



Aligning KRESA EFE/CTE Course Offerings with Local Business Needs

Results of Two Studies

Appendix C and D: Tables

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Appendix C - Table 1

CIP Code / Course		52.0299 Business Administration Management and Operations					Very critical/critical - Very high/high growth score			10.8%
Occupation code	Related occupations from the survey	Education typically required for entry into the occupation	Kalamazoo/Portage MSA		Michigan			U.S.		
			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
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 Finance and Financial Management Services					Very critical/critical - Very high/high growth score			13.8%
Occupation code	Related occupations from the survey	Education typically required for entry into the occupation	Kalamazoo/Portage MSA		Michigan			U.S.		
			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
13.2072	Loan Officers	Bachelor's degree	\$ 58,360	(36.7)	\$ 73,790	-	4.8	\$ 76,200	0.9	3.2
13.2081	Tax Examiners and Collectors, and Revenue Agents	Bachelor's degree			\$ 72,750	3.3	(12.2)	\$ 60,960	(8.0)	(4.1)
13.2082	Tax Preparers	High school diploma or equivalent	\$ 47,280	66.7	\$ 42,700	(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	\$ 73,840	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	\$ 38,930	(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)	\$ 39,970	(4.8)	(8.5)	\$ 42,960	(3.5)	(5.7)

Cells 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 Insurance					Very critical/critical - Very high/high growth score			11.1%
Occupation code	Related occupations from the survey	Education typically required for entry into the occupation	Kalamazoo/Portage MSA		Michigan			U.S.		
			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
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 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		11.0201 Computer Programming/Programmer					Very critical/critical - Very high/high growth score			22.9%
Occupation code	Related occupations from the survey	Education typically required for entry into the occupation	Kalamazoo/Portage MSA		Michigan			U.S.		
			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
15.1251	Computer Programmers	Bachelor's degree	\$ 78,700	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	\$ 87,790	10.0	\$ 92,070	25.1	9.0	\$ 111,620	16.9	21.5
15.1232	Computer User Support Specialists	Some college, no degree	\$ 48,680	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			25.6%
Occupation code	Related occupations from the survey	Education typically required for entry into the occupation	Kalamazoo/Portage MSA		Michigan			U.S.		
			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
15.1257	Web Developers and Digital Interface Designers	Associate's degree	\$ 61,640	(50.0)	\$ 66,070	(11.0)	2.0	\$ 82,370	14.5	8.0
27.1024	Graphic Designers	Bachelor's degree	\$ 47,710	(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			14.3%	
Occupation code	Related occupations from the survey	Education typically required for entry into the occupation	Kalamazoo/Portage MSA		Michigan			U.S.		
			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
15.1211	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	C	\$ 102,780	40.9	(4.2)	\$ 115,110	(3.0)	5.0

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 7

CIP Code / Course		11.1001 System Administration/Administrator				Very critical/critical - Very high/high growth score			27.3%	
Occupation code	Related occupations from the survey	Education typically required for entry into the occupation	Kalamazoo/Portage MSA		Michigan			U.S.		
			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
15.1244	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 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			27.6%	
Occupation code	Related occupations from the survey	Education typically required for entry into the occupation	Kalamazoo/Portage MSA		Michigan			U.S.		
			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 Merchandising, Sales, and Marketing Operations, Other				Very critical/critical - Very high/high growth score			20.8%	
Occupation code	Related occupations from the survey	Education typically required for entry into the occupation	Kalamazoo/Portage MSA		Michigan			U.S.		
			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
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	\$ 103,030	(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	C	(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 C - Table 10

CIP Code / Course		47.0101 Electrical/Electronics Equipment Installation and Repair General				Very critical/critical - Very high/high growth score			37.8%	
Occupation code	Related occupations from the survey	Education typically required for entry into the occupation	Kalamazoo/Portage MSA		Michigan			U.S.		
			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
49.2092	Electric Motor, Power Tool, and Related Repairers	High school diploma or equivalent	C	C	\$ 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

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Appendix C - Table 11

CIP Code / Course		48.0501 Machine Tool Technology/Machinist					Very critical/critical - Very high/high growth score			22.6%
Occupation code	Related occupations from the survey	Education typically required for entry into the occupation	Kalamazoo/Portage MSA		Michigan			U.S.		
			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
51.4021	Extruding and Drawing Machine Setters, Operators, and Tenders, Metal and Plastic	High school diploma or equivalent	\$ 38,260	C	\$ 33,180	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			\$ 41,950	(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			\$ 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			\$ 39,780	(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	\$ 42,670	C	\$ 38,990	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			\$ 40,130	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			\$ 47,870	-	(20.0)	\$ 44,820	6.7	(18.6)
51.4041	Machinists	High school diploma or equivalent	\$ 47,620	16.0	\$ 43,900	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	\$ 32,790	C	\$ 40,960	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			\$ 38,190	(9.0)	(11.7)	\$ 39,840	(1.1)	(10.3)
51.4192	Layout Workers, Metal and Plastic	High school diploma or equivalent			\$ 50,400	(63.2)	(9.1)	\$ 48,900	(10.1)	(10.2)

Cells that are highlighted in grey indicates that the OES survey did not identify wage and salary workers in that occupation
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Appendix C - Table 12

CIP Code / Course		48.0508 Welding, Brazing and Soldering					Very critical/critical - Very high/high growth score			22.9%
Occupation code	Related occupations from the survey	Education typically required for entry into the occupation	Kalamazoo/Portage MSA		Michigan			U.S.		
			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
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	(13.5)	(7.1)	\$ 40,240	(25.2)	(6.8)

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Appendix C - Table 13

CIP Code / Course		14.4201 Mechatronics			Very critical/critical - Very high/high growth score			22.2%		
Occupation code	Related occupations from the survey	Education typically required for entry into the occupation	Kalamazoo/Portage MSA		Michigan			U.S.		
			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
11.3051	Industrial Production Managers	Bachelor's degree	\$ 119,170	(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	C	C	\$ 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	\$ 48,220	-	\$ 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
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	\$ 65,080	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

Cells that are highlighted in grey indicates that the OES survey did not identify wage and salary workers in that occupation
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Appendix C - Table 14

CIP Code / Course		15.0000 Engineering Technology			Very critical/critical - Very high/high growth score			24.3%		
Occupation code	Related occupations from the survey	Education typically required for entry into the occupation	Kalamazoo/Portage MSA		Michigan			U.S.		
			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
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 highlighted in grey indicates that the OES survey did not identify wage and salary workers in that occupation

Appendix C - Table 15

CIP Code / Course		15.1306 Mechanical Drafting					Very critical/critical - Very high/high growth score		14.3%	
Occupation code	Related occupations from the survey	Education typically required for entry into the occupation	Kalamazoo/Portage MSA		Michigan			U.S.		
			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
17.3013	Mechanical Drafters	Associate's degree	\$ 55,510	50.0	\$ 58,870	(42.7)	(7.8)	\$ 60,500	(13.23)	(8.3)

Appendix C - Table 16

CIP Code / Course		01.0000 Agriculture, Agricultural Operations and Related Sciences					Very critical/critical - Very high/high growth score*			
Occupation code	Related occupations from the survey	Education typically required for entry into the occupation	Kalamazoo/Portage MSA		Michigan			U.S.		
			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
11.9013	Farmers, Ranchers, and Other Agricultural Managers	High school 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 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 C - Table 17

CIP Code / Course		01.0601 Applied Horticulture and Horticultural Operations					Very critical/critical - Very high/high growth score*			
Occupation code	Related occupations from the survey	Education typically required for entry into the occupation	Kalamazoo/Portage MSA		Michigan			U.S.		
			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
37.3012	Pesticide Handlers, Sprayers, and Applicators, Vegetation	High school diploma or equivalent			\$ 34,560	(27.9)	2.3	\$ 39,230	2.2	8.3
37.3019	Grounds Maintenance Workers, All Other	No formal educational credential			\$ 56,090	(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	(1.1)

* 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
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Appendix C - Table 18

CIP Code / Course		01.0903 Animal Health & Veterinary Sciences					Very critical/critical - Very high/high growth score*			
Occupation code	Related occupations from the survey	Education typically required for entry into the occupation	Kalamazoo/Portage MSA		Michigan			U.S.		
			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
29.2056	Veterinary Technologists and Technicians	Associate's degree	\$ 34,060	C	\$ 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

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

Appendix C - Table 19

CIP Code / Course		03.0000 Natural Resources and Conservation					Very critical/critical - Very high/high growth score*			
Occupation code	Related occupations from the survey	Education typically required for entry into the occupation	Kalamazoo/Portage MSA		Michigan			U.S.		
			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
19.4071	Forest and Conservation Technicians	Associate's degree			\$ 46,630	(45.2)		\$ 45,860	(36.7)	0.6
37.1012	First-Line Supervisors of Landscaping, Lawn Service, and Groundskeeping Workers	High school diploma or equivalent	\$ 39,930	(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 Scalars	High school diploma or equivalent			\$ 42,360	-		\$ 39,110	9.3	(11.4)
51.9199	Production Workers, All Other	High school diploma or equivalent	\$ 29,760	400.0	\$ 30,630	(13.8)	2.5	\$ 33,830	(11.7)	2.1
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

* 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
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Appendix C - Table 20

CIP Code / Course		26.1201 Biotechnology					Very critical/critical - Very high/high growth score*			
Occupation code	Related occupations from the survey	Education typically required for entry into the occupation	Kalamazoo/Portage MSA		Michigan			U.S.		
			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
19.4010	Agricultural and Food Science Technicians	Associate's degree			\$ 43,350	(20.8)	4.3	\$ 44,440	7.1	4.1

* 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

Appendix C - Table 21

CIP Code / Course		15.1301 Drafting & Design Technology/Architectural					Very critical/critical - Very high/high growth score			27.8%
Occupation code	Related occupations from the survey	Education typically required for entry into the occupation	Kalamazoo/Portage MSA		Michigan			U.S.		
			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
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	C	\$ 53,310	(7.4)	1.9	\$ 65,720	(9.8)	0.5

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

Appendix C - Table 22

CIP Code / Course		46.0000 Construction Trades					Very critical/critical - Very high/high growth score			55.6%
Occupation code	Related occupations from the survey	Education typically required for entry into the occupation	Kalamazoo/Portage MSA		Michigan			U.S.		
			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
17.3022	Civil Engineering Technologists and Technicians	Associate's degree	\$ 53,050	(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	\$ 64,380	86.1	\$ 69,970	29.0	5.2	\$ 71,440	16.3	4.8
47.2031	Carpenters	High school diploma or equivalent	\$ 43,260	(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

Appendix C - Table 23

CIP Code / Course		48.0701 Woodworking General					Very critical/critical - Very high/high growth score		40%	
Occupation code	Related occupations from the survey	Education typically required for entry into the occupation	Kalamazoo/Portage MSA		Michigan			U.S.		
			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
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 highlighted in grey indicates that the OES survey did not identify wage and salary workers in that occupation

Appendix C - Table 24

CIP Code / Course		46.0301 Electrical and Power Transmission Installation					Very critical/critical - Very high/high growth score		23.7%	
Occupation code	Related occupations from the survey	Education typically required for entry into the occupation	Kalamazoo/Portage MSA		Michigan			U.S.		
			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
47.2111	Electricians	High school diploma or equivalent	\$ 59,550	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	\$ 77,730	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	\$ -	C	\$ 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	\$ -	C	\$ 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	\$ -	C	\$ 84,770	(9.7)	(7.7)	\$ 79,370	(4.0)	(15.1)

Cells that are highlighted in grey indicates that the OES survey did not identify wage and salary workers in that occupation
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Appendix C - Table 25

CIP Code / Course		46.0503 Plumbing Technology					Very critical/critical - Very high/high growth score		23.5%	
Occupation code	Related occupations from the survey	Education typically required for entry into the occupation	Kalamazoo/Portage MSA		Michigan			U.S.		
			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
47.2152	Plumbers, Pipefitters, and Steamfitters	High school diploma or equivalent	\$ 68,830	44.6	\$ 62,530	2.6	7.4	\$ 59,800	7.5	4.3

Appendix C - Table 26

CIP Code / Course		47.0201 Heating, Air Conditioning, Ventilation and Refrigeration					Very critical/critical - Very high/high growth score			35.0%
Occupation code	Related occupations from the survey	Education typically required for entry into the occupation	Kalamazoo/Portage MSA		Michigan			U.S.		
			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
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	Stationary Engineers and Boiler Operators	High school diploma or equivalent			\$ 63,070	(31.7)	-	\$ 65,970	(3.6)	2.2

Cells that are highlighted in grey indicates that the OES survey did not identify wage and salary workers in that occupation

Appendix C - Table 27

CIP Code / Course		10.0202 Radio & Television Broadcasting Technology					Very critical/critical - Very high/high growth score*			
Occupation code	Related occupations from the survey	Education typically required for entry into the occupation	Kalamazoo/Portage MSA		Michigan			U.S.		
			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
27.4012	Broadcast Technicians	Associate's degree			\$ 43,230	(25.6)	(8.2)	\$ 46,800	(5.5)	3.1
27.4031	Camera Operators, Television, Video, and Film	Bachelor's degree			\$ 46,260	(45.2)	-	\$ 64,960	(1.0)	14.0
27.4032	Film and Video Editors	Bachelor's degree			\$ 58,620	(17.6)	4.5	\$ 87,300	(7.7)	21.6
49.2091	Avionics Technicians	Associate's degree			\$ -	-	-	\$ 66,970	25.5	4.4
49.2097	Audiovisual Equipment Installers and Repairers	Postsecondary 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
Cells that are highlighted in grey indicates that the OES survey did not identify wage and salary workers in that occupation

Appendix C - Table 28

CIP Code / Course		10.0301 Graphics and Printing Technology and Communications					Very critical/critical - Very high/high growth score		33.3%	
Occupation code	Related occupations from the survey	Education typically required for entry into the occupation	Kalamazoo/Portage MSA		Michigan			U.S.		
			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
27.1013	Fine Artists, Including Painters, Sculptors, and Illustrators	Bachelor's degree			\$ 52,870	-	(4.4)	\$ 63,030	7.2	1.0
43.9031	Desktop Publishers	Associate's degree			\$ 44,180	(73.2)	(13.6)	\$ 48,740	(33.2)	(19.0)
51.5111	Prepress Technicians and Workers	Postsecondary nondegree award	\$ 48,620	20.0	\$ 42,970	(41.0)	(25.3)	\$ 42,540	(9.2)	(20.7)
51.5112	Printing Press Operators	High school diploma or equivalent	\$ 43,630	10.0	\$ 37,110	22.0	(13.6)	\$ 39,100	2.1	(13.3)

