

Key Research Findings

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

Section	Description	Measures
Student Demand	<p>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)</p> <p>Trends in certificate, diploma, degree, apprenticeship and continuing education (where available).</p> <p>Click Below to Access Full Source Document: Fall Enrollment Trend</p>	<ul style="list-style-type: none"> ● 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	<p>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.</p>	<ul style="list-style-type: none"> ● 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	<p>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)</p> <p>Click Below to Access Full Source Document: Fall Conversion Report</p>	<ul style="list-style-type: none"> ● 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	<p>Includes a review of Contribution to Overhead (CTO) for existing programs (2010-11)</p> <p>Click Below to Access Full Source Document: Costing Analysis</p>	<ul style="list-style-type: none"> ● Strong = CTO is greater than 35% ● Moderate = CTO is between 30 - 34% ● Weak = CTO is between 20 – 30% <p>No Contribution = 19% or less</p>

Key Research Findings

Key Performance Indicators	<p>Includes KPI trends from the Key Performance Indicator Summary 5 Year Historical Overview KPI Data from Reporting Years 2008-2012.</p> <p>Click Below to Access Full Source Document: Key Performance Indicators</p>	<ul style="list-style-type: none"> ● 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	<p>Requires school level assessment regarding space, technology, capital equipment and human resources. Recommendations from recent Program Review Reports included here</p>	

Key Research Findings

Heating, Refrigeration and Air Conditioning (55502)

Student Demand¹

• **MODERATE**

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

- Currently, Mohawk is the only school offering this program and has experienced a mean growth rate of **14%** and an average registration of **50 students**

Diploma

- Fleming experienced a registration of **18 students** in 2011

Certificate

Program: 45502 - GAS AND OIL BURNER TECHNICIAN 2														
	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
FLEMING							4			4				4
MOHAWK	35	47	34	47	52	11	52	56	8	56	58	4	14	50
Total	35	47	34	47	52	11	52	60	15	60	58	-3		

Diploma

Program: 55502 - HEATING, REFRIGERATION AND AIRCONDITIONING 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
FLEMING										18				18
Total										18				

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

Labour Market

• **STRONG**

Employment Ontario²

Industrial Instrument Technicians and Mechanics (NOC –2243)

- Employment Ontario Rating (2009-2013):
 - **Good**
- Education and Training
 - “A person working in this trade must hold a valid Certificate of Qualification or be registered as an apprentice. Upon the successful completion of the apprenticeship program and passing a trade examination, a person working in this trade is entitled to a Certificate of Apprenticeship and a Certificate of Qualification. Inter-provincial (Red Seal) trade certification, which allows qualified refrigeration and air conditioning mechanics to work in other provinces and territories, is also available in Ontario.”
 - “Completion of a four-year apprenticeship program or a combination of over five years of work experience in the trade and some high school, college or industry courses in refrigeration and air conditioning repair is usually required to be eligible for trade certification. Mechanical aptitude and a good background in mathematics are important for this trade.”
 - “Entry to apprenticeship requires a job and usually 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 good over the period from 2009 to 2013. As the population expands and the supply of buildings grows, the demand for this occupational group will increase due to the installation of new, more efficient air conditioning and refrigeration systems. In a recent survey conducted by Ipsos Reid of over 1000 non-residential contractors, refrigeration and air conditioning mechanics were reported in short supply across the province.”
 - “The residential HVACR systems are typically replaced every 10 to 15 years which means that the large number of homes built in the last decade will enter this replacement timeframe. In addition, more jobs will be created as a result of the growing demand to retrofit old systems with more energy efficient, ecofriendly heating and cooling systems. Much of the work for these mechanics will also be in maintenance and repair which usually remains relatively stable even during economic slowdowns.”
 - “Recent federal tax incentives for residential renovations will continue to generate jobs in the short term for refrigeration and air conditioning mechanics. In the long term, as

² “7313 Refrigeration and Air Conditioning Mechanics.” *Employment Ontario*. N.p., n.d. Web. 4 Sept. 2012. <http://www.tcu.gov.on.ca/eng/labourmarket/ojf/pdf/7313_e.pdf>.

Key Research Findings

the construction sector and economy rebound, employment growth should continue at forecast levels.”

- “As in most other trades, there is an increasing need for computer literacy and the ability to operate computer-controlled equipment.”

