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

Electrical Techniques/Electrical Engineering Technician (45613/55613)

Student Demand[1]	• STRONG / • 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

- Ten colleges offer this program, including one of Fleming's main competitors
- Fleming has a **6%** mean growth rate, higher than the system rate of **3.9%**
- Sheridan, the key competitor, has a high mean growth rate of **13%**
- Overall, St. Clair has the highest mean growth rate **(29%)** and Loyalist has the lowest rate **(-25%)**
- Sheridan has the highest average registration with **134 students** and Loyalist the lowest with **19 students**

Diploma

- Sixteen colleges offer this program, including two of Fleming's main competitors
- Fleming has a **-14%** mean growth rate, much lower than the system rate of **26.5%**
- Out of the key competitors, Georgian has a highest mean growth rate of **24%** and Durham has the lowest **(8%)**
- Overall, Conestoga has the highest mean growth rate **(179%)** and Fleming has the lowest rate
- Out of the key competitors, Georgian has the highest average registration with **76 students** and Durham the lowest with **63 students**
- Overall, Algonquin has the highest average registration with **173 students** and Cambrian the lowest with **3 students**

Advanced Diploma

- Eleven colleges offer this program, including one of Fleming's main competitors
- Overall, Cambrian has the highest mean growth rate **(17%)** and Conestoga has the lowest mean growth rate **(-3%)**
- Mohawk has the highest average registration with **131 students** and Cambrian and Sault have the lowest with **1 student**

[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: 45613 - ELECTRICAL 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
CAMBRIAN	95	94	-1	94	95	1	95	120	26	120	115	-4	6	104
CANADORE	43	46	7	46	45	-2	45	47	4	47	41	-13	-1	44
COLLÈGE BORÉAL	34	44	29	44	50	14	50	57	14	57	53	-7	13	48
FANSHAWE	91	108	19	108	114	6	114	145	27	145	150	3	14	122
→ FLEMING	58	124	114	124	91	-27	91	55	-40	55	42	-24	6	74
LA CITÉ COLLÉGIAL	42	23	-45	23	24	4	24	37	54	37	18	-51	-10	29
LAMBTON					27		27	34	26	34	21	-38	-6	27
LOYALIST	23				23		23	18	-22	18	13	-28	-25	19
SHERIDAN	94	143	52	143	140	-2	140	152	9	152	139	-9	13	134
ST. CLAIR		55		55	62	13	62	96	55	96	116	21	29	82
Total	***480***	***637***	***33***	***637***	***671***	***5***	***671***	***761***	***13***	***761***	***708***	***-7***		

Diploma

Program: 55613 - ELECTRICAL 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
ALGONQUIN	183	163	-11	163	184	13	184	178	-3	178	158	-11	-3	173
CAMBRIAN	2	1	-50	1	1	0	1	6	500	6	3	-50	100	3
COLLÈGE BORÉAL														
CONESTOGA	10	77	670	77	126	64	126	111	-12	111	103	-7	179	85
DURHAM	57	63	11	63	58	-8	58	60	3	60	75	25	8	63
FANSHAWE	89	131	47	131	96	-27	96	114	19	114	84	-26	3	103
→ FLEMING					88		88	80	-9	80	65	-19	-14	78
GEORGIAN					57		57	86	51	86	84	-2	24	76
LA CITÉ COLLÉGIAL		23		23	33	43	33	29	-12	29	58	100	44	36
LOYALIST	48				61		61	46	-25	46	45	-2	-13	50
MOHAWK	106	128	21	128	148	16	148	149	1	149	137	-8	7	134
NIAGARA					34		34	47	38	47	36	-23	7	39
NORTHERN	35	57	63	57	70	23	70	65	-7	65	38	-42	9	53
SAULT	55	70	27	70	89	27	89	66	-26	66	61	-8	5	68
ST. CLAIR											15			15
ST. LAWRENCE	37	63	70	63	61	-3	61	49	-20	49	58	18	16	54
Total	***622***	***776***	***25***	***776***	***1106***	***43***	***1106***	***1086***	***-2***	***1086***	***1020***	***-6***		

Key Research Findings

Advanced Diploma

Program: 65613 - ELECTRICAL 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
ALGONQUIN														
CAMBRIAN		1		1	1	0	1	2	100	2	1	-50	17	1
CONESTOGA	45	58	29	58	67	16	67	55	-18	55	33	-40	-3	52
CONFEDERATION	24	20	-17	20	31	55	31	27	-13	27	31	15	10	27
FANSHAWE	53	60	13	60	62	3	62	83	34	83	59	-29	5	63
GEORGIAN	85	137	61	137	122	-11	122	91	-25	91	93	2	7	106
HUMBER	68	72	6	72	90	25	90	89	-1	89	91	2	8	82
MOHAWK	121	135	12	135	138	2	138	130	-6	130	133	2	3	131
NIAGARA					36		36	44	22	44	46	5	13	42
NORTHERN														
SAULT								1		1				1
Total	***396***	***483***	***22***	***483***	***547***	***13***	***547***	***522***	***-5***	***522***	***487***	***-7***		

