

Key Research Findings

This analysis was based on the pre-determined criteria listed below:

Section	Description	Measures
Student Demand	Includes an assessment of OCAS (2007 - 2011) enrolment data at other colleges in terms of mean growth rate with a specific focus on Fleming's direct competitors where appropriate (Georgian, Sheridan, Seneca and Durham) Trends in certificate, diploma, degree, apprenticeship and continuing education (where available). Click Below to Access Full Source Document: Fall Enrollment Trend	● Strong = Fleming enrolment growth is outpacing system and is equal to or greater than 3% ● Moderate = Fleming enrolment growth is equivalent to system demand and is between 1.0 to 2.9% ● Weak = Fleming enrolment growth is less than the system demand and is less than 1%
Labour Market	Includes projected employment rate growth based on a consolidation of various Ontario, Canadian, and US sources including HRSDC, Sector Council Reports US Bureau of Labour Statistics, and the MTCU Employment Profile.	● Strong = Between 5-6 positive labour market indicators ● Moderate = Between 3-5 positive labour market indicators ● Weak = Between 1-2 or no positive labour market indicators
Competitive Analysis	Includes the number of actual colleges offering the program as well as the ratio of applications to acceptances at Fleming compared to other colleges and specific comment about Fleming's direct competitors where appropriate (Georgian, Sheridan, Seneca and Durham) Click Below to Access Full Source Document: Fall Conversion Report	● Strong = Fleming conversion ratio is greater than 2 below the system ● Moderate = Fleming conversion ratio is 1 above, below or equal to the system ● Weak = Fleming conversion ratio is greater than 2 above than the system
Financial Analysis	Includes a review of Contribution to Overhead (CTO) for existing programs (2010-11) Click Below to Access Full Source Document: Costing Analysis	● Strong = CTO is greater than 35% ● Moderate = CTO is between 30 - 34% ● Weak = CTO is between 20 – 30% No Contribution = 19% or less

Key Research Findings

Key Performance Indicators	Includes KPI trends from the Key Performance Indicator Summary 5 Year Historical Overview KPI Data from Reporting Years 2008-2012. Click Below to Access Full Source Document: Key Performance Indicators	● Strong = Above system average in 6-7 indicators ● Moderate = Above system average in 3-5 indicators ● Weak = Above system average in 0-2 indicators.
Resource Analysis	Requires school level assessment regarding space, technology, capital equipment and human resources. Recommendations from recent Program Review Reports included here	

Key Research Findings

Welding Techniques (44900)

Student Demand¹

• **WEAK**

The following information consists of OCAS yearly student fall registration data as well as a mean growth rate and average student registration for each program under these categories:

Certificate

- Thirteen colleges offer this program, including three of Fleming's main competitors
- Fleming has a mean growth rate of **2%**, lower than the system rate of **19%**
- Out of the direct competitors, Sheridan has the highest mean growth rate (**107%**) and Georgian has the lowest (**16%**)
- Overall, Sheridan has the highest mean growth rate and Niagara have the lowest rate (**-22%**)
- Out of the direct competitors, Sheridan has the highest average registration of **36 students** and Georgian has the lowest with **28 students**
- Overall, Algonquin has the highest average registration with **45 students** and Sault has the lowest with **12 students**

Diploma

- Six colleges offer this program, none of which are direct competitors to Fleming
- St. Lawrence has the highest mean growth rate (**24%**) and Cambrian and Conestoga have the lowest rate (**-15%**)
- Niagara has the highest average registration with **34 students** and Boreal and Northern have the lowest with **11 students**

Advanced Diploma

- Conestoga is the only school to offer this program, which began in 2011 and has experienced an initial registration of **5 students**

¹ Registration data obtained from the Program Counts by Applicant Type Report (RPT0050P) in the OCAS Reporting and Analytics Cube December 7, 2011. Some programs/colleges may not be included because they were missing MCU codes in the OCAS dataset Prepared by Fleming Data Research (07-2012)

Key Research Findings

Certificate

Program: 44900 - WELDING TECHNIQUES														
	2007 2008 % Change (07-08)			2008 2009 % Change (08-09)			2009 2010 % Change (09-10)			2010 2011 % Change (10-11)			% Mean Growth Rate (07-11)	5 Year Average Reg. Students
ALGONQUIN										45				45
CONESTOGA	29	32	10	32	19	-41	19	19	0	19	22	16	-4	24
CONFEDERATION	24	47	96	47	48	2	48	46	-4	46	45	-2	23	42
DURHAM										34				34
FANSHAWE	21	14	-33	14	10	-29	10	12	20	12	12	0	-10	14
FLEMING	42			42	40	-5	40	42	5	42	44	5	2	42
GEORGIAN				24			24	29	21	29	32	10	16	28
LAMBTON	28	29	4	29	24	-17	24	23	-4	23	20	-13	-8	25
LOYALIST				36			36	23	-36	23	26	13	-12	28
NIAGARA	40	39	-3	39	38	-3	38	16	-58	16	12	-25	-22	29
SAULT							8			8	16	100	100	12
SHERIDAN				15			15	49	227	49	43	-12	107	36
ST. CLAIR	25			25	22	-12	22	25	14	25	37	48	17	27
Total	142	228	61	228	276	21	276	292	6	292	388	33		

