2	3	4	1	17%	17%	25%	33%	8%
Plumbing Technology	2	1	2	1	1	29%	14%	29%	14%	14%
Heating, Air Conditioning, Ventilation and Refrigeration	1	2	2	1	2	13%	25%	25%	13%	25%
Arts, A/V Technology, Communications and Design										
Radio and Television Broadcasting Technology	1	1	0	0	1	33%	33%	0%	0%	33%
Graphics and Printing Technology and Communications	0	2	2	3		0%	29%	29%	43%	
Visual and Performing Arts	0	0	2	3		0%	0%	40%	60%	
Industrial Design	2	0	2	1	1	33%	0%	33%	17%	17%
Aviation										
Airframe Technology	1	0	1			50%	0%	50%		
Aeronautics/Aviation/Aerospace Science and Technology	2					100%				
Eduation and Training Education	2	2	0	1		40%	40%	0%	20%	
Energy Line Worker	1	0	1	1		33%	0%	33%	33%	
Health Science	0	2	0	1		0%	67%	0%	33%	
Biomedical Sciences, General	3	0	1	1	1	50%	0%	17%	17%	17%
Health Sciences/Allied Health/Health Sciences, General	0	1	0	1	1	0%	33%	0%	33%	33%
Health Information / Medical Records Technology Clinical/Medical Laboratory Science/Research and Allied Professions	0	1	0	1	1	0%	33%	0%	33%	33%
Hospitality and Tourism Cooking and Related Culinary Arts, General	0	0	1	1	1	0%	0%	33%	33%	33%
Personal Services Cosmetology	0	1	1			0%	50%	50%		
	Ŭ	-	-			0,0	50,0	20/0		
Law, Public Safety, Protective Services										
Public Safety/Protective Services	0	0	2	1		0%	0%	67%	33%	
Supply Chain Management Supply Chain Management	0	3	3	1	1	0%	38%	38%	13%	13%
Automotive, Transportation, Distribution and Logistics	0	1	1	2	1	0%	17%	17%	50%	17%
Heavy/Industrial Equipment Maintenance Technologies Collision Repair Technician (ASE Certified)	2	1 2	1	3 0	1 1	33%	33%	17%	50% 0%	17% 17%
Automobile Technician (ASE Certified)	2	1	1	1	2	29%	14%	14%	14%	29%
Small Engine and Related Equipment Repair	0	2	0	1	1	0%	50%	0%	25%	25%
Medium/Heavy Truck Technician (ASE Certified)	2	2	1	3	1	22%	22%	11%	33%	11%

#### Appendix D - Table 2B (part 3)

	Appendix D - Table 2B. Of the firms responding that the CTE course was relevant to their business, the distribution of firms reporting that having KRESA offer the course is very critical, somewhat critical, moderately critical, low critical or no need, by employment size										
Course	50 or more employees										
		Nun Somewhat	ber repo	-			Pero Somewhat	Cent repo			
Business Administration and Management Operations	Very critical	critical	critical	Low Critical	No Need	Very critical	critical	critical	Low Critical	No Need	
Business Auministration and Management Operations Business	1	2	5	12	1	5%	10%	24%	57%	5%	
Finance and Accounting	2	2	7	7	2	10%	10%	35%	35%	10%	
Insurance Computer Programming/Programmer	0 1	1 3	1 6	1 7	1	0% 6%	33% 17%	33% 33%	33% 39%	6%	
Digital/Multimedia and Information Resources	0	1	2	7	0	0%	10%	20%	70%	0%	
Computer Systems Networking and Telecommunications System Administration/Administrator	0 2	2 3	5 7	7 3	1 3	0% 11%	13% 17%	33% 39%	47% 17%	7% 17%	
Computer and Information Systems Security/Information Assurance	2	0	3	6	1	17%	0%	25%	50%	8%	
Marketing and Entrepreneurship											
Marketing	0	4	4	6	2	0%	25%	25%	38%	13%	
Manufacturing Electrical/Electronics Equipment Installation and Repair	2	4	2	3	0	18%	36%	18%	27%	0%	
Machine Tool Technology/Machinist	3	3	2	2	0	30%	30%	20%	20%	0%	
Welding, Brazing and Soldering Mechatronics	2 3	3 1	2 2	2 3	0 0	22% 33%	33% 11%	22% 22%	22% 33%	0% 0%	
Engineering Technology	0	2	4	4	0	0%	20%	40%	40%	0%	
Mechanical Drafting	0	1	1	4	3	0%	11%	11%	44%	33%	
Agriculture, Food and Natural Resources											
Agriculture Agricultural Operations and Related Sciences	0	0	2 0	_		0%	0%	100%			
Applied Horticulture and Horticultural Operations Animal Health & Veterinary Sciences	0	0	0	0		100%	0%				
Natural Resources and Conservation	0	0	1			0%	0%	100%	2221		
Biotechnology	1	1	0	1		33%	33%	0%	33%		
Architecture and Construction											
Drafting and Design Technology/Architectural	0	1	0 0	0	0	0%	100%	0% 0%	0%	0%	
Construction Trades Woodworking General	0	2 0	2	2 0	0 0	0% 0%	50% 0%	100%	50% 0%	0% 0%	
Electrical and Power Transmission Installation	1	2	3	4	1	9%	18%	27%	36%	9%	
Plumbing Technology Heating, Air Conditioning, Ventilation and Refrigeration	0	1 1	0 1	0 1	2 1	0% 0%	33% 25%	0% 25%	0% 25%	67% 25%	
Arts, A/V Technology, Communications and Design Radio and Television Broadcasting Technology	0	0	0	0	0						
Graphics and Printing Technology and Communications	0	1	1	0	Ŭ	0%	50%	50%	0%		
Visual and Performing Arts Industrial Design	0	0	0 5	0 1	0	0%	0%	83%	17%	0%	
	Ū	Ū	5	-	U	070	070	0370	1770	070	
Aviation			0			001	100%	00/			
Airframe Technology Aeronautics/Aviation/Aerospace Science and Technology	0	1	0			0%	100%	0%			
Eduation and Training Education	0	0	0	2		0%	0%	0%	100%		
			5	<u> </u>		070	070	570	10070		
Energy	_	_	~	_							
Line Worker	0	0	0	0							
Health Science	0	2	1	1		0%	50%	25%	25%		
Biomedical Sciences, General Health Sciences/Allied Health/Health Sciences, General	3 1	2 1	1 2	0 1	0 0	50% 20%	33% 20%	17% 40%	0% 20%	0% 0%	
Health Information / Medical Records Technology	1	0	0	0	1	20% 50%	0%	40%	0%	50%	
Clinical/Medical Laboratory Science/Research and Allied Professions											
Hospitality and Tourism											
Cooking and Related Culinary Arts, General	0	1	3	0	0	0%	25%	75%	0%	0%	
Personal Services											
Cosmetology	0	0	0								
I mu Dublic Safety Durtesting Somission											
Law, Public Safety, Protective Services Public Safety/Protective Services	0	1	0	0		0%	100%	0%	0%		
			-								
Supply Chain Management	1	2	4	3	2	8%	17%	33%	25%	17%	
Supply Chain Management	T	2	4	э	Z	070	1/70	33%	23%	1170	
Automotive, Transportation, Distribution and Logistics	_			_	_						
Heavy/Industrial Equipment Maintenance Technologies Collision Repair Technician (ASE Certified)	2 1	0	1 0	2 2	0 0	40% 33%	0% 0%	20% 0%	40% 67%	0% 0%	
Automobile Technician (ASE Certified)	3	1	0	1	0	60%	20%	0%	20%	0%	
Small Engine and Related Equipment Repair Modium (Heavy Truck Technician (ASE Certified)	1 1	1 1	1 0	2 2	0 0	20% 25%	20% 25%	20% 0%	40% 50%	0% 0%	
Medium/Heavy Truck Technician (ASE Certified)	1	1	U	2	U	25%	25%	0%	50%	0%	

## Appendix D - Table 3A (part 1)

		ix D - Table ion of firm		-	vels of edu					
Course		Alice			All ind	ustries	Dam		4 <sup>1</sup>	
		Certificate/	Community		Mix of		Certificate/	Community		Mix of
	BA or higher	Industry recognized	College degree	High school graduate	different educational	BA or higher	Industry recognized	College degree	High school graduate	different educational
Business Administration and Management Operations		credential			levels		credential			levels
Business Finance and Accounting	16 27	2 4	14 13	17 6	34 15	0 0	0 0	0	0 0	0 0
Insurance	1	2	1	1	4	0	0	0	0	0
Computer Programming/Programmer	15 15	11 5	5 3	3 2	14	0	0 0	0 0	0 0	0 0
Digital/Multimedia and Information Resources Computer Systems Networking and Telecommunications	15	5	3	1	14 9	0	0	0	0	0
System Administration/Administrator	20	10	3	1	10	0	0	0	0	0
Computer and Information Systems Security/Information Assurance	11	5	3	1	9	0	0	0	0	0
Marketing and Entrepreneurship Marketing	24	4	11	2	12	0	0	0	0	0
Manufacturing										
Electrical/Electronics Equipment Installation and Repair	3	11	2	9	12	0	0	0	0	0
Machine Tool Technology/Machinist Welding, Brazing and Soldering	10 14	4	6 12	11 7		0	0 0	0 0	0 0	
Mechatronics	4	10	2	4	8	0	0	0	0	0
Engineering Technology Mechanical Drafting	13 3	7 6	6 12	4 5	7 9	0	0 0	0	0	0 0
	5	0	12		5	U	U	U	U	U
Agriculture, Food and Natural Resources						_	~	_		
Agriculture Agricultural Operations and Related Sciences Applied Horticulture and Horticultural Operations	1 2	1 2	1 1	4		0	0 0	0	1	
Animal Health & Veterinary Sciences	1	1	1	1		0	0	0	0	
Natural Resources and Conservation Biotechnology	1 4	1 2	1 1	2 1		0 1	0 0	0 0	0 0	
Architecture and Construction Drafting and Design Technology/Architectural	5	4	4	3	2	0	0	0	0	0
Construction Trades	2	6	2	12	5	0	0	0	0	0
Woodworking General	2	6	7	0		0	0	0	0	0
Electrical and Power Transmission Installation Plumbing Technology	2 1	16 7	3 1	9 4	8 4	0 0	0 0	0 0	0 0	0 0
Heating, Air Conditioning, Ventilation and Refrigeration	1	7	5	7		0	0	0	0	
Arts, A/V Technology, Communications and Design										
Radio and Television Broadcasting Technology	2	3				0	1			
Graphics and Printing Technology and Communications Visual and Performing Arts	2 2	1 1	2 1	2 6	5	0	0 0	0	0 1	0
Industrial Design	9	4	1	4		1	0	0	0	
Aviation										
Airframe Technology	1	1	1			0	0	0		
Aeronautics/Aviation/Aerospace Science and Technology	1	1				1	1			
Eduation and Training Education	3	2	4			0	0	0		
Factor			_			_		_		
Energy Line Worker	1	4	2			0	1	0		
Health Science				_		_		_	~	
Biomedical Sciences, General Health Sciences/Allied Health/Health Sciences, General	1	4 6	1 1	2 3	3	0 0	1 0	0 0	0 0	0
Health Information / Medical Records Technology	3	1	3	2		0	0	0	0	
Clinical/Medical Laboratory Science/Research and Allied Professions	2	1	3			0	0	1		
Hospitality and Tourism Cooking and Related Culinary Arts, General	3	2	2	4		0	0	0	0	
Personal Services Cosmetology	1	1	2			0	0	1		
Law, Public Safety, Protective Services Public Safety/Protective Services	3	2	1			1	0	0		
Supply Chain Management Supply Chain Management	13	5	2	5		1	0	0	0	
Automotive, Transportation, Distribution and Logistics										
Heavy/Industrial Equipment Maintenance Technologies	6	2	4	4		0	0	0	0	
Collision Repair Technician (ASE Certified)	4 7	3 2	4	<b>_</b>		0	0	0	0	
Automobile Technician (ASE Certified) Small Engine and Related Equipment Repair	3	2	3 3	2 3		1 0	0 0	0 0	0	
Medium/Heavy Truck Technician (ASE Certified)	7	2	3	4		0	0	0	0	

# Appendix D - Table 3A (part 2)

		ix D - Table ion of firm		-	vels of edu					
Course				C	onstructio	<u> </u>	es			
		Nun Certificate/	nber repo	rting	Mix of		Perc	cent repor	ting	Mix of
	BA or higher	Industry recognized	Community College degree	High school graduate	different educational	BA or higher	Industry recognized	Community College degree	High school graduate	different educational
Business Administration and Management Operations		credential			levels		credential			levels
Business Finance and Accounting	2 2	0	1 2	6 2	5 2	0	0	0	0	0 0
Insurance	0	0	0	0	0	0	0	0	0	0
Computer Programming/Programmer	2	1	0	0	2	0	0	0	0	0
Digital/Multimedia and Information Resources Computer Systems Networking and Telecommunications	3	0	0	0 0	2 2	1 1	0	0 0	0 0	0 1
System Administration/Administrator	2	1	0	0	1	1	0	0	0	0
Computer and Information Systems Security/Information Assurance	0	1	0	0	1	0	1	0	0	1
Marketing and Entrepreneurship Marketing	5	2	0	0	0	1	0	0	0	0
Manufacturing										
Electrical/Electronics Equipment Installation and Repair	0	1	0	4	2	0	0	0	1	0
Machine Tool Technology/Machinist	1	0	3	0		0	0	1	0	
Welding, Brazing and Soldering Mechatronics	4 0	0	6 0	0 3	0	0 0	0	1 0	0 1	0
Engineering Technology	2	2	1	2	1	0	0	0	0	0
Mechanical Drafting	0	0	2	4	1	0	0	0	1	0
Agriculture, Food and Natural Resources										
Agriculture Agricultural Operations and Related Sciences	0	0	0	0						
Applied Horticulture and Horticultural Operations	0	0	0							
Animal Health & Veterinary Sciences Natural Resources and Conservation	0	0	0	0 0		0	1	0	0	
Biotechnology	0	0	1	0		0	0	1	0	
Architecture and Construction										
Architecture and Construction Drafting and Design Technology/Architectural	3	1	1	2	1	0	0	0	0	0
Construction Trades	1	3	0	7	2	0	0	0	1	0
Woodworking General	1	4	3		_	0	1	0	_	_
Electrical and Power Transmission Installation Plumbing Technology	0	5 4	0	4	0	0 0	1 1	0 0	0	0 0
Heating, Air Conditioning, Ventilation and Refrigeration	0	4	3	1		0	1	0	0	
Arts A/V Technology Communications and Design										
Arts, A/V Technology, Communications and Design Radio and Television Broadcasting Technology	0	0								
Graphics and Printing Technology and Communications	1	0	1	0	1	0	0	0	0	0
Visual and Performing Arts	0	0	0	1		0	0	0	1	
Industrial Design	0	0	0	2		0	0	0	1	
Aviation										
Airframe Technology	0	0	0							
Aeronautics/Aviation/Aerospace Science and Technology	0	0								
Eduation and Training										
Education	0	0	0							
Energy	1	2	0			0	1	0		
Line Worker										
Health Science										
Biomedical Sciences, General	0	0	0	0						
Health Sciences/Allied Health/Health Sciences, General	0	0	0	0	0					
Health Information / Medical Records Technology Clinical/Medical Laboratory Science/Research and Allied Professions	0	0	0	0						
Hospitality and Tourism	0	0	0	0						
Cooking and Related Culinary Arts, General	U	U		U						
Personal Services										
Cosmetology	0	0	0							
Law, Public Safety, Protective Services										
Public Safety/Protective Services	0	0	0							
Summer Charles Manual Street										
Supply Chain Management Supply Chain Management	1	0	0	0		1	0	0	0	
				0		1	0	0	0	
Automotive, Transportation, Distribution and Logistics										
Heavy/Industrial Equipment Maintenance Technologies	0	0	2	0		0	0	1	0	
Collision Repair Technician (ASE Certified) Automobile Technician (ASE Certified)	0	0	0	0						
Small Engine and Related Equipment Repair	0	0	0	0						
Medium/Heavy Truck Technician (ASE Certified)	0	0	1	0		0	0	1	0	

## Appendix D - Table 3A (part 3)

				-	els of edu	cational at		relevant to eeded for e		
Course				Ma		ıstry <mark>ng Industr</mark>	ies			
Course		Nun Certificate/	nber repo		Mix of			cent repor	ting	Mix of
	BA or higher	Industry recognized credential	Community College degree	High school graduate	different educational levels	BA or higher	Industry recognized credential	Community College degree	High school graduate	different educational levels
Business Administration and Management Operations										
Business Finance and Accounting	2 7	0 1	7 2	4	10 5	0 0	0 0	0	0 0	0 0
Insurance	0	0	0	1	0	0	0	0	1	0
Computer Programming/Programmer Digital/Multimedia and Information Resources	2	6 1	3 2	2 0	4 4	0 0	0	0	0 0	0 0
Computer Systems Networking and Telecommunications	4	2	1	1	3	0	0	0	0	0
System Administration/Administrator Computer and Information Systems Security/Information Assurance	4 3	3 1	2 1	0 1	4 3	0 0	0 0	0 0	0 0	0 0
Marketing and Entrepreneurship Marketing	5	1	2	0	3	0	0	0	0	0
Manufacturing										
Electrical/Electronics Equipment Installation and Repair	1	9	2	2	4	0	1	0	0	0
Machine Tool Technology/Machinist	8	3 1	2 3	7 5		0 0	0 0	0 0	0 0	
Welding, Brazing and Soldering Mechatronics	8 2	8	1	1	3	0	1	0	0	0
Engineering Technology	7	4	3	2	3	0	0	0	0	0
Mechanical Drafting	3	3	8	0	4	0	0	0	0	0
Agriculture, Food and Natural Resources										
Agriculture Agricultural Operations and Related Sciences	1	1	0	2		0	0	0	1	
Applied Horticulture and Horticultural Operations Animal Health & Veterinary Sciences	2 1	0 1	0 1	0		1 0	0	0	0	
Natural Resources and Conservation	0	0	1	1		0	0	1	1	
Biotechnology	0	2	0	0		0	1	0	0	
Architecture and Construction										
Drafting and Design Technology/Architectural	1	1	3	0	0	0	0	1	0	0
Construction Trades Woodworking General	0	3 1	1 3	2	1	0 0	0	0 1	0	0
Electrical and Power Transmission Installation	1	5	2	2	3	0	0	0	0	0
Plumbing Technology	0	2	1	0	2	0	0	0	0	0
Heating, Air Conditioning, Ventilation and Refrigeration	0	2	0	3		0	0	0	1	
Arts, A/V Technology, Communications and Design										
Radio and Television Broadcasting Technology	0	1				0	1			
Graphics and Printing Technology and Communications Visual and Performing Arts	1 0	1 1	1 0	1 0	0	0 0	0 1	0 0	0 0	0
Industrial Design	4	3	1	1		0	0	0	0	
Aviation										
Airframe Technology	0	1	0			0	1	0		
Aeronautics/Aviation/Aerospace Science and Technology	0	0								
Eduation and Training Education	0	1	0			0	1	0		
Energy Line Worker	0	1	1			0	1	1		
Health Science										
Biomedical Sciences, General	0	1	1	1		0	0	0	0	
Health Sciences/Allied Health/Health Sciences, General	0	1	1	0	0	0	1	1	0	0
Health Information / Medical Records Technology Clinical/Medical Laboratory Science/Research and Allied Professions	1 1	0 1	1 0	0		1 1	0 1	1 0	0	
Hospitality and Tourism										
Cooking and Related Culinary Arts, General	1	1	0	0		1	1	0	0	
Personal Services										
Cosmetology	1	1	0			1	1	0		
Law, Public Safety, Protective Services		_	_				_	_		
Public Safety/Protective Services	1	0	0			1	0	0		
Supply Chain Management	10	л	1	2		1	_	_	0	
Supply Chain Management	10	4	1	2		1	0	0	0	
Automotive, Transportation, Distribution and Logistics										
Heavy/Industrial Equipment Maintenance Technologies Collision Repair Technician (ASE Certified)	3	2 0	1 1	1		0 1	0	0	0	
Automobile Technician (ASE Certified)	1	1	2	0		0	0	1	0	
Small Engine and Related Equipment Repair	2	1	2	1		0	0	0	0	
Medium/Heavy Truck Technician (ASE Certified)	2	1	2	1		0	0	0	0	