HRSDC³

Refrigeration and Air Conditioning Mechanics (7313) is part of a larger group:

Machinery and Transportation Equipment Mechanics (Except Motor Vehicle) (NOC -731)

	Level	Share
Expansion Demand:	24,072	31%
Retirements:	44,734	58%
Other Replacement Demand:	4,756	6%
Emigration:	4,026	5%
Projected Job Openings:	77,588	100%
	Level	Share
School Leavers:	47,677	63%
Immigration:	5,968	8%
Other	22,042	29%
Projected Job Seekers:	75,688	100%

- “Based on projections and considering that labour supply and demand in this occupation were balanced, it is expected that the number of job seekers will remain sufficient to fill job openings over the 2011-2020 period. The majority of these job openings will arise from retirements. The retirement rate for this occupation will nevertheless be on par with the average, as the average age of workers and the age at which they retire will be comparable to the average ages for all the occupations. The number of job openings resulting from economic growth will be greater than for the 2001-2010 period. In terms of supply, the majority of job seekers over the projection period will come from the school system. It should also be noted that workers from other occupations will continue to represent a major source of labour supply in this occupation. The competitive wages in this occupation will attract skilled and experienced workers from other occupations.”

³“Technical Occupations In Electronics And Electrical Engineering (224).” *Canadian Occupational Projection System (COPS)*. N.p., n.d. Web. 4 Sept. 2012. <<http://www23.hrsdc.gc.ca/occupationsummarydetail.jsp?&tid=41>>.

Key Research Findings

US Bureau of Labour⁴

Heating, Air Conditioning, and Refrigeration Mechanics and Installers (SOC-49-9021)

- Employment Growth (2010/2020): **Increase 34%**
 - **267,800**(2010) to **358,100**(2020)
- “Employment of heating, air conditioning, and refrigeration mechanics and installers is expected to grow 34 percent from 2010 to 2020, much faster than the average for all occupations. Commercial and residential building construction will drive employment growth as the construction industry continues to recover from the 2007-09 recession. The growing number of sophisticated climate-control systems is also expected to increase demand for qualified HVACR technicians.”
- “Climate-control systems generally need replacement after 10 to 15 years. A large number of recently constructed homes and commercial buildings will need replacement climate-control systems by 2020, spurring demand for technicians.”
- “The growing emphasis on energy efficiency and pollution reduction will require more HVACR technicians as climate-control systems are retrofitted, upgraded, or replaced entirely. Regulations prohibiting the discharge and production of older types of refrigerant pollutants also will result in the need to modify or replace many existing air conditioning systems.”
- “Job opportunities for HVACR technicians are expected to be excellent, particularly for those who have completed training at an accredited technical school or through a formal apprenticeship. Candidates familiar with computers and electronics will have the best job opportunities as employers continue to have trouble finding qualified technicians to work on complex new systems.”
- “Technicians who specialize in installation work may experience periods of unemployment when the level of new construction activity declines. Maintenance and repair work, however, usually remains relatively stable. Businesses and homeowners depend on their climate-control or refrigeration systems and must keep them in good working order, regardless of economic conditions.”

⁴“Heating, Air Conditioning, and Refrigeration Mechanics and Installers.” *Occupational Outlook Handbook*. N.p., n.d. Web. 4 Sept. 2012. <<http://www.bls.gov/ooh/installation-maintenance-and-repair/heating-air-conditioning-and-refrigeration-mechanics-and-installers.htm#tab-6>>.

Key Research Findings

Sector Council Report

Refrigeration and air conditioning mechanics(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	153	213	112	114	111	110	109	110	112	113	115	117	118	120	121
Employment (construction, maintenance total)	# of Workers	2,565	2,733	2,694	3,026	3,018	3,036	3,079	3,141	3,194	3,244	3,289	3,336	3,384	3,428	3,470
Employment (construction, new)	# of Workers	5,220	5,096	4,853	4,872	5,147	5,319	5,572	5,791	5,966	6,135	6,274	6,416	6,519	6,654	6,774
Employment (Non-Residential)	# of Workers	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Employment (Residential)	# of Workers	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Employment (Total)	# of Workers	7,785	7,829	7,547	7,898	8,165	8,355	8,651	8,932	9,159	9,379	9,562	9,752	9,903	10,082	10,243
Excess Supply (Total)	# of Workers	369	513	770	659	787	782	774	793	806	793	777	753	745	728	772
Excess Supply Rate (Total)	%	4.5	6.2	9.3	7.7	8.8	8.6	8.2	8.2	8.1	7.8	7.5	7.2	7.0	6.7	7.0
Labour Force (Total)	# of Workers	8,154	8,342	8,317	8,557	8,952	9,137	9,425	9,725	9,965	10,171	10,340	10,505	10,648	10,810	11,015
Labour Force - Average Age	# of Workers	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39
Labour Force Change: Construction	# of Workers	585	188	-26	241	395	185	288	300	240	206	168	165	143	162	205
Labour Force Change: Mortality (Deaths)	# of Workers	-	18	19	19	20	21	21	22	23	23	23	24	24	24	24
Labour Force Change: Net In-Mobility	# of Workers	-	179	-35	239	398	188	296	314	259	228	194	193	176	197	243
Labour Force Change: New Entrants	# of Workers	-	194	201	195	198	208	210	211	214	217	219	220	221	223	225
Labour Force Change: Retirements (construction)	# of Workers	-	166	173	174	181	191	196	203	210	216	221	225	230	234	238
Labour Market Rankings	Rankings (?)	-	-	-	-	-	3	3	3	3	3	3	3	3	3	3
Peak Employment (Total)	# of	8,545	8,593	8,282	8,667	8,960	9,168	9,494	9,804	10,05	10,29	10,49	10,698	10,86	11,059	11,236