Diploma

Program: 54900 - WELDING ENGINEERING TECHNICIAN														
	2007 2008 % Change (07-08)			2008 2009 % Change (08-09)			2009 2010 % Change (09-10)			2010 2011 % Change (10-11)			% Mean Growth Rate (07-11)	5 Year Average Reg. Students
CAMBRIAN	48	40	-17	40	33	-18	33	21	-36	21	23	10	-15	33
COLLÈGE BORÉAL	11	8	-27	8	14	75	14	12	-14	12	8	-33	0	11
CONESTOGA	14	12	-14	12	16	33	16	10	-38	10	6	-40	-15	12
NIAGARA							37			37	32	-14	-14	34
NORTHERN	10	15	50	15	10	-33	10	12	20	12	8	-33	1	11
ST. LAWRENCE	11	18	64	18	16	-11	16	10	-38	10	18	80	24	15
Total	94	93	-1	93	89	-4	89	102	15	102	95	-7		

Advanced Diploma

Program: 64900 - WELDING ENGINEERING TECHNOLOGY														
	2007 2008 % Change (07-08)			2008 2009 % Change (08-09)			2009 2010 % Change (09-10)			2010 2011 % Change (10-11)			% Mean Growth Rate (07-11)	5 Year Average Reg. Students
CONESTOGA										5				5
NORTHERN														
Total										5				

Key Research Findings

Labour Market

• **MODERATE**

Employment Ontario²

Welders and Related Machine Operators (NOC - 7265)

- Employment Ontario Rating (2009-2013):
 - **Average**
- Education and Training
 - “Some secondary school education is usually required with Grade 12 being the norm for hiring skilled welders. Workers and job applicants must have a good knowledge of the basic settings on the welding machines, polarity, blue-print reading, etc. They must also have "hands-on" experience. Some employers, especially machinery manufacturers and pressure vessel manufacturers, require highly skilled welderfitters for precision and very sophisticated work.”
 - “For the more highly skilled welding occupations, completion of an apprenticeship program or a combination of over three years of work experience in the trade and some college or industry courses in welding is usually required to be eligible for trade certification. Trade certification is available, through the Canadian Welding Bureau, for this occupation in Ontario but certification is not a compulsory work requirement for the occupation in the province. Inter-provincial (Red Seal) trade certification, which allows qualified welders to work in other provinces and territories, is available for this trade.”
 - “Entry to apprenticeship requires a job and usually the completion of Grade 12. The apprentice applies directly to the employer, union or joint industry committee for an apprenticeship opening. Students who have completed Grade 10 have an opportunity to become registered apprentices while finishing high school under the Ontario Youth Apprenticeship Program. Alternatively, entry into apprenticeship can be pursued through pre-apprenticeship training.”
- Demand
 - “Opportunities for employment in this occupation are expected to be average over the period from 2009 to 2013. Due to the large size of this occupational group, the majority of job openings will result from the need to replace workers who retire or leave. Employment opportunities for welders and soldering machine operators are dependent upon the activity in the construction, manufacturing, and oil and gas sectors. An increase in the use of automated and robotic welding techniques in manufacturing will result in a slower employment growth for welding machine operators. However, welders, especially those with a wide variety of high level skills, will still be required for sophisticated fabrication tasks, repair work or custom jobs that cannot be easily automated. New technologies and techniques have enhanced not limited the opportunities for welders. For instance, laser beam and electron beam welding, and new fluxes are improving the results of welding, making it applicable to a wider assortment of jobs and industries.”

² "7265 Welders and Related Machine Operators." *Employment Ontario*. N.p., n.d. Web. 31 Aug. 2012. <http://www.tcu.gov.on.ca/eng/labourmarket/ojf/pdf/7265_e.pdf>.

Key Research Findings

- “The skills of welders are easily transferable across industries which mean that they are less vulnerable to economic slowdowns occurring in a particular sector. The recent federal fiscal stimulus which aims to boost activity in the construction sector via significant investment in infrastructure projects will provide excellent opportunities for welders in the future.”

HRSDC³

Welders and Related Machine Operators (NOC - 7265)

- Job Openings (2011/2020): **46,725**
- Job Seekers(2011/2020): **52,751**
- Post Secondary Education Graduates: **42,130 (80%)**
- “Based on projections and considering that there was surplus labour supply in this occupation, it is expected that the surplus labour supply will continue. In other words, the number of job seekers will be more than sufficient to fill the job openings over the 2011-2020 period. Job openings will arise from both new positions due to economic growth and replacement needs due to retirement. Although the retirement rate is lower than the rate for all occupations, more than 45% of job openings over the projection period will arise from retirements. The low retirement rate in this occupation is due to the fact that workers are generally somewhat younger than the average and retire later than those in other occupations. Consequently, the gap between the average age of workers and the retirement age is greater than the average for all occupations. The number of job openings arising from economic growth will be much higher than over the 2001-2010 period, during which, after the construction industry was stimulated by the building of new housing units, a substantial increase in renovation spending and, more recently, the increase in non-residential construction spending, the construction industry and especially the manufacturing sector were hit hard by the recession. Over the projection period, activities in the construction industry will slow down, primarily as a result of the aging population, and the manufacturing sector will continue to experience difficulties, particularly in the metal and machinery fabricating industry. This will have a negative impact on the number of job openings in metal forming, shaping and erecting trades. With regard to labour supply, the majority of job seekers will come from the school system.”