Cells that are highlighted in grey indicates that the OES survey did not identify wage and salary workers in that occupation

Appendix C - Table 29

CIP Code / Course		50.0101 Visual & Performing Arts					Very critical/critical - Very high/high growth score		10.0%	
Occupation code	Related occupations from the survey	Education typically required for entry into the occupation	Kalamazoo/Portage MSA		Michigan			U.S.		
			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
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			\$ 44,600	(0.6)	(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 highlighted in grey indicates that the OES survey did not identify wage and salary workers in that occupation

Appendix C - Table 30

CIP Code / Course		Industrial Design					Very critical/critical - Very high/high growth score			11.1%
Occupation code	Related occupations from the survey	Education typically required for entry into the occupation	Kalamazoo/Portage MSA		Michigan			U.S.		
			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
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 marked with a C are cells for which the estimates were suppressed for confidentiality reasons

Appendix C - Table 31

CIP Code / Course		47.0607 Airframe Technology					Very critical/critical - Very high/high growth score*			
Occupation code	Related occupations from the survey	Education typically required for entry into the occupation	Kalamazoo/Portage MSA		Michigan			U.S.		
			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
51.2011	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 C - Table 32

CIP Code / Course		47.0608 Power Plant Technology (Aircraft)					Very critical/critical - Very high/high growth score*			
Occupation code	Related occupations from the survey	Education typically required for entry into the occupation	Kalamazoo/Portage MSA		Michigan			U.S.		
			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
49.3011	Aircraft Mechanics and Service Technicians	Postsecondary nondegree award	\$ -	C	\$ 57,410	41.4	-	\$ 67,110	3.7	4.6
53.6051	Transportation Inspectors	High school diploma or equivalent			\$ 85,820	35.5	(2.4)	\$ 77,530	9.4	2.4

* 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
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Appendix C - Table 33

CIP Code / Course		47.0609 Avionics Maintenance Technology					Very critical/critical - Very high/high growth score*			
Occupation code	Related occupations from the survey	Education typically required for entry into the occupation	Kalamazoo/Portage MSA		Michigan			U.S.		
			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
49.2091	Avionics Technicians	Associate's degree			\$ -	-	-	\$ 66,970	25.5	4.4

* 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 C - Table 34

CIP Code / Course		49.0101 Aeronautics/Aviation/Aerospace Science and Technology					Very critical/critical - Very high/high growth score*			
Occupation code	Related occupations from the survey	Education typically required for entry into the occupation	Kalamazoo/Portage MSA		Michigan			U.S.		
			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
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

Appendix C - Table 35

CIP Code / Course		13.0000 Education General					Very critical/critical - Very high/high growth score*			
Occupation code	Related occupations from the survey	Education typically required for entry into the occupation	Kalamazoo/Portage MSA		Michigan			U.S.		
			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
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	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 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

Appendix C - Table 36

CIP Code / Course		46.0303 Line Worker					Very critical/critical - Very high/high growth score*			
Occupation code	Related occupations from the survey	Education typically required for entry into the occupation	Kalamazoo/Portage MSA		Michigan			U.S.		
			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
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

Appendix C - Table 37

CIP Code / Course		26.0102 Biomedical Sciences, General					Very critical/critical - Very high/high growth score*			
Occupation code	Related occupations from the survey	Education typically required for entry into the occupation	Kalamazoo/Portage MSA		Michigan			U.S.		
			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
19.4031	Chemical Technicians	Associate's degree	\$ 46,480	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

Appendix C - Table 38

CIP Code / Course		51.0000 Health Sciences/Allied Health/Health Sciences, General			Very critical/critical - Very high/high growth score			57.1%		
Occupation code	Related occupations from the survey	Education typically required for entry into the occupation	Kalamazoo/Portage MSA		Michigan			U.S.		
			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
29.1124	Radiation Therapists	Associate's degree	\$ 74,330	C	\$ 81,140	9.5	-	\$ 91,620	2.3	7.1
29.1141	Registered Nurses	Bachelor's degree	\$ -	C	\$ 73,200	4.6	9.8	\$ 77,460	4.4	7.2
29.2051	Dietetic Technicians	Associate's degree	\$ -	C	\$ 27,460	(13.2)	-	\$ 31,180	(9.3)	5.9
29.2053	Psychiatric Technicians	Postsecondary nondegree award			\$ 38,670	114.0	3.6	\$ 37,550	27.1	13.3
29.1126	Respiratory Therapists	Associate's degree			\$ 58,870	9.7	13.0	\$ 63,950	4.2	19.4
29.2055	Surgical Technologists	Postsecondary nondegree award	\$ 46,560	C	\$ 44,590	21.1	(1.6)	\$ 50,110	3.1	6.8
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)	9.1
31.2011	Occupational Therapy Assistants	Associate's degree	\$ 55,270	-	\$ 53,040	7.9	16.7	\$ 61,880	17.9	34.6
31.2021	Physical Therapist Assistants	Associate's degree	\$ 58,900	33.3	\$ 54,220	(10.6)	7.0	\$ 58,520	13.2	32.6
31.9011	Massage Therapists	Postsecondary nondegree award	\$ 51,860	C	\$ 45,830	1.8	12.1	\$ 47,180	11.9	20.6
31.9091	Dental Assistants	Postsecondary nondegree award	\$ 42,830	41.7	\$ 39,340	1.4	(2.1)	\$ 41,170	7.4	6.6
31.9092	Medical Assistants	Postsecondary nondegree award	\$ 32,640	45.7	\$ 33,760	10.2	8.8	\$ 35,720	14.3	19.2
31.9093	Medical Equipment Preparers	High school diploma or equivalent	\$ 36,290	C	\$ 37,070	(2.1)	(2.0)	\$ 39,530	8.4	5.9
31.9099	Healthcare Support Workers, All Other	High school diploma or equivalent			\$ 29,810	40.7	(1.4)	\$ 40,010	(0.6)	6.9
51.9081	Dental Laboratory Technicians	High school diploma or equivalent			\$ 45,490	21.5	25.6	\$ 44,330	(7.1)	9.4

Cells that are highlighted in grey indicates that the OES survey did not identify wage and salary workers in that occupation
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Appendix C - Table 39

CIP Code / Course		51.0707 Health Information/Medical Records Technology/Technician					Very critical/critical - Very high/high growth score*			
Occupation code	Related occupations from the survey	Education typically required for entry into the occupation	Kalamazoo/Portage MSA		Michigan			U.S.		
			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
29.2098	Medical Dosimetrists, Medical Records Specialists, and Health Technologists and Technicians, All Other	Postsecondary nondegree award	\$ 42,080	(25.8)	\$ 44,690	(2.7)	3.1	\$ 46,590	(0.3)	8.5
31.9094	Medical Transcriptionists	Postsecondary nondegree award	\$ -	C	\$ 33,050	(22.0)	(5.3)	\$ 35,210	3.2	(2.2)
43.4051	Customer Service Representatives	High school diploma or equivalent	\$ 34,010	36.2	\$ 37,840	(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)	\$ 35,860	22.6	3.3	\$ 38,090	8.6	9.5

* 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
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Appendix C - Table 40

CIP Code / Course		51.1000 Clinical/Medical Laboratory Science/Research and Allied Professions					Very critical/critical - Very high/high growth score*			
Occupation code	Related occupations from the survey	Education typically required for entry into the occupation	Kalamazoo/Portage MSA		Michigan			U.S.		
			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
29.2010	Clinical Laboratory Technologists and Technicians	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			\$ 56,590	11.4	(2.3)	\$ 59,600	4.4	5.4
29.2032	Diagnostic Medical Sonographers	Associate's degree			\$ 62,990	9.5	8.0	\$ 75,780	10.6	16.8
29.2033	Nuclear Medicine Technologists	Associate's degree			\$ 71,980	(14.1)	(1.5)	\$ 80,240	(7.8)	5.4
29.2034	Radiologic Technologists and Technicians	Associate's degree	\$ 62,000	C	\$ 57,510	4.8	(1.6)	\$ 63,120	3.3	6.7
29.2035	Magnetic Resonance Imaging Technologists	Associate's degree	\$ -	C	\$ 63,860	(18.2)	(2.0)	\$ 74,270	5.7	7.0
29.2040	Emergency Medical Technicians and Paramedics	Postsecondary nondegree award	\$ 40,270	75.0	\$ 33,760	8.8	(3.3)	\$ 38,830	6.4	6.4
31.9097	Phlebotomists	Postsecondary nondegree award	\$ 33,330	100.0	\$ 33,610	32.3	5.7	\$ 36,480	6.1	17.2

* 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 41

CIP Code / Course		12.0500 Cooking and Related Culinary Arts, General					Very critical/critical - Very high/high growth score			36.4%
Occupation code	Related occupations from the survey	Education typically required for entry into the occupation	Kalamazoo/Portage MSA		Michigan			U.S.		
			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
11.9051	Food Service Managers	High school diploma or equivalent	\$ 58,000	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	\$ 48,710	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	\$ 36,120	12.2	\$ 37,070	11.4	1.7	\$ 36,960	11.3	5.9
35.2012	Cooks, Institution and Cafeteria	No formal educational credential	\$ 29,580	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	\$ 26,000	28.8	\$ 26,820	14.5	5.2	\$ 28,700	15.2	23.1

Cells that are highlighted in grey indicates that the OES survey did not identify wage and salary workers in that occupation

Appendix C - Table 42

CIP Code / Course		12.0400 Cosmetology					Very critical/critical - Very high/high growth score*			
Occupation code	Related occupations from the survey	Education typically required for entry into the occupation	Kalamazoo/Portage MSA		Michigan			U.S.		
			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
39.1098	First-Line Supervisors of Personal Service and Entertainment and Recreation Workers, Except Gambling Services	High school diploma or equivalent	\$ 39,910	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	\$ 32,880	(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	\$ 35,510	(40.0)	\$ 33,820	1.0	1.8	\$ 38,970	28.8	16.6

* 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
Cells that are highlighted in grey indicates that the OES survey did not identify wage and salary workers in that occupation

Appendix C - Table 43

CIP Code / Course		43.0100 Public Safety/Protective Services					Very critical/critical - Very high/high growth score*			
Occupation code	Related occupations from the survey	Education typically required for entry into the occupation	Kalamazoo/Portage MSA		Michigan			U.S.		
			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
33.1011	First-Line Supervisors of Correctional Officers	High school diploma or equivalent			\$ 67,790	(14.6)	(14.4)	\$ 69,000	7.4	(7.8)
33.1012	First-Line Supervisors of Police and Detectives	High school diploma or equivalent	\$ 79,770	(23.1)	\$ 83,400	(0.4)	(1.5)	\$ 94,950	21.1	5.2
33.1021	First-Line Supervisors of Firefighting and Prevention Workers	Postsecondary nondegree award			\$ 71,590	47.3	(2.3)	\$ 82,010	21.7	6.2
33.2011	Firefighters	Postsecondary nondegree award	\$ 33,610	C	\$ 46,010	29.1	(1.7)	\$ 54,650	2.8	6.1
33.2021	Fire Inspectors and Investigators	Postsecondary nondegree award			\$ 65,760	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			\$ 53,030	(8.5)	(13.6)	\$ 50,130	(2.0)	(7.5)
33.3021	Detectives and Criminal Investigators	High school diploma or equivalent	\$ 78,630	16.7	\$ 88,580	13.6	(4.2)	\$ 86,030	0.6	1.1
33.3051	Police and Sheriff's Patrol Officers	High school diploma or equivalent	\$ 58,400	40.8	\$ 58,770	1.3	(1.8)	\$ 67,600	1.2	5.7
33.3052	Transit and Railroad Police	High school diploma or equivalent			\$ 50,360	-		\$ 71,120	(2.5)	4.0
33.9021	Private Detectives and Investigators	High school diploma or equivalent	\$ 37,300	C	\$ 48,040	138.7	(2.4)	\$ 57,000	22.9	8.3
49.2098	Security and Fire Alarm Systems Installers	High school diploma or equivalent			\$ 47,410	8.4	8.8	\$ 50,210	5.8	10.3

* 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 44

CIP Code / Course		Supply chain management					Very critical/critical - Very high/high growth score			24.0%
Occupation code	Related occupations from the survey	Education typically required for entry into the occupation	Kalamazoo/Portage MSA		Michigan			U.S.		
			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
13.1081	Logisticians	Bachelor's degree	\$ 82,480	85.7	\$ 80,130	10.4	1.0	\$ 78,680	24.6	4.4

Appendix C - Table 45

CIP Code / Course		47.0399 Heavy/Industrial Equipment Maintenance Technologies				Very critical/critical - Very high/high growth score			31.3%	
Occupation code	Related occupations from the survey	Education typically required for entry into the occupation	Kalamazoo/Portage MSA		Michigan			U.S.		
			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
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	C	C	\$ 63,820	15.5	12.0	\$ 57,050	19.3	6.9

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

Appendix C - Table 46

CIP Code / Course		47.0603 Collision Repair Technician (ASE Certified)				Very critical/critical - Very high/high growth score			36.4%	
Occupation code	Related occupations from the survey	Education typically required for entry into the occupation	Kalamazoo/Portage MSA		Michigan			U.S.		
			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
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 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)				Very critical/critical - Very high/high growth score			50.0%	
Occupation code	Related occupations from the survey	Education typically required for entry into the occupation	Kalamazoo/Portage MSA		Michigan			U.S.		
			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
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 highlighted in grey indicates that the OES survey did not identify wage and salary workers in that occupation

Appendix C - Table 48

CIP Code / Course		47.0606 Small Engine & Related Equipment Repair				Very critical/critical - Very high/high growth score			25.0%	
Occupation code	Related occupations from the survey	Education typically required for entry into the occupation	Kalamazoo/Portage MSA		Michigan			U.S.		
			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
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	C	\$ 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 Medium/Heavy Truck Technician (ASE Certified)				Very critical/critical - Very high/high growth score			43.8%	
Occupation code	Related occupations from the survey	Education typically required for entry into the occupation	Kalamazoo/Portage MSA		Michigan			U.S.		
			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
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 highlighted in grey indicates that the OES survey did not identify wage and salary workers in that occupation