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

Key Research Findings

	Workers									2	1	1		3		
Peak Excess Supply (Total)	# of Workers	161	314	596	467	595	584	567	578	585	565	544	511	498	475	517
Peak Excess Supply Rate (Total)	%	2	4	7	5	6	6	6	6	6	5	5	5	4	4	4
Peak Labour Force (Total)	# of Workers	8,706	8,907	8,878	9,134	9,555	9,752	10,061	10,381	10,637	10,856	11,035	11,210	11,362	11,534	11,753

“Demand requirements related to non-residential construction and maintenance work rise steadily from current levels through 2020, but provincial labour market conditions are generally balanced, assuming worker mobility across regions meets demand requirements. Employment is concentrated in non-residential construction. The age profile for this group is younger than average. New entrants into the labour force are estimated to meet replacement demand requirements, but workers from outside the local market may be required across the scenario period to maintain balanced market conditions.”

Professional Associations

- [Ontario Refrigeration & Air-conditioning Contractors Association](#)
- [Ontario Construction Secretariat](#)
- [Heating, Refrigeration and Air Conditioning Institute of Canada](#)
- [Construction Sector Council](#)

Key Research Findings

Employment Profile⁶

In 2010-2011, **48.7%** of graduates were employed in a full time position which related to this program of study provincially

Mechanical

Total Graduates:	2,460	Total Graduates in Survey:	1,768	Response Rate:	72.0%
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⁶ 594 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 Mechanical

Programs	Duration	Total Grads	Total in Survey	Total in Labour Force	Colleges
Advanced Lasers	Post Diploma	3	3	3	Niagara
Building Systems Engineering Technician	2 Years	9	7	5	Seneca
Chemical Production And Power Engineering Technician	2 Years	8	8	5	Lambton
Chemical Production Engineering Technology	3 Years	54	37	36	Lambton
Electro-mechanical Engineering Technician	2 Years	108	80	65	Algonquin, Centennial, George Brown, Sheridan
Electro-mechanical Engineering Technology	3 Years	105	86	73	Centennial, Durham, Humber, Sheridan
Energy Audit Techniques	1 Year	5	4	3	Durham
Energy Systems Engineering Technician	2 Years	18	13	6	Centennial, St. Lawrence
Energy Systems Engineering Technology	3 Years	14	9	8	Cambrian, St. Lawrence
Gas And Oil Burner Technician 2	1 Year	77	43	39	Mohawk
Gas Technician	1 Year	2	1	1	Georgian
Gas Technician 2	1 Year	22	11	10	Durham
Heating, Air Conditioning And Refrigeration Techniques	1 Year	105	70	21	Cambrian, Durham
Heating, Air Conditioning And Refrigeration Technology	3 Years	58	39	33	George Brown, Humber
Heating, Refrigeration And Air Conditioning Techniques	1 Year	41	27	22	Mohawk
Heating, Refrigeration And Air Conditioning Technician	2 Years	326	238	192	Algonquin, Cambrian, Fanshawe, George Brown, Humber, La Cité, St. Clair
Integrated Advanced Manufacturing Technologies – Bachelor Of Applied Technology	4 Years	21	15	15	Conestoga
Manufacturing Engineering Technician	2 Years	140	106	84	Fanshawe, Loyalist, Mohawk, Sault
Manufacturing Engineering Technology	3 Years	57	44	43	Conestoga, Fanshawe, St. Clair
Manufacturing Management	Post Diploma	5	4	3	Sheridan

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

Mechanical

Programs in Mechanical (cont.)