³ "Metal Forming, Shaping And Erecting Occupations (726)." *Human Resources and Skills Development Canada*. N.p., n.d. Web. 31 Aug. 2012. <<http://www23.hrsdc.gc.ca/occupationsummarydetail.jsp?&tid=97>>.

Key Research Findings

US Bureau of Labour⁴

Welders, Cutters, Solderers, and Brazers (SOC – 51-4121)

- Employment Growth (2010/2020): **Increase 15%**
 - **337,300**(2010) to **388,000**(2020)
- “Employment of welders, cutters, solderers, and brazers is expected to grow 15 percent from 2010 to 2020, about as fast as the average for all occupations.”
- “Employment growth reflects the need for welders in manufacturing because of the importance and versatility of welding as a manufacturing process. The basic skills of welding are the same across industries, so welders can easily shift from one industry to another, depending on where they are needed most. For example, welders laid off in the automotive manufacturing industry may be able to find work in the oil and gas industry.”
- “Growth of the defense industry, including the manufacturing of aircrafts and missiles, is expected to contribute to employment growth.”
- “In addition, the nation’s aging infrastructure will require the expertise of many welders, cutters, solderers, and brazers to rebuild bridges, highways, and buildings, resulting in some new jobs.”
- “Overall job prospects will vary by skill level. Job prospects should be good for welders trained in the latest technologies. Welding schools report that graduates have little difficulty finding work, and many welding employers report difficulty finding properly skilled welders. However, welders who do not have up-to-date training may face competition for jobs.”
- “For all welders, job prospects should be better for those willing to relocate.”

⁴ Bureau of Labor Statistics, U.S. Department of Labor, Occupational Outlook Handbook, 2012-13 Edition, Welders, Cutters, Solderers, and Brazers, on the Internet at <http://www.bls.gov/ooh/production/welders-cutters-solderers-and-brazers.htm> (visited August 31, 2012).

Key Research Findings

Sector Council Report

Welders and Related Machine Operators (for the province of Ontario) ⁵

“For Labour Market Rankings: 1=Excess supply... 5=Excess demand”

Data Type	Units	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
Employment (construction, industrial maintenance)	# of Workers	56	79	40	41	39	39	38	39	39	40	41	41	42	42	43
Employment (construction, maintenance total)	# of Workers	482	518	489	550	545	546	552	562	570	578	585	592	600	606	613
Employment (construction, new)	# of Workers	1,683	1,816	1,798	1,791	2,049	2,101	2,369	2,452	2,362	2,368	2,334	2,374	2,398	2,404	2,349
Employment (Non-Residential)	# of Workers	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Employment (Residential)	# of Workers	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Employment (Total)	# of Workers	2,165	2,334	2,287	2,341	2,593	2,647	2,921	3,014	2,932	2,946	2,919	2,966	2,998	3,011	2,962
Excess Supply (Total)	# of Workers	143	146	247	254	243	322	255	310	373	361	356	327	319	323	346
Excess Supply Rate (Total)	%	6.2	5.9	9.8	9.8	8.6	10.9	8.0	9.3	11.3	10.9	10.9	9.9	9.6	9.7	10.5
Labour Force (Total)	# of Workers	2,308	2,481	2,534	2,595	2,836	2,969	3,176	3,324	3,305	3,307	3,275	3,293	3,317	3,334	3,308
Labour Force - Average Age	# of Workers	40	40	40	40	40	40	39	39	39	39	40	40	40	40	40
Labour Force Change: Construction	# of Workers	-204	173	54	61	241	133	207	147	-18	2	-31	18	25	16	-26
Labour Force Change: Mortality (Deaths)	# of Workers	-	6	7	7	7	8	8	9	9	9	9	9	8	8	8
Labour Force Change: Net In-Mobility	# of Workers	-	176	63	71	251	145	219	161	-6	13	-19	30	38	30	-12
Labour Force Change: New Entrants	# of Workers	-	59	58	59	60	64	67	70	73	72	70	69	68	68	68
Labour Force Change: Retirements (construction)	# of Workers	-	56	61	62	63	68	70	74	76	74	74	73	73	73	74
Labour Market Rankings	Rankings (2)	-	-	-	-	-	3	4	3	3	3	3	3	3	3	3
Peak Employment (Total)	# of Workers	2,384	2,571	2,518	2,578	2,859	2,918	3,224	3,329	3,236	3,247	3,213	3,263	3,298	3,311	3,258
Peak Excess Supply (Total)	# of Workers	89	87	197	201	181	266	184	240	313	300	296	262	253	256	282
Peak Excess Supply Rate (Total)	%	4	3	7	7	6	8	5	7	9	8	8	7	7	7	8
Peak Labour Force (Total)	# of Workers	2,473	2,658	2,715	2,780	3,040	3,184	3,409	3,569	3,549	3,547	3,509	3,525	3,551	3,568	3,540

⁵ Construction Sector Council -Construction Forecasts. N.p., n.d. Web. 31 Aug. 2012. <<http://www.constructionforecasts.ca/>>.

Key Research Findings

“Demand requirements related to civil and other engineering projects rise steadily from current levels through 2013. Provincial labour market conditions are generally balanced. Regionally, market conditions are tighter in Northern Ontario over the near term and in the Greater Toronto Area later in the scenario period. Employment is concentrated in non-residential construction. The age profile for this group is about average. Replacement demand requirements are not met by new entrants into the labour force. Workers from outside the local market will be required to meet regional demand requirements.”