## Appendix D - Table 3A (part 4)

				-	vels of edu			relevant to eeded for e		
Course						ndustries				
		Nun Certificate/	nber repo	rting	Mix of		Per Certificate/	cent repor	ting	Mix of
	BA or higher	Industry recognized credential	Community College degree	High school graduate	different educational levels	BA or higher	Industry recognized credential	Community College degree	High school graduate	different educational levels
Business Administration and Management Operations										
Business Finance and Accounting	0	0 1	0 1	3 1	1 1	0	0	0	1 0	0
Insurance	0	1	0	0	1	0	1	0	0	1
Computer Programming/Programmer Digital/Multimedia and Information Resources	2 3	0	0 0	0	1 0	1 1	0	0	0 0	0 0
Computer Systems Networking and Telecommunications	2	1	0	0	0	1	0	0	0	0
System Administration/Administrator Computer and Information Systems Security/Information Assurance	3 2	0 0	0 1	0 0	0 0	1 1	0 0	0 0	0 0	0 0
Marketing and Entrepreneurship Marketing	2	0	2	0	0	1	0	1	0	0
Manufacturing										
Electrical/Electronics Equipment Installation and Repair	0	0	0	0	0					
Machine Tool Technology/Machinist Welding, Brazing and Soldering	0	0	0 0	0						
Mechatronics	0	0	0	0	0					
Engineering Technology Mechanical Drafting	0	0	0 0	0	0					
		U	0	0	0					
Agriculture, Food and Natural Resources	0	0	0	0						
Agriculture Agricultural Operations and Related Sciences Applied Horticulture and Horticultural Operations	0	0	0	U						
Animal Health & Veterinary Sciences	0	0	0	0						
Natural Resources and Conservation Biotechnology	0 2	0 0	0 0	0 0		1	0	0	0	
Architecture and Construction										
Drafting and Design Technology/Architectural	0	0	0	0	0					
Construction Trades Woodworking General	0	0	0 0	0	0					
Electrical and Power Transmission Installation	0	0	0	0	0					
Plumbing Technology Heating, Air Conditioning, Ventilation and Refrigeration	0	0	0 0	0	0					
		Ŭ	Ũ	Ű						
Arts, A/V Technology, Communications and Design Radio and Television Broadcasting Technology	0	0								
Graphics and Printing Technology and Communications	0	0	0	0	0					
Visual and Performing Arts	0	0	0 0	0						
Industrial Design	0	U	U	U						
Aviation										
Airframe Technology Aeronautics/Aviation/Aerospace Science and Technology	0	0 0	0							
Eduation and Training										
Education	1	0	0			1	0	0		
Energy	0	0	0							
Line Worker										
Health Science										
Biomedical Sciences, General Health Sciences/Allied Health/Health Sciences, General	1 0	2 3	0 0	0 1	2	0 0	1 1	0 0	0 0	0
Health Information / Medical Records Technology	1	1	0	1	_	0	0	0	0	Ť
Clinical/Medical Laboratory Science/Research and Allied Professions	0	0	2			0	0	1		
Hospitality and Tourism Cooking and Related Culinary Arts, General	2	0	0	1		1	0	0	0	
Personal Services Cosmetology	0	0	0							
Law, Public Safety, Protective Services Public Safety/Protective Services	0	1	0			0	1	0		
Supply Chain Management Supply Chain Management	0	0	0	1		0	0	0	1	
Automotive, Transportation, Distribution and Logistics										
Heavy/Industrial Equipment Maintenance Technologies	0	0	0	0						
Collision Repair Technician (ASE Certified) Automobile Technician (ASE Certified)	0	0	0 0	0						
Small Engine and Related Equipment Repair	0	0	0	0						
Medium/Heavy Truck Technician (ASE Certified)	0	0	0	0			<u> </u>			

### Appendix D - Table 3A (part 5)

	Appendix D - Table 3A. Of the firms responding that the CTE course was relevant to their busine distribution of firms reporting various levels of educational attainment needed for entry to the f industry Wholesale and Retail Trade and Transportation and Warehousing										
		\A/h		nd Potail T			ation and	Warahow	ing		
Course			nber repo		rade and	Transport		cent report			
	BA or higher	Certificate/ Industry recognized	Community College degree	High school graduate	Mix of different educational	BA or higher	Certificate/ Industry recognized	Community College degree	High school graduate	Mix of different educational	
Business Administration and Management Operations		credential			levels		credential			levels	
Business	1	0	2	2	4	0	0	0	0	0	
Finance and Accounting Insurance	2 0	2 0	2 0	1 0	0	0	0	0	0	0	
Computer Programming/Programmer	0	1	1	0	1	0	0	0	0	0	
Digital/Multimedia and Information Resources	1	1	1	0 0	1	0	0	0	0	0	
Computer Systems Networking and Telecommunications System Administration/Administrator	23	0	0	0	0 2	1 1	0	0	0	0 0	
Computer and Information Systems Security/Information Assurance	2	0	1	0	0	1	0	0	0	0	
Marketing and Entrepreneurship Marketing	3	0	1	0	2	1	0	0	0	0	
Manufacturing											
Electrical/Electronics Equipment Installation and Repair	1	0	0	1	3	0	0	0	0	1	
Machine Tool Technology/Machinist	0	0	1	1		0	0	1	1		
Welding, Brazing and Soldering Mechatronics	0	0	2 0	1 0	2	0	0	1 0	0	1	
Engineering Technology	1	1	0	0	0	1	1	0	0	0	
Mechanical Drafting	0	1	0	0	2	0	0	0	0	1	
Agriculture, Food and Natural Resources											
Agriculture Agricultural Operations and Related Sciences	0	0	1	0		0	0	1	0		
Applied Horticulture and Horticultural Operations	0	1	0	_		0	1	0			
Animal Health & Veterinary Sciences Natural Resources and Conservation	0	0	0	0 0							
Biotechnology	1	0	0	0		1	0	0	0		
Architecture and Construction											
Architecture and Construction Drafting and Design Technology/Architectural	0	1	0	0	0	0	1	0	0	0	
Construction Trades	0	0	0	1	0	0	0	0	1	0	
Woodworking General	0	1	0			0	1	0			
Electrical and Power Transmission Installation Plumbing Technology	0	4	0	1 0	1 0	0	1	0	0	0	
Heating, Air Conditioning, Ventilation and Refrigeration	0	0	1	0	0	0	0	1	0		
Arts, A/V Technology, Communications and Design	0	0									
Radio and Television Broadcasting Technology Graphics and Printing Technology and Communications	0	0	0	0	1	0	0	0	0	1	
Visual and Performing Arts	0	0	0	1		0	0	0	1		
Industrial Design	2	0	0	0		1	0	0	0		
Aviation											
Airframe Technology	1	0	0			1	0	0			
Aeronautics/Aviation/Aerospace Science and Technology	1	0				1	0				
Eduation and Training											
Education	0	0	0								
Energy	0	0	0								
Line Worker	Ŭ		°,								
Haalth Science											
Health Science Biomedical Sciences, General	0	0	0	0							
Health Sciences/Allied Health/Health Sciences, General	0	0	0	0	0						
Health Information / Medical Records Technology	0 0	0	0	0							
Clinical/Medical Laboratory Science/Research and Allied Professions		U	0								
Hospitality and Tourism Cooking and Related Culinary Arts, General	0	0	0	1		0	0	0	1		
Personal Services											
Cosmetology	0	0	0								
I any Public Safaty Protective Convises											
Law, Public Safety, Protective Services Public Safety/Protective Services	0	0	0								
	ľ	Ť									
Supply Chain Management Supply Chain Management	1	0	1	0		1	0	1	0		
Automotive, Transportation, Distribution and Logistics											
Heavy/Industrial Equipment Maintenance Technologies	2	0	1	0		1	0	0	0		
Collision Repair Technician (ASE Certified)	03	1 0	0	0		0 1	1 0	0	0		
Automobile Technician (ASE Certified) Small Engine and Related Equipment Repair	3 0	0	0	0		0	0	0	0		
Medium/Heavy Truck Technician (ASE Certified)	3	0	0	0		1	0	0	0		

#### Appendix D - Table 3A (part 6)

Appendix D - Table 3A. Of the firms responding that the CTE course was relevant to their business, the distribution of firms reporting various levels of educational attainment needed for entry to the firm, by

Course Agriculture, Information, Finance and Insurance, Rea		nd Rental a		
	Der			g and
Certificate/ Committee Mix of	Certificate/	rcent repo	rting	Mix of
BA or higher BA or higher	Industry	Community College	High school graduate	different educational
Business Administration and Management Operations         Credential         Jewels	credential	degree		levels
Business         7         1         1         6         0	0	0	0	0
Finance and Accounting     7     0     2     1     3     1	0	0	0	0
Insurance         1         0         1         0         2         0           Computer Programming/Programmer         3         3         0         0         3         0	0	0	0	1 0
Digital/Multimedia and Information Resources22040	0	0	0	1
Computer Systems Networking and Telecommunications         1         1         1         0         3         0	0	0	0	1
System Administration/Administrator241120Computer and Information Systems Security/Information Assurance210040	0	0	0	01
Computer and Information Systems Security/Information Assurance 2 1 0 0 4 0	0	0	0	1
Marketing and Entrepreneurship513140	0	0	0	0
Manufacturina				
Manufacturing           Electrical/Electronics Equipment Installation and Repair         1         0         0         2         0	0	0	0	0
Machine Tool Technology/Machinist 0 1 0 1 0	1	0	1	Ŭ
Welding, Brazing and Soldering         0         1         0         1         0	1	0	1	
Mechatronics         2         0         1         0         1         1           Engineering Technology         3         0         1         0         1         1	0	0	0 0	0
Engineering Technology         3         0         1         0         1         1           Mechanical Drafting         0         2         2         0         1         0	0	0	0	0
Agriculture, Food and Natural Resources				
Agriculture Agricultural Operations and Related Sciences     0     0     2     0	0	0	1	
Applied Horticulture and Horticultural Operations0110Animal Health & Veterinary Sciences00010	1 0	1 0	1	
Natural Resources and Conservation1001010011	0	0	1	
Biotechnology 1 0 0 1 1	0	0	1	
Architecture and Construction				
Drafting and Design Technology/Architectural     1     1     0     1     0	0	0	0	0
Construction Trades         0         0         1         1         2         0           Woodworking General         0         0         1          0         0	0	0 1	0	1
Woodworking General00110Electrical and Power Transmission Installation110110	0	0	0	0
Plumbing Technology         1         1         0         0         1         0	0	0	0	0
Heating, Air Conditioning, Ventilation and Refrigeration     1     1     0     1     0	0	0	0	
Arts, A/V Technology, Communications and Design				
Radio and Television Broadcasting Technology120Graphics and Printing Technology and Communications0001	1	0	0	1
Visual and Performing Arts10120	0	0	1	
Industrial Design 3 0 0 1 1	0	0	0	
Aviation				
Airframe Technology     0     0     1     0	0	1		
Aeronautics/Aviation/Aerospace Science and Technology     0     1     0	1			
Education and Training		4		
Education         0         0         1         0	0	1		
<b>Energy</b> 0 0 1 0	0	1		
Line Worker				
Health Science				
Biomedical Sciences, General     0     0     1     0	0	0	1	
Health Sciences/Allied Health/Health Sciences, General00010Health Information / Medical Records Technology00010	0	0	0 1	1
Clinical/Medical Laboratory Science/Research and Allied Professions 0 0 1 0 0 1 0	0	1		
Hospitality and Tourism				
Cooking and Related Culinary Arts, General     0     0     1     0	0	0	1	
Personal Services     0     0     1     0	0	1		
	0	1		
Law, Public Safety, Protective Services				
Public Safety/Protective Services         0         0         1         0	0	1		
Supply Chain Management				
Supply Chain Management     1     0     0     1     1	0	0	1	
Automotive, Transportation, Distribution and Logistics				
Heavy/Industrial Equipment Maintenance Technologies 0 0 0 1 0	0	0	1	
Collision Repair Technician (ASE Certified)         0         0         1         0           Automobile Technician (ASE Certified)         0         0         0         1         0	0	1 0	1	
Small Engine and Related Equipment Repair     0     0     1     0	0	0	1	
Medium/Heavy Truck Technician (ASE Certified)     0     0     0     1     0	0	0	1	

### Appendix D - Table 3A (part 7)

	Appendix D - Table 3A. Of the firms responding that the CTE course was relevant to their busir distribution of firms reporting various levels of educational attainment needed for entry to the industry Education, Social Assistance, and Public Administration										
Course .			Educati	on, Social			lic Admin	istration			
Course			nber repo				Per	cent repor	ting		
	BA or higher	Certificate/ Industry recognized credential	Community College degree	High school graduate	Mix of different educational levels	BA or higher	Certificate/ Industry recognized credential	Community College degree	High school graduate	Mix of different educational levels	
Business Administration and Management Operations											
Business	1 3	1 0	3 4	0	4 2	0	0	0	0	0 0	
Finance and Accounting Insurance	0	0	4	0	0	U	0	0	0	0	
Computer Programming/Programmer	4	0	1	0	0	1	0	0	0	0	
Digital/Multimedia and Information Resources	1	1	0	0	1	0	0	0	0	0	
Computer Systems Networking and Telecommunications System Administration/Administrator	4	0	0	0	0	1 1	0	0	0	0 0	
Computer and Information Systems Security/Information Assurance	1	1	0	0	0	1	1	0	0	0	
Marketing and Entrepreneurship											
Marketing	1	0	2	0	1	0	0	1	0	0	
Manufacturing											
Electrical/Electronics Equipment Installation and Repair Machine Tool Technology/Machinist	0	1	0	01	0	0 1	1 0	0	0 1	0	
Welding, Brazing and Soldering	1	0	0	0		1	0	0	0		
Mechatronics	0	1	0	0	1	0	1	0	0	1	
Engineering Technology	0	0	1	0	0	0	0	1	0	0	
Mechanical Drafting	0	0	0	1	0	0	0	0	1	0	
Agriculture, Food and Natural Resources											
Agriculture Agricultural Operations and Related Sciences	0	0	0	0							
Applied Horticulture and Horticultural Operations	0	0	0	0							
Animal Health & Veterinary Sciences Natural Resources and Conservation	0	0	0	0							
Biotechnology	0	0	0	0							
Architecture and Construction											
Drafting and Design Technology/Architectural	0	0	0	1	0	0	0	0	1	0	
Construction Trades	1	0	0	1	0	1	0	0	1	0	
Woodworking General Electrical and Power Transmission Installation	0	0	0	1	1	0	0	0	0	0	
Plumbing Technology	0	0	0	1	0	0	0	0	1	0	
Heating, Air Conditioning, Ventilation and Refrigeration	0	0	1	1		0	0	1	1		
Arts, A/V Technology, Communications and Design											
Radio and Television Broadcasting Technology	0	0									
Graphics and Printing Technology and Communications	0	0	0	1	1	0	0	0	1	1	
Visual and Performing Arts	0	0	0	0							
Industrial Design	0	1	0	0		0	1	0	0		
Aviation											
Airframe Technology	0	0	0								
Aeronautics/Aviation/Aerospace Science and Technology	0	0									
Eduation and Training											
Education	2	1	2			0	0	0			
Energy Line Worker	0	1	0			0	1	0			
Health Science Biomedical Sciences, General	0	1	0	0		0	1	0	0		
Health Sciences/Allied Health/Health Sciences, General	1	2	0	2	0	0	0	0	0	0	
Health Information / Medical Records Technology	1	0	2 0	0		0 1	0 0	1 0	0		
Clinical/Medical Laboratory Science/Research and Allied Professions		0	0			1	0	0			
Hospitality and Tourism Cooking and Related Culinary Arts, General	0	0	2	0		0	0	1	0		
Personal Services											
Cosmetology	0	0	0								
Law, Public Safety, Protective Services	_							_			
Public Safety/Protective Services	2	0	0			1	0	0			
Supply Chain Management	_								_		
Supply Chain Management	0	1	0	0		0	1	0	0		
Automotive, Transportation, Distribution and Logistics		_	-	_			_	_	_		
Heavy/Industrial Equipment Maintenance Technologies	1	0	0 1	0		1 0	0 0	0	0		
Collision Repair Technician (ASE Certified) Automobile Technician (ASE Certified)	2	1	0	1		1	0	0	0		
Small Engine and Related Equipment Repair	1	1	0	1		0	0	0	0		
Medium/Heavy Truck Technician (ASE Certified)	1	1	0	1		0	0	0	0		

## Appendix D - Table 3A (part 8)

				-	-	cational att		relevant to eeded for e		
Course	Arts,					· ·		rvices and		rvices
		Certificate/	Community		Mix of		Certificate/	cent repor		Mix of
	BA or higher	Industry recognized	College degree	High school graduate	different educational	BA or higher	Industry recognized	College degree	High school graduate	different educational
Business Administration and Management Operations		credential			levels		credential			levels
Business Finance and Accounting	3 6	0	0	1 0	4	0 1	0 0	0	0 0	1 0
Insurance	0	1	0	0	1	0	1	0	0	1
Computer Programming/Programmer Digital/Multimedia and Information Resources	2 2	0	0	1 2	3 2	0 0	0 0	0	0 0	1 0
Computer Systems Networking and Telecommunications	2	1	1	0	1	0	0	0	0	0
System Administration/Administrator Computer and Information Systems Security/Information Assurance	2 1	0	0	0 0	1	1 0	0 0	0 0	0 0	0 0
Marketing and Entrepreneurship					2					
Marketing	3	0	1	1	2	0	0	0	0	0
Manufacturing				-		_	-	_	_	
Electrical/Electronics Equipment Installation and Repair Machine Tool Technology/Machinist	0	0	0	0 1	1	0 0	0 0	0	0 1	1
Welding, Brazing and Soldering	1	0	1	0		1	0	1	0	
Mechatronics Engineering Technology	0	0	0	0 0	1 2	0 0	0 0	0	0 0	1 1
Mechanical Drafting	0	0	0	0	1	0	0	0	0	1
Agriculture, Food and Natural Resources										
Agriculture Agricultural Operations and Related Sciences	0	0	0	0						
Applied Horticulture and Horticultural Operations Animal Health & Veterinary Sciences	0	0	0	0						
Natural Resources and Conservation	0	0	0	0						
Biotechnology	0	0	0	0						
Architecture and Construction										
Drafting and Design Technology/Architectural	0	0	0	0	0 0					
Construction Trades Woodworking General	0	0	0	0	0					
Electrical and Power Transmission Installation	0	0	1	0	2	0	0	0	0	1
Plumbing Technology Heating, Air Conditioning, Ventilation and Refrigeration	0	0	0	0 1	0	0	0	0	1	
Arts, A/V Technology, Communications and Design Radio and Television Broadcasting Technology	1	0				1	0			
Graphics and Printing Technology and Communications	0	0	0	0	1	0	0	0	0	1
Visual and Performing Arts Industrial Design	1 0	0	0	2 0		0	0	0	1	
			-	-						
Aviation Airframe Technology	0	0	0							
Aeronautics/Aviation/Aerospace Science and Technology	0	0	0							
Eduation and Training										
Education	0	0	1			0	0	1		
Energy	0	0	0							
Line Worker			-							
Health Science										
Biomedical Sciences, General	0	0	0	0	_					
Health Sciences/Allied Health/Health Sciences, General Health Information / Medical Records Technology	0	0	0	0	0					
Clinical/Medical Laboratory Science/Research and Allied Professions	0	0	0	-						
Hospitality and Tourism Cooking and Related Culinary Arts, General	0	1	0	1		0	1	0	1	
Personal Services Cosmetology	0	0	1			0	0	1		
Law, Public Safety, Protective Services						~		_		
Public Safety/Protective Services	0	1	0			0	1	0		
Supply Chain Management Supply Chain Management	0	0	0	1		0	0	0	1	
Automotive, Transportation, Distribution and Logistics										
Heavy/Industrial Equipment Maintenance Technologies	0	0	0	2		0	0	0	1	
Collision Repair Technician (ASE Certified) Automobile Technician (ASE Certified)	01	1 0	1 1	0		0 1	1 0	1 1	0	
Small Engine and Related Equipment Repair	0	0	1	0		0	0	1	0	
Medium/Heavy Truck Technician (ASE Certified)	1	0	0	1		1	0	0	1	