Programs	Duration	Total Grads	Total in Survey	Total in Labour Force	Colleges
Mechanical Engineering Technician	2 Years	332	238	209	Boréal, Cambrian, Centennial, Confederation, Durham, Fanshawe, Humber, Mohawk, Niagara, Seneca, Sheridan, St. Clair
Mechanical Engineering Technology	3 Years	538	395	326	Algonquin, Centennial, Conestoga, Durham, Fanshawe, Georgian, Humber, La Cité, Mohawk, Niagara, Seneca, Sheridan, St. Clair
Mechanical Techniques	1 Year	379	271	169	Algonquin, Cambrian, Canadore, Conestoga, Confederation, Fanshawe, Georgian, Loyalt, Mohawk, Niagara, Northern, Sault, Seneca, Sheridan
Photonics – Bachelor Of Applied Technology	4 Years	9	7	5	Algonquin, Niagara
Photonics Engineering Technician	2 Years	3	1	1	Niagara
Photonics Engineering Technology	3 Years	21	11	10	Algonquin, Niagara

Summary of Survey Data

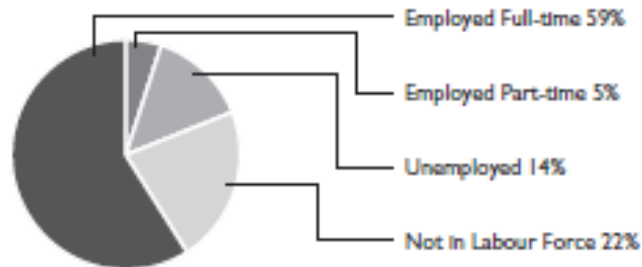
	Program Cluster	All Programs
Survey Population	1,768	50,622
Labour Force Participation	78%	74%
Employment Rate ^a	82%	83%
Employed Part-time ^a	6%	18%
Employed Full-time ^a	76%	65%
Average Annual Earnings – Total	\$37,370	\$33,199
Average Annual Earnings – Female	\$42,004	\$31,897
Average Annual Earnings – Male	\$37,189	\$34,607
Graduate Satisfaction	74%	79%
Employer Satisfaction	91%	93%

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

Key Research Findings

Mechanical

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



Top Five Industries of Employment

	#	%
Specialty Trade Contractors	199	18.0%
Transportation Equipment Manufacturing	102	9.2%
Machinery Manufacturing	89	8.1%
Professional, Scientific and Technical Services	81	7.3%
Fabricated Metal Product Manufacturing	52	4.7%

Top Five Occupational Categories

	#	%
Mechanical Engineering Technologists and Technicians	123	11.1%
Refrigeration and Air Conditioning Mechanics	43	3.9%
Mechanical Engineers	40	3.6%
Retail Salespersons and Sales Clerks	40	3.6%
Construction Millwrights and Industrial Mechanics (Except Textile)	37	3.3%

Key Research Findings

Mechanical

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	
	#	%	#	%	#	%	#	%	#	%	#	%
Building Systems Engineering Technician	3	42.9	—	—	—	—	—	—	2	28.6	2	28.6
Chemical Production And Power Engineering Technician	1	12.5	1	12.5	—	—	2	25.0	1	12.5	3	37.5
Chemical Production Engineering Technology	29	78.4	3	8.1	1	2.7	1	2.7	2	5.4	1	2.7
Electro-mechanical Engineering Technician	26	32.5	15	18.8	1	1.3	5	6.3	18	22.5	15	18.8
Electro-mechanical Engineering Technology	48	55.8	12	14.0	2	2.3	—	—	11	12.8	13	15.1
Energy Systems Engineering Technician	2	15.4	1	7.7	—	—	—	—	3	23.1	7	53.8
Energy Systems Engineering Technology	7	77.8	1	11.1	—	—	—	—	—	—	1	11.1
Gas And Oil Burner Technician 2	16	37.2	10	23.3	1	2.3	2	4.7	10	23.3	4	9.3
Gas Technician 2	6	54.5	1	9.1	—	—	—	—	3	27.3	1	9.1
Heating, Air Conditioning And Refrigeration Techniques	4	5.7	9	12.9	—	—	3	4.3	5	7.1	49	70.0
Heating, Air Conditioning And Refrigeration Technology	22	56.4	4	10.3	—	—	1	2.6	6	15.4	6	15.4
Heating, Refrigeration And Air Conditioning Techniques	10	37.0	7	25.9	—	—	3	11.1	2	7.4	5	18.5
Heating, Refrigeration And Air Conditioning Technician	116	48.7	39	16.4	4	1.7	12	5.0	21	8.8	46	19.3
Integrated Advanced Manufacturing Technologies – Bachelor Of Applied Technology	5	33.3	6	40.0	—	—	1	6.7	3	20.0	—	—
Manufacturing Engineering Technician	42	39.6	27	25.5	1	0.9	2	1.9	12	11.3	22	20.8
Manufacturing Engineering Technology	32	72.7	6	13.6	—	—	—	—	5	11.4	1	2.3
Mechanical Engineering Technician	90	37.8	66	27.7	1	0.4	13	5.5	39	16.4	29	12.2
Mechanical Engineering Technology	186	47.1	49	12.4	1	0.3	14	3.5	76	19.2	69	17.5
Mechanical Techniques	84	31.0	43	15.9	4	1.5	7	2.6	31	11.4	102	37.6
Photonics – Bachelor Of Applied Technology	4	57.1	1	14.3	—	—	—	—	—	—	2	28.6
Photonics Engineering Technology	8	72.7	2	18.2	—	—	—	—	—	—	1	9.1
All Programs in Cluster*	741	42.2	303	17.3	16	0.9	66	3.8	250	14.2	379	21.6