Professional Associations

- [United Association of Journeymen and Apprentices of the Plumbing and Pipe Fitting Industry of the U.S and Canada](#)
- [Canadian Welding Bureau Group](#)
- [Construction Sector Council](#)

Key Research Findings

Employment Profile⁶

In 2010-2011, **26.7%** of graduates were employed in a full time position which related to this program of study provincially

Welding			
Total Graduates:	338	Total Graduates in Survey:	234
		Response Rate:	72.0%

594 graduates were reported after the survey window had closed. While program information for these graduates has been included wherever possible, these graduates are not included in survey results, such as response rates.

Programs in Welding

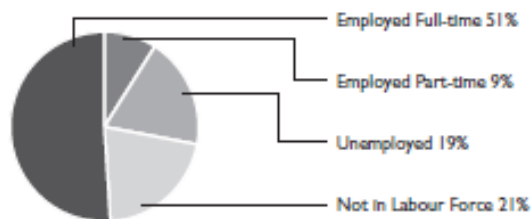
Programs	Duration	Total Grads	Total in Survey	Total in Labour Force	Colleges
Welding Engineering Technician	2 Years	61	43	26	Bordal, Cambrian, Conestoga, Northern, St. Lawrence
Welding Engineering Technology	3 Years	15	4	4	Northern
Welding Techniques	1 Year	262	187	155	Conestoga, Confederation, Fanshawe, Georgian, Lambton, Loyalist, Niagara, Sheridan, Sir Sandford Fleming, St. Clair

Summary of Survey Data

	Program Cluster	All Programs
Survey Population	234	50,622
Labour Force Participation	79%	74%
Employment Rate ^a	76%	83%
Employed Part-time ^a	11%	18%
Employed Full-time ^a	65%	65%
Average Annual Earnings – Total	\$33,991	\$33,199
Average Annual Earnings – Female	\$47,047	\$31,897
Average Annual Earnings – Male	\$33,325	\$34,607
Graduate Satisfaction	73%	79%
Employer Satisfaction	90%	93%

a. As a percentage of graduates in the labour force.

Graduate Outcomes for Program Cluster (as a percentage of all respondents)



⁶ "Employment Profile." Ontario. N.p., 2011. Web. 19 July 2012.
<http://www.tcu.gov.on.ca/pepg/audiences/colleges/serials/eprofile09-10/profile10.pdf>.

Key Research Findings

Welding

Top Five Industries of Employment

	#	%
Transportation Equipment Manufacturing	23	17.3%
Specialty Trade Contractors	16	12.0%
Administrative and Support Services	9	6.8%
Various* (each at this level of participation)	8	6.0%

* Fabricated Metal Product Manufacturing; Food Services and Drinking Places; Machinery Manufacturing; Repair and Maintenance

Top Five Occupational Categories

	#	%
Welders and Related Machine Operators	39	29.3%
Motor Vehicle Assemblers, Inspectors and Testers	11	8.3%
Construction Trades Helpers and Labourers	7	5.3%
Metallurgical and Materials Engineers	4	3.0%
Other Labourers in Processing, Manufacturing and Utilities	4	3.0%

Summary of Graduate Outcomes by Program

	Full-time Employed, Program Related		Full-time Employed, Program Unrelated		Part-time Employed, Program Related		Part-time Employed, Program Unrelated		Unemployed		Not in Labour Force	
	#	%	#	%	#	%	#	%	#	%	#	%
Welding Engineering Technician	14	32.6	3	7.0	—	—	—	—	9	20.9	17	39.5
Welding Techniques	50	26.7	50	26.7	1	0.5	19	10.2	35	18.7	32	17.1
All Programs in Cluster*	64	27.8	53	23.0	1	0.4	19	8.3	44	19.1	49	21.3

* Does not include 1 program with fewer than 5 graduates in the labour force.

Earnings of Full-time Employed Participants

Program	Average – Females	Average – Males	Median – Females	Median – Males	Average for Program	Median for Program
Welding Engineering Technician	—	\$35,194	—	\$31,286	\$37,072	\$31,286
Welding Techniques	—	\$32,585	—	\$29,200	\$33,052	\$30,000
All Programs in Cluster*	\$47,047	\$32,993	\$47,972	\$29,878	\$33,689	\$30,000

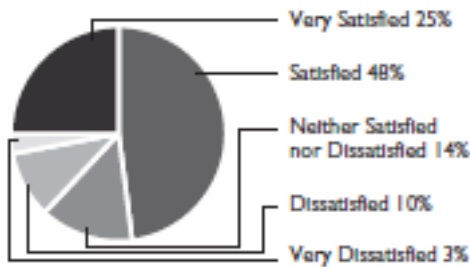
* Does not include 1 program with fewer than 5 graduates in the labour force.

Key Research Findings

Welding

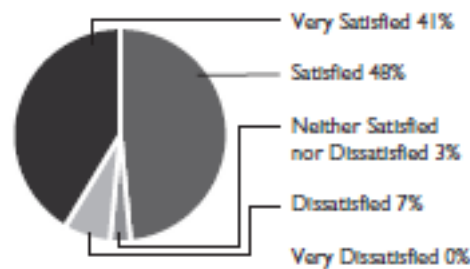
Program Cluster Satisfaction

Graduate Satisfaction with the usefulness of his/her college education in achieving his/her goals after graduation:*



* 216 graduates participated in this question.