## Appendix D - Table 3B (part 1)

		ix D - Table ion of firm		-	vels of edu employr	cational att nent size				
Course		Nun	ber repo	rting	1 to 9 er	nployees	Por	ent repor	ting	
		Certificate/ Industry	Community	High school	Mix of different		Certificate/ Industry	Community	High school	Mix of different
	BA or higher	recognized	College degree	graduate	educational levels	BA or higher	recognized	College degree	graduate	educational levels
Business Administration and Management Operations		credential			levels		credentia			levels
Business	5	0	3	7	11	0	0	0	0	0
Finance and Accounting Insurance	7 0	2 0	1 0	2 0	3	0 0	0 0	0 0	0	0 1
Computer Programming/Programmer	2	2	2	0	6	0	0	0	0	1
Digital/Multimedia and Information Resources	2	0	1	0	4	0	0	0	0	1
Computer Systems Networking and Telecommunications	2 2	0 1	0 2	0 0	4	0 0	0 0	0 0	0	1 0
System Administration/Administrator Computer and Information Systems Security/Information Assurance	2	0	1	0	3	0	0	0	0	1
Marketing and Entrepreneurship Marketing	7	1	1	1	3	1	0	0	0	0
Manufacturing										
Electrical/Electronics Equipment Installation and Repair	1	4	0	6	4	0	0	0	0	0
Machine Tool Technology/Machinist	4	2	3	2		0	0	0	0	
Welding, Brazing and Soldering Mechatronics	5 2	2 2	5 1	0 3	1	0 0	0 0	0 0	0	0
Engineering Technology	6	1	3	2	1	0	0	0	0	0
Mechanical Drafting	3	0	4	3	2	0	0	0	0	0
Agriculture Food and Natural Possures										
Agriculture, Food and Natural Resources Agriculture Agricultural Operations and Related Sciences	0	1	1	0		0	1	1	0	
Applied Horticulture and Horticultural Operations	1	2	0	°,		0	1	0	°,	
Animal Health & Veterinary Sciences	1	0	0	0		1	0	0	0	
Natural Resources and Conservation Biotechnology	0	1 1	1 1	0		0	1 0	1 0	0	
bloccamology	-	-	1	Ū		Ū	Ū	0	0	
Architecture and Construction										
Drafting and Design Technology/Architectural	3	0	2	2	1	0	0	0	0	0
Construction Trades Woodworking General	1	2 5	2 2	6	1	0 0	0 1	0 0	1	0
Electrical and Power Transmission Installation	2	5	1	5	2	0	0	0	0	0
Plumbing Technology	1	2	1	3	0	0	0	0	0	0
Heating, Air Conditioning, Ventilation and Refrigeration	1	2	3	2		0	0	0	0	
Arts, A/V Technology, Communications and Design										
Radio and Television Broadcasting Technology	1	1				1	1			
Graphics and Printing Technology and Communications	1	1	0	0	1	0	0	0	0	0
Visual and Performing Arts Industrial Design	0 2	1 2	1 0	3 2		0	0	0 0	1 0	
	-	-	Ũ	2		Ũ	Ũ	Ũ	ů	
Aviation										
Airframe Technology	0	0	0							
Aeronautics/Aviation/Aerospace Science and Technology	0	0								
Eduation and Training										
Education	0	1	1			0	1	1		
e										
Energy Line Worker	1	2	1			0	1	0		
	-	2	1			0	-	U		
Health Science	0	0	1	0		0	0	1	0	
Biomedical Sciences, General	0	0	1	1	0	0	0	1	1	0
Health Sciences/Allied Health/Health Sciences, General Health Information / Medical Records Technology	0	0	1 0	0		0 1	0 0	1 0	0	
Clinical/Medical Laboratory Science/Research and Allied Professions		Ĩ	5				5	5		
Hospitality and Tourism	_		0	2		_	1	0	1	
Cooking and Related Culinary Arts, General	0	2	U	2		0	1	U	1	
Personal Services										
Cosmetology	0	1	1			0	1	1		
I mus Dublic Safety Duckasting Commission										
Law, Public Safety, Protective Services Public Safety/Protective Services	0	2	0			0	1	0		
	Ŭ	2	U			Ŭ	-	U		
Supply Chain Management										
Supply Chain Management	3	1	1	0		1	0	0	0	
Automotive, Transportation, Distribution and Logistics										
Automotive, Transportation, Distribution and Logistics Heavy/Industrial Equipment Maintenance Technologies	2	1	2	0		0	0	0	0	
Collision Repair Technician (ASE Certified)	2	0	0	Ť		1	0	0		
Automobile Technician (ASE Certified)	1	1	0	0		1	1	0	0	
Small Engine and Related Equipment Repair Medium/Heavy Truck Technician (ASE Certified)	2	1	0	0		1	0	0 0	0	
Medium/Heavy Truck Technician (ASE Certified)	1	1	1	0	1	0	0	U	U	ı l

## Appendix D - Table 3B (part 2)

Notional problem         Note of point         Note point         Note of point         Note poi			lix D - Table ion of firm		-	vels of edu					
Normation         Number of the strength of the strengt of the strength of the strengt of the strength of the	Course					10-49 er	nployees				
Name         Name <th< th=""><th></th><th></th><th></th><th></th><th>rting</th><th>Mix of</th><th></th><th></th><th>-</th><th>ting</th><th>Mix of</th></th<>					rting	Mix of			-	ting	Mix of
space         space <th< th=""><th></th><th>BA or higher</th><th>Industry recognized</th><th>College</th><th></th><th>different educational</th><th>BA or higher</th><th>Industry recognized</th><th>College</th><th></th><th>different educational</th></th<>		BA or higher	Industry recognized	College		different educational	BA or higher	Industry recognized	College		different educational
instance         14         0         7         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1	Business Administration and Management Operations		credential			levels		credential			levels
number         0         1         1         1         2         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0 <th></th> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td>-</td> <td></td> <td></td> <td>-</td>								-			-
Compute Programmer bytems intervolution and formation Resources         6         5         1         3         3         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0 <th>-</th> <td></td> <td>-</td> <td></td> <td></td> <td></td> <td></td> <td>-</td> <td>-</td> <td>-</td> <td>-</td>	-		-					-	-	-	-
Optimization resources         8         3         2         2         7         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0		-						-	-	-	-
system         Administration / Administration         7         6         1         1         3         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0							0	0	0	0	0
computer and information Systems Security/Information Assurance         5         2         0         1         3         0         0         0         0         0           Marketing Marketing Marketing Marketing Marketing         10         2         7         1         4         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0	· · · ·							-		-	-
Marketing and Entrepreneurship Marketing         10         2         7         1         4         0         0         0         0           Manual control         1         3         1         2         7         1         4         0         0         0         0         0           Manual control (chronics) displayment installation and Regist         1         3         1         2         4         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0							-		-	-	-
Identify identify is a part of the second		10	2	7	1	4	0	0	0	0	0
Identify identify is a part of the second											
Machine fool Technology/Machinet:         1         2         1         4         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0		1	2	1	2	4	0	0	0	0	0
Weight practing and Solidering Weight productions         6         0         5         1         1         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0 <th< th=""><th></th><td></td><td></td><td></td><td></td><td>4</td><td></td><td></td><td></td><td></td><td>0</td></th<>						4					0
indigenering Technology         5         3         3         1         2         0         0         0         0         0         0           Adjulture Apticultura Interations and Related Sciences         1         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0								-	-		
Mechanical Drafting         0         4         5         2         3         0         0         0         0           Agriculture, Food and Natural Resources Applied Horicultural Operations         1         0         1         1         1         0         0         1         0         0         0         0         1         1         1         0         1         1         0         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         1         <	Mechatronics		4				0	0			0
Activiture Activiture Activiture Activiture and Related Sciences         1         0         0         2         0         0         0         1           Apriculture Activiture and Related Sciences         1         0         1         0         1         0         1         0         1         0         1         0         1         0         1         0         1         0         1         0         1         0         1         0         1         0         1         0         1         0         1         0         1         0         1         0         1         0         1         0         1         0         0         1         0         0         1         0         0         1         0         0         1         0         0         1         0         0         1         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0 <td< th=""><th></th><td></td><td>-</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td>-</td></td<>			-								-
intermational pertations and Relate Sciences       1       0       0       2       0       0       0       1         Animal Nealth & Veterinary Sciences       0       1       0       1       0       1       0       1       0       1       0       1       0       1       0       1       0       1       0       1       0       1       0       1       0       1       0       1       0       1       0       1       0       1       0       0       1       0       0       1       0       0       0       1       0       0       0       1       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0 <t< th=""><th>Mechanical Dratting</th><td>0</td><td>4</td><td>5</td><td>2</td><td>3</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td></t<>	Mechanical Dratting	0	4	5	2	3	0	0	0	0	0
applied potentialture and instributional objectives         1         0         1         1         0         1         0         1         0         1         0         1         0         1         0         1         0         1         0         1         0         0         1         0         0         1         1         0         0         1           Mature Resources and Construction         1         0         0         1         1         0         0         0         0         1         1         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0 </th <th>-</th> <td></td>	-										
Animal Health & Veterinary Sciences         0         1         0         1         0         1         1         0         1         1         0         1         1         0         1         1         0         1         1         0         1         1         0         1         1         0         0         1         1         0         0         1           Biorechnology         1         1         4         2         1         1         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0					2					1	
Nature Resources and Conservation         1         0         0         1         1         0         0         1           Biotechnology         1         0         0         1         1         0         0         1           Architecture and Construction         -         -         -         -         -         -         -         -         -         -         -         -         -         -         -         -         -         -         -         -         -         -         -         -         -         -         -         -         -         -         -         -         -         -         -         -         -         -         -         -         -         -         -         -         -         -         -         -         -         -         -         -         -         -         -         -         -         -         -         -         -         -         -         -         -         -         -         -         -         -         -         -         -         -         -         -         -         -         -         -         -         -			-		1			-		1	
tiotechnology       1       0       0       1       1       0       0       1         Archifecture and Construction Construction Trades       1       4       2       1       1       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0 <t< th=""><th></th><td>-</td><td></td><td>-</td><td></td><td></td><td>-</td><td></td><td>-</td><td></td><td></td></t<>		-		-			-		-		
Drafting and Design Technology/Architectural       1       1       4       2       1       1       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0		1	0	0	1		1	0	0	1	
Drafting and Design Technology/Architectural       1       1       4       2       1       1       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0	Architecture and Construction										
Woodworking General Betricial and Power Transmission Installation         1         1         3         1         1         0         0         1         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0<		1	4	2	1	1	0	0	0	0	0
Electrical and Power Transmission installation       0       8       2       1       1       0       1       0       0       0         Heating, Air Conditioning, Ventilation and Refrigeration       0       4       1       3       2       0       1       0       0       0         Arts, A/V Technology, Communications and Design       n       2       0       1       0       0       0         Station and Television Broadcasting Technology       1       2       0       0       3       0       0       0       0         Industrial Design       3       2       0       1       1       0       0       0       1         Industrial Design       3       2       0       1       1       0       0       0       0         Airdramatics Aviation/Aerospace Science and Technology       1       1       1       3       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0	Construction Trades	0	2	0	5	4	0	0	0	0	0
Plumbing Technology         0         5         0         0         2         0         1         0         0         0           Heating, Air Conditioning, Ventilation and Refrigeration         0         4         1         3         2         0         1         0         0         0           Arts, A/V Technology, Communications and Design         1         2         0         1         3         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0 <th>-</th> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td>_</td> <td></td>	-									_	
Heating, Air Conditioning, Ventilation and Refrigeration       0       4       1       3       0       1       0       0         Arts, A/V Technology, Communications and Design Badic and Television Broadcasting Technology       1       2       0       1       0       0       1         Graphics and Performing Arts Industrial Design       1       2       0       3       2       0       1       0       0       0       0       0         Avitation Industrial Design       1       0       2       1       0       1       0       1       0       0       0       0       0       0       0       0       0       0         Avitation Industrial Design       1       0       1       0       1       0       1       0       1       0       1       0       0       0       0       0       0       0       0       0       0       0       0       0       0       1       0       1       1       1       1       1       1       1       1       1       1       1       1       1       1       0       1       0       1       1       1       1       1       0		-							-		-
Radio and Television Breakcasting Technology       1       2       1       3       0       1       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0		-		-		2	-				0
Radio and Television Breakcasting Technology       1       2       1       3       0       1       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0	Arts AU Tachnology Communications and Decian										
Graphics and Printing Technology and Communications       1       0       2       1       3       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0		1	2				0	1			
Visual and Performing Arts       2       0       0       3       2       0       1       0       0       0       1         Industrial Design       3       2       0       1       1       0       0       0       0         Aviation       1       0       1       0       1       0       1       0       0       0         Aviation       1       0       1       0       1       1       0       1       1       0       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0 <td< th=""><th></th><td></td><td></td><td>2</td><td>1</td><td>3</td><td></td><td></td><td>0</td><td>0</td><td>0</td></td<>				2	1	3			0	0	0
Aviation       Aviation       Image: Constraint of the second sec							0				
Airframe Technology       1       0       1       1       0       1       1       0       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1	Industrial Design	3	2	0	1		1	0	0	0	
Aeronautics/Aviation/Aerospace Science and Technology       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1	Aviation										
Education and Training Education1113001Education1130010Ine Worker0210101Health Sciences Biomedical Sciences, General020120100Health Sciences/Allied Health/Health Sciences, General0301201000Health Sciences/Allied Health/Health Sciences, General200110000Health Sciences/Allied Health/Health Sciences, General20011000Health Sciences/Allied Health/Health Sciences, General20011000Health Sciences/Allied Health/Health Sciences, General20011000Health Sciences/Allied Health/Health Sciences, General20011000Hospitality and Tourism2001100000Cooking and Related Culinary Arts, General20110000Law, Public Safety/Protective Services20110000Supply Chain Management331100000Meavy/Industrial Equipment Maintenance Technologies2 <th></th> <td></td> <td>-</td> <td>1</td> <td></td> <td></td> <td></td> <td></td> <td>1</td> <td></td> <td></td>			-	1					1		
Education113001Energy Line Worker02101010Health Science Biomedical Sciences, General Health Sciences/Allied Health/Health Sciences, General Health Information / Medical Records Technology Clinical/Medical Laboratory Science/Research and Allied Professions02012001000Hospitality and Tourism Cooking and Related Culinary Arts, General Public Safety, Protective Services Supply Chain Management2011110000Supply Chain Management Heavy/Industrial Equipment Maintenance Technologies Collision Repair Technician (ASE Certified)2211200000Automotive, Transportation, Distribution and Logistics Heavy/Industrial Equipment Maintenance Technologies Collision Repair Technician (ASE Certified)22112000000Collision Repair Technician (ASE Certified)22112000000000	Aeronautics/Aviation/Aerospace Science and Technology	1	1				1	1			
Line Worker0210101Health Science020120100Biomedical Sciences, General0301201000Health Sciences/Allied Health/Health Sciences, General2001201000Health Information / Medical Records Technology111100000Clinical/Medical Laboratory Science/Research and Allied Professions	-	1	1	3			0	0	1		
Line Worker0210101Health Science020120100Biomedical Sciences, General0301201000Health Sciences/Allied Health/Health Sciences, General2001201000Health Information / Medical Records Technology111100000Clinical/Medical Laboratory Science/Research and Allied Professions	Energy										
Biomedical Sciences, General0301201000Health Sciences/Allied Health/Health Sciences, General200110000Health Information / Medical Records Technology11110000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000		0	2	1			0	1	0		
Health Sciences/Allied Health/Health Sciences, General20011000Health Information / Medical Records Technology111110000Clinical/Medical Laboratory Science/Research and Allied Professions111100000Hospitality and TourismCooking and Related Culinary Arts, General200110000Personal ServicesCosmetology1011010000Law, Public Safety, Protective Services201100000Supply Chain Management331100000Automotive, Transportation, Distribution and Logistics21120000Heavy/Industrial Equipment Maintenance Technologies22220000	Health Science	0	2	0	1		0	1	0	0	
Health Information / Medical Records Technology Clinical/Medical Laboratory Science/Research and Allied Professions11110000Hospitality and Tourism Cooking and Related Culinary Arts, General200110000Personal Services Cosmetology1010101000Law, Public Safety, Protective Services Public Safety/Protective Services2011000Supply Chain Management Supply Chain Management33110000Automotive, Transportation, Distribution and Logistics Collision Repair Technician (ASE Certified)2211200022211200000			-	-		2			-		0
Clinical/Medical Laboratory Science/Research and Allied ProfessionsIIIIIIIIHospitality and Tourism Cooking and Related Culinary Arts, General20011000Personal Services Cosmetology101010101Law, Public Safety, Protective Services Public Safety/Protective Services2011001Supply Chain Management Supply Chain Management3311000Automotive, Transportation, Distribution and Logistics Heavy/Industrial Equipment Maintenance Technologies2112000Collision Repair Technician (ASE Certified)221120000			-	-	1				-	0	
Cooking and Related Culinary Arts, General20011000Personal Services Cosmetology101010101Law, Public Safety, Protective Services Public Safety/Protective Services20110101Supply Chain Management Supply Chain Management33110000Automotive, Transportation, Distribution and Logistics Heavy/Industrial Equipment Maintenance Technologies211200002222221120000		1	1	1			0	0	0		
Personal Services Cosmetology1010101Law, Public Safety, Protective Services Public Safety/Protective Services201101Supply Chain Management Supply Chain Management3311000Automotive, Transportation, Distribution and Logistics Heavy/Industrial Equipment Maintenance Technologies21120002222000000	Hospitality and Tourism	2	0	0	1		1	0	0	0	
Cosmetology1010101Law, Public Safety, Protective Services201101Public Safety/Protective Services201100Supply Chain Management3311000Supply Chain Management3311000Automotive, Transportation, Distribution and LogisticsHeavy/Industrial Equipment Maintenance Technologies2112000222200000			Ŭ	Ŭ				v	Ŭ	v	
Public Safety/Protective Services201100Supply Chain Management Supply Chain Management3311000Automotive, Transportation, Distribution and Logistics Heavy/Industrial Equipment Maintenance Technologies2112000Quipment Maintenance Technologies21120000Collision Repair Technician (ASE Certified)2222000		1	0	1			1	0	1		
Supply Chain Management3311000Automotive, Transportation, Distribution and LogisticsHeavy/Industrial Equipment Maintenance Technologies2112000Collision Repair Technician (ASE Certified)22220000		2	0	1			1	0	0		
Heavy/Industrial Equipment Maintenance Technologies2112000Collision Repair Technician (ASE Certified)2220000		3	3	1	1		0	0	0	0	
Heavy/Industrial Equipment Maintenance Technologies2112000Collision Repair Technician (ASE Certified)2220000	Automotive, Transportation. Distribution and Logistics										
Collision Repair Technician (ASE Certified)     2     2     2     0     0		2	1	1	2		0	0	0	0	
	Collision Repair Technician (ASE Certified)							-	-		
	Automobile Technician (ASE Certified)	3	0	3	1		0	0	0	0	
Small Engine and Related Equipment Repair         0         1         2         1         0         0         1         0           Medium/Heavy Truck Technician (ASE Certified)         5         0         2         2         1         0         0         0											

# Appendix D - Table 3B (part 3)

	Appendix D - Table 3B. Of the firms responding that the CTE course was relevant to their busines distribution of firms reporting various levels of educational attainment needed for entry to the fine employment size 50 or more employees Number reporting Percent reporting											
Course		Nun	nber repo		o or more	employee		cent repor	ting			
	BA or higher	Certificate/ Industry recognized credential	Community College degree	High school graduate	Mix of different educational levels	BA or higher	Certificate/ Industry recognized credential	Community College degree	High school graduate	Mix of different educational levels		
Business Administration and Management Operations												
Business	3 6	0 2	5 5	3 2	10 5	0 0	0 0	0	0 0	0 0		
Finance and Accounting Insurance	0	1	0	0	5	0	0	0	0	0		
Computer Programming/Programmer	7	4	2	0	5	0	0	0	0	0		
Digital/Multimedia and Information Resources	5	2	0	0	3	1	0	0	0	0		
Computer Systems Networking and Telecommunications	9 11	3 3	1 0	0	2 4	1 1	0 0	0	0 0	0 0		
System Administration/Administrator Computer and Information Systems Security/Information Assurance	4	3	2	0	3	0	0	0	0	0		
Marketing and Entrepreneurship Marketing	7	1	3	0	5	0	0	0	0	0		
Manufacturing												
Electrical/Electronics Equipment Installation and Repair	1	4	1	1	4	0	0	0	0	0		
Machine Tool Technology/Machinist	3	0	2	5		0	0	0	1			
Welding, Brazing and Soldering Mechatronics	3 0	0 4	2 0	4	4	0 0	0 0	0	0 0	0		
Engineering Technology	2	4	0	1	4	0	0	0	0	0		
Mechanical Drafting	0	2	3	0	4	0	0	0	0	0		
Agriculture, Food and Natural Resources	_	_	_	_		_	_	_				
Agriculture Agricultural Operations and Related Sciences Applied Horticulture and Horticultural Operations	0	0 0	0	2		0	0	0	1			
Animal Health & Veterinary Sciences	0	0	1	0		0	0	1	0			
Natural Resources and Conservation	0	0	0	1		0	0	0	1			
Biotechnology	2	1	0	0		1	0	0	0			
Architecture and Construction												
Drafting and Design Technology/Architectural	1	0	0	0	0	1	0	0	0	0		
Construction Trades Woodworking General	1	2 0	0 2	1	0	0 0	1 0	0	0	0		
Electrical and Power Transmission Installation	0	3	0	3	5	0	0	0	0	0		
Plumbing Technology	0	0	0	1	2	0	0	0	0	1		
Heating, Air Conditioning, Ventilation and Refrigeration	0	1	1	2		0	0	0	1			
Arts, A/V Technology, Communications and Design												
Radio and Television Broadcasting Technology	0	0										
Graphics and Printing Technology and Communications	0	0	0	1	1	0	0	0	1	1		
Visual and Performing Arts	0	0	0	0								
Industrial Design	4	0	1	1		1	0	0	0			
Aviation												
Airframe Technology	0	1	0			0	1	0				
Aeronautics/Aviation/Aerospace Science and Technology	0	0										
<i>Eduation and Training</i> Education	2	0	0			1	0	0				
	_	Ű	Ű			-	Ū					
Energy Line Worker	0	0	0									
Health Science	1	2	0	1		0	1	_	0			
Biomedical Sciences, General	1	2 3	0	1	1	0	1 1	0	0 0	0		
Health Sciences/Allied Health/Health Sciences, General	1	1	2	1		0	0	0	0			
Health Information / Medical Records Technology Clinical/Medical Laboratory Science/Research and Allied Professions	0	0	2			0	0	1				
Hospitality and Tourism Cooking and Related Culinary Arts, General	1	0	2	1		0	0	1	0			
Personal Services	_	_	_									
Cosmetology	0	0	0									
Law, Public Safety, Protective Services												
Public Safety/Protective Services	1	0	0			1	0	0				
Supply Chain Management												
Supply Chain Management	7	1	0	4		1	0	0	0			
Automotive, Transportation, Distribution and Logistics												
Heavy/Industrial Equipment Maintenance Technologies	2	0	1	2		0	0	0	0			
Collision Repair Technician (ASE Certified) Automobile Technician (ASE Certified)	0 3	1 1	2 0	1		0 1	0 0	1 0	0			
Small Engine and Related Equipment Repair	1	1	1	2		0	0	0	0			
Medium/Heavy Truck Technician (ASE Certified)	1	1	0	2		0	0	0	1			