Labour Market

- **MODERATE**

Employment Ontario[2]

Electrical and Electronics Engineering Technologists and Technicians (NOC –2241)

- Employment Ontario Rating (2009-2013):
  - **Limited**
- Education and Training
  - "Completion of a three-year or equivalent program for electrical and electronics engineering technologists or a two-year or an equivalent program for electrical and electronics engineering technicians is usually required. Several related educational backgrounds, such as in computer engineering or telecommunication technology, can provide entrance to an occupation within this classification. Certification in electrical and electronics engineering technology or in a related field is available through provincial associations of engineering and applied science. In Ontario, the Ontario Association of Certified Engineering Technicians and Technologists (OACETT) certifies electrical and electronics engineering technologists and technicians. The certification process includes a period of supervised work experience, usually up to two years, and a professional practice examination."
- Demand
  - "Opportunities for employment in this occupation are expected to be limited over the period from 2009 to 2013. Continued expansion of electrical and electronic products and systems into all areas of industry and manufacturing processes will continue to generate employment opportunities. Manufacturing, business services and utilities account for most of the employment for this occupational group. However, in an economic downturn, employment in manufacturing and business services decline and demand for these professionals falls."

[2]""Electrical and Electronics Engineering Technologists and Technicians." *Employment Ontario*. N.p., n.d. Web. 4 Sept. 2012. <http://www.tcu.gov.on.ca/eng/labourmarket/ojf/pdf/2241_e.pdf>.

Key Research Findings

- "In the long term as companies begin to modernize and update manufacturing facilities processes and product designs in order to become more competitive globally, employment opportunities may increase as these initiatives often depend upon the services of electrical and electronics engineering technicians and technologists."

- "Innovations and rapid change in microcomputers and telecommunications applications means that people working in this occupational group will need continuous upgrading and professional development to keep up with the changes."

HRSDC[3]

Electrical and Electronics Engineering Technologists and Technicians (NOC –2241)

	Level	**Share**
Expansion Demand:	16,476	35%
Retirements:	24,882	53%
Other Replacement Demand:	2,992	6%
Emigration:	2,482	5%
Projected Job Openings:	46,832	100%
	Level	**Share**
School Leavers:	34,401	72%
Immigration:	8,896	19%
Other	4,175	9%
Projected Job Seekers:	47,472	100%

- "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. The majority of job openings will arise from retirements, but expansion demand will also create a significant number of job openings. The increase in job openings will be average, which is a clear improvement over the job losses experienced over the 2001-2010 period. In fact, industries related to communications and information technologies (including electronics) will pick up again in the coming years. The return to growth in this sector comes after troubled years that followed after the tech bubble burst. With regard to labour supply, the majority of job seekers will come from the school system. The nature of the occupation is also such that many immigrants will find employment in it over the projection period."

[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 Labour[4]

Electrical and Electronic Engineering Technicians (SOC –17-3023)

- Employment Growth (2010/2020): **Increase 2%**
  - **151,100**(2010) to **154,000**(2020)

- "Some of these technicians work in traditional manufacturing industries, many of which are growing slowly or declining. However, employment growth for electrical and electronic engineering technicians will likely occur in engineering services firms as companies seek to contract out these services as a way to lower costs. They also work closely with electrical and electronics and computer hardware engineers in the computer systems design services industry. Demand is expected to be high for technicians in this industry as computer and electronics systems become more integrated. For example, computer, cellular phone, and global positioning systems (GPS) technologies are being included in automobiles and various portable and household electronics systems."

Professional Associations:

Canadian Electrical Contractors Association
Association of Canadian Engineering Companies
Ontario Association of Certified Engineering Technicians and Technologists
Ontario Electrical League

[4]"Electrical and Electronic Engineering Technicians." *Occupational Outlook Handbook*. N.p., n.d. Web. 4 Sept. 2012. <http://www.bls.gov/ooh/architecture-and-engineering/electrical-and-electronic-engineering-technicians.htm#tab-6>.