Employer Satisfaction with employee overall college preparation for the type of work he/she was doing:*



* 29 employers participated in this survey.

Program Cluster Historical Data

	00-01 Grads	01-02 Grads	02-03 Grads	03-04 Grads	04-05 Grads	05-06 Grads	06-07 Grads	07-08 Grads	08-09 Grads	09-10 Grads
Percentage Employed	75.5%	86.4%	91.8%	76.1%	92.2%	87.7%	89.0%	89.6%	71.9%	75.7%
Percentage Employed Full-time	75.5%	77.3%	89.8%	76.1%	90.2%	86.0%	82.9%	83.6%	67.4%	64.9%
Percentage Employed Full-time Related Jobs	59.2%	63.6%	75.5%	58.7%	66.7%	66.7%	62.2%	70.1%	32.6%	36.2%
Average Annual Salary Full-time Related Jobs	\$34,812	\$40,932	\$37,871	\$37,307	\$39,440	\$41,265	\$40,901	\$35,592	\$40,791	\$36,344

Key Research Findings

Working in Canada⁷

Welders and Related Machine Operators (NOC - 7265)

- Employment Rating by Region:**

Location	Employment Potential
Hamilton--Niagara Peninsula Region	Fair
Kingston - Pembroke Region	N/A
Kitchener--Waterloo--Barrie Region	Fair
London Region	Fair
Muskoka-Kawarthas Region	N/A
Northeast Region	Fair
Northwest Region	Fair
Ottawa Region	N/A
Stratford--Bruce Peninsula Region	Fair
Toronto Region	Fair
Windsor-Sarnia Region	Limited

- Wage Range by Region:**

Location	Wage (\$/hr)		
	Low	Median	High
Ontario	14.00	20.20	33.81
Hamilton--Niagara Peninsula Region	14.00	20.00	30.00
Kingston - Pembroke Region	14.00	20.20	33.81
Kitchener--Waterloo--Barrie Region	N/A	N/A	N/A
London Region	N/A	N/A	N/A
Muskoka-Kawarthas Region	14.00	20.20	33.81
Northeast Region	13.00	21.00	31.00
Northwest Region	14.00	20.20	33.81
Ottawa Region	14.00	20.20	33.81
Stratford--Bruce Peninsula Region	14.00	20.20	33.81
Toronto Region	16.50	20.36	35.00
Windsor-Sarnia Region	13.00	21.00	34.08

⁷ "Welders and Related Machine Operators (NOC 7265)." *Working in Canada*. N.p., n.d. Web. 31 Aug. 2012.

<<http://www.workingincanada.gc.ca/report-eng.do?area=8792&lang=eng&noc=7265&action=final&ln=p@ionKeyword=Peterborough%2C+Ontario&s=1&source=2&titleKeyword=welder#wages>>.

Key Research Findings

Competitive Analysis⁸

• MODERATE

The following information consists of OCAS yearly fall application and registration data as well as a conversion ratio for each program under this category:

Certificate

- Fleming's ratio was equal to the system's **(4:1)** in 2011
- Georgian, the direct competitor, had a **(3:1)** ratio in 2011, which was lower than the system's
- Boreal and Northern both had the highest ratio in 2011 **(3:1)** and Conestoga had the lowest **(8:1)**

Diploma

- Georgian and St. Clair both had the highest ratio in 2011 **(3:1)** and Fanshawe had the lowest **(15:1)**

Advanced Diploma

- In 2011, Conestoga had a conversion ratio of **8:1**

Certificate

Program: 44900 - WELDING TECHNIQUES																
	App. 2007 Reg. 2007 Conversion Ratio			App. 2008 Reg. 2008 Conversion Ratio			App. 2009 Reg. 2009 Conversion Ratio			App. 2010 Reg. 2010 Conversion Ratio			App. 2011 Reg. 2011 Conversion Ratio			
ALGONQUIN	0			0			0			0			170 45 4:1			
CONESTOGA	54	29	2:1	105	32	3:1	117	19	6:1	106	19	6:1	107	22	5:1	
CONFEDERATION	151	24	6:1	166	47	4:1	174	48	4:1	145	46	3:1	164	45	4:1	
DURHAM	0			0			0			0			157 34 5:1			
FANSHAWE	170	21	8:1	134	14	10:1	126	10	13:1	84	12	7:1	91	12	8:1	
FLEMING	0			147	42	4:1	183	40	5:1	147	42	4:1	177	44	4:1	
GEORGIAN	0			0			55	24	2:1	114	29	4:1	110	32	3:1	
LAMBTON	106	28	4:1	129	29	4:1	109	24	5:1	87	23	4:1	81	20	4:1	
LOYALIST	0			53				128	36	4:1	81	23	4:1	92	26	4:1
NIAGARA	186	40	5:1	165	39	4:1	150	38	4:1	99	16	6:1	70	12	6:1	
SAULT	0			0			0			44	8	6:1	59	16	4:1	
SHERIDAN	0			0			66	15	4:1	160	49	3:1	158	43	4:1	
ST. CLAIR	0			60	25	2:1	117	22	5:1	102	25	4:1	121	37	3:1	
Total	667	142	5:1	959	228	4:1	1225	276	4:1	1169	292	4:1	1557	388	4:1	