## Appendix D - Table 4A (part 1)

									•	usiness, an ions over t	ticipated g	growth in
Course				istry. ustries				0	indu onstructio	stry. n Industrie	es	
	Nun	nber repo			cent repor	ting	Nun	ber repo			cent repoi	rting
	Very high or high growth	Moderate growth	Low or very low growth	Very high or high growth	Moderate growth	Low or very low growth	Very high or high growth	Moderate growth	Low or very low growth	Very high or high growth	Moderate growth	Low or very low growth
Business Administration and Management Operations												
Business	13	40	30	15.7%	48.2%	36.1%	4	7	3	28.6%	50.0%	21.4%
Finance and Accounting Insurance	9 1	28 3	28 5	13.8%	43.1%	43.1%	0 0	4 0	4	0.0%	50.0%	50.0%
Computer Programming/Programmer	16	3 16	16	11.1% 33.3%	33.3% 33.3%	55.6% 33.3%	2	1	2	40.0%	20.0%	40.0%
Digital/Multimedia and Information Resources	12	11	16	30.8%	28.2%	41.0%	1	4	0	20.0%	80.0%	0.0%
Computer Systems Networking and Telecommunications	10	15	10	28.6%	42.9%	28.6%	1	2	1	25.0%	50.0%	25.0%
System Administration/Administrator	15	15	14	34.1%	34.1%	31.8%	0	1	3	0.0%	25.0%	75.0%
Computer and Information Systems Security/Information Assurance	10	7	12	34.5%	24.1%	41.4%	0	0	2	0.0%	0.0%	100.0%
Marketing and Entrepreneurship Marketing	14	16	23	26.4%	30.2%	43.4%	1	4	2	14.3%	57.1%	28.6%
Manufacturing			_	45.000	20 7-1	21.27	-	~	_		22.57	
Electrical/Electronics Equipment Installation and Repair	17 11	11	9	45.9%	29.7%	24.3%	5 1	2	0	71.4%	28.6%	0.0%
Machine Tool Technology/Machinist Wolding Brazing and Soldoring	11	11 18	9 6	35.5% 31.4%	35.5% 51.4%	29.0% 17.1%	1 5	2 5	1	25.0% 50.0%	50.0% 50.0%	25.0% 0.0%
Welding, Brazing and Soldering Mechatronics	7	18	9	25.0%	51.4% 42.9%	32.1%	5	3	0	25.0%	50.0% 75.0%	0.0%
Engineering Technology	15	12	10	40.5%	32.4%	27.0%	4	3	1	50.0%	37.5%	12.5%
Mechanical Drafting	6	12	17	17.1%	34.3%	48.6%	1	4	2	14.3%	57.1%	28.6%
A minute manufact in the												
Agriculture, Food and Natural Resources	A	2		E7 40/	42.004		~	~				
Agriculture Agricultural Operations and Related Sciences Applied Horticulture and Horticultural Operations	4	3 1	3	57.1% 20.0%	42.9% 20.0%	60.0%	0	0 0	0			
Animal Health & Veterinary Sciences	1	3	3	20.0%	20.0% 75.0%	00.0%	0	0	0			
Natural Resources and Conservation	1	2	2	20.0%	40.0%	40.0%	0	1	0	0.0%	100.0%	0.0%
Biotechnology	2	6		25.0%	75.0%		0	1		0.0%	100.0%	
Architecture and Construction	-		_	27.00/		22.224				50.00/	07.50/	40.50/
Drafting and Design Technology/Architectural Construction Trades	5 18	6 7	7	27.8% 66.7%	33.3% 25.9%	38.9% 7.4%	4 11	3 2	1 0	50.0% 84.6%	37.5% 15.4%	12.5% 0.0%
Woodworking General	7	5	3	46.7%	33.3%	20.0%	5	2	1	62.5%	25.0%	12.5%
Electrical and Power Transmission Installation	13	15	10	34.2%	39.5%	26.3%	5	4	0	55.6%	44.4%	0.0%
Plumbing Technology	5	7	5	29.4%	41.2%	29.4%	4	4	0	50.0%	50.0%	0.0%
Heating, Air Conditioning, Ventilation and Refrigeration	9	6	5	45.0%	30.0%	25.0%	6	2	0	75.0%	25.0%	0.0%
Arts, A/V Technology, Communications and Design	2	1	2	40.0%	20.0%	40.0%	0	0	0			
Radio and Television Broadcasting Technology Graphics and Printing Technology and Communications	2 5	1 5	2	40.0%	41.7%	40.0%	0	2	1	0.0%	66.7%	33.3%
Visual and Performing Arts	3	4	3	30.0%	40.0%	30.0%	0	1	0	0.0%	100.0%	0.0%
Industrial Design	7	7	4	38.9%	38.9%	22.2%	1	0	1	50.0%	0.0%	50.0%
Aviation				22.24	66 70/							
Airframe Technology Aeronautics/Aviation/Aerospace Science and Technology	1 2	2		33.3% 100.0%	66.7%		0	0				
Aeronautics/Aviation/Aerospace Science and Technology	2			100.0%			0					
Eduation and Training												
Education	4	2	3	44.4%	22.2%	33.3%	0	0	0			
Energy	3	1	3	42.9%	14.3%	42.9%	2	1	0	66.7%	33.3%	0.0%
Line Worker												
Health Science												
Biomedical Sciences, General	1	4	3	12.5%	50.0%	37.5%	0	0	0			
Health Sciences/Allied Health/Health Sciences, General	8	3	3	57.1%	21.4%	21.4%	0	0	0			
Health Information / Medical Records Technology	2	4	3	22.2%	44.4%	33.3%	0	0	0			
Clinical/Medical Laboratory Science/Research and Allied Professions	2	4		33.3%	66.7%		0	0				
Heavitality and Taurian												
Hospitality and Tourism	А	5	2	26 40/	AE E0/	10 20/	0	0	0			
Cooking and Related Culinary Arts, General	4	5	2	36.4%	45.5%	18.2%	U	U	U			
Personal Services												
Cosmetology	2	2		50.0%	50.0%		0	0				
Law, Public Safety, Protective Services												
Public Safety/Protective Services	3	1	2	50.0%	16.7%	33.3%	0	0	0			
Sunnhu Chain Managament												
Supply Chain Management	7	8	10	28.0%	32.0%	40.0%	1	0	0	100.0%	0.0%	0.0%
Supply Chain Management		0	10	20.0%	32.0%	40.0%	T	U	0	100.0%	0.0%	0.0%
Automotive, Transportation, Distribution and Logistics												
Heavy/Industrial Equipment Maintenance Technologies	6	3	7	37.5%	18.8%	43.8%	1	1	0	50.0%	50.0%	0.0%
Collision Repair Technician (ASE Certified)	4	3	4	36.4%	27.3%	36.4%	0	0	0			
Automobile Technician (ASE Certified)	7	3	4	50.0%	21.4%	28.6%	0	0	0			
Small Engine and Related Equipment Repair	4	4	4	33.3%	33.3%	33.3%	0	0	0	100.00/	0.0%	0.004
Medium/Heavy Truck Technician (ASE Certified)	8	3	5	50.0%	18.8%	31.3%	1	0	0	100.0%	0.0%	0.0%

## Appendix D - Table 4A (part 2)

Course	course w	as relevar	nt to their b ed occupat	firms responsions firms responsions and the firms over the second	ticipated g	rowth in		vas relevar	nt to their b ed occupat	firms responsions over t find the second sec	nticipated g	growth in
Course		М		ing Industr	ies					ndustries		
	Nun Very high or	nber repo Moderate	rting Low or very		Cent repoi	ting Low or very	Num Very high or	hber repo Moderate	rting Low or very	Per Very high or	cent repoi	ting Low or very
	high growth	growth	low growth	high growth	growth	low growth	high growth	growth	low growth	high growth	growth	low growth
Business Administration and Management Operations Business	2	9	12	8.7%	39.1%	52.2%	1	2	1	25.0%	50.0%	25.0%
Finance and Accounting	1	9 7	8	6.3%	43.8%	52.2%	0	2	2	0.0%	50.0%	23.0% 50.0%
Insurance	0	0	1	0.0%	0.0%	100.0%	0	0	2	0.0%	0.0%	100.0%
Computer Programming/Programmer	4	6	7 7	23.5%	35.3%	41.2%	0	2	1	0.0%	66.7%	33.3%
Digital/Multimedia and Information Resources Computer Systems Networking and Telecommunications	1 3	2 3	5	10.0% 27.3%	20.0% 27.3%	70.0% 45.5%	0 0	0 2	3 1	0.0% 0.0%	0.0% 66.7%	100.0% 33.3%
System Administration/Administrator	2	4	7	15.4%	30.8%	53.8%	0	3	0	0.0%	100.0%	0.0%
Computer and Information Systems Security/Information Assurance	4	1	4	44.4%	11.1%	44.4%	0	2	1	0.0%	66.7%	33.3%
Marketing and Entrepreneurship												
Marketing	4	2	5	36.4%	18.2%	45.5%	0	1	3	0.0%	25.0%	75.0%
Manufacturing												
Electrical/Electronics Equipment Installation and Repair	7 8	6 6	5 6	38.9% 40.0%	33.3% 30.0%	27.8% 30.0%	0 0	0 0	0			
Machine Tool Technology/Machinist Welding, Brazing and Soldering	5	10	2	29.4%	58.8%	11.8%	0	0	0			
Mechatronics	4	7	4	26.7%	46.7%	26.7%	0	0	0			
Engineering Technology	5	8	6	26.3%	42.1%	31.6%	0	0	0			
Mechanical Drafting	3	6	9	16.7%	33.3%	50.0%	0	0	0			
Agriculture, Food and Natural Resources												
Agriculture Agricultural Operations and Related Sciences	2	2		50.0%	50.0%		0	0				
Applied Horticulture and Horticultural Operations	1	0	1	50.0%	0.0%	50.0%	0	0	0			
Animal Health & Veterinary Sciences	1	2		33.3%	66.7%	50.00/	0	0				
Natural Resources and Conservation Biotechnology	1	0 2	1	50.0% 0.0%	0.0% 100.0%	50.0%	0 1	0 1	0	50.0%	50.0%	
5.0.000,	Ũ	-		01070	100.070		-	-		50.070	50.070	
Architecture and Construction												
Drafting and Design Technology/Architectural	1	1	3	20.0%	20.0%	60.0%	0	0	0			
Construction Trades	4	2 2	1	57.1% 40.0%	28.6% 40.0%	14.3% 20.0%	0 0	0 0	0			
Woodworking General Electrical and Power Transmission Installation	3	6	4	23.1%	46.2%	30.8%	0	0	0			
Plumbing Technology	0	2	3	0.0%	40.0%	60.0%	0	0	0			
Heating, Air Conditioning, Ventilation and Refrigeration	1	2	2	20.0%	40.0%	40.0%	0	0	0			
Arts, A/V Technology, Communications and Design												
Radio and Television Broadcasting Technology	0	0	1	0.0%	0.0%	100.0%	0	0	0			
Graphics and Printing Technology and Communications	2	2	0	50.0%	50.0%	0.0%	0	0	0			
Visual and Performing Arts	1	0	0	100.0%	0.0%	0.0%	0	0	0			
Industrial Design	3	5	1	33.3%	55.6%	11.1%	0	0	0			
Aviation												
Airframe Technology	0	1		0.0%	100.0%		0	0				
Aeronautics/Aviation/Aerospace Science and Technology	0						0					
Education and Technica												
Eduation and Training Education	1	0	0	100.0%	0.0%	0.0%	0	1	0	0.0%	100.0%	0.0%
	-	0	Ű	100.070	0.070	0.070	Ŭ	-	Ŭ	0.070	100.070	0.070
Energy	1	0	1	50.0%	0.0%	50.0%	0	0	0			
Line Worker												
Health Science												
Health Science Biomedical Sciences, General	1	1	1	33.3%	33.3%	33.3%	0	2	1	0.0%	66.7%	33.3%
Health Sciences/Allied Health/Health Sciences, General	0	1	1	0.0%	50.0%	50.0%	6	2	0	100.0%	0.0%	0.0%
Health Information / Medical Records Technology	0	1	1	0.0%	50.0%	50.0%	1	2	0	33.3%	66.7%	0.0%
Clinical/Medical Laboratory Science/Research and Allied Professions	0	2		0.0%	100.0%		1	1		50.0%	50.0%	
Hospitality and Tourism												
Cooking and Related Culinary Arts, General	1	0	1	50.0%	0.0%	50.0%	1	2	0	33.3%	66.7%	0.0%
- , ,												
Personal Services												
Cosmetology	1	1		50.0%	50.0%		0	0				
Law, Public Safety, Protective Services												
Public Safety/Protective Services	0	0	1	0.0%	0.0%	100.0%	1	0	0	100.0%	0.0%	0.0%
Supply Chain Management												
Supply Chain Management	3	8	6	17.6%	47.1%	35.3%	0	0	1	0.0%	0.0%	100.0%
Automotive, Transportation, Distribution and Logistics												
Heavy/Industrial Equipment Maintenance Technologies	3	1	3	42.9%	14.3%	42.9%	0	0	0			
Collision Repair Technician (ASE Certified)	0	2	2	0.0%	50.0%	50.0%	0	0	0			
Automobile Technician (ASE Certified)	0	2	2	0.0%	50.0%	50.0%	0	0	0			
Small Engine and Related Equipment Repair Medium/Heavy Truck Technician (ASE Certified)	1	3 1	2	16.7% 16.7%	50.0% 16.7%	33.3% 66.7%	0 0	0 0	0			

## Appendix D - Table 4A (part 3)

	course v	vas relevar	t to their b		ticipated g	rowth in	course w employme	vas relevan ent in relat	4A. Of the It to their b ed occupat indu	usiness, an ions over th stry.	ticipated g ne next five	rowth in e years, by
Course	Whole	esale and	Retail Trac Wareh	le and Tra ousing	nsportatio	on and	-	-	rmation, F and Leasin and Te	g and Prof		
		nber repo			ent repor			nber repo	rting	Perc	ent repor	-
	Very high or high growth	Moderate growth	Low or very low growth	Very high or high growth	Moderate growth	Low or very low growth	Very high or high growth	Moderate growth	Low or very low growth	Very high or high growth	Moderate growth	Low or very low growth
Business Administration and Management Operations												
Business Finance and Accounting	1	4 3	4	11.1% 14.3%	44.4% 42.9%	44.4% 42.9%	4	9 6	3 3	25.0% 30.8%	56.3% 46.2%	18.8% 23.1%
Insurance	0	0	0	14.570	42.570	42.370	1	1	2	25.0%	25.0%	50.0%
Computer Programming/Programmer	1	1	1	33.3%	33.3%	33.3%	6	2	1	66.7%	22.2%	11.1%
Digital/Multimedia and Information Resources	2	0	2	50.0%	0.0%	50.0%	4	2	2	50.0%	25.0%	25.0%
Computer Systems Networking and Telecommunications System Administration/Administrator	1 4	0 0	1 2	50.0% 66.7%	0.0% 0.0%	50.0% 33.3%	3 6	3 4	0 0	50.0% 60.0%	50.0% 40.0%	0.0% 0.0%
Computer and Information Systems Security/Information Assurance	2	0	1	66.7%	0.0%	33.3%	3	3	1	42.9%	42.9%	14.3%
Marketing and Entrepreneurship Marketing	2	2	2	33.3%	33.3%	33.3%	3	4	7	21.4%	28.6%	50.0%
Manufacturing												
Electrical/Electronics Equipment Installation and Repair	2	2	1	40.0%	40.0%	20.0%	2	1	2	40.0%	20.0%	40.0%
Machine Tool Technology/Machinist	1	0	1	50.0%	0.0%	50.0%	0	1	1	0.0%	50.0%	50.0%
Welding, Brazing and Soldering Mechatronics	0	0 1	3 1	0.0% 0.0%	0.0% 50.0%	100.0% 50.0%	0 1	1 1	1 2	0.0% 25.0%	50.0% 25.0%	50.0% 50.0%
Engineering Technology	1	0	1	0.0% 50.0%	0.0%	50.0% 50.0%	3	1	2 1	25.0% 60.0%	25.0%	20.0%
Mechanical Drafting	0	0	3	0.0%	0.0%	100.0%	2	2	1	40.0%	40.0%	20.0%
Agriculture, Food and Natural Resources												
Agriculture Agricultural Operations and Related Sciences	1	0 0	1	100.0% 0.0%	0.0% 0.0%	100.0%	1 0	1 1	1	50.0% 0.0%	50.0% 50.0%	50.0%
Applied Horticulture and Horticultural Operations Animal Health & Veterinary Sciences	0	0	1	0.0%	0.0%	100.0%	0	1	1	0.0%	50.0% 100.0%	50.0%
Natural Resources and Conservation	0	0	0				0	1	1	0.0%	50.0%	50.0%
Biotechnology	1	0		100.0%	0.0%		0	2		0.0%	100.0%	
Architecture and Construction												
Architecture and Construction Drafting and Design Technology/Architectural	0	0	1	0.0%	0.0%	100.0%	0	2	1	0.0%	66.7%	33.3%
Construction Trades	0	1	0	0.0%	100.0%	0.0%	2	1	1	50.0%	25.0%	25.0%
Woodworking General	0	1	0	0.0%	100.0%	0.0%	0	0	1	0.0%	0.0%	100.0%
Electrical and Power Transmission Installation	2	2	2	33.3%	33.3%	33.3%	2	1	1	50.0%	25.0%	25.0%
Plumbing Technology Heating, Air Conditioning, Ventilation and Refrigeration	0	0 1	0	0.0%	100.0%	0.0%	1 1	1 1	1 1	33.3% 33.3%	33.3% 33.3%	33.3% 33.3%
Arts, A/V Technology, Communications and Design												
Radio and Television Broadcasting Technology	0	0	0	400.00/	0.0%	0.00/	2	0 0	1	66.7%	0.0%	33.3%
Graphics and Printing Technology and Communications Visual and Performing Arts	1	0 1	0	100.0% 0.0%	0.0% 100.0%	0.0% 0.0%	0 1	1	1 2	0.0% 25.0%	0.0% 25.0%	100.0% 50.0%
Industrial Design	1	0	1	50.0%	0.0%	50.0%	2	1	1	50.0%	25.0%	25.0%
Aviation Airframe Technology	1	0		100.0%	0.0%		0	1		0.0%	100.0%	
Aeronautics/Aviation/Aerospace Science and Technology	1	0		100.0%	0.076		1	1		100.0%	100.0%	
Eduation and Training	_	_	-				_				0.00	100.000
Education	0	0	0				0	0	1	0.0%	0.0%	100.0%
Energy	0	0	0				0	0	1	0.0%	0.0%	100.0%
Line Worker												
Health Science												
Biomedical Sciences, General	0	0	0				0	0	1	0.0%	0.0%	100.0%
Health Sciences/Allied Health/Health Sciences, General	0	0	0				0	0	1	0.0%	0.0%	100.0%
Health Information / Medical Records Technology	0	0	0				0	0	1	0.0%	0.0%	100.0%
Clinical/Medical Laboratory Science/Research and Allied Professions	0	U					0	1		0.0%	100.0%	
Hospitality and Tourism Cooking and Related Culinary Arts, General	0	1	0	0.0%	100.0%	0.0%	0	0	1	0.0%	0.0%	100.0%
Personal Services Cosmetology	0	0					0	1		0.0%	100.0%	
Law, Public Safety, Protective Services												
Public Safety/Protective Services	0	0	0				0	0	1	0.0%	0.0%	100.0%
Supply Chain Management												
Supply Chain Management	1	0	1	50.0%	0.0%	50.0%	1	0	1	50.0%	0.0%	50.0%
Automotive Transportation Distribution and Logistics												
Automotive, Transportation, Distribution and Logistics Heavy/Industrial Equipment Maintenance Technologies	1	1	1	33.3%	33.3%	33.3%	0	0	1	0.0%	0.0%	100.0%
Collision Repair Technician (ASE Certified)	0	1	0	0.0%	100.0%	0.0%	0	0	1	0.0%	0.0%	100.0%
Automobile Technician (ASE Certified)	3	0	0	100.0%	0.0%	0.0%	0	0	1	0.0%	0.0%	100.0%
Small Engine and Related Equipment Repair	1	0	0	100.0%	0.0%	0.0%	0	0	1	0.0%	0.0%	100.0%
Medium/Heavy Truck Technician (ASE Certified)	2	1	0	66.7%	33.3%	0.0%	0	0	1	0.0%	0.0%	100.0%