Key Research Findings

Sector Councils and Reports

Electricians, including industrial and power systems (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	235	330	168	171	166	163	162	164	166	169	172	174	176	178	180
Employment (construction, maintenance total)	# of Workers	5,672	6,005	5,984	6,710	6,691	6,733	6,830	6,965	7,081	7,192	7,291	7,395	7,502	7,599	7,691
Employment (construction, new)	# of Workers	16,213	16,212	15,760	15,194	16,512	17,063	18,728	19,777	20,144	20,621	21,087	21,889	22,801	22,843	22,174
Employment (Non-Residential)	# of Workers	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Employment (Residential)	# of Workers	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Employment (Total)	# of Workers	21,885	22,217	21,744	21,904	23,203	23,796	25,558	26,743	27,225	27,813	28,378	29,285	30,303	30,442	29,866
Excess Supply (Total)	# of Workers	1,595	1,877	2,546	2,380	2,335	2,432	2,128	2,337	2,671	2,682	2,613	2,444	2,339	2,635	3,035
Excess Supply Rate (Total)	%	6.8	7.8	10.5	9.8	9.1	9.3	7.7	8.0	8.9	8.8	8.4	7.7	7.2	8.0	9.2
Labour Force (Total)	# of Workers	23,480	24,094	24,290	24,284	25,539	26,228	27,686	29,080	29,896	30,495	30,991	31,729	32,643	33,077	32,900
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	760	614	196	-6	1,255	689	1,458	1,394	817	598	496	738	914	434	-177
Labour Force Change: Mortality (Deaths)	# of Workers	-	60	63	65	65	68	69	73	75	76	75	75	76	77	77
Labour Force Change: Net In-Mobility	# of Workers	-	573	168	-18	1,239	673	1,439	1,385	804	584	485	730	911	435	-174
Labour Force Change: New Entrants	# of Workers	-	559	568	559	561	586	598	613	638	649	651	655	662	677	684
Labour Force Change: Retirements (construction)	# of Workers	-	457	477	482	480	502	509	531	551	558	565	571	584	601	610
Labour Market Rankings	Rankings (?)	-	-	-	-	-	3	4	4	3	3	3	3	3	3	3
Peak Employment (Total)	# of Workers	24,008	24,373	23,853	24,027	25,467	26,116	28,072	29,380	29,895	30,518	31,115	32,099	33,211	33,364	32,736
Peak Excess Supply (Total)	# of Workers	1,284	1,581	2,311	2,127	2,047	2,143	1,772	1,977	2,338	2,343	2,258	2,054	1,918	2,230	2,669
Peak Excess Supply Rate (Total)	%	5	6	9	8	7	8	6	6	7	7	7	6	5	6	8
Peak Labour Force (Total)	# of Workers	25,292	25,954	26,164	26,154	27,514	28,259	29,844	31,357	32,232	32,860	33,373	34,153	35,128	35,593	35,405

"Demand requirements related to non-residential buildings and engineering construction rise steadily from current levels, but labour market conditions are generally balanced, assuming worker and skills mobility across regions meets demand requirements for the large industrial and engineering projects in Northern Ontario and the Greater Toronto Area. Employment is concentrated in non-residential construction. The age profile for this trade 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."

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

Key Research Findings

Employment Profile[6]

In 2010-2011, **17.1%** of graduates in the Electrical Techniques program and **33.5%** of the Electrical Engineering Technician program were employed in a full time position which related to this program of study provincially

Electronics

Total Graduates:	3,237	Total Graduates in Survey:	2,379	Response Rate:	73.6%

☛ 596 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 Electronics

Programs	Duration	Total Grads	Total in Survey	Total in Labour Force	Colleges
Computer Engineering Technician	2 Years	51	40	30	Boréal, Centennial, Niagara, Northern, Sault, Sheridan, Sir Sandford Fleming
Computer Engineering Technology	3 Years	128	104	88	Algonquin, Boréal, Centennial, Conestoga, Humber, La Cité, Mohawk, Niagara, Sault, Seneca, Sheridan, Sir Sandford Fleming
Computer Foundations	1 Year	3	2	2	Sault
Computer Repair And Maintenance	1 Year	23	18	12	Centennial
Computer Systems Technician	2 Years	391	276	228	Algonquin, Canadore, Centennial, Durham, Fanshawe, George Brown, Georgian, La Cité, Mohawk, Sheridan, St. Clair
Computer Systems Technology	3 Years	337	262	230	Algonquin, Cambrian, Canadore, Centennial, Durham, Fanshawe, George Brown, La Cité, Mohawk, Seneca, Sheridan, St. Clair
Electrical Engineering Technician	2 Years	588	430	296	Algonquin, Boréal, Cambrian, Conestoga, Durham, Fanshawe, Humber, La Cité, Loyalist, Mohawk, Niagara, Northern, Sault, Sir Sandford Fleming, St. Lawrence
Electrical Engineering Technology	3 Years	319	220	188	Algonquin, Boréal, Cambrian, Conestoga, Fanshawe, Georgian, Humber, Mohawk, Niagara, Northern, Sault
Electrical Techniques	1 Year	544	398	222	Boréal, Cambrian, Canadore, Fanshawe, La Cité, Lambton, Loyalist, Sheridan, Sir Sandford Fleming, St. Clair
Electronics Engineering Technician	2 Years	278	203	165	Algonquin, Centennial, Conestoga, Confederation, Durham, Fanshawe, Humber, La Cité, Mohawk, Niagara, Seneca, Sheridan
Electronics Engineering Technology	3 Years	157	114	93	Algonquin, Boréal, Centennial, Conestoga, Durham, Fanshawe, Humber, La Cité, Mohawk, Niagara, Seneca, Sheridan, St. Clair
Electronics Engineering Technology – Communications	3 Years	12	10	9	Humber
Enterprise Database Management	Post Diploma	34	29	29	Seneca, Sheridan
Entertainment Technology	3 Years	9	8	8	St. Clair
Game Programming	3 Years	10	10	9	Humber
Informatics And Security – Bachelor Of Applied Technology	4 Years	9	7	7	Seneca

228 Employment Profile: 2009–2010 Graduates

[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

Programs in Electronics (cont.)