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

Key Research Findings

Mechanical

Earnings of Full-time Employed Participants

Program	Average – Females	Average – Males	Median – Females	Median – Males	Average for Program	Median for Program
Building Systems Engineering Technician	–	–	–	–	–	–
Chemical Production And Power Engineering Technician	–	–	–	–	–	–
Chemical Production Engineering Technology	–	\$69,685	–	\$70,000	\$68,249	\$68,984
Electro-mechanical Engineering Technician	–	\$33,027	–	\$31,286	\$33,585	\$31,286
Electro-mechanical Engineering Technology	\$39,868	\$37,772	\$35,457	\$37,543	\$37,966	\$37,543
Energy Systems Engineering Technician	–	–	–	–	–	–
Energy Systems Engineering Technology	–	\$37,647	–	\$39,420	\$37,632	\$37,543
Gas And Oil Burner Technician 2	–	\$33,883	–	\$26,280	\$33,268	\$26,176
Gas Technician 2	–	\$29,424	–	\$31,807	\$29,424	\$31,807
Heating, Air Conditioning And Refrigeration Techniques	–	\$32,575	–	\$24,000	\$32,575	\$24,000
Heating, Air Conditioning And Refrigeration Technology	–	\$36,590	–	\$35,000	\$36,171	\$34,500
Heating, Refrigeration And Air Conditioning Techniques	–	\$27,132	–	\$25,863	\$27,132	\$25,863
Heating, Refrigeration And Air Conditioning Technician	–	\$32,498	–	\$31,286	\$32,553	\$31,286
Integrated Advanced Manufacturing Technologies – Bachelor Of Applied Technology	–	\$44,078	–	\$42,000	\$44,078	\$42,000
Manufacturing Engineering Technician	–	\$37,564	–	\$37,543	\$37,486	\$37,022
Manufacturing Engineering Technology	–	\$44,027	–	\$43,000	\$44,095	\$44,000
Mechanical Engineering Technician	\$32,143	\$37,474	\$33,737	\$35,000	\$37,247	\$35,000
Mechanical Engineering Technology	\$49,597	\$37,882	\$43,018	\$37,250	\$38,230	\$37,543
Mechanical Techniques	–	\$35,282	–	\$32,850	\$35,467	\$32,459
Photonics – Bachelor Of Applied Technology	–	–	–	–	–	–
Photonics Engineering Technology	–	\$37,754	–	\$41,256	\$37,754	\$41,256
All Programs in Cluster*	\$42,004	\$37,110	\$39,554	\$35,000	\$37,302	\$35,000

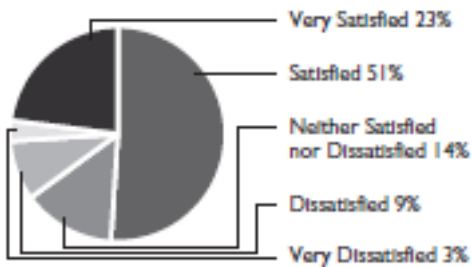
* Does not include 5 programs with fewer than 5 graduates in the labour force.

