

NEW!

SOLAR DESIGN & INSTALLATION TRAINING PROGRAM

AT FLEMING COLLEGE'S COBOURG CAMPUS

Fees: **\$3022.06** (+ textbooks and supplies)

Dates: **Mon-Fri, April 23 - July 27, 2012**

Now is the time to begin a new career in the exciting field of **Solar Photovoltaic Design and Installation**. This comprehensive 14-week program will equip you with the skills sought after by employers in Ontario's largest growth industry, Solar Photovoltaics. The Solar PV industry in Ontario experienced a record breaking expansion in 2011 and that trend is expected to continue through 2012 with an expected growth of over 100% in PV installations.

The Ontario Government passed the "Green Energy and Green Economy Act" into law on May 14, 2009. The Act is expected to boost investment in renewable energy projects, creating green jobs and economic growth. The objectives of the Ontario Green Energy Act include the sparking of growth in clean and renewable sources of energy such as solar in Ontario and the creation of 50,000 jobs in the green energy sector in its first four years. Many of those jobs will be in the manufacturing, design and installation of solar photovoltaics.

This ever-growing field requires newly trained graduates who are intimately familiar with current and new technologies. Fleming's **Solar Design & Installation Training Program** will prepare you with the skills necessary for many of the occupations in this rapidly growing industry. Solar panel and system installation, shade analysis and site feasibility studies, system design, technical sales, maintenance and troubleshooting, project supervision/management are but a few of the jobs the **Solar Design & Installation Training Program** will qualify you for.

All of the required courses must be successfully completed in order to obtain this specialization. Fall Protection and Hoisting & Rigging certifications are also completed during this program of study. (426 hrs)

The curriculum has been designed to meet the criteria for the North American Board of Certified Energy Practitioners and includes:

Course IDs	Certificate Requirements	Hrs
ELCT 113	3D Computer Modeling and Drafting	45
BUSN 142	Beyond Excellence in Customer Service	12
COMP 287	Computer Applications	28
ELCT 115	Electrical Fundamentals	45
MATH 113	Math for Solar Installation & Maintenance	49
ELCT 114	Renewable Energies	30
CNST 140	Solar Installation Job Site Safety	24
CNST 150	Solar Photovoltaics	120
HLTH 100	WHMIS Online	3
CNST 145	Applied Project	70

3D Computer Modeling and Drafting

This course introduces students to the basics of three-dimensional modeling and drafting using Google SketchUp. Drafting concepts and standards applicable to the solar industry will be developed and applied to projects. Students will use SketchUp to visually explore mathematical concepts applicable to photovoltaics and as an analytical tool for site studies and shade analysis. Solar projects will be designed from the ground up and tested using this powerful program.

ID: **ELCT 113** (45 hrs) Fee: **\$283.95**

Beyond Excellence in Customer Service

Are you in a Customer Service business? Of course you are!...all business is built on customer service. Well, what exactly does customer service mean and why is it so important? How is your attitude and approach to business going to affect customer service? How is communication related to customer service and what are the risks? Can customer service impact stress and can stress impact customer service? Can you develop new strategies to enhance your customer service skills? Learning the answers to these questions can help ensure that you are able to go **Beyond Excellence in Customer Service**. This professional workshop will help you identify the tools that will allow you to grow in this essential skill set.

ID: **BUSN 142** (12 hrs) Fee: **\$75.72**

Computer Applications

Learning becomes more meaningful, more real and more relevant when we see connections between the classroom and the workplace. Making these connections is one of the guiding principles of this course. Students will quickly see how what they see, hear and do applies to their future employment in the construction industry. This course covers word processing and spreadsheet applications as they apply to the construction trade.