Programs	Duration	Total Grads	Total in Survey	Total in Labour Force	Colleges
Information Systems Security – Bachelor Of Applied Information Sciences	4 Years	9	6	6	Sheridan
Integrated Telecommunication And Computer Technologies – Bachelor Of Applied Technology	4 Years	9	7	7	Conestoga
Local Area Network Design And Administration	Post Diploma	5	3	3	Seneca
Powerline Technician	2 Years	43	30	29	Cambrian
Process Automation – Bachelor Of Applied Technology	4 Years	1	1	1	Mohawk
Software Engineering Technician	2 Years	17	14	12	Centennial, Conestoga
Software Engineering Technology	3 Years	21	16	15	Centennial, Conestoga
Software Systems – Design, Development And Management – Bachelor Of Applied Information Sciences	4 Years	7	7	7	Centennial
Telecommunications Technology	3 Years	19	16	16	Sheridan
Wireless Telecommunications	Post Diploma	205	144	121	George Brown, Humber, Seneca
Wireless/Mobility Telecommunications Engineering Technician	2 Years	8	4	–	Algonquin

Summary of Survey Data

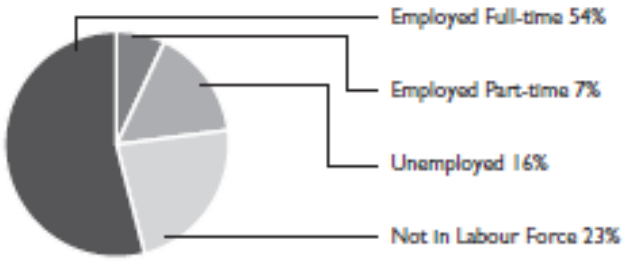
	Program Cluster	All Programs
Survey Population	2,379	50,622
Labour Force Participation	77%	74%
Employment Rate[a]	**80%**	**83%**
Employed Part-time[a]	9%	18%
Employed Full-time[a]	70%	65%
Average Annual Earnings – Total	**$36,651**	**$33,199**
Average Annual Earnings – Female	$35,543	$31,897
Average Annual Earnings – Male	$36,733	$34,607
Graduate Satisfaction	73%	79%
Employer Satisfaction	94%	93%

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

Key Research Findings

Electronics

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



Top Five Industries of Employment

	#	%
Professional, Scientific and Technical Services	164	11.6%
Specialty Trade Contractors	136	9.7%
Computer and Electronic Product Manufacturing	92	6.5%
Utilities	74	5.3%
Telecommunications	64	4.5%

Top Five Occupational Categories

	#	%
User Support Technicians	104	7.3%
Electrical and Electronics Engineering Technologists and Technicians	94	6.6%
Computer Network Technicians	72	5.1%
Electronic Service Technicians (Household and Business Equipment)	71	5.0%
Retail Salespersons and Sales Clerks	71	5.0%

Key Research Findings

Electronics

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	
	#	%	#	%	#	%	#	%	#	%	#	%
Computer Engineering Technician	12	30.0	6	15.0	2	5.0	2	5.0	8	20.0	10	25.0
Computer Engineering Technology	55	52.9	10	9.6	1	1.0	4	3.8	18	17.3	16	15.4
Computer Repair And Maintenance	2	11.1	3	16.7	2	11.1	1	5.6	4	22.2	6	33.3
Computer Systems Technician	107	38.8	45	16.3	7	2.5	14	5.1	55	19.9	48	17.4
Computer Systems Technology	129	49.2	28	10.7	10	3.8	17	6.5	46	17.6	32	12.2
Electrical Engineering Technician	117	27.2	100	23.3	3	0.7	23	5.3	53	12.3	134	31.2
Electrical Engineering Technology	106	48.2	34	15.5	3	1.4	7	3.2	38	17.3	32	14.5
Electrical Techniques	68	17.1	85	21.4	2	0.5	24	6.0	43	10.8	176	44.2
Electronics Engineering Technician	68	33.5	49	24.1	2	1.0	8	3.9	38	18.7	38	18.7
Electronics Engineering Technology	63	55.3	12	10.5	2	1.8	5	4.4	11	9.6	21	18.4
Electronics Engineering Technology – Communications	3	30.0	1	10.0	–	–	1	10.0	4	40.0	1	10.0
Enterprise Database Management	18	62.1	3	10.3	1	3.4	1	3.4	6	20.7	–	–
Entertainment Technology	–	–	2	25.0	2	25.0	2	25.0	2	25.0	–	–
Game Programming	3	30.0	2	20.0	–	–	2	20.0	2	20.0	1	10.0
Informatics And Security – Bachelor Of Applied Technology	2	28.6	3	42.9	–	–	1	14.3	1	14.3	–	–
Information Systems Security – Bachelor Of Applied Information Sciences	3	50.0	2	33.3	–	–	–	–	1	16.7	–	–
Integrated Telecommunication And Computer Technologies – Bachelor Of Applied Technology	5	71.4	1	14.3	–	–	–	–	1	14.3	–	–
Powerline Technician	22	73.3	2	6.7	–	–	1	3.3	4	13.3	1	3.3
Software Engineering Technician	8	57.1	–	–	–	–	2	14.3	2	14.3	2	14.3
Software Engineering Technology	10	62.5	–	–	–	–	3	18.8	2	12.5	1	6.3
Software Systems – Design, Development And Management – Bachelor Of Applied Information Sciences	3	42.9	–	–	1	14.3	–	–	3	42.9	–	–
Telecommunications Technology	12	75.0	1	6.3	–	–	–	–	3	18.8	–	–
Wireless Telecommunications	42	29.2	35	24.3	6	4.2	8	5.6	30	20.8	23	16.0
All Programs in Cluster*	**858**	**36.2**	**424**	**17.9**	**44**	**1.9**	**126**	**5.3**	**375**	**15.8**	**542**	**22.9**