Key Research Findings

Mechanical

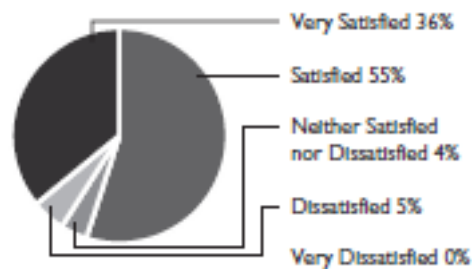
Program Cluster Satisfaction

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



* 1,656 graduates participated in this question.

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



* 282 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	85.8%	86.6%	87.3%	87.8%	89.1%	88.6%	89.2%	87.2%	80.0%	81.8%
Percentage Employed Full-time	81.1%	81.2%	83.0%	82.7%	85.7%	83.9%	85.2%	83.1%	72.1%	75.7%
Percentage Employed Full-time Related Jobs	66.8%	63.6%	59.7%	63.0%	66.9%	65.7%	68.2%	64.3%	49.4%	53.7%
Average Annual Salary Full-time Related Jobs	\$34,827	\$34,685	\$35,589	\$35,196	\$35,726	\$36,842	\$37,071	\$38,871	\$37,290	\$39,250

Key Research Findings

Working in Canada⁷

- Industrial Instrument Technicians and Mechanics (NOC 2243)
- **Employment Rating:**
 - N/A
- **Wage Range by Region:**

Location	Wage (\$/hr)		
	Low	Median	High
Ontario	21.15	27.00	46.00
Hamilton--Niagara Peninsula Region	21.15	27.00	46.00
Kingston - Pembroke Region	N/A	N/A	N/A
Kitchener--Waterloo--Barrie Region	21.15	27.00	46.00
London Region	N/A	N/A	N/A
Muskoka-Kawarthas Region	N/A	N/A	N/A
Northeast Region	N/A	N/A	N/A
Northwest Region	21.15	27.00	46.00
Ottawa Region	21.15	27.00	46.00
Stratford--Bruce Peninsula Region	N/A	N/A	N/A
Toronto Region	21.15	27.00	46.00
Windsor-Sarnia Region	12.01	32.94	50.62

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

- Mohawk's conversion ratio has been steadily improving throughout the last five years, reaching the highest it has ever been in 2011 (**2:1**)

Diploma

- Fleming had a **6:1** ratio in 2011

⁷"Industrial Instrument Technicians and Mechanics (NOC 2243)." *Working In Canada*. N.p., n.d. Web. 4 Sept. 2012. <<http://www.workingincanada.gc.ca/report-eng.do?area=8792&lang=eng&noc=2243&action=final&ln=p@ionKeyword=Peterborough%2C+Ontario&s=2&source=2&titleKeyword=7313#outlook>>.

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

Certificate

Program: 45502 - GAS AND OIL BURNER TECHNICIAN 2															
	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		
FLEMING	0			0			0			12 4 3:1			4		
MOHAWK	147 35 4:1			159 47 3:1			197 52 4:1			151 56 3:1			129 58 2:1		
Total	147 35 4:1			159 47 3:1			197 52 4:1			163 60 3:1			133 58 2:1		

Diploma

Program: 55502 - HEATING, REFRIGERATION AND AIRCONDITIONING 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		
FLEMING	0			0			0			0			110 18 6:1		
Total	0			0			0			0			110 18 6:1		

Financial Analysis

NO CONTRIBUTION

Source: Program Costing Analysis 2010/2011

- Contribution to Overhead: –
- Program Weight: 1.30
- Funding Unit: 2.40

Key Performance Indicators

• WEAK

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

KPI1-Graduation Rate	-
KPI2-Working	-
KPI3-Working Related	-
KPI4-Grad. Satisfaction	-
KPI8-Student Satisfaction-Learning	+2% above system
KPI9-Student Satisfaction- Teachers	-4% below system
KPI11-Grad. Satisfaction-Program	-

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: 7313 Refrigeration and Air Conditioning Mechanics

<http://www30.hrsdc.gc.ca/NOC/english/NOC/2006/Profile.aspx?val=7&val1=7313>

Refrigeration and air conditioning mechanics perform some or all of the following duties:

- Read and interpret blueprints, drawings or other specifications
- Measure and lay out reference points for installation
- Assemble and install refrigeration or air conditioning components such as motors, controls, gauges, valves, circulating pumps, condensers, humidifiers, evaporators and compressors using hand and power tools
- Measure and cut piping, and connect piping using welding and brazing equipment
- Install, troubleshoot and overhaul entire heating, ventilation, air handling, refrigeration and air conditioning systems
- Start up system and test for leaks using testing devices
- Recharge system with refrigerant, check and test regulators, calibrate system and perform routine maintenance or servicing
- Repair and replace parts and components for entire refrigeration, air conditioning, ventilation or heat pump systems
- May install, maintain and repair equipment in refrigerated trucks used to transport food or medical supplies
- May prepare work estimates for clients.