Appendix D - Table 1A

Appendix D - Table 1A. Percent of firms responding that the CTE course was relevant to their 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)
<i>Business Administration and Management Operations</i>								
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%
<i>Marketing and Entrepreneurship</i>								
Marketing	53%	41%	42%	50%	60%	88%	33%	64%
<i>Manufacturing</i>								
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%
<i>Agriculture, Food and Natural Resources</i>								
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%
<i>Architecture and Construction</i>								
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%
<i>Arts, A/V Technology, Communications and Design</i>								
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%
<i>Aviation</i>								
Airframe Technology	3%	0%	4%	0%	10%	6%	0%	0%
Aeronautics/Aviation/Aerospace Science and Technology	2%	0%	0%	0%	10%	6%	0%	0%
<i>Education and Training</i>								
Education	9%	0%	4%	13%	0%	6%	42%	9%
<i>Energy</i>								
Line Worker	7%	18%	8%	0%	0%	6%	8%	0%
<i>Health Science</i>								
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%
<i>Hospitality and Tourism</i>								
Cooking and Related Culinary Arts, General	11%	0%	8%	38%	10%	6%	17%	18%
<i>Personal Services</i>								
Cosmetology	4%	0%	8%	0%	0%	6%	0%	9%
<i>Law, Public Safety, Protective Services</i>								
Public Safety/Protective Services	6%	0%	4%	13%	0%	6%	17%	9%
<i>Supply Chain Management</i>								
Supply Chain Management	25%	6%	65%	13%	20%	13%	8%	9%
<i>Automotive, Transportation, Distribution and Logistics</i>								
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 Certified)	14%	0%	15%	0%	30%	6%	33%	18%
Small Engine and Related Equipment Repair	12%	0%	23%	0%	10%	6%	25%	9%
Medium/Heavy Truck Technician (ASE Certified)	16%	6%	23%	0%	30%	6%	25%	18%

Appendix D - Table 1B

Appendix D - Table 1B. Percent of firms responding that the CTE course was relevant to their business by employment size				
Course	Total	1 to 9 employees	10 to 49 employees	50 or more employees
<i>Business Administration and Management Operations</i>				
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%
<i>Marketing and Entrepreneurship</i>				
Marketing	53%	41%	57%	62%
<i>Manufacturing</i>				
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%
<i>Agriculture, Food and Natural Resources</i>				
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	5%	6%	5%	4%
Biotechnology	8%	9%	5%	12%
<i>Architecture and Construction</i>				
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%
<i>Arts, A/V Technology, Communications and Design</i>				
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%
<i>Aviation</i>				
Airframe Technology	3%	0%	5%	4%
Aeronautics/Aviation/Aerospace Science and Technology	2%	0%	5%	0%
<i>Education and Training</i>				
Education	9%	6%	12%	8%
<i>Energy</i>				
Line Worker	7%	13%	7%	0%
<i>Health Science</i>				
Biomedical Sciences, General	8%	3%	7%	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%
<i>Hospitality and Tourism</i>				
Cooking and Related Culinary Arts, General	11%	13%	7%	15%
<i>Personal Services</i>				
Cosmetology	4%	6%	5%	0%
<i>Law, Public Safety, Protective Services</i>				
Public Safety/Protective Services	6%	6%	7%	4%
<i>Supply Chain Management</i>				
Supply Chain Management	25%	16%	19%	46%
<i>Automotive, Transportation, Distribution and Logistics</i>				
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)	16%	9%	21%	15%

Appendix D - Table 2A (part 1)

Course	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									
	Number reporting					Percent reporting				
	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	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	4	9	7	16	3	10.3%	23.1%	17.9%	41.0%	7.7%
Computer Systems Networking and Telecommunications	1	7	11	15	1	2.9%	20.0%	31.4%	42.9%	2.9%
System Administration/Administrator	6	7	15	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	10	7	2	22.9%	22.9%	28.6%	20.0%	5.7%
Mechatronics	4	5	9	5	5	14.3%	17.9%	32.1%	17.9%	17.9%
Engineering Technology	3	9	13	11	1	8.1%	24.3%	35.1%	29.7%	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%		
Applied Horticulture and Horticultural Operations	1	1	2	1		20.0%	20.0%	40.0%	20.0%	
Animal Health & Veterinary Sciences	3	1				75.0%	25.0%			
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	10	9	3	4	1	37.0%	33.3%	11.1%	14.8%	3.7%
Woodworking General	1	7	4	2	1	6.7%	46.7%	26.7%	13.3%	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, 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		8.3%	33.3%	33.3%	25.0%	
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%
Aviation										
Airframe Technology	1	1	1			33.3%	33.3%	33.3%		
Aeronautics/Aviation/Aerospace Science and Technology	2					100.0%				
Education and Training										
Education	3	2	1	3		33.3%	22.2%	11.1%	33.3%	
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	3	2	1	11.1%	22.2%	33.3%	22.2%	11.1%
Clinical/Medical Laboratory Science/Research and Allied Professions	1	1	1	1	2	16.7%	16.7%	16.7%	16.7%	33.3%
Hospitality and Tourism										
Cooking and Related Culinary Arts, General	3	2	4	1	1	27.3%	18.2%	36.4%	9.1%	9.1%
Personal Services										
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	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									
	Construction Industries									
	Number reporting					Percent reporting				
	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	3	3	6	1	1	21%	21%	43%	7%	7%
Finance and Accounting	0	1	4	1	2	0%	13%	50%	13%	25%
Insurance	0	0	0	0	0					
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	0	0	1	2	1	0%	0%	25%	50%	25%
Computer and Information Systems Security/Information Assurance	0	0	0	1	1	0%	0%	0%	50%	50%
Marketing and Entrepreneurship										
Marketing	0	1	4	1	1	0%	14%	57%	14%	14%
Manufacturing										
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%
Welding, Brazing and Soldering	2	3	3	2	0	20%	30%	30%	20%	0%
Mechatronics	0	2	2	0	0	0%	50%	50%	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%
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	1	0			0%	100%	0%		
Biotechnology	0	0	0	1		0%	0%	0%	100%	
Architecture and Construction										
Drafting and Design Technology/Architectural	2	3	1	2	0	25%	38%	13%	25%	0%
Construction Trades	5	5	2	1	0	38%	38%	15%	8%	0%
Woodworking 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%
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	2	1		0%	0%	67%	33%	
Visual and Performing Arts	0	0	1	0		0%	0%	100%	0%	
Industrial Design	0	0	1	0	1	0%	0%	50%	0%	50%
Aviation										
Airframe Technology	0	0	0							
Aeronautics/Aviation/Aerospace Science and Technology	0									
Education and Training										
Education	0	0	0	0						
Energy										
Line Worker	1	2	0	0		33%	67%	0%	0%	
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	0	0	0	0					
Personal Services										
Cosmetology	0	0	0							
Law, Public Safety, Protective Services										
Public Safety/Protective Services	0	0	0	0						
Supply Chain Management										
Supply Chain Management	1	0	0	0	0	100%	0%	0%	0%	0%
Automotive, 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					
Automobile Technician (ASE Certified)	0	0	0	0	0					
Small Engine and Related Equipment Repair	0	0	0	0	0					
Medium/Heavy Truck Technician (ASE Certified)	0	0	1	0	0	0%	0%	100%	0%	0%

Appendix D - Table 2A (part 3)

Course	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									
	Manufacturing Industries									
	Number reporting					Percent reporting				
	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	1	1	5	15	1	4%	4%	22%	65%	4%
Finance and Accounting	0	3	5	5	3	0%	19%	31%	31%	19%
Insurance	0	0	1	0		0%	0%	100%	0%	
Computer Programming/Programmer	0	1	9	6	1	0%	6%	53%	35%	6%
Digital/Multimedia and Information Resources	0	3	1	5	1	0%	30%	10%	50%	10%
Computer Systems Networking and Telecommunications	0	2	3	6	0	0%	18%	27%	55%	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										
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	0	5	8	6	0	0%	26%	42%	32%	0%
Mechanical Drafting	1	3	4	7	3	6%	17%	22%	39%	17%
Agriculture, Food and Natural Resources										
Agriculture Agricultural Operations and Related Sciences	1	1	2			25%	25%	50%		
Applied Horticulture and Horticultural Operations	1	0	1	0		50%	0%	50%	0%	
Animal Health & Veterinary Sciences	3	0				100%	0%			
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	5	4	0	8%	23%	38%	31%	0%
Plumbing Technology	1	2	0	1	1	20%	40%	0%	20%	20%
Heating, Air Conditioning, Ventilation and Refrigeration	0	1	2	1	1	0%	20%	40%	20%	20%
Arts, A/V Technology, Communications and Design										
Radio and Television Broadcasting Technology	0	0	0	1	0	0%	0%	0%	100%	0%
Graphics and Printing Technology and Communications	1	2	1	0		25%	50%	25%	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									
Education and Training										
Education	0	0	1	0		0%	0%	100%	0%	
Energy										
Line Worker	1	1	0	0		50%	50%	0%	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	0%	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)

Course	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									
	Health Industries									
	Number reporting					Percent reporting				
	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	0	1	1	2	0	0%	25%	25%	50%	0%
Finance and Accounting	0	0	1	2	1	0%	0%	25%	50%	25%
Insurance	0	0	1	1		0%	0%	50%	50%	
Computer Programming/Programmer	0	0	1	2	0	0%	0%	33%	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					
Welding, Brazing and Soldering	0	0	0	0	0					
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 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	1	0	1		0%	50%	0%	50%	
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	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	0					
Visual and Performing Arts	0	0	0	0	0					
Industrial Design	0	0	0	0	0					
Aviation										
Airframe Technology	0	0	0							
Aeronautics/Aviation/Aerospace Science and Technology	0									
Education and Training										
Education	0	0	0	1		0%	0%	0%	100%	
Energy										
Line Worker	0	0	0	0						
Health Science										
Biomedical Sciences, General	0	2	0	1		0%	67%	0%	33%	
Health Sciences/Allied Health/Health Sciences, General	4	2	0	0	0	67%	33%	0%	0%	0%
Health Information / Medical Records Technology	1	1	1	0	0	33%	33%	33%	0%	0%
Clinical/Medical Laboratory Science/Research and Allied Professions	1	0	0	0	1	50%	0%	0%	0%	50%
Hospitality and Tourism										
Cooking and Related Culinary Arts, General	0	1	2	0	0	0%	33%	67%	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%	
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	0	0	0	0	0					
Medium/Heavy Truck Technician (ASE Certified)	0	0	0	0	0					

Appendix D - Table 2A (part 5)

Course	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									
	Wholesale and Retail Trade and Transportation and Warehousing									
	Number reporting					Percent reporting				
	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	0	2	1	4	2	0%	22%	11%	44%	22%
Finance and Accounting	1	0	4	1	1	14%	0%	57%	14%	14%
Insurance	0	0	0	0	0	0%	33%	33%	33%	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	1	2	0	2	1	17%	33%	0%	33%	17%
Computer and Information Systems Security/Information Assurance	1	0	0	1	1	33%	0%	0%	33%	33%
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	0	0	1	1	0	0%	0%	50%	50%	0%
Welding, Brazing and Soldering	0	0	0	3	0	0%	0%	0%	100%	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	0	0%	100%	0%	0%	0%
Applied Horticulture and Horticultural Operations	0	0	1	0	0	0%	0%	100%	0%	0%
Animal Health & Veterinary Sciences	0	0	0	0	0	0%	0%	0%	0%	0%
Natural Resources and Conservation	0	0	0	0	0	0%	0%	0%	0%	0%
Biotechnology	0	0	0	1	0	0%	0%	0%	100%	0%
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	1	1	2	0	33%	17%	17%	33%	0%
Plumbing Technology	0	0	0	0	0	0%	0%	0%	0%	0%
Heating, Air Conditioning, Ventilation and Refrigeration	0	0	1	0	0	0%	0%	100%	0%	0%
Arts, A/V Technology, Communications and Design										
Radio and Television Broadcasting Technology	0	0	0	0	0	0%	0%	0%	0%	0%
Graphics and Printing Technology and Communications	0	1	0	0	0	0%	100%	0%	0%	0%
Visual and Performing Arts	1	0	0	0	0	100%	0%	0%	0%	0%
Industrial Design	0	0	1	1	0	0%	0%	50%	50%	0%
Aviation										
Airframe Technology	1	0	0	0	0	100%	0%	0%	0%	0%
Aeronautics/Aviation/Aerospace Science and Technology	1	0	0	0	0	100%	0%	0%	0%	0%
Education and Training										
Education	0	0	0	0	0	0%	0%	0%	0%	0%
Energy										
Line Worker	0	0	0	0	0	0%	0%	0%	0%	0%
Health Science										
Biomedical Sciences, General	0	0	0	0	0	0%	0%	0%	0%	0%
Health Sciences/Allied Health/Health Sciences, General	0	0	0	0	0	0%	0%	0%	0%	0%
Health Information / Medical Records Technology	0	0	0	0	0	0%	0%	0%	0%	0%
Clinical/Medical Laboratory Science/Research and Allied Professions	0	0	0	0	0	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	0	0	0%	0%	0%	0%	0%
Law, Public Safety, Protective Services										
Public Safety/Protective Services	0	0	0	0	0	0%	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	1	0	0	0	0%	100%	0%	0%	0%
Automobile Technician (ASE Certified)	3	0	0	0	0	100%	0%	0%	0%	0%
Small Engine and Related Equipment Repair	0	1	0	0	0	0%	100%	0%	0%	0%
Medium/Heavy Truck Technician (ASE Certified)	2	0	1	0	0	67%	0%	33%	0%	0%

Appendix D - Table 2A (part 6)

Course	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									
	Agriculture, Information, Finance and Insurance, Real Estate and Rental and Leasing and Professional, Scientific and Technical									
	Number reporting					Percent reporting				
	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	1	3	8	3	1	6%	19%	50%	19%	6%
Finance and Accounting	2	3	2	5	1	15%	23%	15%	38%	8%
Insurance	1	1	2	0		25%	25%	50%	0%	
Computer Programming/Programmer	2	4	1	2	0	22%	44%	11%	22%	0%
Digital/Multimedia and Information Resources	0	4	2	2	0	0%	50%	25%	25%	0%
Computer Systems Networking and Telecommunications	1	1	3	1	0	17%	17%	50%	17%	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	1	0%	0%	0%	50%	50%
Welding, Brazing and Soldering	0	0	1	0	1	0%	0%	50%	0%	50%
Mechatronics	0	1	1	1	1	0%	25%	25%	25%	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	0	1	0	1		0%	50%	0%	50%	
Animal Health & Veterinary Sciences	0	1				0%	100%			
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	0	0	0	0	1	0%	0%	0%	0%	100%
Electrical and Power Transmission Installation	0	0	3	0	1	0%	0%	75%	0%	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	0	0	2	2		0%	0%	50%	50%	
Industrial Design	2	1	0	0	1	50%	25%	0%	0%	25%
Aviation										
Airframe Technology	0	0	1			0%	0%	100%		
Aeronautics/Aviation/Aerospace Science and Technology	1					100%				
Education and Training										
Education	0	0	0	1		0%	0%	0%	100%	
Energy										
Line Worker	0	0	0	1		0%	0%	0%	100%	
Health Science										
Biomedical Sciences, General	0	0	0	1		0%	0%	0%	100%	
Health Sciences/Allied Health/Health Sciences, General	0	0	0	0	1	0%	0%	0%	0%	100%
Health Information / Medical Records Technology	0	0	0	0	1	0%	0%	0%	0%	100%
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%
Personal Services										
Cosmetology	0	0	1			0%	0%	100%		
Law, Public Safety, Protective Services										
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)	0	0	0	0	1	0%	0%	0%	0%	100%
Automobile Technician (ASE Certified)	0	0	0	0	1	0%	0%	0%	0%	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)