* Does not include 4 programs with fewer than 5 graduates in the labour force.

Key Research Findings

Electronics

Earnings of Full-time Employed Participants

Program	Average – Females	Average – Males	Median – Females	Median – Males	Average for Program	Median for Program
Computer Engineering Technician	–	$34,255	–	$32,100	$32,936	$29,200
Computer Engineering Technology	$41,144	$35,476	$37,164	$34,500	$36,315	$34,500
Computer Repair And Maintenance	–	$33,273	–	$30,000	$33,273	$30,000
Computer Systems Technician	–	$36,325	–	$35,000	$35,927	$34,838
Computer Systems Technology	$36,036	$39,776	$36,076	$40,000	$39,520	$39,866
Electrical Engineering Technician	–	$34,429	–	$31,703	$34,369	$31,494
Electrical Engineering Technology	$32,278	$41,334	$30,000	$40,000	$40,712	$40,000
Electrical Techniques	–	$30,193	–	$28,000	$30,063	$27,532
Electronics Engineering Technician	$40,822	$36,071	$34,000	$36,000	$36,340	$36,000
Electronics Engineering Technology	$39,021	$38,165	$39,554	$35,457	$38,294	$36,250
Electronics Engineering Technology – Communications	–	–	–	–	–	–
Enterprise Database Management	$48,098	$42,170	$48,884	$40,000	$44,763	$43,800
Entertainment Technology	–	–	–	–	–	–
Game Programming	–	–	–	–	–	–
Informatics And Security – Bachelor Of Applied Technology	–	–	–	–	–	–
Information Systems Security – Bachelor Of Applied Information Sciences	–	–	–	–	–	–
Integrated Telecommunication And Computer Technologies – Bachelor Of Applied Technology	–	–	–	–	–	–
Powerline Technician	–	$40,853	–	$39,687	$40,853	$39,687
Software Engineering Technician	–	$43,903	–	$43,193	$43,903	$43,193
Software Engineering Technology	–	$54,420	–	$57,679	$56,036	$58,000
Software Systems – Design, Development And Management – Bachelor Of Applied Information Sciences	–	–	–	–	–	–
Telecommunications Technology	–	$53,586	–	$52,550	$52,351	$51,100
Wireless Telecommunications	$27,093	$32,133	$23,725	$31,286	$31,080	$25,029
All Programs in Cluster*	**$35,543**	**$36,681**	**$35,000**	**$35,197**	**$36,602**	**$35,000**

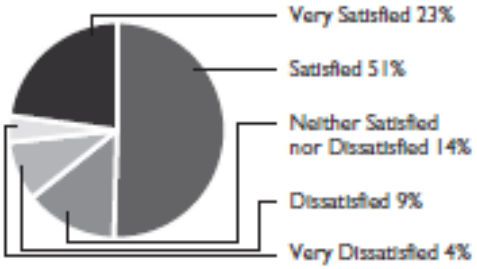
* Does not include 4 programs with fewer than 5 graduates in the labour force.

Key Research Findings

Electronics

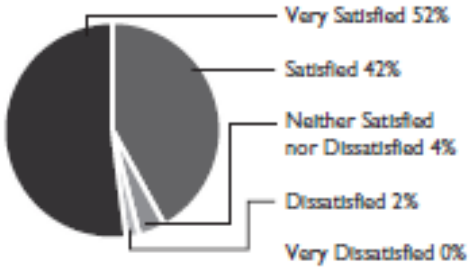
Program Cluster Satisfaction

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



* 2,239 graduates participated in this question.