Common Job Titles

- central air conditioning mechanic
- commercial air conditioning mechanic
- heating and cooling mechanic
- heating, ventilation and air conditioning (HVAC) mechanic
- refrigeration and air conditioning mechanic apprentice
- refrigeration mechanic
- transport refrigeration mechanic

Typical Employers

- electrical utilities
- communications companies
- manufacturers of electrical and electronic equipment
- consulting firms
- governments
- wide range of manufacturing, processing and transportation industries

Key Research Findings

Labour Market

Working in Canada

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

<http://www.workingincanada.gc.ca/report-eng.do?area=8792&lang=eng&noc=7313&action=final&ln=p®ionKeyword=Peterborough%2C+Ontario&s=2&source=2&titleKeyword=refrigeration+and+air+conditioning+mechanic+apprentice#outlook>

HRDSC

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

This occupation (**HRAC**) is part of a larger occupational group called **Machinery And Transportation Equipment Mechanics (Except MotorVehicle) (731)**

Occupations in this group	Construction Millwrights and Industrial Mechanics (except Textile) (7311) Heavy-Duty Equipment Mechanics (7312) Refrigeration and Air Conditioning Mechanics (7313) Railway Carmen/women (7314) Aircraft Mechanics and Aircraft Inspectors (7315) Machine Fitters (7316) Textile Machinery Mechanics and Repairers (7317) Elevator Constructors and Mechanics (7318)
Employment (non-student) in 2010	177,513
Median Age of workers in 2010	41.5
Average Retirement Age in 2010	60

3. Based on projections and considering that labour supply and demand in this occupation were balanced over the 2008-2010 period, it is expected that the number of job seekers in this occupation will remain sufficient to fill the job openings over the 2011-2020 period. Job openings are expected to total **77,588**. It is expected that **75,688** job seekers will be available to fill these job openings. The majority of job seekers will come from the school system (63%) with 8% from immigration and 29% from other occupations.
4. The majority of job openings will arise from retirements, with a number of job openings resulting from economic growth which will be greater than for the 2001-2010 periods.
5. According to Employment Ontario (Estimates 2006), 92% of workers in this group were employed Full-Time with 7% Part-Time; 19% were self-employed
http://www.tcu.gov.on.ca/eng/labourmarket/ojf/pdf/7313_e.pdf
6. Local wage for Peterborough/Kawartha Region:
 - Low: \$13.00 Median: \$24.00 High: \$ 36.06

US Bureau of Labour

<http://www.bls.gov/ooh/installation-maintenance-and-repair/heating-air-conditioning-and-refrigeration-mechanics-and-installers.htm#tab-6>

Employment of heating, air conditioning, and refrigeration mechanics and installers is expected to grow 34 percent from 2010 to 2020, much faster than the average for all occupations. Commercial and

Key Research Findings

residential building construction will drive employment growth as the construction industry continues to recover from the 2007-09 recession. The growing number of sophisticated climate-control systems is also expected to increase demand for qualified HVACR technicians.

Climate-control systems generally need replacement after 10 to 15 years. A large number of recently constructed homes and commercial buildings will need replacement climate-control systems by 2020, spurring demand for technicians.

The growing emphasis on energy efficiency and pollution reduction will require more HVACR technicians as climate-control systems are retrofitted, upgraded, or replaced entirely. Regulations prohibiting the discharge and production of older types of refrigerant pollutants also will result in the need to modify or replace many existing air conditioning systems.

Job Prospects

Job opportunities for HVACR technicians are expected to be excellent, particularly for those who have completed training at an accredited technical school or through a formal apprenticeship. Candidates familiar with computers and electronics will have the best job opportunities as employers continue to have trouble finding qualified technicians to work on complex new systems.

Technicians who specialize in installation work may experience periods of unemployment when the level of new construction activity declines. Maintenance and repair work, however, usually remains relatively stable. Businesses and homeowners depend on their climate-control or refrigeration systems and must keep them in good working order, regardless of economic conditions.

Industry Standards:

The occupation (Welder) is **regulated** in the province of Ontario as well as the majority of provinces except Newfoundland and Labrador, North West Territories, Nunavut and Prince Edward Island.