Course	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									
	Education, Social Assistance, and Public Administration									
	Number reporting					Percent reporting				
	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	2	2	1	3	1	22%	22%	11%	33%	11%
Finance and Accounting	1	1	2	3	2	11%	11%	22%	33%	22%
Insurance	0	0	0	0						
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%
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										
Drafting and Design Technology/Architectural	0	0	0	1	0	0%	0%	0%	100%	0%
Construction Trades	0	1	0	1	0	0%	50%	0%	50%	0%
Woodworking General	0	0	0	0	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	0	0	0	0						
Industrial Design	0	0	1	0	0	0%	0%	100%	0%	0%
Aviation										
Airframe Technology	0	0	0							
Aeronautics/Aviation/Aerospace Science and Technology	0									
Education and Training										
Education	2	2	0	1		40%	40%	0%	20%	
Energy										
Line Worker	0	0	1	0		0%	0%	100%	0%	
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, Public Safety, Protective Services										
Public Safety/Protective Services	0	1	1	0		0%	50%	50%	0%	
Supply Chain Management										
Supply Chain Management	0	1	0	0	0	0%	100%	0%	0%	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)

Course	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									
	Arts, Entertainment and Recreation, Accomodation and Food Services and Other Services (except Public Administration)									
	Number reporting					Percent reporting				
	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	2	0	3	3	0	25%	0%	38%	38%	0%
Finance and Accounting	0	1	3	4	0	0%	13%	38%	50%	0%
Insurance	0	1	1	0	0	0%	50%	50%	0%	0%
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	0	1	1	1	0	0%	33%	33%	33%	0%
Computer and Information Systems Security/Information Assurance	0	1	0	2	0	0%	33%	0%	67%	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	1	0	0	0%	50%	50%	0%	0%
Mechatronics	0	0	0	1	0	0%	0%	0%	100%	0%
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						
Animal Health & Veterinary Sciences	0	0								
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	0	0	0	0	0					
Electrical and Power Transmission Installation	0	1	0	2	0	0%	33%	0%	67%	0%
Plumbing Technology	0	0	0	0	0					
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	0	0	1	0	0	0%	0%	100%	0%	0%
Visual and Performing Arts	0	0	1	2		0%	0%	33%	67%	
Industrial Design	0	0	0	0	0					
Aviation										
Airframe Technology	0	0	0							
Aeronautics/Aviation/Aerospace Science and Technology	0									
Education and Training										
Education	1	0	0	0		100%	0%	0%	0%	
Energy										
Line Worker	0	0	0	0						
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	2	0	0	0	0	100%	0%	0%	0%	0%
Personal Services										
Cosmetology	1	0	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										
Heavy/Industrial Equipment Maintenance Technologies	0	0	0	2	0	0%	0%	0%	100%	0%
Collision Repair Technician (ASE Certified)	2	0	0	0	0	100%	0%	0%	0%	0%
Automobile Technician (ASE Certified)	1	0	1	0	0	50%	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)

Course	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									
	1-9 employees									
	Number reporting					Percent reporting				
	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	4	4	6	10	2	15%	15%	23%	38%	8%
Finance and Accounting	0	2	6	6	1	0%	13%	40%	40%	7%
Insurance	1	0	0	0	0	100%	0%	0%	0%	0%
Computer Programming/Programmer	1	1	5	5	0	8%	8%	42%	42%	0%
Digital/Multimedia and Information Resources	0	3	0	3	1	0%	43%	0%	43%	14%
Computer Systems Networking and Telecommunications	0	1	3	2	0	0%	17%	50%	33%	0%
System Administration/Administrator	0	1	3	4	0	0%	13%	38%	50%	0%
Computer and Information Systems Security/Information Assurance	0	3	1	2	0	0%	50%	17%	33%	0%
Marketing and Entrepreneurship										
Marketing	1	3	4	5	0	8%	23%	31%	38%	0%
Manufacturing										
Electrical/Electronics Equipment Installation and Repair	1	7	4	3	0	7%	47%	27%	20%	0%
Machine Tool Technology/Machinist	1	2	6	1	1	9%	18%	55%	9%	9%
Welding, Brazing and Soldering	4	2	4	2	0	33%	17%	33%	17%	0%
Mechatronics	1	2	3	2	1	11%	22%	33%	22%	11%
Engineering Technology	2	5	3	3	0	15%	38%	23%	23%	0%
Mechanical Drafting	1	5	2	4	0	8%	42%	17%	33%	0%
Agriculture, Food and Natural Resources										
Agriculture Agricultural Operations and Related Sciences	1	1	0			50%	50%	0%		
Applied Horticulture and Horticultural Operations	1	1	1	0		33%	33%	33%	0%	
Animal Health & Veterinary Sciences	1	0				100%	0%			
Natural Resources and Conservation	1	1	0			50%	50%	0%		
Biotechnology	0	1	1	1		0%	33%	33%	33%	
Architecture and Construction										
Drafting and Design Technology/Architectural	2	3	1	2	0	25%	38%	13%	25%	0%
Construction Trades	6	3	2	1	0	50%	25%	17%	8%	0%
Woodworking General	1	3	2	2	0	13%	38%	25%	25%	0%
Electrical and Power Transmission Installation	3	3	8	1	0	20%	20%	53%	7%	0%
Plumbing Technology	1	3	2	1	0	14%	43%	29%	14%	0%
Heating, Air Conditioning, Ventilation and Refrigeration	1	4	3	0	0	13%	50%	38%	0%	0%
Arts, A/V Technology, Communications and Design										
Radio and Television Broadcasting Technology	0	0	1	1	0	0%	0%	50%	50%	0%
Graphics and Printing Technology and Communications	1	1	1	0		33%	33%	33%	0%	
Visual and Performing Arts	1	1	2	1		20%	20%	40%	20%	
Industrial Design	0	2	2	1	1	0%	33%	33%	17%	17%
Aviation										
Airframe Technology	0	0	0							
Aeronautics/Aviation/Aerospace Science and Technology	0									
Education and Training										
Education	1	0	1	0		50%	0%	50%	0%	
Energy										
Line Worker	1	3	0	0		25%	75%	0%	0%	
Health Science										
Biomedical Sciences, General	1	0	0	0		100%	0%	0%	0%	
Health Sciences/Allied Health/Health Sciences, General	1	0	1	0	0	50%	0%	50%	0%	0%
Health Information / Medical Records Technology	0	0	1	0	0	0%	0%	100%	0%	0%
Clinical/Medical Laboratory Science/Research and Allied Professions	0	0	1	0	0	0%	0%	100%	0%	0%
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										
Heavy/Industrial Equipment Maintenance Technologies	0	3	1	1	0	0%	60%	20%	20%	0%
Collision Repair Technician (ASE Certified)	0	1	0	1	0	0%	50%	0%	50%	0%
Automobile Technician (ASE Certified)	0	1	1	0	0	0%	50%	50%	0%	0%
Small Engine and Related Equipment Repair	0	0	3	0	0	0%	0%	100%	0%	0%
Medium/Heavy Truck Technician (ASE Certified)	1	0	2	0	0	33%	0%	67%	0%	0%

Appendix D - Table 2B (part 2)

Course	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									
	10-49 employees									
	Number reporting					Percent reporting				
	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	4	6	14	9	3	11%	17%	39%	25%	8%
Finance and Accounting	2	5	8	8	7	7%	17%	27%	27%	23%
Insurance	0	1	4	0	0	0%	20%	80%	0%	0%
Computer Programming/Programmer	3	4	4	5	2	17%	22%	22%	28%	11%
Digital/Multimedia and Information Resources	4	5	5	6	2	18%	23%	23%	27%	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	0	2	4	0	4	0%	20%	40%	0%	40%
Engineering Technology	1	2	6	4	1	7%	14%	43%	29%	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%		
Applied Horticulture and Horticultural Operations	0	0	1	1		0%	0%	50%	50%	
Animal Health & Veterinary Sciences	1	1				50%	50%			
Natural Resources and Conservation	0	1	1			0%	50%	50%		
Biotechnology	0	0	0	2		0%	0%	0%	100%	
Architecture and Construction										
Drafting and Design Technology/Architectural	0	0	2	6	1	0%	0%	22%	67%	11%
Construction Trades	4	4	1	1	1	36%	36%	9%	9%	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%				
Education and Training										
Education	2	2	0	1		40%	40%	0%	20%	
Energy										
Line Worker	1	0	1	1		33%	0%	33%	33%	
Health Science										
Biomedical Sciences, General	0	2	0	1		0%	67%	0%	33%	
Health Sciences/Allied Health/Health 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	0	1	0	1	1	0%	33%	0%	33%	33%
Clinical/Medical Laboratory Science/Research and Allied Professions										
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%		
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										
Heavy/Industrial Equipment Maintenance Technologies	0	1	1	3	1	0%	17%	17%	50%	17%
Collision Repair Technician (ASE Certified)	2	2	1	0	1	33%	33%	17%	0%	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)

Course	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									
	50 or more employees									
	Number reporting					Percent reporting				
	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	1	2	5	12	1	5%	10%	24%	57%	5%
Finance and Accounting	2	2	7	7	2	10%	10%	35%	35%	10%
Insurance	0	1	1	1		0%	33%	33%	33%	
Computer Programming/Programmer	1	3	6	7	1	6%	17%	33%	39%	6%
Digital/Multimedia and Information Resources	0	1	2	7	0	0%	10%	20%	70%	0%
Computer Systems Networking and Telecommunications	0	2	5	7	1	0%	13%	33%	47%	7%
System Administration/Administrator	2	3	7	3	3	11%	17%	39%	17%	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	2	3	2	2	0	22%	33%	22%	22%	0%
Mechatronics	3	1	2	3	0	33%	11%	22%	33%	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%	100%		
Applied Horticulture and Horticultural Operations	0	0	0	0						
Animal Health & Veterinary Sciences	1	0				100%	0%			
Natural Resources and Conservation	0	0	1			0%	0%	100%		
Biotechnology	1	1	0	1		33%	33%	0%	33%	
Architecture and Construction										
Drafting and Design Technology/Architectural	0	1	0	0	0	0%	100%	0%	0%	0%
Construction Trades	0	2	0	2	0	0%	50%	0%	50%	0%
Woodworking General	0	0	2	0	0	0%	0%	100%	0%	0%
Electrical and Power Transmission Installation	1	2	3	4	1	9%	18%	27%	36%	9%
Plumbing Technology	0	1	0	0	2	0%	33%	0%	0%	67%
Heating, Air Conditioning, Ventilation and Refrigeration	0	1	1	1	1	0%	25%	25%	25%	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		0%	50%	50%	0%	
Visual and Performing Arts	0	0	0	0						
Industrial Design	0	0	5	1	0	0%	0%	83%	17%	0%
Aviation										
Airframe Technology	0	1	0			0%	100%	0%		
Aeronautics/Aviation/Aerospace Science and Technology	0									
Education and Training										
Education	0	0	0	2		0%	0%	0%	100%	
Energy										
Line Worker	0	0	0	0						
Health Science										
Biomedical Sciences, General	3	2	1	0	0	50%	33%	17%	0%	0%
Health Sciences/Allied Health/Health Sciences, General	1	1	2	1	0	20%	20%	40%	20%	0%
Health Information / Medical Records Technology	1	0	0	0	1	50%	0%	0%	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							
Law, Public Safety, Protective Services										
Public Safety/Protective Services	0	1	0	0		0%	100%	0%	0%	
Supply Chain Management										
Supply Chain Management	1	2	4	3	2	8%	17%	33%	25%	17%
Automotive, Transportation, Distribution and Logistics										
Heavy/Industrial Equipment Maintenance Technologies	2	0	1	2	0	40%	0%	20%	40%	0%
Collision Repair Technician (ASE Certified)	1	0	0	2	0	33%	0%	0%	67%	0%
Automobile Technician (ASE Certified)	3	1	0	1	0	60%	20%	0%	20%	0%
Small Engine and Related Equipment Repair	1	1	1	2	0	20%	20%	20%	40%	0%
Medium/Heavy Truck Technician (ASE Certified)	1	1	0	2	0	25%	25%	0%	50%	0%

Appendix D - Table 3A (part 1)

Course	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 industry									
	All industries									
	Number reporting					Percent reporting				
	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	16	2	14	17	34	0	0	0	0	0
Finance and Accounting	27	4	13	6	15	0	0	0	0	0
Insurance	1	2	1	1	4	0	0	0	0	0
Computer Programming/Programmer	15	11	5	3	14	0	0	0	0	0
Digital/Multimedia and Information Resources	15	5	3	2	14	0	0	0	0	0
Computer Systems Networking and Telecommunications	17	5	3	1	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	10	4	6	11		0	0	0	0	
Welding, Brazing and Soldering	14	2	12	7		0	0	0	0	
Mechatronics	4	10	2	4	8	0	0	0	0	0
Engineering Technology	13	7	6	4	7	0	0	0	0	0
Mechanical Drafting	3	6	12	5	9	0	0	0	0	0
Agriculture, Food and Natural Resources										
Agriculture Agricultural Operations and Related Sciences	1	1	1	4		0	0	0	1	
Applied Horticulture and Horticultural Operations	2	2	1			0	0	0		
Animal Health & Veterinary Sciences	1	1	1	1		0	0	0	0	
Natural Resources and Conservation	1	1	1	2		0	0	0	0	
Biotechnology	4	2	1	1		1	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		
Electrical and Power Transmission Installation	2	16	3	9	8	0	0	0	0	0
Plumbing Technology	1	7	1	4	4	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	2	1	2	2	5	0	0	0	0	0
Visual and Performing Arts	2	1	1	6		0	0	0	1	
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			
Education and Training										
Education	3	2	4			0	0	0		
Energy										
Line Worker	1	4	2			0	1	0		
Health Science										
Biomedical Sciences, General	1	4	1	2		0	1	0	0	
Health Sciences/Allied Health/Health Sciences, General	1	6	1	3	3	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	3	4			0	0	0		
Automobile Technician (ASE Certified)	7	2	3	2		1	0	0	0	
Small Engine and Related Equipment Repair	3	3	3	3		0	0	0	0	
Medium/Heavy Truck Technician (ASE Certified)	7	2	3	4		0	0	0	0	