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



* 278 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	82.6%	80.5%	79.2%	82.6%	86.4%	87.3%	87.8%	86.2%	81.5%	79.5%
Percentage Employed Full-time	77.2%	73.2%	72.5%	74.1%	79.0%	81.8%	80.8%	80.8%	72.3%	70.3%
Percentage Employed Full-time Related Jobs	61.4%	50.1%	48.1%	49.3%	57.9%	61.2%	63.0%	65.0%	50.9%	47.1%
Average Annual Salary Full-time Related Jobs	$35,105	$33,856	$34,047	$35,007	$35,129	$35,714	$37,856	$39,287	$39,918	$39,829

Key Research Findings

Working in Canada[7]

Electrical and Electronics Engineering Technologists and Technicians (NOC –2241)

- **Employment Rating:**
  - **N/A** (Except for the Toronto Region which is **FAIR**)
- **Wage Range by Region:**

Location	Wage ($/hr)		
	Low	Median	High
Ontario	15.00	23.13	40.00
Hamilton--Niagara Peninsula Region	15.00	23.13	40.00
Kingston - Pembroke Region	15.00	23.13	40.00
Kitchener--Waterloo--Barrie Region	15.00	23.13	40.00
London Region	15.00	23.13	40.00
Muskoka-Kawarthas Region	15.00	23.13	40.00
Northeast Region	15.00	23.13	40.00
Northwest Region	15.00	23.13	40.00
Ottawa Region	15.00	23.13	40.00
Stratford--Bruce Peninsula Region	15.00	23.13	40.00
Toronto Region	15.00	20.43	33.00
Windsor-Sarnia Region	15.00	23.13	40.00

[7]"Electrical and Electronic Engineering Technicians." *Working In Canada*. N.p., n.d. Web. 4 Sept. 2012. <http://www.workingincanada.gc.ca/report-eng.do?area=8792&lang=eng&noc=2241&action=final&ln=p®ionKeyword=Peterborough%2C+Ontario%5C&s=1&source=0&titleKeyword=electrical+engineering+technician#wages>.

Key Research Findings

Competitive Analysis[8]	• MODERATE / • 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 **(4:1)**was slightly lower than the system's **(3:1)** in 2011
- Sheridan, the only direct competitor, also had a **(3:1)**ratio in 2011
- Overall, Boreal had the highest ratio in 2011 **(2:1)** and Loyalist had the lowest **(6:1)**

Diploma

- Fleming's ratio **(5:1)**was slightly lower than the system's **(4:1)** in 2011
- Georgian and Durham, the direct competitors, both had a **(4:1)**ratio in 2011
- Overall, La Cite had the highest ratio in 2011 **(2:1)** and Cambrian had the lowest **(20:1)**

Advanced Diploma

- Georgian, the only direct competitor, also had a **(3:1)**ratio in 2011, slightly above the system's ratio **(4:1)**
- Overall, Confederation and Georgian had the highest conversion ratio in 2011 **(3:1)** which was higher than the system's ratio **(5:1)**, and Cambrian had the lowest ratio in 2011 **(29:1)**

[8] Application data obtained from OCAS College Count Cube October 19, 2011Registration 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: 45613 - ELECTRICAL 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
CAMBRIAN	342	95	4:1	373	94	4:1	371	95	4:1	351	120	3:1	335	115	3:1
CANADORE	247	43	6:1	248	46	5:1	234	45	5:1	193	47	4:1	168	41	4:1
COLLÈGE BORÉAL	20	34	1:1	74	44	2:1	97	50	2:1	98	57	2:1	90	53	2:1
FANSHAWE	311	91	3:1	370	108	3:1	432	114	4:1	432	145	3:1	419	150	3:1
FLEMING	195	58	3:1	334	124	3:1	285	91	3:1	205	55	4:1	177	42	4:1
LA CITÉ COLLÉGIAL	0	42	0:1	86	23	4:1	93	24	4:1	113	37	3:1	74	18	4:1
LAMBTON	0			0			112	27	4:1	127	34	4:1	113	21	5:1
LOYALIST	130	23	6:1	139			119	23	5:1	94	18	5:1	84	13	6:1
SHERIDAN	91	94	1:1	392	143	3:1	392	140	3:1	387	152	3:1	415	139	3:1
ST. CLAIR	0			86	55	2:1	210	62	3:1	257	96	3:1	321	116	3:1
Total	***1336***	***480***	***3:1***	***2102***	***637***	***3:1***	***2345***	***671***	***3:1***	***2257***	***761***	***3:1***	***2196***	***708***	***3:1***