Regulatory body in Ontario is [Ministry of Training Colleges and Universities](#)

Professional Associations:

Construction Sector Council
Heating, Refrigeration and Air Conditioning Institute of Canada
Ontario Construction Secretariat
Ontario Pipe Trades Council
Ontario Refrigeration & Air-conditioning Contractors Association
United Association of Journeymen and Apprentices of the Plumbing and Pipe Fitting, Local 787 (ON)

Employment Requirements

Employment requirements are prerequisites generally needed to enter an occupation.

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

A combination of over five years of work experience in the trade and some high school, college or industry courses in refrigeration and air conditioning repair is usually required to be eligible for trade certification.

- Trade certification for refrigeration and air conditioning mechanics is compulsory in Nova Scotia, New Brunswick, Quebec, Ontario, Manitoba, Saskatchewan, Alberta and British Columbia and available, but voluntary, in all other provinces and the territories.

Key Research Findings

- Trade certification for transport refrigeration mechanics is available, but voluntary, in New Brunswick, Alberta and British Columbia.
- Interprovincial trade certification (Red Seal) is also available to qualified refrigeration and air conditioning mechanics.

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

Educational Competitors

N/A

Employment Postings:

On August 31th, 2012 there was 0 jobs listed locally in the JobBank (64 job opportunities in the province of Ontario with most in the Toronto Region). See below for the variety of postings....

Source: jobbank.gc.ca

Refrigeration technician

Toronto (ON)

Salary:

Hourly: min. \$12 max. \$15

Job Number:


6575555

Terms of Employment:

Permanent

Full-Time

Source:

 Job Bank

Anticipated Start Date:

As soon as possible

Number of positions:

1

Employer

Employer:

T&T Supermarket Inc.

Web Site:

<http://www.tnt-supermarket.com>

Job requirements

Education

Some high school

.

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

Refrigeration and Air Conditioning Mechanic Trade Certification

.

Experience

2 years to less than 3 years

.

Languages

Speak English ; Read English ; Write English

.

Major Work Area

Key Research Findings

Maintenance ; Repair

.

Refrigeration Specialization

Supermarket ; Food processing industry

.

Specific Skills

Assemble and install refrigeration or air conditioning components ; Perform routine maintenance and servicing ; Interpret gas codes ; Install, troubleshoot, repair and overhaul entire heating, ventilation, air handling, refrigeration and air conditioning systems

.

Transportation/Travel Information

Valid driver's licence

.

Other Languages

Cantonese ; Mandarin

.

Essential Skills

Reading text ; Document use ; Numeracy ; Oral communication ; Working with others ; Finding information ; Computer use

.

How to Apply

By e-mail:

recruitment_ero@tntsupermarket.com

By fax:

(416)-644-8220

HVAC (heating, ventilation and air conditioning) mechanic

Toronto (ON)

Salary:

Hourly: min. \$35 max. \$45

Job Number:


6517700

Terms of Employment:

Permanent

Full-Time

Source:

 Job Bank

Anticipated Start Date:

As soon as possible

Number of positions:

2

Job Type

 Placement Agency

Employer

Employer:

GTA Skilled Trades

Web Site:

Key Research Findings

<http://www.gtaskilledtrades.ca/jobs.php>

Job requirements

Education

Completion of college/CEGEP/vocational or technical training

.

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

Refrigeration and Air Conditioning Mechanic Trade Certification ; Refrigeration and Air Conditioning Mechanic Red Seal Certificate ; Ozone Depletion Prevention (ODP) Certificate ; Gas Fitter Certificate - Level 1 or A ; Gas Fitter Certificate - Level 2 or B

.

Experience

5 years or more

.

Languages

Speak English ; Read English ; Write English

.

Major Work Area

Installation ; Maintenance ; Service ; Repair ; Institutional ; Commercial ; Industrial

.

Specific Skills

Assemble and install refrigeration or air conditioning components ; Commission systems and test for leaks using testing devices ; Perform routine maintenance and servicing ; Install, troubleshoot, repair and overhaul entire heating, ventilation, air handling, refrigeration and air conditioning systems ; Install, calibrate and repair control systems

.

Security and Safety

Bondable

.

Transportation/Travel Information

Valid driver's licence ; Vehicle supplied by employer

.

Work Location Information

On-site customer service

.

Essential Skills

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

.

How to Apply

By e-mail:

hvac@gtaskilledtrades.ca

By fax:

(416)-626-5135

Online:

<http://www.gtaskilledtrades.ca/jobs.php>

In person: from 9:00 to 17:00:

310 North Queen St., next200, Toronto, M9C5K4