Appendix D - Table 3A (part 2)

Course	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 industry									
	Construction Industries									
	Number reporting					Percent reporting				
	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	2	0	1	6	5	0	0	0	0	0
Finance and Accounting	2	0	2	2	2	0	0	0	0	0
Insurance	0	0	0	0	0					
Computer Programming/Programmer	2	1	0	0	2	0	0	0	0	0
Digital/Multimedia and Information Resources	3	0	0	0	2	1	0	0	0	0
Computer Systems Networking and Telecommunications	2	0	0	0	2	1	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	4	0	6	0		0	0	1	0	
Mechatronics	0	1	0	3	0	0	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	0	0	0	0						
Natural Resources and Conservation	0	1	0	0		0	1	0	0	
Biotechnology	0	0	1	0		0	0	1	0	
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	0	5	0	4	0	0	1	0	0	0
Plumbing Technology	0	4	0	3	1	0	1	0	0	0
Heating, Air Conditioning, Ventilation and Refrigeration	0	4	3	1		0	1	0	0	
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								
Education and Training										
Education	0	0	0							
Energy										
Line Worker	1	2	0			0	1	0		
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						
Clinical/Medical Laboratory Science/Research and Allied Professions	0	0	0							
Hospitality and Tourism										
Cooking and Related Culinary Arts, General	0	0	0	0						
Personal Services										
Cosmetology	0	0	0							
Law, Public Safety, Protective Services										
Public Safety/Protective Services	0	0	0							
Supply Chain Management										
Supply Chain Management	1	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)	0	0	0							
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)

Course	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 industry									
	Manufacturing Industries									
	Number reporting					Percent reporting				
	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	2	0	7	4	10	0	0	0	0	0
Finance and Accounting	7	1	2	1	5	0	0	0	0	0
Insurance	0	0	0	1	0	0	0	0	1	0
Computer Programming/Programmer	2	6	3	2	4	0	0	0	0	0
Digital/Multimedia and Information Resources	3	1	2	0	4	0	0	0	0	0
Computer Systems Networking and Telecommunications	4	2	1	1	3	0	0	0	0	0
System Administration/Administrator	4	3	2	0	4	0	0	0	0	0
Computer and Information Systems Security/Information Assurance	3	1	1	1	3	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	2	7		0	0	0	0	
Welding, Brazing and Soldering	8	1	3	5		0	0	0	0	
Mechatronics	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	2	0	0			1	0	0		
Animal Health & Veterinary Sciences	1	1	1	0		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	0	3	1	2	1	0	0	0	0	0
Woodworking General	1	1	3			0	0	1		
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	1	1	1	1	0	0	0	0	0	0
Visual and Performing Arts	0	1	0	0		0	1	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								
Education 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	1	0	1	0		1	0	1	0	
Clinical/Medical Laboratory Science/Research and Allied Professions	1	1	0			1	1	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										
Supply Chain Management	10	4	1	2		1	0	0	0	
Automotive, Transportation, Distribution and Logistics										
Heavy/Industrial Equipment Maintenance Technologies	3	2	1	1		0	0	0	0	
Collision Repair Technician (ASE Certified)	3	0	1			1	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)

Course	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 industry									
	Health Industries									
	Number reporting					Percent reporting				
	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	0	0	0	3	1	0	0	0	1	0
Finance and Accounting	0	1	1	1	1	0	0	0	0	0
Insurance	0	1	0	0	1	0	1	0	0	1
Computer Programming/Programmer	2	0	0	0	1	1	0	0	0	0
Digital/Multimedia and Information Resources	3	0	0	0	0	1	0	0	0	0
Computer Systems Networking and Telecommunications	2	1	0	0	0	1	0	0	0	0
System Administration/Administrator	3	0	0	0	0	1	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	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	0	0	0	0						
Welding, Brazing and Soldering	0	0	0	0						
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 Agricultural Operations and Related Sciences	0	0	0	0						
Applied Horticulture and Horticultural Operations	0	0	0							
Animal Health & Veterinary Sciences	0	0	0	0						
Natural Resources and Conservation	0	0	0	0						
Biotechnology	2	0	0	0		1	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							
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						
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						
Industrial Design	0	0	0	0						
Aviation										
Airframe Technology	0	0	0							
Aeronautics/Aviation/Aerospace Science and Technology	0	0								
Education and Training										
Education	1	0	0			1	0	0		
Energy										
Line Worker	0	0	0							
Health Science										
Biomedical Sciences, General	1	2	0	0		0	1	0	0	
Health Sciences/Allied Health/Health Sciences, General	0	3	0	1	2	0	1	0	0	0
Health Information / Medical Records Technology	1	1	0	1		0	0	0	0	
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)	0	0	0							
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	0	0						

Appendix D - Table 3A (part 5)

Course	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 industry									
	Wholesale and Retail Trade and Transportation and Warehousing									
	Number reporting					Percent reporting				
	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	0	2	2	4	0	0	0	0	0
Finance and Accounting	2	2	2	1	0	0	0	0	0	0
Insurance	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	1	0	0	0	0	0
Computer Systems Networking and Telecommunications	2	0	0	0	0	1	0	0	0	0
System Administration/Administrator	3	1	0	0	2	1	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	1	
Welding, Brazing and Soldering	0	0	2	1	0	0	1	0	0	
Mechatronics	0	0	0	0	2	0	0	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	1	0	0	
Applied Horticulture and Horticultural Operations	0	1	0			0	1	0		
Animal Health & Veterinary Sciences	0	0	0	0						
Natural Resources and Conservation	0	0	0	0						
Biotechnology	1	0	0	0		1	0	0	0	
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	0	4	0	1	1	0	1	0	0	0
Plumbing Technology	0	0	0	0	0					
Heating, Air Conditioning, Ventilation and Refrigeration	0	0	1	0		0	0	1	0	
Arts, A/V Technology, Communications and Design										
Radio and Television Broadcasting Technology	0	0								
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			
Education and Training										
Education	0	0	0							
Energy										
Line Worker	0	0	0							
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						
Clinical/Medical Laboratory Science/Research and Allied Professions	0	0	0							
Hospitality and Tourism										
Cooking and Related Culinary Arts, General	0	0	0	1		0	0	0	1	
Personal Services										
Cosmetology	0	0	0							
Law, Public Safety, Protective Services										
Public Safety/Protective Services	0	0	0							
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)	0	1	0			0	1	0		
Automobile Technician (ASE Certified)	3	0	0	0		1	0	0	0	
Small Engine and Related Equipment Repair	0	1	0	0		0	1	0	0	
Medium/Heavy Truck Technician (ASE Certified)	3	0	0	0		1	0	0	0	

Appendix D - Table 3A (part 6)

Course	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 industry									
	Agriculture, Information, Finance and Insurance, Real Estate and Rental and Leasing and									
	Number reporting					Percent reporting				
	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	7	1	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	0	0	0	1
Computer Programming/Programmer	3	3	0	0	3	0	0	0	0	0
Digital/Multimedia and Information Resources	2	2	0	0	4	0	0	0	0	1
Computer Systems Networking and Telecommunications	1	1	1	0	3	0	0	0	0	1
System Administration/Administrator	2	4	1	1	2	0	0	0	0	0
Computer and Information Systems Security/Information Assurance	2	1	0	0	4	0	0	0	0	1
Marketing and Entrepreneurship										
Marketing	5	1	3	1	4	0	0	0	0	0
Manufacturing										
Electrical/Electronics Equipment Installation and Repair	1	0	0	2	2	0	0	0	0	0
Machine Tool Technology/Machinist	0	1	0	1		0	1	0	1	
Welding, Brazing and Soldering	0	1	0	1		0	1	0	1	
Mechatronics	2	0	1	0	1	1	0	0	0	0
Engineering Technology	3	0	1	0	1	1	0	0	0	0
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	0	2		0	0	0	1	
Applied Horticulture and Horticultural Operations	0	1	1			0	1	1		
Animal Health & Veterinary Sciences	0	0	0	1		0	0	0	1	
Natural Resources and Conservation	1	0	0	1		1	0	0	1	
Biotechnology	1	0	0	1		1	0	0	1	
Architecture and Construction										
Drafting and Design Technology/Architectural	1	1	0	0	1	0	0	0	0	0
Construction Trades	0	0	1	1	2	0	0	0	0	1
Woodworking General	0	0	1			0	0	1		
Electrical and Power Transmission Installation	1	1	0	1	1	0	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 Technology	1	2				0	1			
Graphics and Printing Technology and Communications	0	0	0	0	1	0	0	0	0	1
Visual and Performing Arts	1	0	1	2		0	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										
Education	0	0	1			0	0	1		
Energy										
Line Worker	0	0	1			0	0	1		
Health Science										
Biomedical Sciences, General	0	0	0	1		0	0	0	1	
Health Sciences/Allied Health/Health Sciences, General	0	0	0	0	1	0	0	0	0	1
Health Information / Medical Records Technology	0	0	0	1		0	0	0	1	
Clinical/Medical Laboratory Science/Research and Allied Professions	0	0	1			0	0	1		
Hospitality and Tourism										
Cooking and Related Culinary Arts, General	0	0	0	1		0	0	0	1	
Personal Services										
Cosmetology	0	0	1			0	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	0	1		
Automobile Technician (ASE Certified)	0	0	0	1		0	0	0	1	
Small Engine and Related Equipment Repair	0	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)

Course	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 industry									
	Education, Social Assistance, and Public Administration									
	Number reporting					Percent reporting				
	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	1	3	0	4	0	0	0	0	0
Finance and Accounting	3	0	4	0	2	0	0	0	0	0
Insurance	0	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	4	0	0	0	0	1	0	0	0	0
System Administration/Administrator	4	1	0	0	0	1	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	0	1	0	0	0	0	1	0	0	0
Machine Tool Technology/Machinist	1	0	0	1		1	0	0	1	
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							
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	1	0	0	0	0	1	0
Construction Trades	1	0	0	1	0	1	0	0	1	0
Woodworking General	0	0	0							
Electrical and Power Transmission Installation	0	1	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								
Education 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	
Clinical/Medical Laboratory Science/Research and Allied Professions	1	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	0		1	0	0	0	
Collision Repair Technician (ASE Certified)	1	1	1			0	0	0		
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)

Course	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 industry									
	Arts, Entertainment and Recreation, Accommodation and Food Services and Other Services									
	Number reporting					Percent reporting				
	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	0	0	1	4	0	0	0	0	1
Finance and Accounting	6	0	0	0	2	1	0	0	0	0
Insurance	0	1	0	0	1	0	1	0	0	1
Computer Programming/Programmer	2	0	0	1	3	0	0	0	0	1
Digital/Multimedia and Information Resources	2	0	0	2	2	0	0	0	0	0
Computer Systems Networking and Telecommunications	2	1	1	0	1	0	0	0	0	0
System Administration/Administrator	2	0	0	0	1	1	0	0	0	0
Computer and Information Systems Security/Information Assurance	1	1	0	0	1	0	0	0	0	0
Marketing and Entrepreneurship										
Marketing	3	0	1	1	2	0	0	0	0	0
Manufacturing										
Electrical/Electronics Equipment Installation and Repair	0	0	0	0	1	0	0	0	0	1
Machine Tool Technology/Machinist	0	0	0	1		0	0	0	1	
Welding, Brazing and Soldering	1	0	1	0		1	0	1	0	
Mechatronics	0	0	0	0	1	0	0	0	0	1
Engineering Technology	0	0	0	0	2	0	0	0	0	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	0	0	0							
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					
Construction Trades	0	0	0	0	0					
Woodworking General	0	0	0							
Electrical and Power Transmission Installation	0	0	1	0	2	0	0	0	0	1
Plumbing Technology	0	0	0	0	0					
Heating, Air Conditioning, Ventilation and Refrigeration	0	0	0	1		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	1	0	0	2		0	0	0	1	
Industrial Design	0	0	0	0						
Aviation										
Airframe Technology	0	0	0							
Aeronautics/Aviation/Aerospace Science and Technology	0	0								
Education and Training										
Education	0	0	1			0	0	1		
Energy										
Line Worker	0	0	0							
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						
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)	0	1	1			0	1	1		
Automobile Technician (ASE Certified)	1	0	1	0		1	0	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)

Course	Appendix D - Table 3B. 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 employment size									
	1 to 9 employees									
	Number reporting					Percent reporting				
	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	5	0	3	7	11	0	0	0	0	0
Finance and Accounting	7	2	1	2	3	0	0	0	0	0
Insurance	0	0	0	0	1	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	0	0	0	4	0	0	0	0	1
System Administration/Administrator	2	1	2	0	3	0	0	0	0	0
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	5	2	5	0		0	0	0	0	
Mechatronics	2	2	1	3	1	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 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	0	1	1	0		0	1	1	0	
Biotechnology	1	1	1	0		0	0	0	0	
Architecture and Construction										
Drafting and Design Technology/Architectural	3	0	2	2	1	0	0	0	0	0
Construction Trades	1	2	2	6	1	0	0	0	1	0
Woodworking General	1	5	2			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	0	1	1	3		0	0	0	1	
Industrial Design	2	2	0	2		0	0	0	0	
Aviation										
Airframe Technology	0	0	0							
Aeronautics/Aviation/Aerospace Science and Technology	0	0								
Education and Training										
Education	0	1	1			0	1	1		
Energy										
Line Worker	1	2	1			0	1	0		
Health Science										
Biomedical Sciences, General	0	0	1	0		0	0	1	0	
Health Sciences/Allied Health/Health Sciences, General	0	0	1	0	0	0	0	1	1	0
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	2	0	2		0	1	0	1	
Personal Services										
Cosmetology	0	1	1			0	1	1		
Law, Public Safety, Protective Services										
Public Safety/Protective Services	0	2	0			0	1	0		
Supply Chain Management										
Supply Chain Management	3	1	1	0		1	0	0	0	
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			1	0	0		
Automobile Technician (ASE Certified)	1	1	0	0		1	1	0	0	
Small Engine and Related Equipment Repair	2	1	0	0		1	0	0	0	
Medium/Heavy Truck Technician (ASE Certified)	1	1	1	0		0	0	0	0	