Diploma

Program: 55613 - ELECTRICAL 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
ALGONQUIN	574	183	3:1	627	163	4:1	663	184	4:1	619	178	3:1	563	158	4:1
CAMBRIAN	56	2	28:1	77	1	77:1	101	1	101:1	74	6	12:1	59	3	20:1
COLLÈGE BORÉAL	6			37			48			67			62		
CONESTOGA	214	10	21:1	648	77	8:1	781	126	6:1	732	111	7:1	600	103	6:1
DURHAM	335	57	6:1	272	63	4:1	296	58	5:1	326	60	5:1	297	75	4:1
FANSHAWE	426	89	5:1	502	131	4:1	402	96	4:1	459	114	4:1	340	84	4:1
FLEMING	0			0			349	88	4:1	297	80	4:1	297	65	5:1
GEORGIAN	0			0			286	57	5:1	351	86	4:1	366	84	4:1
LA CITÉ COLLÉGIAL	0			67	23	3:1	93	33	3:1	92	29	3:1	119	58	2:1
LOYALIST	209	48	4:1	165			208	61	3:1	184	46	4:1	172	45	4:1
MOHAWK	378	106	4:1	460	128	4:1	584	148	4:1	528	149	4:1	502	137	4:1
NIAGARA	0			0			205	34	6:1	219	47	5:1	228	36	6:1
NORTHERN	74	35	2:1	110	57	2:1	139	70	2:1	163	65	3:1	115	38	3:1
SAULT	181	55	3:1	213	70	3:1	276	89	3:1	204	66	3:1	182	61	3:1
ST. CLAIR	0			0			0			0			59	15	4:1
ST. LAWRENCE	309	37	8:1	245	63	4:1	248	61	4:1	263	49	5:1	269	58	5:1
Total	***2762***	***622***	***4:1***	***3423***	***776***	***4:1***	***4679***	***1106***	***4:1***	***4578***	***1086***	***4:1***	***4230***	***1020***	***4:1***

Key Research Findings

Advanced Diploma

Program: 65613 - ELECTRICAL 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
ALGONQUIN	18			0			0			1			1		
CAMBRIAN	27			38	1	38:1	29	1	29:1	30	2	15:1	29	1	29:1
CONESTOGA	261	45	6:1	288	58	5:1	332	67	5:1	306	55	6:1	235	33	7:1
CONFEDERATION	68	24	3:1	63	20	3:1	97	31	3:1	79	27	3:1	97	31	3:1
FANSHAWE	341	53	6:1	371	60	6:1	387	62	6:1	327	83	4:1	327	59	6:1
GEORGIAN	243	85	3:1	340	137	2:1	298	122	2:1	281	91	3:1	316	93	3:1
HUMBER	379	68	6:1	370	72	5:1	425	90	5:1	411	89	5:1	442	91	5:1
MOHAWK	379	121	3:1	420	135	3:1	497	138	4:1	414	130	3:1	449	133	3:1
NIAGARA	0			0			224	36	6:1	190	44	4:1	214	46	5:1
NORTHERN	51			80			74			85			42		
SAULT	10			9			8			9	1	9:1	8		
Total	***1777***	***396***	***4:1***	***1979***	***483***	***4:1***	***2371***	***547***	***4:1***	***2133***	***522***	***4:1***	***2160***	***487***	***4:1***

Financial Analysis	• **WEAK** / • **WEAK**

Source: Program Costing Analysis 2010/2011

Electrical Techniques	Contribution to Overhead: 25.3% Program Weight: 1.30 Funding Unit: 1.20
Electrical Engineering Technician	Contribution to Overhead: 28.9% Program Weight: 1.30 Funding Unit: 2.30

Key Research Findings

Key Performance Indicators	• WEAK / • WEAK

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

Electrical Techniques

Key Performance Indicators	KPI1-Graduation Rate	-15% below system
	KPI2-Working	-4% below system
	KPI3-Working Related	-17% below system
	KPI4-Grad. Satisfaction	-2% below system
	KPI8-Student Satisfaction-Learning	-20% below system
	KPI9-Student Satisfaction- Teachers	-20% below system
	KPI11-Grad. Satisfaction-Program	-11% below system

Electrical Engineering Technician

Key Performance Indicators	KPI1-Graduation Rate	-
	KPI2-Working	-
	KPI3-Working Related	-
	KPI4-Grad. Satisfaction	-
	KPI8-Student Satisfaction-Learning	-40% below system
	KPI9-Student Satisfaction- Teachers	-42% below system
	KPI11-Grad. Satisfaction-Program	-

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:
2241 Electrical and Electronics Engineering Technologists and Technicians
http://www30.hrsdc.gc.ca/NOC/english/NOC/2006/Profile.aspx?val=2&val1=2241

Electrical and electronics engineering technicians perform some or all of the following duties:

- Assist in the design, development and testing of electrical and electronic components, equipment, and systems
- Assist in inspection, testing, adjusting and evaluation of incoming electrical, electro-mechanical and electronic components and assemblies to ensure conformance with product specifications and tolerances
- Conduct life tests (burn-ins) on assemblies and record and analyze results
- Assist in building and testing prototypes to specifications
- Carry out a limited range of technical functions in support of research in electrical and electronic engineering and physics
- Install, operate and maintain electrical and electronic equipment and systems
- Calibrate electrical or electronic equipment and instruments according to technical manuals and written instructions
- Collect and compile operational or experimental data and assist in the preparation of estimates, schedules, budgets, specifications and reports.