## Appendix D - Table 4A (part 4)

Course	course v	vas relevar	nt to their b ed occupat	firms respo pusiness, an tions over t ustry.	ticipated g	rowth in	course w employme	vas relevan ent in relat	nt to their b ed occupat indu	firms responses, and tions over t tistry. creation, <i>f</i>	ticipated g he next fiv	growth in re years, by
Course	Educati	on, Social	Assistance	e, and Pub	lic Admini	stration			and Othe	r Services stration)		
	Very high or	Moderate	Low or very	Very high or	Moderate	Low or very	Very high or	Moderate	Low or very	Very high or	Moderate	Low or very
Business Administration and Management Operations	high growth	growth	low growth	high growth	growth	low growth	high growth	growth	low growth	high growth	growth	low growth
Business	1	4	4	11.1%	44.4%	44.4%	0	5	3	0.0%	62.5%	37.5%
Finance and Accounting Insurance	2 0	4	3 0	22.2%	44.4%	33.3%	1 0	2 2	5 0	12.5% 0.0%	25.0% 100.0%	62.5% 0.0%
Computer Programming/Programmer	1	2	2	20.0%	40.0%	40.0%	2	2	2	33.3%	33.3%	33.3%
Digital/Multimedia and Information Resources	2	1	0	66.7%	33.3%	0.0%	2	2	2	33.3%	33.3%	33.3%
Computer Systems Networking and Telecommunications System Administration/Administrator	2 3	1 1	1 1	50.0% 60.0%	25.0% 20.0%	25.0% 20.0%	0	4 2	1 1	0.0% 0.0%	80.0% 66.7%	20.0% 33.3%
Computer and Information Systems Security/Information Assurance	1	0	1	50.0%	0.0%	50.0%	0	1	2	0.0%	33.3%	66.7%
Marketing and Entrepreneurship Marketing	2	0	2	50.0%	0.0%	50.0%	2	3	2	28.6%	42.9%	28.6%
Manufacturing												
Electrical/Electronics Equipment Installation and Repair	1	0	0	100.0%	0.0%	0.0%	0	0	1	0.0%	0.0%	100.0%
Machine Tool Technology/Machinist	0	2	0	0.0%	100.0%	0.0%	1	0	0	100.0%	0.0%	0.0%
Welding, Brazing and Soldering	0	1	0	0.0%	100.0%	0.0%	1	1	0	50.0%	50.0%	0.0%
Mechatronics Engineering Technology	1 1	0	1 0	50.0% 100.0%	0.0% 0.0%	50.0% 0.0%	0 1	0 0	1 1	0.0% 50.0%	0.0% 0.0%	100.0% 50.0%
Mechanical Drafting	0	0	1	0.0%	0.0%	0.0%	0	0	1	0.0%	0.0%	100.0%
Agriculture, Food and Natural Resources												
Agriculture Agricultural Operations and Related Sciences	0	0					0	0				
Applied Horticulture and Horticultural Operations	0	0	0				0	0	0			
Animal Health & Veterinary Sciences Natural Resources and Conservation	0	0 0	0				0	0 0	0			
Biotechnology	0	0					0	0				
Architecture and Construction												
Drafting and Design Technology/Architectural	0	0	1	0.0%	0.0%	100.0%	0	0	0			
Construction Trades Woodworking General	1	1 0	0	50.0%	50.0%	0.0%	0	0 0	0			
Electrical and Power Transmission Installation	0	1	2	0.0%	33.3%	66.7%	1	1	1	33.3%	33.3%	33.3%
Plumbing Technology Heating, Air Conditioning, Ventilation and Refrigeration	0	0	1 2	0.0% 0.0%	0.0% 0.0%	100.0% 100.0%	0	0 0	0	100.0%	0.0%	0.0%
	0	0	2	0.0%	0.076	100.076	1	0	0	100.076	0.076	0.076
Arts, A/V Technology, Communications and Design Radio and Television Broadcasting Technology	0	0	0				0	1	0	0.0%	100.0%	0.0%
Graphics and Printing Technology and Communications	1	1	0	50.0%	50.0%	0.0%	1	0	0	100.0%	0.0%	0.0%
Visual and Performing Arts	0	0	0				1	1	1	33.3%	33.3%	33.3%
Industrial Design	0	1	0	0.0%	100.0%	0.0%	0	0	0			
Aviation												
Airframe Technology Aeronautics/Aviation/Aerospace Science and Technology	0	0					0 0	0				
Eduation and Training												
Education	3	1	1	60.0%	20.0%	20.0%	0	0	1	0.0%	0.0%	100.0%
Energy	0	0	1	0.0%	0.0%	100.0%	0	0	0			
Line Worker												
Health Science	_			0.001	100.001	0.001		~	_			
Biomedical Sciences, General Health Sciences/Allied Health/Health Sciences, General	0 2	1 2	0 1	0.0% 40.0%	100.0% 40.0%	0.0% 20.0%	0	0 0	0 0			
Health Information / Medical Records Technology	1	1	1	33.3%	33.3%	33.3%	0	0	0			
Clinical/Medical Laboratory Science/Research and Allied Professions	1	0		100.0%	0.0%		0	0				
Hospitality and Tourism Cooking and Related Culinary Arts, General	0	2	0	0.0%	100.0%	0.0%	2	0	0	100.0%	0.0%	0.0%
Personal Services Cosmetology	0	0					1	0		100.0%	0.0%	
	0	0						U		100.0%	0.0%	
Law, Public Safety, Protective Services Public Safety/Protective Services	2	0	0	100.0%	0.0%	0.0%	0	1	0	0.0%	100.0%	0.0%
Supply Chain Management Supply Chain Management	1	0	0	100.0%	0.0%	0.0%	0	0	1	0.0%	0.0%	100.0%
Automotive, Transportation, Distribution and Logistics												
Heavy/Industrial Equipment Maintenance Technologies	1	0	0	100.0%	0.0%	0.0%	0	0	2	0.0%	0.0%	100.0%
Collision Repair Technician (ASE Certified) Automobile Technician (ASE Certified)	2 3	0	1 1	66.7% 75.0%	0.0% 0.0%	33.3% 25.0%	2 1	0 1	0	100.0% 50.0%	0.0% 50.0%	0.0% 0.0%
Small Engine and Related Equipment Repair	2	0	1	66.7%	0.0%	33.3%	0	1	0	0.0%	100.0%	0.0%
Medium/Heavy Truck Technician (ASE Certified)	3	0	0	100.0%	0.0%	0.0%	1	1	0	50.0%	50.0%	0.0%

#### Appendix D - Table 4B

Appendix D - Table 4B. Of the firms responding that the CTE course was relevant to their business, anticipated growth in employment in related occupations over the next five years, by employment size.																		
			1 to 9 en	nployees	;				10-49 en	nployees				:	50 or more	employee	es	
Course	Num	ber repo	orting	Perc	ent repo	orting	Nun	nber repo	rting	Per	cent repo	rting	Nur	mber repo	rting	Per	cent repo	rting
	Very high or high growth	Moderate growth	Low or very low growth	Very high or high growth	Moderate growth	Low or very low growth	Very high or high growth	Moderate growth	Low or very low growth	Very high or high growth	Moderate growth	Low or very low growth	Very high or high growth	Moderate growth	Low or very low growth	Very high or high growth	Moderate growth	Low or very low growth
Business Administration and Management Operations	-			-														
Business	6	11	9	0	0	0	6	17	13	0	0	0	1	12	8	0	1	0
Finance and Accounting Insurance	0	8 0	7 0	0	1	0	6 0	9 2	15 3	0	0	1	3 0	11 1	6 2	0	1	0
Computer Programming/Programmer	3	5	4	0	0	0	9	3	6	1	0	0	4	8	6	0	0	0
Digital/Multimedia and Information Resources	1	2	4	0	0	1	10	7	5	0	0	0	1	2	7	0	0	1
Computer Systems Networking and Telecommunications	3	2	1	1	0	0	5	6 4	3	0	0	0	2	7	6	0	0	0
System Administration/Administrator Computer and Information Systems Security/Information Assurance	1 3	4	3 2	0	1 0	0	9 5	4	5 3	1	0	0	5 2	7 3	6 7	0	0	0
Marketing and Entrepreneurship Marketing	4	2	7	0	0	1	7	8	9	0	0	0	3	6	7	0	0	0
-																		
Manufacturing																		
Electrical/Electronics Equipment Installation and Repair Machine Tool Technology/Machinist	9 3	4 6	2	1 0	0	0	4	4	3 4	0	0	0	4	3 1	4	0	0	0
Welding, Brazing and Soldering	6	5	1	1	0	0	3	8	3	0	1	0	2	5	2	0	1	0
Mechatronics	2	4	3	0	0	0	3	4	3	0	0	0	2	4	3	0	0	0
Engineering Technology	8	1	4	1	0	0	5	6	3	0	0	0	2	5	3	0	1	0
Mechanical Drafting	2	6	4	0	1	0	4	3	7	0	0	1	0	3	6	0	0	1
Agriculture, Food and Natural Resources																		
Agriculture Agricultural Operations and Related Sciences	2	0		1	0		2	1		1	0		0	2	1	0	1	
Applied Horticulture and Horticultural Operations	1	1	1	0	0	0	0	0	2	0	0	1	0	0	0			
Animal Health & Veterinary Sciences	1	0	0	1	0	0	0	2	1	0	1	1	0	1	1	0	1	1
Natural Resources and Conservation Biotechnology	0	3	0	0	1	0	1	1	1	1	1	1	1	2	1	0	1	1
Architecture and Construction							-	-							_			
Drafting and Design Technology/Architectural Construction Trades	4 10	3 2	1 0	1	0	0	0 7	3 3	6 1	0	0	1	1	0	0	1	0	0
Woodworking General	4	2	2	1	0	0	3	1	1	1	0	0	0	2	0	0	1	0
Electrical and Power Transmission Installation	7	7	1	0	0	0	3	5	4	0	0	0	3	3	5	0	0	0
Plumbing Technology	4	2	1	1	0	0	1	4	2	0	1	0	0	1	2	0	0	1
Heating, Air Conditioning, Ventilation and Refrigeration	6	2	0	1	0	0	2	3	3	0	0	0	1	1	2	0	0	1
Arts, A/V Technology, Communications and Design																		
Radio and Television Broadcasting Technology	0	1	1	0	1	1	2	0	1	1	0	0	0	0	0			
Graphics and Printing Technology and Communications	1	2	0	0	1	0	3	2	2	0	0	0	1	1	0	1	1	0
Visual and Performing Arts	1	3	1	0	1	0	2	1	2	0	0	0	0	0	0			_
Industrial Design	2	2	2	0	0	0	3	1	2	1	0	0	2	4	0	0	1	0
Aviation																		
Airframe Technology	0	0					1	1		1	1		0	1		0	1	
Aeronautics/Aviation/Aerospace Science and Technology	0						2			1			0					
Eduation and Training																		
Education	1	0	1	1	0	1	3	0	2	1	0	0	0	2	0	0	1	0
Energy														1				
Line Worker	2	1	1	1	0	0	1	0	2	0	0	1	0	0	0			
Health Science	4	~	~	1	~			2	1	0		0	_	2	2	0	1	4
Biomedical Sciences, General	1	0	0	1	0	0	0	2 1	1 3	0	1	0	0	2 1	2 0	0	1 0	1 0
Health Sciences/Allied Health/Health Sciences, General	0	1	0	0	1	0	1	0	2	0	0	1	1	3	1	0	1	0
Health Information / Medical Records Technology	0	1		0	1		1	2		0	1		1	1		1	1	
Clinical/Medical Laboratory Science/Research and Allied Professions														1				
Hospitality and Tourism Cooking and Related Culinary Arts, General	3	1	0	1	0	0	0	1	2	0	0	1	1	3	0	0	1	0
Personal Services Cosmetology	1	1		1	1		1	1		1	1		0	0				
				-	-			- <b>-</b>					Ŭ	Ŭ				
Law, Public Safety, Protective Services Public Safety/Protective Services	1	1	0	1	1	0	1	0	2	0	0	1	1	0	0	1	0	0
·		-	Ŭ			Ŭ	-		-	5	Ŭ	L Î		Ŭ	Ŭ	L Î	Ŭ	Ĭ
Supply Chain Management Supply Chain Management	1	4	0	0	1	0	3	1	4	0	0	1	3	3	6	0	0	1
Automotive, Transportation, Distribution and Logistics														1				
Heavy/Industrial Equipment Maintenance Technologies	2	2	1	0	0	0	1	1	4	0	0	1	3	0	2	1	0	0
Collision Repair Technician (ASE Certified)	0	1	1	0	1	1	3	2	1	1	0	0	1	0	2	0	0	1
Automobile Technician (ASE Certified) Small Engine and Related Equipment Repair	0 1	2	0	0	1	0	3 1	1 2	3 1	0	0	0	4	0	1 2	1	0	0
Medium/Heavy Truck Technician (ASE Certified)	2	1	0	1	0	0	4	2	3	0	0	0	2	0	2	1	0	1

### Appendix D - Table 5A (part 1)

			e 5A. Of the ng different		of hiring n					-
Course						ustries				
	Nu	-	11-25	-	1	Pe	rcent rep	orting nee	r	
	0 employees	1-10 employees	employees	26-50 employees	More than 50 employees	0 employees	employees	employees	26-50 employees	More than 50 employees
Business Administration and Management Operations										
Business Eigence and Accounting	8 13	64 52	4	3	4	0 0	1 1	0	0	0
Finance and Accounting Insurance	3	4	1	1		0	0	0	0	
Computer Programming/Programmer	11	32	5			0	1	0		
Digital/Multimedia and Information Resources	10	28	1			0	1	0		
Computer Systems Networking and Telecommunications System Administration/Administrator	8	25 33	2 1	1		0 0	1 1	0 0	0	
Computer and Information Systems Security/Information Assurance	7	21	1			0	1	0		
Marketing and Entrepreneurship Marketing	10	42	1			0	1	0		
Manufacturing										
Manufacturing Electrical/Electronics Equipment Installation and Repair	7	25	2	1	2	0	1	0	0	0
Machine Tool Technology/Machinist	4	22	2	1	2	0	1	0	0	0
Welding, Brazing and Soldering	6	18	8	1	2	0	1	0	0	0
Mechatronics Engineering Technology	3 6	22 26	2	1 2		0 0	1 1	0	0	
Engineering Technology Mechanical Drafting	6 11	26	3	2		0	1	0		
Agriculture, Food and Natural Resources										
Agriculture Agricultural Operations and Related Sciences	4	3 3				1 0	0			
Applied Horticulture and Horticultural Operations Animal Health & Veterinary Sciences	2	3				0	1 1			
Natural Resources and Conservation	2	3				0	1			
Biotechnology	4	3	1			1	0	0		
Architecture and Construction										
Drafting and Design Technology/Architectural	3	12	1	1	1	0	1	0	0	0
Construction Trades	6	12	4	3	2	0	0	0	0	0
Woodworking General	2	6	4	1	2	0	0	0	0	0
Electrical and Power Transmission Installation	11	22	2 2	1	2 2	0	1	0	0	0
Plumbing Technology Heating, Air Conditioning, Ventilation and Refrigeration	6 6	6 7	5	1 2	2	0 0	0 0	0	0	0
						-	-	-		
Arts, A/V Technology, Communications and Design										
Radio and Television Broadcasting Technology	2	3				0	1			
Graphics and Printing Technology and Communications Visual and Performing Arts	2	10 6				0 0	1 1			
Industrial Design	4	14				0	1			
Aviation						0	0	0		
Airframe Technology Aeronautics/Aviation/Aerospace Science and Technology	1 2	1	1			0 1	0	0		
Actonization/Actospace Science and Technology	-					-				
Eduation and Training										
Education	2	5	1	1		0	1	0	0	
Energy	4	2	1			1	0	0		
Line Worker	4	Z				I	U	0		
Health Science		_					~	_		
Biomedical Sciences, General Health Sciences/Allied Health/Health Sciences, General	4	3 4	1	3	4	1 0	0 0	0	0	0
Health Information / Medical Records Technology	2	6	1	5	-	0	1	0	0	Ū
Clinical/Medical Laboratory Science/Research and Allied Professions	4	1	1			1	0	0		
Hospitality and Tourism Cooking and Related Culinary Arts, General	1	5	2	2	1	0	0	0	0	0
Personal Services										
Cosmetology	3	1				1	0			
Law, Public Safety, Protective Services Public Safety/Protective Services	2	2	2			0	0	0		
Supply Chain Management Supply Chain Management	4	21				0	1			
Automotive, Transportation, Distribution and Logistics										
Heavy/Industrial Equipment Maintenance Technologies	3	11	2			0	1	0		
Collision Repair Technician (ASE Certified)	5	6				0	1	_		
Automobile Technician (ASE Certified)	4	8 9	2			0 0	1	0		
Small Engine and Related Equipment Repair Medium/Heavy Truck Technician (ASE Certified)	3	9 11	1			0	1 1	0		
weatum/Heavy Truck Technician (ASE Certified)	4	11	1	I	ļ	U	T	U	ļ	

### Appendix D - Table 5A (part 2)

				-	onding tha of hiring n indu	eeds over				
Course					All ind	ustries				
	N	umber rep 1-10	orting ne	eding to h 26-50	ire More than 50	Pe	rcent rep	orting nee 11-25	ding to h	ire More than 50
	0 employees	employees	employees	employees	employees	0 employees	employees	employees	employees	employees
Business Administration and Management Operations										
Business Finance and Accounting	8 13	64 52	4	3	4	0 0	1 1	0	0	0
Insurance	3	4	1	1		0	0	0	0	
Computer Programming/Programmer Digital/Multimedia and Information Resources	11 10	32 28	5 1			0 0	1 1	0 0		
Computer Systems Networking and Telecommunications	8	28	2			0	1	0		
System Administration/Administrator	9	33	1	1		0	1	0	0	
Computer and Information Systems Security/Information Assurance	7	21	1			0	1	0		
Marketing and Entrepreneurship Marketing	10	42	1			0	1	0		
Manufacturing										
Electrical/Electronics Equipment Installation and Repair	7	25	2	1	2	0	1	0	0	0
Machine Tool Technology/Machinist Welding, Brazing and Soldering	4	22 18	2 8	1 1	2 2	0 0	1 1	0 0	0 0	0
Mechatronics	3	22	2	1		0	1	0	0	
Engineering Technology Mechanical Drafting	6 11	26 24	3	2		0 0	1 1	0	0	
Mechanical Drafting	11	24				U	T			
Agriculture, Food and Natural Resources										
Agriculture Agricultural Operations and Related Sciences	4 2	3 3				1 0	0 1			
Applied Horticulture and Horticultural Operations Animal Health & Veterinary Sciences	1	3				0	1			
Natural Resources and Conservation	2	3				0	1			
Biotechnology	4	3	1			1	0	0		
Architecture and Construction										
Drafting and Design Technology/Architectural	3	12	1	1	1	0	1	0	0	0
Construction Trades	6	12	4	3	2	0	0	0	0	0
Woodworking General Electrical and Power Transmission Installation	2 11	6 22	4 2	1 1	2 2	0 0	0 1	0 0	0 0	0
Plumbing Technology	6	6	2	1	2	0	0	0	0	0
Heating, Air Conditioning, Ventilation and Refrigeration	6	7	5	2		0	0	0	0	
Arts, A/V Technology, Communications and Design										
Radio and Television Broadcasting Technology	2	3				0	1			
Graphics and Printing Technology and Communications	2	10				0	1			
Visual and Performing Arts Industrial Design	4	6 14				0 0	1 1			
Aviation										
Airframe Technology	1	1	1			0	0	0		
Aeronautics/Aviation/Aerospace Science and Technology	2					1				
Eduation and Training Education	2	5	1	1		0	1	0	0	
Energy	4	2	1			1	0	0		
Line Worker		_	-			-	Ŭ	Ĵ		
Health Science Biomedical Sciences, General	4	3	1			1	0	0		
Health Sciences/Allied Health/Health Sciences, General	2	5 4	1	3	4	0	0	0	0	0
Health Information / Medical Records Technology	2	6	1			0	1	0		
Clinical/Medical Laboratory Science/Research and Allied Professions	4	1	1			1	0	0		
Hospitality and Tourism Cooking and Related Culinary Arts, General	1	5	2	2	1	0	0	0	0	0
Personal Services Cosmetology	3	1				1	0			
Law, Public Safety, Protective Services Public Safety/Protective Services	2	2	2			0	0	0		
Supply Chain Management Supply Chain Management	4	21				0	1			
Automotive, Transportation, Distribution and Logistics										
Heavy/Industrial Equipment Maintenance Technologies	3	11	2			0	1	0		
Collision Repair Technician (ASE Certified)	5	6	_			0	1			
Automobile Technician (ASE Certified) Small Engine and Related Equipment Repair	4 3	8 9	2			0 0	1 1	0		
Medium/Heavy Truck Technician (ASE Certified)	4	9 11	1			0	1	0		