Appendix D - Table 3B (part 2)

Course	Appendix D - Table 3B. 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 employment size									
	10-49 employees									
	Number reporting					Percent reporting				
	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	8	2	6	7	13	0	0	0	0	0
Finance and Accounting	14	0	7	2	7	0	0	0	0	0
Insurance	0	1	1	1	2	0	0	0	0	0
Computer Programming/Programmer	6	5	1	3	3	0	0	0	0	0
Digital/Multimedia and Information Resources	8	3	2	2	7	0	0	0	0	0
Computer Systems Networking and Telecommunications	6	2	2	1	3	0	0	0	0	0
System Administration/Administrator	7	6	1	1	3	0	0	0	0	0
Computer and Information Systems Security/Information Assurance	5	2	0	1	3	0	0	0	0	0
Marketing and Entrepreneurship										
Marketing	10	2	7	1	4	0	0	0	0	0
Manufacturing										
Electrical/Electronics Equipment Installation and Repair	1	3	1	2	4	0	0	0	0	0
Machine Tool Technology/Machinist	3	2	1	4	4	0	0	0	0	0
Welding, Brazing and Soldering	6	0	5	3	3	0	0	0	0	0
Mechatronics	2	4	1	0	3	0	0	0	0	0
Engineering Technology	5	3	3	1	2	0	0	0	0	0
Mechanical Drafting	0	4	5	2	3	0	0	0	0	0
Agriculture, Food and Natural Resources										
Agriculture Agricultural Operations and Related Sciences	1	0	0	2	0	0	0	1	0	0
Applied Horticulture and Horticultural Operations	1	0	1	0	1	0	1	0	0	0
Animal Health & Veterinary Sciences	0	1	0	1	0	1	0	1	0	0
Natural Resources and Conservation	1	0	0	1	1	0	0	1	0	0
Biotechnology	1	0	0	1	1	0	0	1	0	0
Architecture and Construction										
Drafting and Design Technology/Architectural	1	4	2	1	1	0	0	0	0	0
Construction Trades	0	2	0	5	4	0	0	0	0	0
Woodworking General	1	1	3	0	0	0	1	0	0	0
Electrical and Power Transmission Installation	0	8	2	1	1	0	1	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	0	1	0	0	0	0
Arts, A/V Technology, Communications and Design										
Radio and Television Broadcasting Technology	1	2	0	0	0	0	1	0	0	0
Graphics and Printing Technology and Communications	1	0	2	1	3	0	0	0	0	0
Visual and Performing Arts	2	0	0	3	0	0	0	1	0	0
Industrial Design	3	2	0	1	1	0	0	0	0	0
Aviation										
Airframe Technology	1	0	1	0	0	1	0	1	0	0
Aeronautics/Aviation/Aerospace Science and Technology	1	1	0	0	0	1	1	0	0	0
Education and Training										
Education	1	1	3	0	0	0	0	1	0	0
Energy										
Line Worker	0	2	1	0	0	0	1	0	0	0
Health Science										
Biomedical Sciences, General	0	2	0	1	0	0	1	0	0	0
Health Sciences/Allied Health/Health Sciences, General	0	3	0	1	2	0	1	0	0	0
Health Information / Medical Records Technology	2	0	0	1	1	0	0	0	0	0
Clinical/Medical Laboratory Science/Research and Allied Professions	1	1	1	0	0	0	0	0	0	0
Hospitality and Tourism										
Cooking and Related Culinary Arts, General	2	0	0	1	0	1	0	0	0	0
Personal Services										
Cosmetology	1	0	1	0	0	1	0	1	0	0
Law, Public Safety, Protective Services										
Public Safety/Protective Services	2	0	1	0	0	1	0	0	0	0
Supply Chain Management										
Supply Chain Management	3	3	1	1	0	0	0	0	0	0
Automotive, Transportation, Distribution and Logistics										
Heavy/Industrial Equipment Maintenance Technologies	2	1	1	2	0	0	0	0	0	0
Collision Repair Technician (ASE Certified)	2	2	2	0	0	0	0	0	0	0
Automobile Technician (ASE Certified)	3	0	3	1	0	0	0	0	0	0
Small Engine and Related Equipment Repair	0	1	2	1	0	0	0	1	0	0
Medium/Heavy Truck Technician (ASE Certified)	5	0	2	2	1	0	0	0	0	0

Appendix D - Table 3B (part 3)

Course	Appendix D - Table 3B. 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 employment size									
	50 or more employees									
	Number reporting					Percent reporting				
	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	0	5	3	10	0	0	0	0	0
Finance and Accounting	6	2	5	2	5	0	0	0	0	0
Insurance	1	1	0	0	1	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	3	1	0	2	1	0	0	0	0
System Administration/Administrator	11	3	0	0	4	1	0	0	0	0
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	3	0	2	4		0	0	0	0	
Mechatronics	0	4	0	1	4	0	0	0	0	0
Engineering Technology	2	3	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	0	0	0	2		0	0	0	1	
Applied Horticulture and Horticultural Operations	0	0	0							
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	1	2	0	1	0	0	1	0	0	0
Woodworking General	0	0	2			0	0	1		
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								
Education and Training										
Education	2	0	0			1	0	0		
Energy										
Line Worker	0	0	0							
Health Science										
Biomedical Sciences, General	1	2	0	1		0	1	0	0	
Health Sciences/Allied Health/Health Sciences, General	1	3	0	1	1	0	1	0	0	0
Health Information / Medical Records Technology	1	1	2	1		0	0	0	0	
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)	0	1	2			0	0	1		
Automobile Technician (ASE Certified)	3	1	0	1		1	0	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)

Course	Appendix D - Table 4A. 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 industry.						Appendix D - Table 4A. 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 industry.					
	All industries						Construction Industries					
	Number reporting			Percent reporting			Number reporting			Percent reporting		
	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	9	28	28	13.8%	43.1%	43.1%	0	4	4	0.0%	50.0%	50.0%
Insurance	1	3	5	11.1%	33.3%	55.6%	0	0	0			
Computer Programming/Programmer	16	16	16	33.3%	33.3%	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												
Electrical/Electronics Equipment Installation and Repair	17	11	9	45.9%	29.7%	24.3%	5	2	0	71.4%	28.6%	0.0%
Machine Tool Technology/Machinist	11	11	9	35.5%	35.5%	29.0%	1	2	1	25.0%	50.0%	25.0%
Welding, Brazing and Soldering	11	18	6	31.4%	51.4%	17.1%	5	5	0	50.0%	50.0%	0.0%
Mechatronics	7	12	9	25.0%	42.9%	32.1%	1	3	0	25.0%	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%
Agriculture, Food and Natural Resources												
Agriculture Agricultural Operations and Related Sciences	4	3		57.1%	42.9%		0	0				
Applied Horticulture and Horticultural Operations	1	1	3	20.0%	20.0%	60.0%	0	0	0			
Animal Health & Veterinary Sciences	1	3		25.0%	75.0%		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												
Drafting and Design Technology/Architectural	5	6	7	27.8%	33.3%	38.9%	4	3	1	50.0%	37.5%	12.5%
Construction Trades	18	7	2	66.7%	25.9%	7.4%	11	2	0	84.6%	15.4%	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												
Radio and Television Broadcasting Technology	2	1	2	40.0%	20.0%	40.0%	0	0	0			
Graphics and Printing Technology and Communications	5	5	2	41.7%	41.7%	16.7%	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												
Airframe Technology	1	2		33.3%	66.7%		0	0				
Aeronautics/Aviation/Aerospace Science and Technology	2			100.0%			0					
Education and Training												
Education	4	2	3	44.4%	22.2%	33.3%	0	0	0			
Energy												
Line Worker	3	1	3	42.9%	14.3%	42.9%	2	1	0	66.7%	33.3%	0.0%
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				
Hospitality and Tourism												
Cooking and Related Culinary Arts, General	4	5	2	36.4%	45.5%	18.2%	0	0	0			
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			
Supply Chain Management												
Supply Chain Management	7	8	10	28.0%	32.0%	40.0%	1	0	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			
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	Appendix D - Table 4A. 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 industry.						Appendix D - Table 4A. 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 industry.					
	Manufacturing Industries						Health Industries					
	Number reporting			Percent reporting			Number reporting			Percent reporting		
	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	2	9	12	8.7%	39.1%	52.2%	1	2	1	25.0%	50.0%	25.0%
Finance and Accounting	1	7	8	6.3%	43.8%	50.0%	0	2	2	0.0%	50.0%	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	23.5%	35.3%	41.2%	0	2	1	0.0%	66.7%	33.3%
Digital/Multimedia and Information Resources	1	2	7	10.0%	20.0%	70.0%	0	0	3	0.0%	0.0%	100.0%
Computer Systems Networking and Telecommunications	3	3	5	27.3%	27.3%	45.5%	0	2	1	0.0%	66.7%	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	6	5	38.9%	33.3%	27.8%	0	0	0			
Machine Tool Technology/Machinist	8	6	6	40.0%	30.0%	30.0%	0	0	0			
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%		0	0				
Natural Resources and Conservation	1	0	1	50.0%	0.0%	50.0%	0	0	0			
Biotechnology	0	2		0.0%	100.0%		1	1		50.0%	50.0%	
Architecture and Construction												
Drafting and Design Technology/Architectural	1	1	3	20.0%	20.0%	60.0%	0	0	0			
Construction Trades	4	2	1	57.1%	28.6%	14.3%	0	0	0			
Woodworking General	2	2	1	40.0%	40.0%	20.0%	0	0	0			
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 Training												
Education	1	0	0	100.0%	0.0%	0.0%	0	1	0	0.0%	100.0%	0.0%
Energy												
Line Worker	1	0	1	50.0%	0.0%	50.0%	0	0	0			
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	0	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	1	3	2	16.7%	50.0%	33.3%	0	0	0			
Medium/Heavy Truck Technician (ASE Certified)	1	1	4	16.7%	16.7%	66.7%	0	0	0			

Appendix D - Table 4A (part 3)

Course	Appendix D - Table 4A. 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 industry.						Appendix D - Table 4A. 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 industry.					
	Wholesale and Retail Trade and Transportation and Warehousing						Agriculture, Information, Finance and Insurance, Real Estate and Rental and Leasing and Professional, Scientific and Technical					
	Number reporting			Percent reporting			Number reporting			Percent reporting		
	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	1	4	4	11.1%	44.4%	44.4%	4	9	3	25.0%	56.3%	18.8%
Finance and Accounting	1	3	3	14.3%	42.9%	42.9%	4	6	3	30.8%	46.2%	23.1%
Insurance	0	0	0				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	1	0	1	50.0%	0.0%	50.0%	3	3	0	50.0%	50.0%	0.0%
System Administration/Administrator	4	0	2	66.7%	0.0%	33.3%	6	4	0	60.0%	40.0%	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	0	0	3	0.0%	0.0%	100.0%	0	1	1	0.0%	50.0%	50.0%
Mechatronics	0	1	1	0.0%	50.0%	50.0%	1	1	2	25.0%	25.0%	50.0%
Engineering Technology	1	0	1	50.0%	0.0%	50.0%	3	1	1	60.0%	20.0%	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		100.0%	0.0%		1	1		50.0%	50.0%	
Applied Horticulture and Horticultural Operations	0	0	1	0.0%	0.0%	100.0%	0	1	1	0.0%	50.0%	50.0%
Animal Health & Veterinary Sciences	0	0					0	1		0.0%	100.0%	
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												
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	0	0	0				1	1	1	33.3%	33.3%	33.3%
Heating, Air Conditioning, Ventilation and Refrigeration	0	1	0	0.0%	100.0%	0.0%	1	1	1	33.3%	33.3%	33.3%
Arts, A/V Technology, Communications and Design												
Radio and Television Broadcasting Technology	0	0	0				2	0	1	66.7%	0.0%	33.3%
Graphics and Printing Technology and Communications	1	0	0	100.0%	0.0%	0.0%	0	0	1	0.0%	0.0%	100.0%
Visual and Performing Arts	0	1	0	0.0%	100.0%	0.0%	1	1	2	25.0%	25.0%	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			100.0%			1			100.0%		
Education and Training												
Education	0	0	0				0	0	1	0.0%	0.0%	100.0%
Energy												
Line Worker	0	0	0				0	0	1	0.0%	0.0%	100.0%
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	0					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												
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	Appendix D - Table 4A. 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 industry.						Appendix D - Table 4A. 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 industry.					
	Education, Social Assistance, and Public Administration						Arts, Entertainment and Recreation, Accommodation and Food Services and Other Services (except Public Administration)					
	Number reporting			Percent reporting			Number reporting			Percent reporting		
	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	1	4	4	11.1%	44.4%	44.4%	0	5	3	0.0%	62.5%	37.5%
Finance and Accounting	2	4	3	22.2%	44.4%	33.3%	1	2	5	12.5%	25.0%	62.5%
Insurance	0	0	0				0	2	0	0.0%	100.0%	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	2	1	1	50.0%	25.0%	25.0%	0	4	1	0.0%	80.0%	20.0%
System Administration/Administrator	3	1	1	60.0%	20.0%	20.0%	0	2	1	0.0%	66.7%	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	1	0	1	50.0%	0.0%	50.0%	0	0	1	0.0%	0.0%	100.0%
Engineering Technology	1	0	0	100.0%	0.0%	0.0%	1	0	1	50.0%	0.0%	50.0%
Mechanical Drafting	0	0	1	0.0%	0.0%	100.0%	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	0	0					0	0				
Natural Resources and Conservation	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	1	1	0	50.0%	50.0%	0.0%	0	0	0			
Woodworking General	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	0	0	1	0.0%	0.0%	100.0%	0	0	0			
Heating, Air Conditioning, Ventilation and Refrigeration	0	0	2	0.0%	0.0%	100.0%	1	0	0	100.0%	0.0%	0.0%
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	0	0					0	0				
Aeronautics/Aviation/Aerospace Science and Technology	0						0					
Education and Training												
Education	3	1	1	60.0%	20.0%	20.0%	0	0	1	0.0%	0.0%	100.0%
Energy												
Line Worker	0	0	1	0.0%	0.0%	100.0%	0	0	0			
Health Science												
Biomedical Sciences, General	0	1	0	0.0%	100.0%	0.0%	0	0	0			
Health Sciences/Allied Health/Health Sciences, General	2	2	1	40.0%	40.0%	20.0%	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					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%	
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)	2	0	1	66.7%	0.0%	33.3%	2	0	0	100.0%	0.0%	0.0%
Automobile Technician (ASE Certified)	3	0	1	75.0%	0.0%	25.0%	1	1	0	50.0%	50.0%	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.																		
Course	1 to 9 employees						10-49 employees						50 or more employees					
	Number reporting			Percent reporting			Number reporting			Percent reporting			Number reporting			Percent reporting		
	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	0	8	7	0	1	0	6	9	15	0	0	1	3	11	6	0	1	0
Insurance	1	0	0	1	0	0	0	2	3	0	0	1	0	1	2	0	0	1
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	3	0	0	0	2	7	6	0	0	0
System Administration/Administrator	1	4	3	0	1	0	9	4	5	1	0	0	5	7	6	0	0	0
Computer and Information Systems Security/Information Assurance	3	1	2	1	0	0	5	3	3	0	0	0	2	3	7	0	0	1
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	9	4	2	1	0	0	4	4	3	0	0	0	4	3	4	0	0	0
Machine Tool Technology/Machinist	3	6	2	0	1	0	2	4	4	0	0	0	6	1	3	1	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		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		1	0		0	2		0	1		0	1		0	1	
Natural Resources and Conservation	1	1	0	1	1	0	0	1	1	0	1	1	0	0	1	0	0	1
Biotechnology	0	3		0	1		1	1		1	1		1	2		0	1	
Architecture and Construction																		
Drafting and Design Technology/Architectural	4	3	1	1	0	0	0	3	6	0	0	1	1	0	0	1	0	0
Construction Trades	10	2	0	1	0	0	7	3	1	1	0	0	1	2	1	0	1	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					
Education and Training																		
Education	1	0	1	1	0	1	3	0	2	1	0	0	0	2	0	0	1	0
Energy																		
Line Worker	2	1	1	1	0	0	1	0	2	0	0	1	0	0	0			
Health Science																		
Biomedical Sciences, General	1	0	0	1	0	0	0	2	1	0	1	0	0	2	2	0	1	1
Health Sciences/Allied Health/Health Sciences, General	1	1	0	1	1	0	2	1	3	0	0	1	5	1	0	1	0	0
Health Information / Medical Records Technology	0	1	0	0	1	0	1	0	2	0	0	1	1	3	1	0	1	0
Clinical/Medical Laboratory Science/Research and Allied Professions	0	1		0	1		1	2		0	1		1	1		1	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				
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
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																		
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)	0	2	0	0	1	0	3	1	3	0	0	0	4	0	1	1	0	0
Small Engine and Related Equipment Repair	1	1	1	0	0	0	1	2	1	0	1	0	2	1	2	0	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)