⁸ Application data obtained from OCAS College Count Cube October 19, 2011 Registration data obtained from the Program Counts by Applicant Type Report (RPT0050P) in the OCAS Reporting and Analytics Cube December 7, 2011. Some programs/colleges may not be included because they were missing MCU codes in the OCAS dataset Prepared by Fleming Data Research (07-2012)

Key Research Findings

Diploma

Program: 54900 - WELDING ENGINEERING TECHNICIAN															
	App. 2007	Reg. 2007	Conversion Ratio	App. 2008	Reg. 2008	Conversion Ratio	App. 2009	Reg. 2009	Conversion Ratio	App. 2010	Reg. 2010	Conversion Ratio	App. 2011	Reg. 2011	Conversion Ratio
CAMBRIAN	204	48	4:1	176	40	4:1	168	33	5:1	140	21	7:1	121	23	5:1
COLLÈGE BORÉAL	47	11	4:1	36	8	5:1	38	14	3:1	26	12	2:1	25	8	3:1
CONESTOGA	133	14	10:1	115	12	10:1	142	16	9:1	83	10	8:1	90	6	15:1
NIAGARA	0			0			0			138	37	4:1	126	32	4:1
NORTHERN	39	10	4:1	23	15	2:1	25	10	3:1	32	12	3:1	26	8	3:1
ST. LAWRENCE	100	11	9:1	82	18	5:1	78	16	5:1	60	10	6:1	73	18	4:1
Total	523	94	6:1	432	93	5:1	451	89	5:1	479	102	5:1	461	95	5:1

Advanced Diploma

Program: 64900 - WELDING ENGINEERING TECHNOLOGY															
	App. 2007	Reg. 2007	Conversion Ratio	App. 2008	Reg. 2008	Conversion Ratio	App. 2009	Reg. 2009	Conversion Ratio	App. 2010	Reg. 2010	Conversion Ratio	App. 2011	Reg. 2011	Conversion Ratio
CONESTOGA	0			0			0			0			40	5	8:1
NORTHERN	56			35			40			40			29		
Total	56			35			40			40			69	5	14:1

Financial Analysis

• **STRONG**

Source: Program Costing Analysis 2010/2011

- Contribution to Overhead: 49.8%
- Program Weight: 1.40
- Funding Unit: 1.40

Key Performance Indicators

• **WEAK**

Source: Key Performance Indicator Summary 5 Year Historical Overview KPI Data from Reporting Years 2008-2012

KPI1-Graduation Rate	-2% below system
KPI2-Working	-5% below system
KPI3-Working Related	-9% below system
KPI4-Grad. Satisfaction	+2% above system
KPI8-Student Satisfaction-Learning	-6% below system
KPI9-Student Satisfaction- Teachers	-6% below system
KPI11-Grad. Satisfaction-Program	-3% below system

Key Research Findings

Resource Analysis

Equipment

Staffing

Space

Key Research Findings

Appendix

The following is the original environmental scan conducted by the Library Researchers to form the basis of the previous summary of Key Research Findings Report.

Overview of the Profession:

NOC: 7237 – Welders and related machine operators (2011 NOC)

NOC: 7265 – Welders and related machine operators (2006 NOC)

<http://www5.hrsdc.gc.ca/NOC/English/NOC/2011/ProfileKeyword.aspx?val=7&val1=7237&val11=welder&val12=0&val13=0&val14=&val15=0&val16=0>

Welders perform some or all of the following duties:

- Read and interpret blueprints or welding process specifications
- Operate manual or semi-automatic welding equipment to fuse metal segments using processes such as gas tungsten arc welding (GTAW), gas metal arc welding (GMAW), flux-cored arc welding (FCAW), plasma arc welding (PAW), shielded metal arc welding (SMAW), oxy-acetylene welding (OAW), resistance welding and submerged arc welding (SAW)
- Operate manual or semi-automatic flame-cutting equipment
- Operate brazing and soldering equipment
- Operate metal shaping machines such as brakes, shears and other metal straightening and bending machines
- Repair worn parts of metal products by welding on extra layers.

Common Job Titles

- electric arc welder
- journeyman/woman welder
- laser welding operator
- pressure vessel welder
- production welder
- soldering machine operator
- spot welder
- submerged arc welder
- welder

Typical Employers

- companies that manufacture structural steel and platework, boilers, heavy machinery, aircraft and ships and other metal products,
- welding contractors and welding shops
- self-employed

Key Research Findings

Labour Market

Working in Canada

1. Employment potential for the Kawartha Region is “N/A – not assigned”, while “Fair” in many Ontario regions. (Working in Canada)

<http://www.workingincanada.gc.ca/report-eng.do?lang=eng&noc=7265&area=8792&titleKeyword=welder®ionKeyword=Peterborough,+Ontario&source=2&action=final>

HRDSC

2. National Outlook – 10-Year Projection (2011-2020)

This occupation (**Welders**) is part of a larger occupational group called **Metal Forming, Shaping and Erecting Occupations (726)**

Occupations in this group	Sheet Metal Workers (7261) Boilermakers (7262) Structural Metal and Platework Fabricators and Fitters (7263) Ironworkers (7264) Welders and Related Machine Operators (7265) Blacksmiths and Die Setters (7266)
Employment (non-student) in 2010	123,305
Median Age of workers in 2010	39.4
Average Retirement Age in 2010	64