## Appendix D - Table 5A (part 3)

Ahhe		) - Tab		part 3	)					
					oonding tha s of hiring n indu					
Course					anufacturi	-				
		umber rep 1-10	orting ne	eding to h 26-50	ire More than 50	Pe	rcent rep	orting nee	eding to hi 26-50	More than 50
	0 employees	employees	employees	employees	employees	0 employees	employees	employees	employees	employees
Business Administration and Management Operations Business	3	18	2	0	0	0	1	0	0	0
Finance and Accounting	6	10	-	°,		0	1	°,	_	
Insurance Computer Programming/Programmer	0 6	1 11	0 0	0		0 0	1 1	0	0	
Digital/Multimedia and Information Resources	6	4	0			1	0	0		
Computer Systems Networking and Telecommunications	5 4	6 9	0	0		0 0	1 1	0	0	
System Administration/Administrator Computer and Information Systems Security/Information Assurance	4	6	0	U		0	1	0	U	
Marketing and Entrepreneurship Marketing	1	10	0			0	1	0		
Manufacturing										
Manufacturing Electrical/Electronics Equipment Installation and Repair	3	14	0	0	1	0	1	0	0	0
Machine Tool Technology/Machinist	1	17	1	0	1	0	1	0	0	0
Welding, Brazing and Soldering Mechatronics	3 0	10 14	3 1	1 0	0	0 0	1 1	0	0 0	0
Engineering Technology	2	17	0	0		0	1	0	0	
Mechanical Drafting	5	13				0	1			
Agriculture, Food and Natural Resources Agriculture Agricultural Operations and Related Sciences	2	2				1 0	1			
Applied Horticulture and Horticultural Operations Animal Health & Veterinary Sciences	0	3				0	1			
Natural Resources and Conservation Biotechnology	1 0	1 2	0			1 0	1 1	0		
Architecture and Construction										
Drafting and Design Technology/Architectural	1	4	0	0	0	0	1	0	0	0
Construction Trades Woodworking General	2 0	5 3	0 1	0 1	0	0 0	1 1	0 0	0 0	0
Electrical and Power Transmission Installation	3	8	2	0	0	0	1	0	0	0
Plumbing Technology Heating, Air Conditioning, Ventilation and Refrigeration	1 1	4	0 1	0	0	0 0	1 1	0	0	0
	-	5	-			Ŭ	-	°,	°,	
Arts, A/V Technology, Communications and Design	0	1				0	1			
Radio and Television Broadcasting Technology Graphics and Printing Technology and Communications	0 0	1 4				0 0	1 1			
Visual and Performing Arts	0	1				0	1			
Industrial Design	0	9				0	1			
Aviation										
Airframe Technology	0 0	1	0			0	1	0		
Aeronautics/Aviation/Aerospace Science and Technology	0									
Eduation and Training	_		-	-				_	-	
Education	0	1	0	0		0	1	0	0	
Energy Line Worker	1	0	1			1	0	1		
Health Science										
Biomedical Sciences, General	1	2	0			0	1	0		
Health Sciences/Allied Health/Health Sciences, General	0	2	0	0	0	0	1	0	0	0
Health Information / Medical Records Technology Clinical/Medical Laboratory Science/Research and Allied Professions	0 1	2 1	0 0			0 1	1 1	0 0		
Hospitality and Tourism Cooking and Related Culinary Arts, General	0	1	1	0	0	0	1	1	0	0
										-
Personal Services Cosmetology	2	0				1	0			
Law, Public Safety, Protective Services Public Safety/Protective Services	0	1	0			0	1	0		
Supply Chain Management Supply Chain Management	1	16				0	1			
Automotive, Transportation, Distribution and Logistics										
Heavy/Industrial Equipment Maintenance Technologies	0	6	1			0	1	0		
Collision Repair Technician (ASE Certified) Automobile Technician (ASE Certified)	1 1	3	0			0 0	1 1	0		
Small Engine and Related Equipment Repair	0	6	-			0	1	_		
Medium/Heavy Truck Technician (ASE Certified)	0	5	1			0	1	0		

### Appendix D - Table 5A (part 4)

					of hiring r				their busir hiring cate	
Course						ndustries				
	N	umber rep	orting ne	eding to hi	ire	Pe	ercent rep	orting nee	eding to hi	re
	0 employees	1-10 employees	11-25 employees	26-50 employees	More than 50 employees	0 employees	1-10 employees	11-25 employees	26-50 employees	More than 50 employees
Business Administration and Management Operations										
Business	0	3	0	1	0	0	1	0	0	0
Finance and Accounting Insurance	01	4	1	0		0 1	1 0	1	0	
Computer Programming/Programmer	0	2	1	0		0	1	0	0	
Digital/Multimedia and Information Resources	1	2	0			0	1	0		
Computer Systems Networking and Telecommunications	0	2	1			0	1	0		
System Administration/Administrator Computer and Information Systems Security/Information Assurance	0	2	0 1	1		0 0	1 1	0	0	
		_	_			-	_			
Marketing and Entrepreneurship Marketing	0	4	0			0	1	0		
Manufacturing										
Electrical/Electronics Equipment Installation and Repair	0	0	0	0	0					
Machine Tool Technology/Machinist	0	0	0	0	0					
Welding, Brazing and Soldering Mechatronics	0	0	0 0	0 0	0					
Engineering Technology	0	0	0	0						
Mechanical Drafting	0	0								
Agriculture, Food and Natural Resources Agriculture Agricultural Operations and Related Sciences Applied Horticulture and Horticultural Operations	0 0	0 0								
Animal Health & Veterinary Sciences	0	0								
Natural Resources and Conservation Biotechnology	01	0	1			1	0	1		
Architecture and Construction Drafting and Design Technology/Architectural	0	0	0	0	0	-	Ū	-		
Construction Trades	0	0	0	0	0					
Woodworking General	0	0	0	0	0					
Electrical and Power Transmission Installation Plumbing Technology	0	0	0 0	0 0	0 0					
Heating, Air Conditioning, Ventilation and Refrigeration	0	0	0	0	0					
Arts, A/V Technology, Communications and Design Radio and Television Broadcasting Technology	0	0								
Graphics and Printing Technology and Communications Visual and Performing Arts Industrial Design	0 0 0	0 0 0								
Aviation Airframe Technology Aeronautics/Aviation/Aerospace Science and Technology	0 0	0	0							
Eduation and Training Education	0	1	0	0		0	1	0	0	
Energy Line Worker	0	0	0							
Health Science										
Biomedical Sciences, General	1	1	1			0	0	0		
Health Sciences/Allied Health/Health Sciences, General Health Information / Medical Records Technology	0	1 2	1 1	2	2	0 0	0 1	0 0	0	0
Clinical/Medical Laboratory Science/Research and Allied Professions	1	0	1			1	0	1		
Hospitality and Tourism Cooking and Related Culinary Arts, General	0	2	0	0	1	0	1	0	0	0
Personal Services Cosmetology	0	0								
Law, Public Safety, Protective Services Public Safety/Protective Services	0	0	1			0	0	1		
Supply Chain Management Supply Chain Management	0	1				0	1			
Automotive, Transportation, Distribution and Logistics	_	_								
Heavy/Industrial Equipment Maintenance Technologies	0	0	0							
Collision Repair Technician (ASE Certified) Automobile Technician (ASE Certified)	0	0	0							
Small Engine and Related Equipment Repair	0	0	-							
Medium/Heavy Truck Technician (ASE Certified)	0	0	0							

### Appendix D - Table 5A (part 5)

Appendix D - Table 5A. Of the firms responding that the CTE course was relevant to their business, the percentage reporting different categories of hiring needs over the next two years by hiring category and industry.

					indu					cgory and
Course			nolesale ar							
	N	umber rep	orting nee	-		Pe	ercent rep	orting nee		
	0 employees	1-10 employees	11-25 employees	26-50 employees	More than 50 employees	0 employees	1-10 employees	11-25 employees	26-50 employees	More than 50 employees
Business Administration and Management Operations										
Business	2	6	0	0	1	0	1	0	0	0
Finance and Accounting	2	5				0	1			
Insurance	0	0	0	0						
Computer Programming/Programmer Digital/Multimedia and Information Resources	0	3 3	0			0 0	1 1	0 0		
Computer Systems Networking and Telecommunications		2	0			0	1	0		
System Administration/Administrator	2	4	0	0		0	1	0	0	
Computer and Information Systems Security/Information Assurance	1	2	0			0	1	0		
adautation and Fatanana and in										
Marketing and Entrepreneurship Marketing	2	4	0			0	1	0		
Manufacturing										
Electrical/Electronics Equipment Installation and Repair	0	4	1	0	0	0	1	0	0	0
Machine Tool Technology/Machinist	0	2	0	0	0	0	1	0	0	0
Welding, Brazing and Soldering	1	2	0	0	0	0	1	0	0	0
Mechatronics	0	2	0	0		0	1	0	0	
Engineering Technology Mechanical Drafting	0	2 2	0	0		0 0	1 1	0	0	
		2				U	T			
Agriculture, Food and Natural Resources	_	1				0	1			
Agriculture Agricultural Operations and Related Sciences	0	1 1				0	1 1			
Applied Horticulture and Horticultural Operations Animal Health & Veterinary Sciences	0	0				U	Т			
Natural Resources and Conservation	0	0								
Biotechnology	1	0	0			1	0	0		
Architecture and Construction										
Drafting and Design Technology/Architectural	0	1	0	0	0	0	1	0	0	0
Construction Trades	0	0	1	0	0	0	0	1	0	0
Woodworking General	0	0	1	0	0	0	0	1	0	0
Electrical and Power Transmission Installation	1	5	0	0	0	0	1	0	0	0
Plumbing Technology	0	0	0	0	0					
Heating, Air Conditioning, Ventilation and Refrigeration	0	1	0	0		0	1	0	0	
Arts, A/V Technology, Communications and Design										
Radio and Television Broadcasting Technology	0	0								
Graphics and Printing Technology and Communications	0	1				0	1			
Visual and Performing Arts Industrial Design	0	1 2				0	1 1			
	Ŭ	2				0	1			
Aviation										
Airframe Technology	0	0	1			0 1	0	1		
Aeronautics/Aviation/Aerospace Science and Technology						T				
Eduation and Training										
Education	0	0	0	0						
Energy	0	0	0							
Line Worker	ľ	Ĩ	ľ							
Health Science										
Biomedical Sciences, General	0	0	0							
Health Sciences/Allied Health/Health Sciences, General	0	0	0	0	0					
Health Information / Medical Records Technology	0	0	0	-	_					
Clinical/Medical Laboratory Science/Research and Allied Professions	0	0	0							
Hospitality and Tourism										
Cooking and Related Culinary Arts, General	0	0	1	0	0	0	0	1	0	0
Personal Services										
Personal Services Cosmetology	0	0								
	Ĭ	Ŭ								
Law, Public Safety, Protective Services										
Public Safety/Protective Services	0	0	0							
Supply Chain Management										
Supply Chain Management Supply Chain Management	0	2				0	1			
		_				5	-			
Automotive, Transportation, Distribution and Logistics										
Heavy/Industrial Equipment Maintenance Technologies	0	3	0			0	1	0		
Collision Repair Technician (ASE Certified)	0	1				0	1			
Automobile Technician (ASE Certified)	0	1	2			0	0	1		
Small Engine and Related Equipment Repair	0	1				0	1	_		
Medium/Heavy Truck Technician (ASE Certified)	0	3	0		ļ	0	1	0	ļ	

### Appendix D - Table 5A (part 6)

	Appendix D - Table 5A. Of the firms responding that the CTE course was relevant to their business, the percentage reporting different categories of hiring needs over the next two years by hiring category and industry.											
Course	Agrio	ulture, In	formation		and Insura	nce, Real		d Rental a	nd Leasin	g and		
	N	umber rep	orting neg		onal, Scien		ercent rep	orting nee	ding to h	ire		
	0 employees	1-10	11-25	26-50	More than 50	0 employees	1-10	11-25	26-50	More than 50		
	o employees	employees	employees	employees	employees	o employees	employees	employees	employees	employees		
Business Administration and Management Operations Business	1	13	1	1	0	0	1	0	0	0		
Finance and Accounting	1	12			_	0	1	-	-			
Insurance Computer Programming/Programmer	2	1 7	0 1	1		1 0	0 1	0 0	0			
Digital/Multimedia and Information Resources	1	7	0			0	1	0				
Computer Systems Networking and Telecommunications	0	5 8	1 1	0		0 0	1 1	0 0	0			
System Administration/Administrator Computer and Information Systems Security/Information Assurance	0	8 7	0	0		0	1	0	0			
Marketing and Entrepreneurship Marketing	3	11	0			0	1	0				
			-			-		-				
Manufacturing	3	2	0	0	0	1	0	0	0	0		
Electrical/Electronics Equipment Installation and Repair Machine Tool Technology/Machinist	3	2	0	0	0	1 1	1	0	0	0		
Welding, Brazing and Soldering	1	1	0	0	0	1	1	0	0	0		
Mechatronics Engineering Technology	1 2	3 3	0 0	0 0		0 0	1 1	0 0	0 0			
Mechanical Drafting	2	3				0	1					
Agriculture, Food and Natural Resources Agriculture Agricultural Operations and Related Sciences	2	0				1	0					
Applied Horticulture and Horticultural Operations Animal Health & Veterinary Sciences	2 1	0 0				1 1	0 0					
Natural Resources and Conservation	1	1				1	1					
Biotechnology	1	1	0			1	1	0				
Architecture and Construction Drafting and Design Technology/Architectural	1	2	0	0	0	0	1	0	0	0		
Construction Trades Woodworking General	3 1	1 0	0 0	0 0	0	1 1	0 0	0 0	0	0		
Electrical and Power Transmission Installation	2	2	0	0	0	1	1	0	0	0		
Plumbing Technology Heating, Air Conditioning, Ventilation and Refrigeration	2	1 0	0 1	0 0	0	1 1	0 0	0 0	0	0		
Heating, Air Conditioning, Ventilation and Kerngeration	2	0	1	0		1	0	0	0			
Arts, A/V Technology, Communications and Design												
Radio and Television Broadcasting Technology Graphics and Printing Technology and Communications	1	2 0				0 1	1 0					
Visual and Performing Arts	2	2				1	1					
Industrial Design	2	2				1	1					
Aviation												
Airframe Technology	1	0	0			1	0	0				
Aeronautics/Aviation/Aerospace Science and Technology	1					1						
Eduation and Training Education	0	1	0	0		0	1	0	0			
Energy	1	0	0			1	0	0				
Line Worker												
Health Science												
Biomedical Sciences, General	1	0	0			1	0	0				
Health Sciences/Allied Health/Health Sciences, General	1	0 0	0 0	0	0	1	0	0 0	0	0		
Health Information / Medical Records Technology Clinical/Medical Laboratory Science/Research and Allied Professions	1	0	0			1 1	0 0	0				
Hospitality and Tourism Cooking and Related Culinary Arts, General	1	0	0	0	0	1	0	0	0	0		
Personal Services Cosmetology	1	0				1	0					
Connetology		U				T	U					
Law, Public Safety, Protective Services												
Public Safety/Protective Services	1	0	0			1	0	0				
Supply Chain Management Supply Chain Management	1	1				1	1					
Automotive, Transportation, Distribution and Logistics												
Heavy/Industrial Equipment Maintenance Technologies	1	0	0			1	0	0				
Collision Repair Technician (ASE Certified) Automobile Technician (ASE Certified)	1	0 0	0			1 1	0 0	0				
Small Engine and Related Equipment Repair	1	0				1	0	-				
Medium/Heavy Truck Technician (ASE Certified)	1	0	0		l	1	0	0				

### Appendix D - Table 5A (part 7)

Course         Education, Social Assistance, and Public Administration           Number reporting needing to hire         Percent reporting needing to hire		Appendix D - Table 5A. Of the firms responding that the CTE course was relevant to their business, the percentage reporting different categories of hiring needs over the next two years by hiring category and industry.										
barrow         barrow<	Course			Educatio	on, Social			lic Admin	istration			
Function         Partners		N	umber rep	orting ne	eding to h	ire	Pe	ercent rep	orting nee	ding to hi	ire	
Subset         Image: Comparison of Management Operations         Image: Comparison of Comparison of Commania Operations         Image:		0 employees					0 employees				More than 50	
Butues         1         8         0         0         0         0         1         1         8         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0 <th>Business Administration and Management Operations</th> <th></th> <th>employees</th> <th>empioyees</th> <th>employees</th> <th>employees</th> <th></th> <th>employees</th> <th>employees</th> <th>employees</th> <th>empioyees</th>	Business Administration and Management Operations		employees	empioyees	employees	employees		employees	employees	employees	empioyees	
Immune         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         1         0         0         0         1         0         0         0         1         0         0         1         0         0         1         0         0         0         1         0         0         0         1         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0 <th></th> <th>1</th> <th>8</th> <th>0</th> <th>0</th> <th>0</th> <th>0</th> <th>1</th> <th>0</th> <th>0</th> <th>0</th>		1	8	0	0	0	0	1	0	0	0	
compute regramming/ingramming         2         3         0         1         0         1         0         1         0           Compute System definition and leaves in sources         1         3         0         0         1         0         0         1         0         0         1         0         0         1         0         0         1         0         0         1         0         0         1         0         0         1         0         0         1         0         0         1         0         0         0         1         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0	-						0	1				
Digitally different one intervents         0         2         0         1         0         1         0         1         0         1         0         1         0         1         0         0         1         0         0         1         0         0         1         0         0         1         0         0         1         0         0         1         0         0         1         0         0         1         0         0         1         0         0         1         0         0         1         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0		-	-	-	0		0	1	0			
system Advantation (Advanced in a security) intermation Advanced in a security intermation Advanced in treacting security intermation Advanced in trace in a security in			-	-			-		-			
computer and information Systems Security/Information Assurance         1         1         0         1         1         0         1         0         1         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0 <th></th> <th></th> <th></th> <th></th> <th></th> <th></th> <th>-</th> <th></th> <th></th> <th></th> <th></th>							-					
Adviciting and Entrepreneurship         2         2         0         1         1         0         0         0         0         0         1         1         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0 <t< th=""><th>-</th><th></th><th></th><th></th><th>0</th><th></th><th>-</th><th></th><th></th><th>0</th><th></th></t<>	-				0		-			0		
Manufacturing         2         2         2         0         1         1         0         0           Manufacturing Decrival/Identicit supement Installation and Repair Indentice Tool Technology/Machinist Methods, and Engineering Technology         1         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0				_					-			
Description         No												
Electricul/Clectronics Equipment Installation and Repair         1         0         0         0         1         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0	Marketing	2	2	0			1	1	0			
Electrical/Electronics Equipment Installation and Repair         1         0         0         0         1         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0	Manufacturing											
Weak and solve fragments         0         1         0         0         0         0         1         0         0         0           Engineering Technology Mechanical Derivations and Medicat Gionees         1         0         0         0         0         1         0         0         0         1         0         0         0           Agriculture, Food and Natural Resources         0         0         0         0         0         0         1         0         0         0         0           Agriculture, Food and Natural Resources         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0 <t< th=""><th></th><th>1</th><th>0</th><th>0</th><th>0</th><th>0</th><th>1</th><th>0</th><th>0</th><th>0</th><th>0</th></t<>		1	0	0	0	0	1	0	0	0	0	
Mechanics         2         0         0         0         1         0         0         0           Indipendent Charlons Drafting         1         0         0         0         1         0         0         0           Agriculture, Food and Natural Resources         0         0         0         0         1         0         0         0           Agriculture, Food and Natural Gesetions         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0	•		-			-				-		
Engineering Technology         1         0         0         0         1         0         0         1         0         0         0           Agriculture Apriculture Apriculture and Related Sciences         0         0         0         0         0         0         1         0         0         0           Agriculture apriculture and Metalet Operations         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0<						0				-	0	
Arricultur, Food and Natural Resources         Image: Control of Natural Resources         Image:			-					0				
Applied Horticure Apticultural Operations and Related Sciences       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0 <td< th=""><th>Mechanical Drafting</th><td>1</td><td>0</td><td></td><td></td><td></td><td>1</td><td>0</td><td></td><td></td><td></td></td<>	Mechanical Drafting	1	0				1	0				
Applied Horticure Apticultural Operations and Related Sciences       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0 <td< th=""><th>Aariculture, Food and Natural Resources</th><th></th><th></th><th></th><th></th><th></th><th></th><th></th><th></th><th></th><th></th></td<>	Aariculture, Food and Natural Resources											
Apple Horticulture and Attributure and Construction         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         <	•	0	0									
Natural Resources and Conservation Biotechnology         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         1         0         0         0         0			-									
Biotechnology         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         <	-		-									
Drating and Design Technology/Architectural         1         1         0         0         0         1         1         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0 <th></th> <td></td> <td></td> <td>0</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td>				0								
Drating and Design Technology/Architectural         1         1         0         0         0         1         1         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0 <th></th> <td></td>												
Construction Trades       1       1       1       0       0       1       1       0       0       0         Woodworking General       0       0       0       0       0       1       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0 <th></th> <th>1</th> <th>0</th> <th>0</th> <th>0</th> <th>0</th> <th>1</th> <th>0</th> <th>0</th> <th>0</th> <th>0</th>		1	0	0	0	0	1	0	0	0	0	
Woodworking General Electrical and Power Transmission installation         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0												
Plumbing Technology         1         0         0         0         1         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0		0	0	0	0	0						
Heating, Air Conditioning, Ventilation and Refrigeration       1       1       0       0       1       1       0       0         Arts, A/V Technology, Communications and Design       n       n       n       n       n       n       n       n       n       n       n       n       n       n       n       n       n       n       n       n       n       n       n       n       n       n       n       n       n       n       n       n       n       n       n       n       n       n       n       n       n       n       n       n       n       n       n       n       n       n       n       n       n       n       n       n       n       n       n       n       n       n       n       n       n       n       n       n       n       n       n       n       n       n       n       n       n       n       n       n       n       n       n       n       n       n       n       n       n       n       n       n       n       n       n       n       n       n       n       n       n       n												
Arts, A/V Technology, Communications and Design       0       0       0       0       0       0       0       1       0       1       0       1       0       1       0       1       0       1       0       1       0       1       0       1       0       1       0       1       0       1       0       1       0       1       0       1       0       1       0       1       0       1       0       1       0       1       0       1       0       1       0       1       0       0       0       0       1       0       0       0       0       0       1       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       <				-		0					0	
Radio and Television Broadcasting Technology       0       0       0       0       1       0       1         Graphics and Printing Technology and Communications       0       0       0       1       0       1       0       1       0       1       0       1       0       1       0       1       0       1       0       1       0       1       0       1       0       1       0       1       0       1       0       1       0       1       0       1       0       1       0       1       0       1       0       1       0       0       1       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0 <td< th=""><th></th><th></th><th></th><th></th><th></th><th></th><th></th><th></th><th></th><th></th><th></th></td<>												
Graphics and Printing Technology and Communications       0       2       0       0       1       0       1       0         Visual and Performing Arts       1       0       0       0       1       0       1       0       1       0       1       0       1       0       1       0       1       0       1       0       1       0       1       0       1       0       1       0       1       0       1       0       1       0       1       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0       0												
Visual and Performing Arts Industrial Design000101010Aviation Airframe Technology000000000Eduation and Training Education121100000Education and Training Education121100000Education12110000000Energy Line Worker10010010000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000 <td< th=""><th></th><th></th><th></th><th></th><th></th><th></th><th>0</th><th>1</th><th></th><th></th><th></th></td<>							0	1				
AviationAviationAviationAviationAviationAviationAviationAviationAviationAviationAviationAviationAviationAviationAviationAviationAviationAviationAviationAviationAviationAviationAviationAviationAviationAviationAviationAviationAviationAviationAviationAviationAviationAviationAviationAviationAviationAviationAviationAviationAviationAviationAviationAviationAviationAviationAviationAviationAviationAviationAviationAviationAviationAviationAviationAviationAviationAviationAviationAviationAviationAviationAviationAviationAviationAviationAviationAviationAviationAviationAviationAviationAviationAviationAviationAviationAviationAviationAviationAviationAviationAviationAviationAviationAviationAviationAviationAviationAviationAviationAviationAviationAviationAviationAviationAviationAviationAviationAviationAviationAviationAviationAviationAviationAviationAviationAviationAviationAviationAviationAviationAviationAviationAviationAviationAviationAviationAviationAviationAviatio		-					Ū	1				
Airframe Technology Aeronautics/Aviation/Aerospace Science and Technology00000000000Education and Training Education1211000000Education121100000000Energy Line Worker100000000000Health Sciences Biomedical Sciences, General Health Information / Medical Records Technology100120000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000 <th>Industrial Design</th> <td>1</td> <td>0</td> <td></td> <td></td> <td></td> <td>1</td> <td>0</td> <td></td> <td></td> <td></td>	Industrial Design	1	0				1	0				
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Line WorkerImage: Selection of the selection of t							-	-	-	-		
Health ScienceIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIII<		1	0	0			1	0	0			
Biomedical Sciences, General100121000Health Sciences/Allied Health/Health Sciences, General111012000000Health Information / Medical Records Technology120100100000000Clinical/Medical Laboratory Science/Research and Allied Professions1001010100100000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000000	Line Worker											
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Health Information / Medical Records Technology Clinical/Medical Laboratory Science/Research and Allied Professions120010100Hospitality and Tourism Cooking and Related Culinary Arts, General01010101010101010101010101010101010101010101010101010101010101010101010101010101010101010101010101010101010101010101010101010101101010101010110101101011010110101101010110110 <th></th>												
Clinical/Medical Laboratory Science/Research and Allied Professions100100Hospitality and Tourism Cooking and Related Culinary Arts, General01010101010Personal Services Cosmetology001010101010Law, Public Safety, Protective Services Public Safety/Protective Services11010101010Supply Chain Management Supply Chain Management101010101010101010101010101010101010101010101010101010101010101010101010101010101010101010101010101010101010101010101010101010					1	2	-	-		0	0	
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Cooking and Related Culinary Arts, General0101001010Personal Services Cosmetology00010101010Law, Public Safety, Protective Services Public Safety/Protective Services110110101010Supply Chain Management Supply Chain Management101010101010101010101010101010101010101010101010101010101010101010101010101010101010101010101010101010101010101010101010101010101010101010101010 <th></th> <td></td>												
Personal Services Cosmetology000110Law, Public Safety, Protective Services Public Safety/Protective Services110110Supply Chain Management Supply Chain Management1011010Automotive, Transportation, Distribution and Logistics Heavy/Industrial Equipment Maintenance Technologies100100Automobile Technician (ASE Certified) Automobile Technician (ASE Certified)100100		_	1	~	-		~	4	~	4		
Cosmetology000110Law, Public Safety, Protective Services110110Public Safety/Protective Services110110Supply Chain Management1011010Supply Chain Management1010101Automotive, Transportation, Distribution and Logistics	Cooking and Related Cullinary Arts, General	U		U	1	0	U	T	U		U	
Law, Public Safety, Protective Services Public Safety/Protective Services110110Supply Chain Management Supply Chain Management10110110Automotive, Transportation, Distribution and Logistics Heavy/Industrial Equipment Maintenance Technologies100100Automobile Technician (ASE Certified) Automobile Technician (ASE Certified)220110	Personal Services											
Public Safety/Protective Services110110Supply Chain Management Supply Chain Management101010Automotive, Transportation, Distribution and Logistics Heavy/Industrial Equipment Maintenance Technologies100100Automobile Technician (ASE Certified) Automobile Technician (ASE Certified)220110	Cosmetology	0	0									
Public Safety/Protective Services110110Supply Chain Management Supply Chain Management101010Automotive, Transportation, Distribution and Logistics Heavy/Industrial Equipment Maintenance Technologies100100Automobile Technician (ASE Certified) Automobile Technician (ASE Certified)220110	Law Public Safety Protective Convices											
Supply Chain Management Supply Chain Management1010Automotive, Transportation, Distribution and Logistics Heavy/Industrial Equipment Maintenance Technologies100Heavy/Industrial Equipment Maintenance Technologies10010Automobile Technician (ASE Certified)3010Automobile Technician (ASE Certified)22010		1	1	0			1	1	0			
Supply Chain Management1010Automotive, Transportation, Distribution and LogisticsHeavy/Industrial Equipment Maintenance Technologies100100Collision Repair Technician (ASE Certified)301010Automobile Technician (ASE Certified)220110												
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Heavy/Industrial Equipment Maintenance Technologies100100Collision Repair Technician (ASE Certified)301010Automobile Technician (ASE Certified)220110	Supply Chain Management	1	0				1	0				
Heavy/Industrial Equipment Maintenance Technologies100100Collision Repair Technician (ASE Certified)301010Automobile Technician (ASE Certified)220110	Automotive, Transportation, Distribution and Loaistics											
Automobile Technician (ASE Certified)     2     2     0     1     1     0	Heavy/Industrial Equipment Maintenance Technologies		0	0					0			
				_					~			
				U					U			
Medium/Heavy Truck Technician (ASE Certified)     2     1     0     1     0				0					0			