Course	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.									
	All industries									
	Number reporting needing to hire					Percent reporting needing to hire				
	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	8	64	4	3	4	0	1	0	0	0
Finance and Accounting	13	52				0	1			
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	8	25	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	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	3	22	2	1		0	1	0	0	
Engineering Technology	6	26	3	2		0	1	0	0	
Mechanical Drafting	11	24				0	1			
Agriculture, Food and Natural Resources										
Agriculture Agricultural Operations and Related Sciences	4	3				1	0			
Applied Horticulture and Horticultural Operations	2	3				0	1			
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	2	6	4	1	2	0	0	0	0	0
Electrical and Power Transmission Installation	11	22	2	1	2	0	1	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	4	6				0	1			
Industrial Design	4	14				0	1			
Aviation										
Airframe Technology	1	1	1			0	0	0		
Aeronautics/Aviation/Aerospace Science and Technology	2					1				
Education and Training										
Education	2	5	1	1		0	1	0	0	
Energy										
Line Worker	4	2	1			1	0	0		
Health Science										
Biomedical Sciences, General	4	3	1			1	0	0		
Health Sciences/Allied Health/Health Sciences, General	2	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)	4	8	2			0	1	0		
Small Engine and Related Equipment Repair	3	9				0	1			
Medium/Heavy Truck Technician (ASE Certified)	4	11	1			0	1	0		

Appendix D - Table 5A (part 2)

Course	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.									
	All industries									
	Number reporting needing to hire					Percent reporting needing to hire				
	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	8	64	4	3	4	0	1	0	0	0
Finance and Accounting	13	52				0	1			
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	8	25	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	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	3	22	2	1		0	1	0	0	
Engineering Technology	6	26	3	2		0	1	0	0	
Mechanical Drafting	11	24				0	1			
Agriculture, Food and Natural Resources										
Agriculture Agricultural Operations and Related Sciences	4	3				1	0			
Applied Horticulture and Horticultural Operations	2	3				0	1			
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	2	6	4	1	2	0	0	0	0	0
Electrical and Power Transmission Installation	11	22	2	1	2	0	1	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	4	6				0	1			
Industrial Design	4	14				0	1			
Aviation										
Airframe Technology	1	1	1			0	0	0		
Aeronautics/Aviation/Aerospace Science and Technology	2					1				
Education and Training										
Education	2	5	1	1		0	1	0	0	
Energy										
Line Worker	4	2	1			1	0	0		
Health Science										
Biomedical Sciences, General	4	3	1			1	0	0		
Health Sciences/Allied Health/Health Sciences, General	2	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)	4	8	2			0	1	0		
Small Engine and Related Equipment Repair	3	9				0	1			
Medium/Heavy Truck Technician (ASE Certified)	4	11	1			0	1	0		

Appendix D - Table 5A (part 3)

Course	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.									
	Manufacturing Industries									
	Number reporting needing to hire					Percent reporting needing to hire				
	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	18	2	0	0	0	1	0	0	0
Finance and Accounting	6	10				0	1			
Insurance	0	1	0	0		0	1	0	0	
Computer Programming/Programmer	6	11	0			0	1	0		
Digital/Multimedia and Information Resources	6	4	0			1	0	0		
Computer Systems Networking and Telecommunications	5	6	0			0	1	0		
System Administration/Administrator	4	9	0	0		0	1	0	0	
Computer and Information Systems Security/Information Assurance	3	6	0			0	1	0		
Marketing and Entrepreneurship										
Marketing	1	10	0			0	1	0		
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	3	10	3	1	0	0	1	0	0	0
Mechatronics	0	14	1	0		0	1	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	1			
Applied Horticulture and Horticultural Operations	0	2				0	1			
Animal Health & Veterinary Sciences	0	3				0	1			
Natural Resources and Conservation	1	1				1	1			
Biotechnology	0	2	0			0	1	0		
Architecture and Construction										
Drafting and Design Technology/Architectural	1	4	0	0	0	0	1	0	0	0
Construction Trades	2	5	0	0	0	0	1	0	0	0
Woodworking General	0	3	1	1	0	0	1	0	0	0
Electrical and Power Transmission Installation	3	8	2	0	0	0	1	0	0	0
Plumbing Technology	1	4	0	0	0	0	1	0	0	0
Heating, Air Conditioning, Ventilation and Refrigeration	1	3	1	0		0	1	0	0	
Arts, A/V Technology, Communications and Design										
Radio and Television Broadcasting Technology	0	1				0	1			
Graphics and Printing Technology and Communications	0	4				0	1			
Visual and Performing Arts	0	1				0	1			
Industrial Design	0	9				0	1			
Aviation										
Airframe Technology	0	1	0			0	1	0		
Aeronautics/Aviation/Aerospace Science and Technology	0									
Education 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	0	2	0			0	1	0		
Clinical/Medical Laboratory Science/Research and Allied Professions	1	1	0			1	1	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)	1	3				0	1			
Automobile Technician (ASE Certified)	1	3	0			0	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)

Course	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.									
	Health Industries									
	Number reporting needing to hire					Percent reporting needing to hire				
	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	0	4				0	1			
Insurance	1	0	1	0		1	0	1	0	
Computer Programming/Programmer	0	2	1			0	1	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	0	2	0	1		0	1	0	0	
Computer and Information Systems Security/Information Assurance	0	2	1			0	1	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	0	0	0	0	0					
Mechatronics	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	0	0								
Applied Horticulture and Horticultural Operations	0	0								
Animal Health & Veterinary Sciences	0	0								
Natural Resources and Conservation	0	0								
Biotechnology	1	0	1			1	0	1		
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	0	0	0	0	0					
Plumbing Technology	0	0	0	0	0					
Heating, Air Conditioning, Ventilation and Refrigeration	0	0	0	0						
Arts, A/V Technology, Communications and Design										
Radio and Television Broadcasting Technology	0	0								
Graphics and Printing Technology and Communications	0	0								
Visual and Performing Arts	0	0								
Industrial Design	0	0								
Aviation										
Airframe Technology	0	0	0							
Aeronautics/Aviation/Aerospace Science and Technology	0									
Education 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	0	1	1	2	2	0	0	0	0	0
Health Information / Medical Records Technology	0	2	1			0	1	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)	0	0								
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)

Course	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.									
	Wholesale and Retail Trade and Transportation and Warehousing									
	Number reporting needing to hire					Percent reporting needing to hire				
	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	0	3	0			0	1	0		
Digital/Multimedia and Information Resources	1	3	0			0	1	0		
Computer Systems Networking and Telecommunications	0	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		
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	0	2	0	0		0	1	0	0	
Mechanical Drafting	1	2				0	1			
Agriculture, Food and Natural Resources										
Agriculture Agricultural Operations and Related Sciences	0	1				0	1			
Applied Horticulture and Horticultural Operations	0	1				0	1			
Animal Health & Veterinary Sciences	0	0								
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	0	1				0	1			
Industrial Design	0	2				0	1			
Aviation										
Airframe Technology	0	0	1			0	0	1		
Aeronautics/Aviation/Aerospace Science and Technology	1					1				
Education and Training										
Education	0	0	0	0						
Energy										
Line Worker	0	0	0							
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										
Cosmetology	0	0								
Law, Public Safety, Protective Services										
Public Safety/Protective Services	0	0	0							
Supply Chain Management										
Supply Chain Management	0	2				0	1			
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			0	1	0		

Appendix D - Table 5A (part 6)

Course	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.									
	Agriculture, Information, Finance and Insurance, Real Estate and Rental and Leasing and Professional, Scientific and Technical									
	Number reporting needing to hire					Percent reporting needing to hire				
	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	1	13	1	1	0	0	1	0	0	0
Finance and Accounting	1	12				0	1			
Insurance	2	1	0	1		1	0	0	0	
Computer Programming/Programmer	1	7	1			0	1	0		
Digital/Multimedia and Information Resources	1	7	0			0	1	0		
Computer Systems Networking and Telecommunications	0	5	1			0	1	0		
System Administration/Administrator	1	8	1	0		0	1	0	0	
Computer and Information Systems Security/Information Assurance	0	7	0			0	1	0		
Marketing and Entrepreneurship										
Marketing	3	11	0			0	1	0		
Manufacturing										
Electrical/Electronics Equipment Installation and Repair	3	2	0	0	0	1	0	0	0	0
Machine Tool Technology/Machinist	1	1	0	0	0	1	1	0	0	0
Welding, Brazing and Soldering	1	1	0	0	0	1	1	0	0	0
Mechatronics	1	3	0	0		0	1	0	0	
Engineering Technology	2	3	0	0		0	1	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	2	0				1	0			
Animal Health & Veterinary Sciences	1	0				1	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	3	1	0	0	0	1	0	0	0	0
Woodworking General	1	0	0	0	0	1	0	0	0	0
Electrical and Power Transmission Installation	2	2	0	0	0	1	1	0	0	0
Plumbing Technology	2	1	0	0	0	1	0	0	0	0
Heating, Air Conditioning, Ventilation and Refrigeration	2	0	1	0		1	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	0				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				
Education and Training										
Education	0	1	0	0		0	1	0	0	
Energy										
Line Worker	1	0	0			1	0	0		
Health Science										
Biomedical Sciences, General	1	0	0			1	0	0		
Health Sciences/Allied Health/Health Sciences, General	1	0	0	0	0	1	0	0	0	0
Health Information / Medical Records Technology	1	0	0			1	0	0		
Clinical/Medical Laboratory Science/Research and Allied Professions	1	0	0			1	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			
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)	1	0				1	0			
Automobile Technician (ASE Certified)	1	0	0			1	0	0		
Small Engine and Related Equipment Repair	1	0				1	0			
Medium/Heavy Truck Technician (ASE Certified)	1	0	0			1	0	0		

Appendix D - Table 5A (part 7)

Course	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.									
	Education, Social Assistance, and Public Administration									
	Number reporting needing to hire					Percent reporting needing to hire				
	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	1	8	0	0	0	0	1	0	0	0
Finance and Accounting	1	8				0	1			
Insurance	0	0	0	0						
Computer Programming/Programmer	2	3	0			0	1	0		
Digital/Multimedia and Information Resources	0	3	0			0	1	0		
Computer Systems Networking and Telecommunications	1	3	0			0	1	0		
System Administration/Administrator	1	4	0	0		0	1	0	0	
Computer and Information Systems Security/Information Assurance	1	1	0			1	1	0		
Marketing and Entrepreneurship										
Marketing	2	2	0			1	1	0		
Manufacturing										
Electrical/Electronics Equipment Installation and Repair	1	0	0	0	0	1	0	0	0	0
Machine Tool Technology/Machinist	2	0	0	0	0	1	0	0	0	0
Welding, Brazing and Soldering	0	1	0	0	0	0	1	0	0	0
Mechatronics	2	0	0	0		1	0	0	0	
Engineering Technology	1	0	0	0		1	0	0	0	
Mechanical Drafting	1	0				1	0			
Agriculture, Food and Natural Resources										
Agriculture Agricultural Operations and Related Sciences	0	0								
Applied Horticulture and Horticultural Operations	0	0								
Animal Health & Veterinary Sciences	0	0								
Natural Resources and Conservation	0	0								
Biotechnology	0	0	0							
Architecture and Construction										
Drafting and Design Technology/Architectural	1	0	0	0	0	1	0	0	0	0
Construction Trades	1	1	0	0	0	1	1	0	0	0
Woodworking General	0	0	0	0	0					
Electrical and Power Transmission Installation	2	1	0	0	0	1	0	0	0	0
Plumbing Technology	1	0	0	0	0	1	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										
Radio and Television Broadcasting Technology	0	0								
Graphics and Printing Technology and Communications	0	2				0	1			
Visual and Performing Arts	0	0								
Industrial Design	1	0				1	0			
Aviation										
Airframe Technology	0	0	0							
Aeronautics/Aviation/Aerospace Science and Technology	0									
Education and Training										
Education	1	2	1	1		0	0	0	0	
Energy										
Line Worker	1	0	0			1	0	0		
Health Science										
Biomedical Sciences, General	1	0	0			1	0	0		
Health Sciences/Allied Health/Health Sciences, General	1	1	0	1	2	0	0	0	0	0
Health Information / Medical Records Technology	1	2	0			0	1	0		
Clinical/Medical Laboratory Science/Research and Allied Professions	1	0	0			1	0	0		
Hospitality and Tourism										
Cooking and Related Culinary Arts, General	0	1	0	1	0	0	1	0	1	0
Personal Services										
Cosmetology	0	0								
Law, Public Safety, Protective Services										
Public Safety/Protective Services	1	1	0			1	1	0		
Supply Chain Management										
Supply Chain Management	1	0				1	0			
Automotive, Transportation, Distribution and Logistics										
Heavy/Industrial Equipment Maintenance Technologies	1	0	0			1	0	0		
Collision Repair Technician (ASE Certified)	3	0				1	0			
Automobile Technician (ASE Certified)	2	2	0			1	1	0		
Small Engine and Related Equipment Repair	1	2				0	1			
Medium/Heavy Truck Technician (ASE Certified)	2	1	0			1	0	0		