3. Estimated that there will be more job seekers in this field than job openings for the 2011-2020 periods (job openings are expected to total **46,725**. It is expected that **52,751** job seekers will be available to fill these job openings). The majority of job seekers will come from the school system (80%) with 14% from immigration and 6% from other sources.
4. Job openings will arise from both new positions due to economic growth and replacement needs due to retirement. Although the retirement rate is lower than the rate for all occupations, more than 45% of job openings over the projection period will arise from retirements. The low retirement rate in this occupation is due to the fact that workers are generally somewhat younger than the average and retire later than those in other occupations.
5. According to Employment Ontario (Estimates 2006), 94% of workers in this group were employed Full-Time with 4% Part-Time; 5% were self-employed
http://www.tcu.gov.on.ca/eng/labourmarket/ojf/pdf/7265_e.pdf
6. Local wage for Peterborough/Kawartha Region 2010:
 - o Low: \$14.00 Median: \$20.20 High: \$ 33.81<http://www23.hrsdc.gc.ca/occupationsummarydetail.jsp?&tid=97>

US Bureau of Labour

<http://www.bls.gov/ooh/production/welders-cutters-solderers-and-brazers.htm#tab-6>

Job Outlook

Employment of welders, cutters, solderers, and brazers is expected to grow 15 percent from 2010 to 2020, about as fast as the average for all occupations.

Key Research Findings

Employment growth reflects the need for welders in manufacturing because of the importance and versatility of welding as a manufacturing process. The basic skills of welding are the same across industries, so welders can easily shift from one industry to another, depending on where they are needed most. For example, welders laid off in the automotive manufacturing industry may be able to find work in the oil and gas industry.

Growth of the defense industry, including the manufacturing of aircrafts and missiles, is expected to contribute to employment growth.

In addition, the nation's aging infrastructure will require the expertise of many welders, cutters, solderers, and brazers to rebuild bridges, highways, and buildings, resulting in some new jobs.

Job Prospects

Overall job prospects will vary by skill level. Job prospects should be good for welders trained in the latest technologies. Welding schools report that graduates have little difficulty finding work, and many welding employers report difficulty finding properly skilled welders. However, welders who do not have up-to-date training may face competition for jobs.

For all welders, job prospects should be better for those willing to relocate.

Industry Standards:

The occupation (Welder) is ***not regulated*** in the province of Ontario, nor the majority of provinces except Alberta and Québec.

Professional Associations:

[United Association of Journeymen and Apprentices of the Plumbing and Pipe Fitting Industry of the U.S and Canada](#)

[Canadian Welding Bureau Group](#)

[Construction Sector Council](#)

Employment Requirements

Employment requirements are prerequisites generally needed to enter an occupation.

Welders

- Completion of secondary school is usually required.
- Completion of a three-year apprenticeship program

or

A combination of over three years of work experience in the trade and some college or industry courses in welding is usually required to be eligible for trade certification.

- Trade certification is compulsory in Alberta and available, but voluntary, in Newfoundland and Labrador, Prince Edward Island, Nova Scotia, New Brunswick, Manitoba, Saskatchewan, British Columbia, Nunavut, the Northwest Territories and the Yukon.
- Interprovincial trade certification (Red Seal) is also available to qualified welders.

Welding, brazing and soldering machine operators

- Some secondary school education is required.
- Several months of on-the-job training are usually provided.
- Experience as a machine operator helper may be required.
- Experience with robotics may be required.

[Source: [National Occupational Classification 2006 - HRSDC](#)]

Key Research Findings

Educational Competitors

N/A

Employment Postings:

On August 29th, there were 3 jobs listed locally in the JobBank (510 job opportunities in the province of Ontario). See below for the variety of postings....

Source: jobbank.gc.ca

Welder

Lindsay (ON)

Salary: Hourly: min. \$15 max. \$22

Job Number: 6604792

Terms of Employment: Permanent Full-Time

Source:  Job Bank

Anticipated Start Date: As soon as possible

Number of positions: 1

Employer: Cameron Steel Inc.

Web Site: <http://www.cameronsteel.com>

Job requirements

Education Completion of high school ; Completion of college/CEGEP/vocational or technical training

Credentials (certificates, licences, memberships, courses, etc.)

Canadian Welding Bureau Certification

Experience 2 years to less than 3 years

Languages Speak English ; Read English ; Write English

Major Work Area New fabrication

Type of Establishment/Work Setting Experience Manufacturing

.

Area of Specialization Custom fabrication

.

Welding Techniques Shielded metal arc welding (SMAW) ; Gas tungsten arc welding (GTAW) (TIG) ; Gas metal arc welding (GMAW) (MIG) ; Flux core arc welding (FCAW) ; Submerged arc welding (SAW)

.

Type of Machine Experience Arc welding machines

.

Welding Positions Flat ; Horizontal

.

Materials Stainless steel ; Steel, iron and heavy metals ; Aluminum alloys

.

Weight Handling Up to 9 kg (20 lbs)

.