## Appendix D - Table 5A (part 8)

					oonding tha s of hiring n indu	eeds over t				
Course	Arts,	Entertain	ment and	Recreatio	n, Accomo		d Food Se	rvices and	Other Se	rvices
Course	NI				pt Public /	1			dina ta b	ine
		umber rep	orting nee	26-50	Ire More than 50		rcent rep	orting nee	26-50	More than 50
	0 employees	employees	employees	employees	employees	0 employees	employees	employees	employees	employees
Business Administration and Management Operations										
Business Finance and Accounting	0	8 7	0	0	0	0 0	1 1	0	0	0
Insurance	0	2	0	0		0	1	0	0	
Computer Programming/Programmer	1	3	2			0	1	0		
Digital/Multimedia and Information Resources Computer Systems Networking and Telecommunications	1 2	4 3	1 0			0 0	1 1	0 0		
System Administration/Administrator	1	2	0	0		0	1	0	0	
Computer and Information Systems Security/Information Assurance	1	2	0			0	1	0		
Marketing and Entrepreneurship Marketing	2	4	1			0	1	0		
Manufacturing Electrical/Electronics Equinment Installation and Renair	0	1	0	0	0	0	1	0	0	0
Electrical/Electronics Equipment Installation and Repair Machine Tool Technology/Machinist	0	0	0	0	0	0	1 0	0	0	0
Welding, Brazing and Soldering	0	2	0	0	0	0	1	0	0	0
Mechatronics	0	1 2	0 0	0 0		0 0	1 1	0 0	0 0	
Engineering Technology Mechanical Drafting	0	2	U	U		0	1 0	U	U	
	-	-					-			
Agriculture, Food and Natural Resources										
Agriculture Agricultural Operations and Related Sciences	0	0 0								
Applied Horticulture and Horticultural Operations Animal Health & Veterinary Sciences	0	0								
Natural Resources and Conservation	0	0								
Biotechnology	0	0	0							
Architecture and Construction										
Drafting and Design Technology/Architectural	0	0	0	0	0					
Construction Trades	0	0	0	0	0					
Woodworking General	0	0	0	0	0			_		
Electrical and Power Transmission Installation	1 0	2 0	0 0	0 0	0	0	1	0	0	0
Plumbing Technology Heating, Air Conditioning, Ventilation and Refrigeration	0	1	0	0		0	1	0	0	
Arts, A/V Technology, Communications and Design							_			
Radio and Television Broadcasting Technology Graphics and Printing Technology and Communications	1 0	0 1				1 0	0 1			
Visual and Performing Arts	2	1				1	0			
Industrial Design	0	0								
Autorian										
Aviation Airframe Technology	0	0	0							
Arrrame Technology Aeronautics/Aviation/Aerospace Science and Technology	0	U	U							
Eduation and Training		-	~	_			-	_	_	
Education	1	0	0	0		1	0	0	0	
Energy	0	0	0							
Line Worker	ľ		-							
Health Science	_	0	0							
Biomedical Sciences, General Health Sciences/Allied Health/Health Sciences, General	0	0 0	0 0	0	0					
Health Information / Medical Records Technology	0	0	0	Ū						
Clinical/Medical Laboratory Science/Research and Allied Professions	0	0	0							
Hospitality and Tourism										
Hospitality and Tourism Cooking and Related Culinary Arts, General	0	1	0	1	0	0	1	0	1	0
Cooning and related culliary Alts, General	Ĭ	-	U	-	Ŭ	Ŭ	-	Ŭ	-	
Personal Services										
Cosmetology	0	1				0	1			
I aw Public Safety Protective Services										
Law, Public Safety, Protective Services Public Safety/Protective Services	0	0	1			0	0	1		
		-	_			-	-	_		
Supply Chain Management										
Supply Chain Management	0	1				0	1			
Automotive Transportation Distribution and Logistics										
Automotive, Transportation, Distribution and Logistics Heavy/Industrial Equipment Maintenance Technologies	1	1	0			1	1	0		
Collision Repair Technician (ASE Certified)	0	2	-			0	1	-		
Automobile Technician (ASE Certified)	0	2	0			0	1	0		
Small Engine and Related Equipment Repair	1	0	0			1	0	0		
Medium/Heavy Truck Technician (ASE Certified)	1	1	0	L	ļ	1	1	0	L	

### Appendix D - Table 5B (part 1)

				-	of hiring n	eeds over		relevant to vo years by		
Course				Establis	hments w	istry. ith 0-9 em	ployees			
	Nu	umber rep	orting ne	eding to h	ire	Pe	ercent rep	orting nee	ding to hi	ire
	0 employees	1-10 employees	11-25 employees	26-50 employees	More than 50 employees	0 employees	1-10 employees	11-25 employees	26-50 employees	More than 50 employees
Business Administration and Management Operations										
Business Finance and Accounting	3	18 11	0	2	3	0	1 1	0	0	0
Insurance	0	0	0	1		0	0	0	1	
Computer Programming/Programmer	3	9	0			0	1	0		
Digital/Multimedia and Information Resources Computer Systems Networking and Telecommunications	4	3 4	0 0			1 0	0 1	0 0		
System Administration/Administrator	3	5	0	0		0	1	0	0	
Computer and Information Systems Security/Information Assurance	2	4	0			0	1	0		
Marketing and Entrepreneurship Marketing	5	8	0			0	1	0		
Manufacturing										
Electrical/Electronics Equipment Installation and Repair	3 0	10 10	1 0	1 1	0	0 0	1 1	0 0	0 0	0 0
Machine Tool Technology/Machinist Welding, Brazing and Soldering	2	4	5	0	1	0	0	0	0	0
Mechatronics	0	8	0	1		0	1	0	0	
Engineering Technology Mechanical Drafting	0 2	9 10	2	2		0 0	1 1	0	0	
Agriculture, Food and Natural Resources Agriculture Agricultural Operations and Related Sciences	0	2				0	1			
Applied Horticulture and Horticultural Operations	1	2				0	1			
Animal Health & Veterinary Sciences	0	1				0	1			
Natural Resources and Conservation Biotechnology	0	2 2	0			0	1 1	0		
Architecture and Construction Drafting and Design Technology/Architectural	1	5	0	1	1	0	1	0	0	0
Construction Trades	1	6	2	2	1	0	1	0	0	0
Woodworking General Electrical and Power Transmission Installation	1 5	3 8	2 1	1 0	1 1	0 0	0 1	0	0 0	0 0
Plumbing Technology	2	2	2	0	1	0	0	0	0	0
Heating, Air Conditioning, Ventilation and Refrigeration	2	3	3	0		0	0	0	0	
Arts, A/V Technology, Communications and Design										
Radio and Television Broadcasting Technology	1	1				1	1			
Graphics and Printing Technology and Communications Visual and Performing Arts	1 2	2 3				0 0	1 1			
Industrial Design	1	5				0	1			
Aviation										
Airframe Technology	0	0	0							
Aeronautics/Aviation/Aerospace Science and Technology	0									
Eduation and Training Education	1	1	0	0		1	1	0	0	
Energy										
Line Worker	2	2	0			1	1	0		
Health Science	0	1	0			0	1	0		
Biomedical Sciences, General Health Sciences/Allied Health/Health Sciences, General	0	1 1	0 0	0	1	0 0	1 1	0	0	1
Health Information / Medical Records Technology	1	0	0			1	0	0		
Clinical/Medical Laboratory Science/Research and Allied Professions										
Hospitality and Tourism Cooking and Related Culinary Arts, General	0	1	2	1	0	0	0	1	0	0
Personal Services Cosmetology	1	1				1	1			
Law, Public Safety, Protective Services Public Safety/Protective Services	0	0	2			0	0	1		
Supply Chain Management Supply Chain Management	1	4				0	1			
Automotive, Transportation, Distribution and Logistics										
Heavy/Industrial Equipment Maintenance Technologies	0	4	1			0	1	0		
Collision Repair Technician (ASE Certified) Automobile Technician (ASE Certified)	1 0	1 2	0			1 0	1 1	0		
Small Engine and Related Equipment Repair	0	3				0	1	Ŭ		
Medium/Heavy Truck Technician (ASE Certified)	0	2	1	ļ		0	1	0		

## Appendix D - Table 5B (part 2)

Appendix D - Table 5B. Of the firms responding that the CTE course was relevant to their business, the
percentage reporting different categories of hiring needs over the next two years by hiring category and
industry.

	industry.									
Course					ments wit					
	Nu		orting ne			Pe	-	orting nee	-	
	0 employees	1-10 employees	11-25 employees	26-50 employees	More than 50 employees	0 employees	1-10 employees	11-25 employees	26-50 employees	More than 50 employees
Business Administration and Management Operations										
Business	3	30	2	0	1	0	1	0	0	0
Finance and Accounting	8	22				0	1			
Insurance Computer Programming/Programmer	1 4	4 11	0 3	0		0 0	1 1	0	0	
Digital/Multimedia and Information Resources	3	11	5 1			0	1	0		
Computer Systems Networking and Telecommunications	3	10	1			0	1	0		
System Administration/Administrator	1	16	1	0		0	1	0	0	
Computer and Information Systems Security/Information Assurance	2	9	0			0	1	0		
Marketing and Entrepreneurship										
Marketing	2	21	1			0	1	0		
Manufacturing										
Electrical/Electronics Equipment Installation and Repair	3	6	1	0	1	0	1	0	0	0
Machine Tool Technology/Machinist Welding, Brazing and Soldering	2 3	7 9	0 1	0 0	1 1	0 0	1 1	0	0	0
Mechatronics	3	6	1	0	1	0	1	0	0	0
Engineering Technology	5	8	1	0		0	1	0	0	
Mechanical Drafting	6	8				0	1			
Agriculture, Food and Natural Resources										
Agriculture Agricultural Operations and Related Sciences	2	1				1	0			
Applied Horticulture and Horticultural Operations	1	1				1	1			
Animal Health & Veterinary Sciences	1	1				1	1			
Natural Resources and Conservation Biotechnology	1 2	1 0	0			1 1	1 0	0		
	_	-				-	-			
Architecture and Construction	2	7	_	0	0	0	1	_	0	0
Drafting and Design Technology/Architectural Construction Trades	2 4	7 3	0 2	0	0	0 0	1 0	0	0	0
Woodworking General	4	2	1	0	1	0	0	0	0	0
Electrical and Power Transmission Installation	4	6	0	1	1	0	1	0	0	0
Plumbing Technology	2	3	0	1	1	0	0	0	0	0
Heating, Air Conditioning, Ventilation and Refrigeration	3	2	1	2		0	0	0	0	
Arts, A/V Technology, Communications and Design										
Radio and Television Broadcasting Technology	1	2				0	1			
Graphics and Printing Technology and Communications	1	6				0	1			
Visual and Performing Arts	2	3				0	1			
Industrial Design	3	3				1	1			
Aviation										
Airframe Technology	1 2	0	1			1 1	0	1		
Aeronautics/Aviation/Aerospace Science and Technology	2					1				
Eduation and Training										
Education	1	2	1	1		0	0	0	0	
Energy										
Line Worker	2	0	1			1	0	0		
Health Science	2	1	0			1	0	0		
Biomedical Sciences, General	2	1	0	2	1	0	0	0	0	0
Health Sciences/Allied Health/Health Sciences, General	2	1	0			1	0	0		
Health Information / Medical Records Technology	2	1	0			1	0	0		
Clinical/Medical Laboratory Science/Research and Allied Professions										
Hospitality and Tourism Cooking and Related Culinary Arts, General	1	2	0	0	0	0	1	0	0	0
Personal Services										
Cosmetology	2	0				1	0			
Inus Public Solatu Protective Semilar										
Law, Public Safety, Protective Services Public Safety/Protective Services	2	1	0			1	0	0		
		-				-	-	_		
Supply Chain Management	2	E				0	1			
Supply Chain Management	3	5				0	1			
Automotive, Transportation, Distribution and Logistics										
Heavy/Industrial Equipment Maintenance Technologies	3	3	0			1	1	0		
Collision Repair Technician (ASE Certified)	2	4	4			0	1	~		
Automobile Technician (ASE Certified) Small Engine and Related Equipment Repair	3 2	3 2	1			0 1	0 1	0		
Medium/Heavy Truck Technician (ASE Certified)	2	2 6	0			0	1	0		
weaking neavy muck rechnicidit (ASE Certified)	3	0	U		I	U	T	U	ļ	I

#### Appendix D - Table 5B (part 3)

Appendix D - Table 5B. Of the firms responding that the CTE course was relevant to their business, the percentage reporting different categories of hiring needs over the next two years by hiring category and industry

		percenta	50.000.000	5 unicient	categories		stry.			ining cut	egory and
	Course					nts with m		0 employ	ees		
		Nu	-	orting ne	-		Pe	-	orting nee	1	
		0 employees	1-10 employees	11-25 employees	26-50 employees	More than 50 employees	0 employees	1-10 employees	11-25 employees	26-50 employees	More than 50 employees
ļ	Susiness Administration and Management Operations										
	Business	2	16	2	1	0	0	1	0	0	0
	Finance and Accounting	1	19				0	1			
	Insurance	2	0	1	0		1	0	0	0	
	Computer Programming/Programmer Digital/Multimedia and Information Resources	4	12 7	2 0			0 0	1 1	0	1	
	Computer Systems Networking and Telecommunications	3	, 11	1			0	1	0	1	
	System Administration/Administrator	5	12	0	1		0	1	0	0	
	Computer and Information Systems Security/Information Assurance	3	8	1			0	1	0		
	<i>Narketing and Entrepreneurship</i> Marketing	3	13	0			0	1	0		
	<b>Nanufacturing</b>										
	Electrical/Electronics Equipment Installation and Repair	1	9	0	0	1	0	1	0	0	0
	Machine Tool Technology/Machinist	2	5	2	0	1	0	1	0	0	0
	Welding, Brazing and Soldering	1	5	2	1	0	0	1	0	0	0
	Mechatronics	0	8	1	0		0	1	0	0	
	Engineering Technology Mechanical Drafting	1 3	9 6	0	0		0 0	1 1	0	0	
		_	-					_			
	Agriculture, Food and Natural Resources	2	0				1	0			
	Agriculture Agricultural Operations and Related Sciences Applied Horticulture and Horticultural Operations	2 0	0				1	U			
	Animal Health & Veterinary Sciences	0	1				0	1			
	Natural Resources and Conservation	1	0				1	0			
	Biotechnology	1	1	1			0	0	0		
	Architecture and Construction										
	Drafting and Design Technology/Architectural	0	0	1	0	0	0	0	1	0	0
	Construction Trades	1	3	0	0	0	0	1	0	0	0
	Woodworking General	0	1	1	0	0	0	1	1	0	0
	Electrical and Power Transmission Installation	2	8	1	0	0	0	1	0	0	0
	Plumbing Technology Heating, Air Conditioning, Ventilation and Refrigeration	2 1	1 2	0 1	0 0	0	1 0	0 1	0	0	0
		-	-	-	Ŭ		Ũ	-	Ū	J J	
ŀ	rts, A/V Technology, Communications and Design		0								
	Radio and Television Broadcasting Technology	0	0				0	1		1	
	Graphics and Printing Technology and Communications Visual and Performing Arts	0	2 0				0	1		1	
	Industrial Design	0	6				0	1			
	l dente a										
ľ	l <i>viation</i> Airframe Technology	0	1	0			0	1	0		
	Aeronautics/Aviation/Aerospace Science and Technology	0	-	Ū			Ũ	-	Ū		
	duation and Training										
	Education	0	2	0	0		0	1	0	0	
	nergy Line Worker	0	0	0							
		v	U	U							
	lealth Science	2	1	1			1	0	0		
	Biomedical Sciences, General	0	2	1	1	2	0	0	0	0	0
	Health Sciences/Allied Health/Health Sciences, General	0	4 0	1			0	1	0		
ļ	Health Information / Medical Records Technology Clinical/Medical Laboratory Science/Research and Allied Professions	1	U	1			1	0	1		
	lospitality and Tourism	0	2	0	1	1	0	1	0	0	0
ļ	Cooking and Related Culinary Arts, General	U	2	U	T	1	U	T	U	U	U
	Personal Services										
	Cosmetology	0	0								
	aw, Public Safety, Protective Services										
ļ	Public Safety/Protective Services	0	1	0			0	1	0		
	upply Chain Manazarat										
ŀ	upply Chain Management Supply Chain Management	0	12				0	1			
	utomotive, Transportation, Distribution and Logistics								_		
	Heavy/Industrial Equipment Maintenance Technologies	0	4	1			0	1	0		
	Collision Repair Technician (ASE Certified) Automobile Technician (ASE Certified)	2 1	1 3	1			1 0	0 1	0		
ļ		· ·				•		-		4	
	Small Engine and Related Equipment Repair	1	4	_			0	1		l	