Common Job Titles

- communications technologist
- electrical engineering technician
- electrical engineering technologist
- electricity distribution network technologist
- electronics design technologist
- electronics engineering technician
- electronics engineering technologist
- electronics manufacturing technician
- electronics manufacturing technologist
- lighting technologist
- metering technologist
- microwave maintenance technician
- production support technician – electronics manufacturing

Typical Employers

- manufacturing plants
- offices
- power and other utility facilities

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=2241&province=35&action=final&display=complete&ln=p&s=2#outlook

HRDSC

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

This occupation (**Electrical Engineering**) is part of a larger occupational group called **Technical Occupations In Electronics And Electrical Engineering (224)**

Occupations in this group	Electrical and Electronics Engineering Technologists and Technicians (2241) Electronic Service Technicians (Household and Business Equipment) (2242) Industrial Instrument Technicians and Mechanics (2243) Aircraft Instrument, Electrical and Avionics Mechanics, Technicians and Inspectors (2244)
Employment (non-student) in 2010	109,759
Median Age of workers in 2010	39.9
Average Retirement Age in 2010	59

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 **46,832**. It is expected that **47,472** job seekers will be available to fill these job openings. The majority of job seekers will come from the school system (72%) with 19% from immigration and 9% from other sources.
4. The majority of job openings will arise from retirements, but expansion demand will also create a significant number of job openings. Industries related to communications and information technologies (including electronics) will pick up again in the coming years. The return to growth in this sector comes after troubled years that followed after the tech bubble burst.
5. According to Employment Ontario (Estimates 2006), 92% of workers in this group were employed Full-Time with 6% Part-Time; 5% were self-employed
   http://www.tcu.gov.on.ca/eng/labourmarket/ojf/pdf/2241_e.pdf
6. Local wage for Peterborough/Kawartha Region:
   - Low: $15.00 Median: $23.13 High:$ 40.00

US Bureau of Labour

Key Research Findings

http://www.bls.gov/ooh/architecture-and-engineering/electrical-and-electronic-engineering-technicians.htm#tab-6

Job Outlook

Employment of electrical and electronic engineering technicians is expected to grow 2 percent from 2010 to 2020, resulting in little or no change for this occupation.

Some of these technicians work in traditional manufacturing industries, many of which are growing slowly or declining. However, employment growth for electrical and electronic engineering technicians will likely occur in engineering services firms as companies seek to contract out these services as a way to lower costs. They also work closely with electrical and electronics and computer hardware engineers in the computer systems design services industry. Demand is expected to be high for technicians in this industry as computer and electronics systems become more integrated. For example, computer, cellular phone, and global positioning systems (GPS) technologies are being included in automobiles and various portable and household electronics systems.

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 and Yukon.

Regulatory body in Ontario is OACETT

Professional Associations:

Canadian Electrical Contractors Association
Association of Canadian Engineering Companies
Ontario Association of Certified Engineering Technicians and Technologists
Ontario Electrical League

Employment Requirements

Employment requirements are prerequisites generally needed to enter an occupation.

- Completion of a two- or three-year college program in electrical or electronics engineering technology, computer engineering technology, telecommunications technology or an equivalent is usually required for electrical or electronics engineering technologists.
- Completion of a one- or two-year college program in electrical or electronics engineering technology is usually required for electrical or electronics engineering technicians.
- Certification in electrical or electronics engineering technology or in a related field is available through provincial associations of engineering/applied science technologists and technicians and may be required for some positions.
- A period of supervised work experience, usually two years, is required before certification.
- In Quebec, membership in the regulatory body is required to use the title of Professional Technologist.

[Source:National Occupational Classification 2006 - HRSDC]

Educational Competitors

N/A

Employment Postings:

On August 31th, 2012 there was 1 job listed locally in the JobBank (98 job opportunities in the province of Ontario). See below for the variety of postings….

Key Research Findings

Source: jobbank.gc.ca

Satellite technician
Gravenhurst (ON)

Salary:
Yearly: min. $45000
Job Number:
6612479
Terms of Employment:
Permanent
Full-Time
Source:
Job Bank
Anticipated Start Date:
As soon as possible
Number of positions:
2
Employer
Employer:
6396763 Canada Inc. o/a The Installation Group
Job requirements
Education
Completion of high school ; Some college/CEGEP/vocational or technical training
.
Credentials (certificates, licences, memberships, courses, etc.)
Not required
.
Experience
1 to less than 7 months
.
Languages
Speak English ; Speak French ; Read English ; Read French ; Write English ; Write French
.
Area of Specialization
Testing ; Operation
.
Type of Industry Experience
Telecommunication and communications
.
Type of Equipment, Systems and Controls Experience
Satellites ; Electronic testing equipment and systems
.
Specific Skills
Design, develop and test power equipment and systems ; Install, maintain and service equipment ; Calibrate electronic equipment and instruments ; Operate electronic equipment
.
Computer an Technology Knowledge

Key Research Findings

Windows ; Internet ; Word processing software ; Spreadsheet software ; Electronic mailing software

.

Own Tools/Equipment

Hard hat

.

Work Location Information

On-site customer service

.

Work Conditions and Physical Capabilities

Fast-paced environment ; Work under pressure ; Tight deadlines ; Attention to detail ; Combination of sitting, standing, walking

.

Security and Safety

Bondable ; Criminal record check

.

Transportation/Travel Information

Travel expenses paid by employer ; Willing to travel

.

Essential Skills

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

.

How to Apply

By e-mail:

resume@getabell.tv