Specific Skills

Interpret welding process specifications ; Operate manual or semi-automatic, fully automated welding equipment ; Operate manual or semi-automatic flame-cutting equipment ; Operate brakes, shears and

Key Research Findings

other metal shaping, straightening and bending machines ; Fit, braze and torch-straighten metal ; Operate oxygen arc cutting equipment (arc-air), (AOC) ; Spray welds ; Perform post welding heat treatment ; Operate hoisting and lifting equipment

Additional Skills

Read and interpret welding blueprints, drawings specifications, manuals and processes ; Examine welds and ensure that they meet standards and/or specifications

Security and Safety

Basic security clearance

Own Tools/Equipment

Tools ; Steel-toed safety boots ; Welding helmet

Work Conditions and Physical Capabilities

Fast-paced environment ; Repetitive tasks ; Handling heavy loads ; Manual dexterity ; Attention to detail ; Hand-eye co-ordination ; Sitting ; Standing for extended periods

Transportation/Travel Information

Valid driver's licence

Essential Skills

Reading text ; Numeracy ; Writing ; Working with others ; Problem solving ; Decision making ; Critical thinking ; Job task planning and organizing ; Significant use of memory ; Finding information ; Computer use ; Continuous learning

How to Apply

By e-mail:

admin@cameronsteel.com

By fax:

(705)-878-0560

By mail:

52 Walsh Road, Lindsay, K9V4R3

Welder

Peterborough (ON)

Salary: Hourly: min. \$14 max. \$18

Job Number: 6601556

Terms of Employment: Permanent Full-Time

Source:  Job Bank

Anticipated Start Date: As soon as possible

Number of positions: 10

Job Type  Placement Agency

Employer

Employer: The Staffing Connection

Web Site: <http://www.thestaffingconnection.ca>

Job requirements

Education Completion of high school ; Completion of college/CEGEP/vocational or technical training

Key Research Findings

Credentials (certificates, licences, memberships, courses, etc.) Not required

Experience 1 to less than 7 months

Languages Speak English ; Read English ; Write English

Major Work Area Maintenance/repair ; New fabrication

Type of Establishment/Work Setting Experience

Manufacturing ; Industrial

Area of Specialization Custom fabrication ; Machinery or equipment repair ; Factory assembly

Welding Techniques Gas metal arc welding (GMAW) (MIG) ; Flux core arc welding (FCAW)

Welding Positions All positions

Materials Steel, iron and heavy metals

Weight Handling Up to 45 kg (100 lbs)

Specific Skills

Interpret welding process specifications ; Operate manual or semi-automatic, fully automated welding equipment ; Operate brakes, shears and other metal shaping, straightening and bending machines ; Fit, braze and torch-straighten metal ; Operate drill presses ; Determine weldability of materials ; Select filler rods ; Operate hoisting and lifting equipment ; Maintain and perform minor repairs on welding, brazing and soldering equipment

Additional Skills

Instruct apprentices ; Read and interpret welding blueprints, drawings specifications, manuals and processes ; Examine welds and ensure that they meet standards and/or specifications

Security and Safety Bondable

Own Tools/Equipment

Tools ; Steel-toed safety boots ; Hard hat ; Safety glasses/goggles ; Gloves ; Face shield

Work Conditions and Physical Capabilities

Fast-paced environment ; Repetitive tasks ; Handling heavy loads ; Physically demanding ; Manual dexterity ; Attention to detail ; Hand-eye co-ordination ; Standing for extended periods

Work Site Environment At heights

Transportation/Travel Information Own transportation ; Public transportation is not available

Essential Skills

Key Research Findings

Reading text ; Document use ; Numeracy ; Oral communication ; Working with others ; Problem solving ; Decision making ; Critical thinking ; Job task planning and organizing ; Significant use of memory ; Finding information ; Continuous learning

.

How to Apply

By e-mail: ptboresumes@thestaffingconnection.ca

By fax: (705)-741-0713

Welder-fitter

Lindsay (ON)

Salary: Hourly: min. \$17 max. \$23

Job Number: 6588659

Terms of Employment: Permanent Full-Time

Source:  Job Bank

Anticipated Start Date: As soon as possible

Number of positions: 2

Employer

Employer: Provincial Steel Fabrication Inc.

Job requirements

Education Completion of high school

.

Credentials (certificates, licences, memberships, courses, etc.)

Canadian Welding Bureau Certification ; First Aid Certificate

.

Experience Experience an asset

.

Languages Speak English ; Write English

.

Major Work Area New fabrication

.

Type of Establishment/Work Setting Experience Manufacturing ; Commercial

.

Area of Specialization Custom fabrication

.

Type of Machine Experience Gas welding machines ; Arc welding machines

.

Welding Positions All positions

.

Materials Stainless steel ; Steel, iron and heavy metals

.

Weight Handling More than 45 kg (100 lbs)

.

Specific Skills

Interpret welding process specifications ; Operate oxygen arc cutting equipment (arc-air), (AOC) ;

Operate drill presses ; Prepare jigs or set-ups for welding

.

Additional Skills

Key Research Findings

Read and interpret welding blueprints, drawings specifications, manuals and processes ; Examine welds and ensure that they meet standards and/or specifications ; Layout patterns

.

Work Conditions and Physical Capabilities

Handling heavy loads ; Physically demanding ; Manual dexterity ; Attention to detail ; Hand-eye coordination ; Standing for extended periods

.

Transportation/Travel Information Own transportation ; Valid driver's licence

.

Essential Skills

Reading text ; Document use ; Numeracy ; Writing ; Oral communication ; Working with others ; Problem solving ; Decision making ; Critical thinking ; Job task planning and organizing ; Significant use of memory

.

How to Apply

By fax: (905)-438-0110