#### Appendix D - Table 5C

Appendix D - Table 5C. Of the firms responding that a CTE course was re	elevant to their	business, the nu years, by Indu	• •	ees firms antici	pate needing to	hire in related o	occupations ove	r the next two
				Total Estin	nated Hires			
Course	Total	Construction	Manufacturing	Health	Wholesale and Retail Trade and Transportation and Warehousing	Agriculture, Information, Finance and Insurance, Real Estate and Rental and Leasing and Professional, Scientific and Technical	Education, Social Assistance, and Public Administration	Arts, Entertainment and Recreation, Accomodation and Food Services and Other Services (except Public Administration)
Business Administration and Management Operations								
Business	806	321	126	53	105	121	40	40
Finance and Accounting Insurance	260 113	30 0	50 5	20 18	25 0	60 80	40 0	35 10
Computer Programming/Programmer	250	33	55	28	15	53	15	51
Digital/Multimedia and Information Resources	158	25	20	10	15	35	15	38
Computer Systems Networking and Telecommunications	161	20	30	28	10	43	15	15
System Administration/Administrator Computer and Information Systems Security/Information Assurance	221 143	20 5	45 30	48 48	20 10	58 35	20 5	10 10
,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,							-	
Marketing and Entrepreneurship Marketing	228	35	50	20	20	55	10	38
Manufacturing								
Electrical/Electronics Equipment Installation and Repair	349	151	145	0	38	10	0	5
Machine Tool Technology/Machinist Welding Brazing and Soldering	334 422	123 250	178 142	0	10 10	5 5	0 5	18 10
Welding, Brazing and Soldering Mechatronics	184	66	88	0	10	15	0	5
Engineering Technology	260	140	85	0	10	15	0	10
Mechanical Drafting	120	30	65	0	10	15	0	0
Agriculture, Food and Natural Resources								
Agriculture Agricultural Operations and Related Sciences	15	0	10	0	5	0	0	0
Applied Horticulture and Horticultural Operations	15	0	10	0	5	0	0	0
Animal Health & Veterinary Sciences	15	0	15	0	0	0	0	0
Natural Resources and Conservation	15	5	5	0	0	5 5	0	0
Biotechnology	33	0	10	18	0	5	0	0
Architecture and Construction								
Drafting and Design Technology/Architectural	191	156	20	0	5	10	0	0
Construction Trades	396	343	25	0	18	5	5	0
Woodworking General	290	201	71	0	18	0	0	0
Electrical and Power Transmission Installation Plumbing Technology	334 254	208 229	76 20	0 0	25 0	10 5	5 0	10 0
Heating, Air Conditioning, Ventilation and Refrigeration	201	135	33	0	5	18	5	5
Arts, A/V Technology, Communications and Design	45		-			10		
Radio and Television Broadcasting Technology Graphics and Printing Technology and Communications	15 50	0 10	5 20	0	0	10 0	0 10	0 5
Visual and Performing Arts	30	5	5	0	5	10	0	5
Industrial Design	70	5	45	0	10	10	0	0
Aviation Airframe Technology	80	0	5	0	75	0	0	0
Aeronautics/Aviation/Aerospace Science and Technology	0	0	0	0	0	0	0	0
Eduation and Training								
Education	118	0	5	5	0	5	103	0
Energy								
Line Worker	85	10	75	0	0	0	0	0
Health Science	00	0	10	00	0	_	_	0
Biomedical Sciences, General Health Sciences/Allied Health/Health Sciences, General	90 452	0	10 10	80 249	0	0 0	0 193	0
Health Information / Medical Records Technology	105	0	10	85	0	0	193	0
Clinical/Medical Laboratory Science/Research and Allied Professions	80	0	5	75	0	0	0	0
Hospitality and Tourism Cooking and Related Culinary Arts, General	212	0	23	85	18	0	43	43
Personal Services	-		_	~		_	_	-
Cosmetology	5	0	0	0	0	0	0	5
Law, Public Safety, Protective Services Public Safety/Protective Services	86	0	5	38	0	0	5	38
Supply Chain Management								
Supply Chain Management Supply Chain Management	105	0	80	5	10	5	0	5
		Ĭ					ľ	, j
Automotive, Transportation, Distribution and Logistics								
Heavy/Industrial Equipment Maintenance Technologies	91	23	48	0	15	0	0	5
Collision Repair Technician (ASE Certified) Automobile Technician (ASE Certified)	30 76	0	15 15	0 0	5 41	0 0	0 10	10 10
Small Engine and Related Equipment Repair	45	0	30	0	5	0	10	0
Medium/Heavy Truck Technician (ASE Certified)	73	5	43	0	15	0	5	5

### Appendix D - Table 5D

		Total Estin	nated Hires	
Course	Total	1 to 9 employees	10 to 49 employees	50 or more employees
Business Administration and Management Operations				
Business	806	391	261	154
Finance and Accounting	260	55	110	95
Insurance	113	75	20	18
Computer Programming/Programmer	250	45 15	109 108	96 35
Digital/Multimedia and Information Resources Computer Systems Networking and Telecommunications	158 161	20	68	35 73
System Administration/Administrator	221	25	98	98
Computer and Information Systems Security/Information Assurance	143	20	45	78
Marketing and Entrepreneurship Marketing	228	40	123	65
Manufacturing				
Electrical/Electronics Equipment Installation and Repair	349	106	123	120
Machine Tool Technology/Machinist	334	88	110	136
Welding, Brazing and Soldering	422	185	138	99
Mechatronics	184	78	48	58
Engineering Technology Mechanical Drafting	260 120	157 50	58 40	45 30
Agriculture, Food and Natural Resources Agriculture Agricultural Operations and Related Sciences	15	10	5	0
Applied Horticulture and Horticultural Operations	15	10	5	0
Animal Health & Veterinary Sciences	15	5	5	5
Natural Resources and Conservation	15	10	5	0
Biotechnology	33	10	0	23
Architecture and Construction				
Drafting and Design Technology/Architectural	191	138	35	18
Construction Trades	396	217	164	15
Woodworking General	290	164	103	23
Electrical and Power Transmission Installation	334	133	143	58
Plumbing Technology Heating, Air Conditioning, Ventilation and Refrigeration	254 201	121 69	128 104	5 28
Arts A//Technology Communications and Design				
Arts, A/V Technology, Communications and Design Radio and Television Broadcasting Technology	15	5	10	0
Graphics and Printing Technology and Communications	50	10	30	10
Visual and Performing Arts	30	15	15	0
Industrial Design	70	25	15	30
Aviation				
Airframe Technology Aeronautics/Aviation/Aerospace Science and Technology	80 0	0	75 0	5 0
Actinautics/Aviation/Actospace Science and Technology	0	0	0	0
Eduation and Training Education	118	5	103	10
	110	5	105	10
Energy Line Worker	85	10	75	0
	05	10	,5	Ŭ
Health Science	00	-	F	
Biomedical Sciences, General	90 452	5 80	5 156	80 216
Health Sciences/Allied Health/Health Sciences, General Health Information / Medical Records Technology	105	5	5	95
Clinical/Medical Laboratory Science/Research and Allied Professions	80	0	5	75
Hospitality and Tourism Cooking and Related Culinary Arts, General	212	79	10	123
Personal Services				
Cosmetology	5	5	0	0
Law, Public Safety, Protective Services				
Public Safety/Protective Services	86	76	5	5
Supply Chain Management			25	60
Supply Chain Management Supply Chain Management	105	20	25	00
Supply Chain Management	105	20	25	00
Supply Chain Management Automotive, Transportation, Distribution and Logistics	105 91	38	15	38
Supply Chain Management				
Supply Chain Management Automotive, Transportation, Distribution and Logistics Heavy/Industrial Equipment Maintenance Technologies	91	38	15	38

## Appendix D - Table 6A

Appendix D -	Table 6A. Intera	actions with or I	knowledge of K	RESA EFE/ CTE, b	oy Industry						
	Percentage reporting interaction										
Course	Total	Construction	Manufacturing	Health	Wholesale and Retail Trade and Transportation and Warehousing	Agriculture, Information, Finance and Insurance, Real Estate and Rental and Leasing and Professional, Scientific and Technical	Education, Social Assistance, and Public Administration	Arts, Entertainment and Recreation, Accomodation and Food Services and Other Services (except Public Administration)			
My business has hired workers who participated in KRESA EFE/CTE											
in high schools in Kalamazoo County	25%	53%	12%	38%	20%	19%	8%	36%			
I am familiar with the operational millage to increase funding for											
KRESA EFE/CTE that was approved in November 2019	52%	59%	58%	25%	70%	44%	50%	45%			
I or someone from my business has served on an EFE Advisory											
Board	17%	41%	12%	13%	0%	19%	8%	18%			
My business has sponsored an internship, co-op or other work-											
based learning opportunity for a student from KRESA EFE/CTE	13%	12%	12%	25%	20%	13%	8%	9%			
program											
My business has provided feedback to KRESA EFE/CTE on the											
courses we would like to see offered	24%	47%	35%	25%	20%	13%	8%	0%			
My business has participated in a Lunch and Learn with KRESA											
EFE/CTE	14%	24%	19%	13%	10%	6%	8%	9%			
My business has participated in MiCareer Quest Southwest	24%	35%	19%	75%	10%	13%	33%	0%			
None of the above	26%	24%	35%	25%	20%	38%	8%	18%			
Other (please specify)	6%	6%	0%	0%	10%	6%	17%	9%			

#### Appendix D - Table 6B

Appendix D - Table 6B. Interactions with or knowle	edge of KRESA	EFE/ CTE, by esta	blishment size					
Course	Percentage reporting interaction							
Course	Total	1 to 9 employees	10 to 49 employees	50 or more employees				
My business has hired workers who participated in KRESA EFE/CTE								
in high schools in Kalamazoo County	25%	25%	24%	27%				
I am familiar with the operational millage to increase funding for								
KRESA EFE/CTE that was approved in November 2019	52%	56%	38%	69%				
I or someone from my business has served on an EFE Advisory								
Board	17%	25%	7%	23%				
My business has sponsored an internship, co-op or other work-								
based learning opportunity for a student from KRESA EFE/CTE	13%	13%	7%	23%				
program								
My business has provided feedback to KRESA EFE/CTE on the								
courses we would like to see offered	24%	28%	14%	35%				
My business has participated in a Lunch and Learn with KRESA								
EFE/CTE	14%	28%	7%	8%				
My business has participated in MiCareer Quest Southwest	24%	25%	17%	35%				
None of the above	26%	25%	36%	12%				
Other (please specify)	6%	6%	7%	4%				

#### Appendix D - Table 6C

Appendix D - Table 6C. Interactions with or knowle	edge of KRESA	EFE/ CTE, by s	elected course g	roupings					
Course	Percentage reporting interaction								
Course	Total	Auto/Trucks /Engine	Supply Chain	Design	IT				
My business has hired workers who participated in KRESA EFE/CTE									
in high schools in Kalamazoo County	25%	19%	24%	32%	21%				
I am familiar with the operational millage to increase funding for									
KRESA EFE/CTE that was approved in November 2019	52%	57%	68%	56%	52%				
I or someone from my business has served on an EFE Advisory									
Board	17%	14%	12%	18%	13%				
My business has sponsored an internship, co-op or other work-									
based learning opportunity for a student from KRESA EFE/CTE	13%	10%	24%	24%	15%				
program My business has provided feedback to KRESA EFE/CTE on the									
courses we would like to see offered	240/	2.40/	4.40/	220/	240/				
	24%	24%	44%	32%	24%				
My business has participated in a Lunch and Learn with KRESA	1 4 0/	100/	1 6 0/	210/	110/				
EFE/CTE	14%	19%	16%	21%	11%				
My business has participated in MiCareer Quest Southwest	24%	24%	28%	21%	21%				
None of the above	26%	24%	20%	24%	27%				
Other (please specify)	6%	5%	0%	3%	3%				

## Appendix D - Table 7A

Appendia	D - Table 7A. B	arriers to engag	ging with KRESA	EFE/CTE, by Inc	lustry					
	Percentage reporting barriers									
Course	Total	Construction	Manufacturing	Health	Wholesale and Retail Trade and Transportation and Warehousing	Insurance, Real Estate and Rental	Education, Social Assistance, and Public Administration	Arts, Entertainment and Recreation, Accomodation and Food Services and Other Services (except Public Administration)		
Not sure how to get involved	22%	29%	23%	13%	30%	25%	17%	9%		
Do not know enough about the program	34%	35%	35%	13%	50%	44%	25%	27%		
Unable to commit needed organizational resources to support the v	5%	6%	8%	0%	0%	13%	0%	0%		
Cost of offering work-based learning opportunities / internships	6%	0%	8%	0%	0%	6%	17%	9%		
Expectations of involvement by my business are unclear	12%	0%	15%	0%	10%	25%	17%	9%		
Expectations of involvement by my business are too high	0%	0%	0%	0%	0%	0%	0%	0%		
There is no clear point of contact with KRESA EFE/CTE	6%	6%	4%	0%	10%	0%	8%	18%		
Programs/courses do not currently meet my needs	8%	6%	4%	0%	10%	6%	25%	9%		
We already have a robust training program for new workers	4%	12%	8%	0%	0%	0%	0%	0%		
None of the above	39%	35%	38%	88%	30%	38%	33%	27%		
Other (please specify)	3%	6%	0%	0%	0%	0%	0%	18%		

#### Appendix D - Table 7B

Appendix D - Table 7B. Barriers to engaging with	KRESA EFE/CTE	, by establishme	nt size				
Course	Percentage reporting barriers						
Not sure how to get involved	Total	1 to 9 employees	10 to 49 employees	50 or more employees			
Not sure how to get involved	22%	25%	19%	23%			
Do not know enough about the program	34%	34%	36%	31%			
Unable to commit needed organizational resources to support the work	5%	6%	5%	4%			
Cost of offering work-based learning opportunities / internships	6%	6%	7%	4%			
Expectations of involvement by my business are unclear	12%	9%	14%	12%			
Expectations of involvement by my business are too high	0%	0%	0%	0%			
There is no clear point of contact with KRESA EFE/CTE	6%	9%	5%	4%			
Programs/courses do not currently meet my needs	8%	9%	12%	0%			
We already have a robust training program for new workers	4%	6%	5%	0%			
None of the above	39%	38%	33%	50%			
Other (please specify)	3%	6%	2%	0%			

#### Appendix D - Table 7C

Appendix D - Table 7C. Barriers to engaging wit	h KRESA EFE/C1	E, by selected	course grouping						
Course	Percentage reporting barriers								
Course	Total	Auto/Trucks/ Engine	Supply Chain	Design	ІТ				
Not sure how to get involved	22%	29%	28%	21%	21%				
Do not know enough about the program	34%	38%	40%	32%	35%				
Unable to commit needed organizational resources to support the work	5%	10%	4%	3%	5%				
Cost of offering work-based learning opportunities / internships	6%	5%	4%	9%	6%				
Expectations of involvement by my business are unclear	12%	24%	12%	9%	13%				
Expectations of involvement by my business are too high	0%	0%	0%	0%	0%				
There is no clear point of contact with KRESA EFE/CTE	6%	5%	4%	6%	2%				
Programs/courses do not currently meet my needs	8%	5%	4%	3%	6%				
We already have a robust training program for new workers	4%	0%	0%	3%	5%				
None of the above	39%	29%	40%	47%	35%				
Other (please specify)	3%	0%	0%	0%	2%				

### Appendix D - Table 8

Appendix D - Table 8. Percent of firms reporting a 21st Century skill is important, by skill and by industy, employment size and course grouping									
All firms	Communication	Self- management	Critical thinking	Problem solving	Collaboration	Creativity	Technology Literacy	Information literacy	Media literacy
Total	90%	86%	79%	84%	66%	20%	20%	16%	4%
Construction	94%	88%	76%	82%	53%	18%	29%	24%	0%
Manufacturing	92%	88%	81%	85%	69%	23%	15%	8%	0%
Health	100%	88%	88%	100%	75%	38%	0%	0%	13%
Wholesale and Retail Trade and Transportation and Warehousing Agriculture, Information, Finance and Insurance, Real Estate and Rental and	90%	90%	70%	60%	80%	0%	30%	10%	0%
Leasing and Professional, Scientific and Technical	94%	88%	94%	88%	69%	25%	6%	19%	13%
Education, Social Assistance, and Public Administration Arts, Entertainment and Recreation, Accomodation and Food Services and	83%	83%	67%	92%	58%	25%	33%	25%	8%
Other Services (except Public Administration)	73%	73%	73%	82%	64%	9%	27%	27%	0%
Establishment Size									
1 to 9 employees	94%	94%	84%	78%	72%	16%	13%	19%	0%
10 to 49 employees	83%	76%	79%	83%	57%	26%	29%	17%	7%
50 or more employees	96%	92%	73%	92%	73%	15%	15%	12%	4%
Program/course groupings									
Auto/Trucks/Engines	95%	86%	71%	86%	67%	10%	14%	24%	0%
Supply chain	96%	88%	72%	88%	80%	20%	16%	8%	0%
Design	94%	79%	76%	88%	68%	32%	15%	15%	6%
ІТ	92%	82%	81%	87%	66%	24%	19%	13%	6%

Appendix D - Table 9

Appendix D - Table 9. What would the value be to your business for KRESA to offer a rigorous "21st Century Skills" curriculum?							
All firms	Very valuable	Somewhat valuable	Moderately valuable	Low value	Not at all valuable		
Total	50%	22%	21%	4%	3%		
Construction	35%	29%	29%	6%	0%		
Manufacturing	62%	15%	12%	4%	8%		
Health	75%	0%	13%	13%	0%		
Wholesale and Retail Trade and Transportation and Warehousing Agriculture, Information, Finance and Insurance, Real Estate and Rental and	30%	40%	30%	0%	0%		
Leasing and Professional, Scientific and Technical Education, Social Assistance, and Public	38%	44%	19%	0%	0%		
Administration Arts, Entertainment and Recreation, Accomodation and Food Services and Other Services (except Public Administration)	50%	8% 9%	42% 9%	0% 9%	0% 9%		
Establishment Size							
1 to 9 employees	53%	16%	28%	3%	0%		
10 to 49 employees	43%	26%	19%	5%	7%		
50 or more employees	58%	23%	15%	4%	0%		
Program/course groupings							
Auto/Trucks/Engines	48%	33%	14%	0%	5%		
Supply chain	68%	24%	8%	0%	0%		
Design	50%	24%	21%	3%	3%		
п	48%	26%	21%	3%	2%		

#### Appendix D - Table 10

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Appendix D - Table 10. Percent reporting which level of impact do you anticipate increased use of automation having on the composition of your workforce over the next 5 years						
Groupings	Very high impact	Somewhat high impact	Moderate impact	Low impact	No impact	
Total	13%	25%	22%	29%	11%	
Construction	12%	18%	35%	24%	12%	
Manufacturing	19%	27%	23%	23%	8%	
Health	25%	13%	13%	38%	13%	
Wholesale and Retail Trade and Transportation and Warehousing	10%	0%	30%	50%	10%	
Agriculture, Information, Finance and Insurance, Real Estate and Rental and Leasing and Professional, Scientific and Technical	13%	50%	6%	19%	13%	
Education, Social Assistance, and Public Administration	8%	33%	17%	33%	8%	
Arts, Entertainment and Recreation, Accomodation and Food Services and Other Services (except Public Administration)	0%	18%	27%	36%	18%	
Establishment Size						
1 to 9 employees	9%	25%	19%	34%	13%	
10 to 49 employees	12%	19%	26%	26%	17%	
50 or more employees	19%	35%	19%	27%	0%	
P{rogram/course Groupings						
Auto/Trucks/Engines	19%	14%	19%	43%	5%	
Supply chain	12%	28%	28%	28%	4%	
Design	9%	24%	38%	24%	6%	
п	16%	29%	26%	24%	5%	