Appendix D - Table 5A (part 8)

Course	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.									
	Arts, Entertainment and Recreation, Accommodation and Food Services and Other Services (except Public Administration)									
	Number reporting needing to hire					Percent reporting needing to hire				
	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	8	0	0	0	0	1	0	0	0
Finance and Accounting	1	7				0	1			
Insurance	0	2	0	0		0	1	0	0	
Computer Programming/Programmer	1	3	2			0	1	0		
Digital/Multimedia and Information Resources	1	4	1			0	1	0		
Computer Systems Networking and Telecommunications	2	3	0			0	1	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 Equipment Installation and Repair	0	1	0	0	0	0	1	0	0	0
Machine Tool Technology/Machinist	0	0	1	0	0	0	0	1	0	0
Welding, Brazing and Soldering	0	2	0	0	0	0	1	0	0	0
Mechatronics	0	1	0	0		0	1	0	0	
Engineering Technology	0	2	0	0		0	1	0	0	
Mechanical Drafting	1	0				1	0			
Agriculture, Food and Natural Resources										
Agriculture Agricultural Operations and Related Sciences	0	0								
Applied Horticulture and Horticultural Operations	0	0								
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	2	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	1	0				1	0			
Graphics and Printing Technology and Communications	0	1				0	1			
Visual and Performing Arts	2	1				1	0			
Industrial Design	0	0								
Aviation										
Airframe Technology	0	0	0							
Aeronautics/Aviation/Aerospace Science and Technology	0									
Education and Training										
Education	1	0	0	0		1	0	0	0	
Energy										
Line Worker	0	0	0							
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	1	0	1	0	0	1	0	1	0
Personal Services										
Cosmetology	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	0	1				0	1			
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				1	0			
Medium/Heavy Truck Technician (ASE Certified)	1	1	0			1	1	0		

Appendix D - Table 5B (part 1)

Course	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.									
	Establishments with 0-9 employees									
	Number reporting needing to hire					Percent reporting needing to hire				
	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	18	0	2	3	0	1	0	0	0
Finance and Accounting	4	11				0	1			
Insurance	0	0	0	1		0	0	0	1	
Computer Programming/Programmer	3	9	0			0	1	0		
Digital/Multimedia and Information Resources	4	3	0			1	0	0		
Computer Systems Networking and Telecommunications	2	4	0			0	1	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	10	1	1	0	0	1	0	0	0
Machine Tool Technology/Machinist	0	10	0	1	0	0	1	0	0	0
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	0	9	2	2		0	1	0	0	
Mechanical Drafting	2	10				0	1			
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	0	2				0	1			
Biotechnology	1	2	0			0	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	1	3	2	1	1	0	0	0	0	0
Electrical and Power Transmission Installation	5	8	1	0	1	0	1	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	1	2				0	1			
Visual and Performing Arts	2	3				0	1			
Industrial Design	1	5				0	1			
Aviation										
Airframe Technology	0	0	0							
Aeronautics/Aviation/Aerospace Science and Technology	0									
Education and Training										
Education	1	1	0	0		1	1	0	0	
Energy										
Line Worker	2	2	0			1	1	0		
Health Science										
Biomedical Sciences, General	0	1	0	0	1	0	1	0	0	1
Health Sciences/Allied Health/Health Sciences, General	0	1	0			0	1	0		
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)	1	1				1	1			
Automobile Technician (ASE Certified)	0	2	0			0	1	0		
Small Engine and Related Equipment Repair	0	3				0	1			
Medium/Heavy Truck Technician (ASE Certified)	0	2	1			0	1	0		

Appendix D - Table 5B (part 2)

Course	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.									
	Establishments with 10-49 employees									
	Number reporting needing to hire					Percent reporting needing to hire				
	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	1	4	0	0		0	1	0	0	
Computer Programming/Programmer	4	11	3			0	1	0		
Digital/Multimedia and Information Resources	3	18	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	2	7	0	0	1	0	1	0	0	0
Welding, Brazing and Soldering	3	9	1	0	1	0	1	0	0	0
Mechatronics	3	6	1	0		0	1	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	1	1				1	1			
Biotechnology	2	0	0			1	0	0		
Architecture and Construction										
Drafting and Design Technology/Architectural	2	7	0	0	0	0	1	0	0	0
Construction Trades	4	3	2	1	1	0	0	0	0	0
Woodworking General	1	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	0	1			1	0	1		
Aeronautics/Aviation/Aerospace Science and Technology	2					1				
Education and Training										
Education	1	2	1	1		0	0	0	0	
Energy										
Line Worker	2	0	1			1	0	0		
Health Science										
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			
Law, Public Safety, Protective Services										
Public Safety/Protective Services	2	1	0			1	0	0		
Supply Chain Management										
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				0	1			
Automobile Technician (ASE Certified)	3	3	1			0	0	0		
Small Engine and Related Equipment Repair	2	2				1	1			
Medium/Heavy Truck Technician (ASE Certified)	3	6	0			0	1	0		

Appendix D - Table 5B (part 3)

Course	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.									
	Establishments with more than 50 employees									
	Number reporting needing to hire					Percent reporting needing to hire				
	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	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	4	12	2			0	1	0		
Digital/Multimedia and Information Resources	3	7	0			0	1	0		
Computer Systems Networking and Telecommunications	3	11	1			0	1	0		
System Administration/Administrator	5	12	0	1		0	1	0	0	
Computer and Information Systems Security/Information Assurance	3	8	1			0	1	0		
Marketing and Entrepreneurship										
Marketing	3	13	0			0	1	0		
Manufacturing										
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	1	9	0	0		0	1	0	0	
Mechanical Drafting	3	6				0	1			
Agriculture, Food and Natural Resources										
Agriculture Agricultural Operations and Related Sciences	2	0				1	0			
Applied Horticulture and Horticultural Operations	0	0								
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	2	1	0	0	0	1	0	0	0	0
Heating, Air Conditioning, Ventilation and Refrigeration	1	2	1	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	2				0	1			
Visual and Performing Arts	0	0								
Industrial Design	0	6				0	1			
Aviation										
Airframe Technology	0	1	0			0	1	0		
Aeronautics/Aviation/Aerospace Science and Technology	0									
Education and Training										
Education	0	2	0	0		0	1	0	0	
Energy										
Line Worker	0	0	0							
Health Science										
Biomedical Sciences, General	2	1	1			1	0	0		
Health Sciences/Allied Health/Health Sciences, General	0	2	1	1	2	0	0	0	0	0
Health Information / Medical Records Technology	0	4	1			0	1	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	1	1	0	1	0	0	0
Personal Services										
Cosmetology	0	0								
Law, Public Safety, Protective Services										
Public Safety/Protective Services	0	1	0			0	1	0		
Supply Chain Management										
Supply Chain Management	0	12				0	1			
Automotive, Transportation, Distribution and Logistics										
Heavy/Industrial Equipment Maintenance Technologies	0	4	1			0	1	0		
Collision Repair Technician (ASE Certified)	2	1				1	0			
Automobile Technician (ASE Certified)	1	3	1			0	1	0		
Small Engine and Related Equipment Repair	1	4				0	1			
Medium/Heavy Truck Technician (ASE Certified)	1	3	0			0	1	0		

Appendix D - Table 5C

Appendix D - Table 5C. Of the firms responding that a CTE course was relevant to their business, the number of employees firms anticipate needing to hire in related occupations over the next two years, by Industry								
Course	Total Estimated Hires							
	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, Accommodation 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	260	30	50	20	25	60	40	35
Insurance	113	0	5	18	0	80	0	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	221	20	45	48	20	58	20	10
Computer and Information Systems Security/Information Assurance	143	5	30	48	10	35	5	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	334	123	178	0	10	5	0	18
Welding, Brazing and Soldering	422	250	142	0	10	5	5	10
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	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	334	208	76	0	25	10	5	10
Plumbing Technology	254	229	20	0	0	5	0	0
Heating, Air Conditioning, Ventilation and Refrigeration	201	135	33	0	5	18	5	5
Arts, A/V Technology, Communications and Design								
Radio and Television Broadcasting Technology	15	0	5	0	0	10	0	0
Graphics and Printing Technology and Communications	50	10	20	0	5	0	10	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
Education and Training								
Education	118	0	5	5	0	5	103	0
Energy								
Line Worker	85	10	75	0	0	0	0	0
Health Science								
Biomedical Sciences, General	90	0	10	80	0	0	0	0
Health Sciences/Allied Health/Health Sciences, General	452	0	10	249	0	0	193	0
Health Information / Medical Records Technology	105	0	10	85	0	0	10	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	105	0	80	5	10	5	0	5
Automotive, Transportation, Distribution and Logistics								
Heavy/Industrial Equipment Maintenance Technologies	91	23	48	0	15	0	0	5
Collision Repair Technician (ASE Certified)	30	0	15	0	5	0	0	10
Automobile Technician (ASE Certified)	76	0	15	0	41	0	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

Appendix D - Table 5D. Of the firms responding that a CTE course was relevant to their business, the number of employees firms anticipate needing to hire in relevant occupations over the next two years by establishment size				
Course	Total Estimated Hires			
	Total	1 to 9 employees	10 to 49 employees	50 or more employees
<i>Business Administration and Management Operations</i>				
Business	806	391	261	154
Finance and Accounting	260	55	110	95
Insurance	113	75	20	18
Computer Programming/Programmer	250	45	109	96
Digital/Multimedia and Information Resources	158	15	108	35
Computer Systems Networking and Telecommunications	161	20	68	73
System Administration/Administrator	221	25	98	98
Computer and Information Systems Security/Information Assurance	143	20	45	78
<i>Marketing and Entrepreneurship</i>				
Marketing	228	40	123	65
<i>Manufacturing</i>				
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	260	157	58	45
Mechanical Drafting	120	50	40	30
<i>Agriculture, Food and Natural Resources</i>				
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
<i>Architecture and Construction</i>				
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	254	121	128	5
Heating, Air Conditioning, Ventilation and Refrigeration	201	69	104	28
<i>Arts, A/V Technology, Communications and Design</i>				
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
<i>Aviation</i>				
Airframe Technology	80	0	75	5
Aeronautics/Aviation/Aerospace Science and Technology	0	0	0	0
<i>Education and Training</i>				
Education	118	5	103	10
<i>Energy</i>				
Line Worker	85	10	75	0
<i>Health Science</i>				
Biomedical Sciences, General	90	5	5	80
Health Sciences/Allied Health/Health Sciences, General	452	80	156	216
Health Information / Medical Records Technology	105	5	5	95
Clinical/Medical Laboratory Science/Research and Allied Professions	80	0	5	75
<i>Hospitality and Tourism</i>				
Cooking and Related Culinary Arts, General	212	79	10	123
<i>Personal Services</i>				
Cosmetology	5	5	0	0
<i>Law, Public Safety, Protective Services</i>				
Public Safety/Protective Services	86	76	5	5
<i>Supply Chain Management</i>				
Supply Chain Management	105	20	25	60
<i>Automotive, Transportation, Distribution and Logistics</i>				
Heavy/Industrial Equipment Maintenance Technologies	91	38	15	38
Collision Repair Technician (ASE Certified)	30	5	20	5
Automobile Technician (ASE Certified)	76	10	33	33
Small Engine and Related Equipment Repair	45	15	10	20
Medium/Heavy Truck Technician (ASE Certified)	73	28	30	15

Appendix D - Table 6A

Appendix D - Table 6A. Interactions with or knowledge of KRESA EFE/ CTE, by Industry								
Course	Percentage reporting interaction							
	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, Accommodation 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 program	13%	12%	12%	25%	20%	13%	8%	9%
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 knowledge of KRESA EFE/ CTE, by establishment size				
Course	Percentage reporting interaction			
	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 program	13%	13%	7%	23%
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 knowledge of KRESA EFE/ CTE, by selected course groupings					
Course	Percentage reporting interaction				
	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 program	13%	10%	24%	24%	15%
My business has provided feedback to KRESA EFE/CTE on the courses we would like to see offered	24%	24%	44%	32%	24%
My business has participated in a Lunch and Learn with KRESA 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

Appendix D - Table 7A. Barriers to engaging with KRESA EFE/CTE, by Industry								
Course	Percentage reporting barriers							
	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, Accommodation 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 establishment size				
Course	Percentage reporting barriers			
	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 with KRESA EFE/CTE, by selected course grouping					
Course	Percentage reporting barriers				
	Total	Auto/Trucks/ Engine	Supply Chain	Design	IT
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 industry, 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	90%	90%	70%	60%	80%	0%	30%	10%	0%
Agriculture, Information, Finance and Insurance, Real Estate and Rental and Leasing and Professional, Scientific and Technical	94%	88%	94%	88%	69%	25%	6%	19%	13%
Education, Social Assistance, and Public Administration	83%	83%	67%	92%	58%	25%	33%	25%	8%
Arts, Entertainment and Recreation, Accommodation and Food Services and 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%
IT	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	30%	40%	30%	0%	0%
Agriculture, Information, Finance and Insurance, Real Estate and Rental and Leasing and Professional, Scientific and Technical	38%	44%	19%	0%	0%
Education, Social Assistance, and Public Administration	50%	8%	42%	0%	0%
Arts, Entertainment and Recreation, Accommodation and Food Services and Other Services (except Public Administration)	64%	9%	9%	9%	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%
IT	48%	26%	21%	3%	2%

Appendix D - Table 10

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, Accommodation 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%
Program/course Groupings					
Auto/Trucks/Engines	19%	14%	19%	43%	5%
Supply chain	12%	28%	28%	28%	4%
Design	9%	24%	38%	24%	6%
IT	16%	29%	26%	24%	5%