ID: **COMP 287** (28 hrs) Fee: **\$176.68**

Electrical Fundamentals

This course presents an introduction to electricity, electronics, and the Canadian Electrical code relating to photovoltaic systems. Students will learn electrical theory and the relationship between potential, current, resistance and power. Conductors, Semiconductors and Series and Parallel circuits will be explored, with an introduction to the functions of various electronic components. Students will design and build DC circuits using photovoltaic cells, and test and troubleshoot with multimeters. Alternating current will be introduced and AC circuits developed. The course covers rectification and inverter design and construction. Electrical generation technologies including generators, alternators and photovoltaic generation will be examined. The course continues with a main power generation and distribution system overview and an introduction to the Canadian Electrical Code. We will review section 50 of the Code and other portions relating to solar installations.

ID: **ELCT 115** (45 hrs) Fee: **\$342.64**

Mathematics for Solar Installation & Maintenance

This course covers the basic mathematical principles and geometry skills as required by the learner entering a trade. Topics covered will include whole numbers, fractions, decimals, and the S.I. and imperial systems of measurement, including conversions between systems. Mensuration; ratio and proportion; perimeter, area, and volume; Pythagorean Theorem; trigonometry; and trade-related problems will also be covered. The basic principles of geometry will include line-work, angles, triangles, quadrilaterals, and circles.

ID: **MATH 113** (49 hrs) Fee: **\$309.19**

Renewable Energies

In this course students will investigate the current and future of renewable energy generation. Solar electric, solar heat, wind, biomass, alcohol, geothermal, hydro electric and hydrogen technologies are examined, discussed and compared. Students will be given an understanding of inverter technologies, distribution and storage of renewably generated electricity. Using industry standard RET Screen software, students will model and evaluate the environmental and economic dimensions of large and small scale renewable projects. Prerequisites: None. Corequisites: Electrical Fundamentals.

ID: **ELCT 114** (30 hrs) Fee: **\$189.30**

Solar Installation Job Site Safety

This course emphasizes the safety aspects encountered on a solar installation job site. Students will earn their Fall Protection and Hoisting & Rigging certifications during this course.

ID: **CNST 140** (24 hrs) Fee: **\$151.44**

Solar Photovoltaics

The need to replace our dependence on fossil fuels is ever-present in today's world and new technologies and products are emerging in the solar industry to meet those needs. The government of Ontario, through its green energy initiatives and more specifically the FIT and microFIT programs, have made solar photovoltaics one of the fastest growing industries in the province. The rapidly-growing field of solar PV requires specifically trained graduates who are well-versed in current and new solar PV technologies. This course has been designed from the ground up by experts in the field of solar PV and gives students the firsthand knowledge and required skills to design and lead the installation of a solar photovoltaic project from concept through to commissioning. Students will perform actual project feasibility studies using state-of-the-art tools and use shade analysis to optimize array placement and orientation. System design will include: Grid Tied, Autonomous, Hybrid and Grid Interactive systems using monocrystalline, polycrystalline, amorphous and other panel technologies. Inverters, both micro and string technologies, charge controllers, power conditioners wiring, combiner boxes, over current, surge protection and lightning arrest options will all be thoroughly covered and students will be fully prepared to challenge the North American Board of Certified Energy Practitioners (NABCEP) entry level Installers Exam. Graduates will have the skills required to fast-track their careers or start their own companies in the exciting and growing field of Solar Photovoltaics.

ID: **CNST 150** (120 hrs) Fee: **\$1028.83**

WHMIS Online

Complete and test for this certification, which is perfect for updating yourself on current legislation and safety information and rounding out your résumé.

ID: **HLTH 100** (3 hrs) Fee: **\$ 27.51**

Applied Project

This course takes the knowledge learned in the Solar Photovoltaic Design and installation program and applies it to real-life project design and equipment installation. Practical field experiences give students experience in specifying, adapting, implementing, configuring, installing, inspecting and maintaining photovoltaic (PV) systems. These experiences include: site analysis, industry-related field trips, site visits to existing solar installations, some hands-on installation training and working with solar equipment and panels.

ID: **CNST 145** (70 hrs) Fee: **\$436.80**

**Note - Individual program module dates/times may be subject to change without notice.
Please confirm at time of registration.*

**For more information or to register, contact Colleen Johnston
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