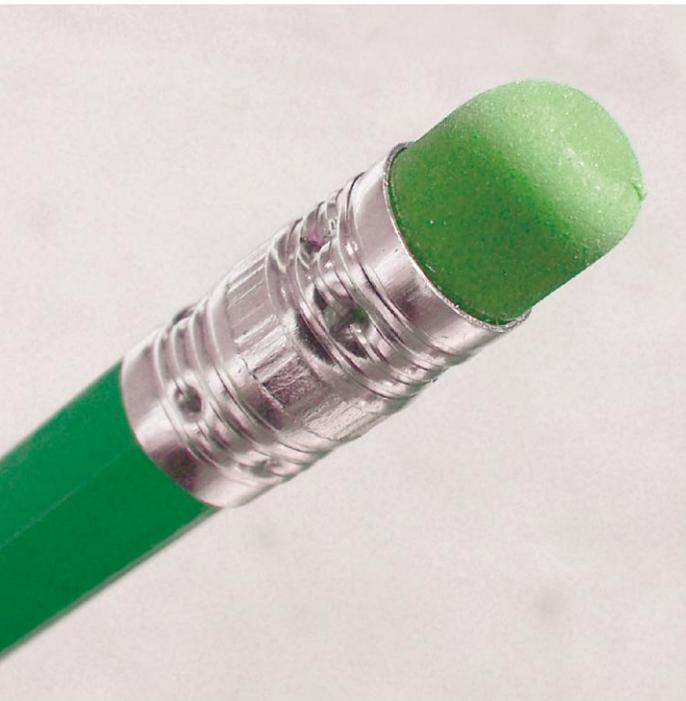


Training and Education

Opportunities in Ontario Related to Green Collar Jobs



This list of education opportunities is for individuals seeking green collar jobs. The programs listed are related to green building techniques, or they integrate green energy into traditional disciplines. Programs fully focused on green energy are included. University and college programs as well as courses/programs offered by other institutions and organizations are also included.

Ecology Ottawa has compiled this information on behalf of the Community Energy Network of Eastern Ontario, which is encouraging the uptake of renewable energy and energy efficiency initiatives. It is hoped the information contained in this document will help job seekers connect with those who have jobs to offer, and that Eastern Ontario will become a leader in driving demand for the goods and services that create jobs in the emerging clean energy economy.

ECOLOGY
OTTAWA



ÉCOLOGIE
OTTAWA

Algonquin College

Multiple Locations in Ontario

Bachelor of Building Science

<http://www3.algonquincollege.com/acce/program/bachelor-of-applied-technology-building-science/>

Bachelor of Applied Technology

This four-year Bachelor of Building Science degree prepares graduates for opportunities in the construction industry and related fields that support and implement ongoing research and development related to building materials and building systems. Using a holistic approach, students develop an appreciation of buildings as a set of interconnected systems that can be built, modified, and adapted to meet requirements for functionality, energy consumption and human comfort. Historical background and integration of sustainable practices are two threads that extend throughout the program and complement the knowledge, skills, and attitudes that students acquire through their studies.

Building Environmental Systems Operator Class 1 & 2

<http://xweb.algonquincollege.com/woodroffe/themeArea.aspx?id=20&>

Certificate

These certificate programs, recognized by the Ottawa Building Managers and Operations Association, provide students with the knowledge and know-how to safely operate buildings and incorporate standard workplace competencies. Includes coursework in energy efficiency.

Building Green with LEED: LEED for New Construction Rating System

<http://www2.algonquincollege.com/corporate/courses/building-green-with-leed%C2%AE-2/>

This six-day course teaches a working knowledge of the Canada Green Building Council's (CaGBC) LEED Canada for New Construction Rating System 2009 (LEED®-NC 2009). The Rating System has become the definitive benchmark for what constitutes a 'green building'. Understanding LEED® Canada-NC 2009 is an important step for any building professional in creating sustainable environments and achieving superior economic performance.

Construction Carpentry - Advanced Housing

http://extraweb.algonquincollege.com/fulltime_programs/programOverview.aspx?id=6785X01FPT&

Ontario College Diploma

This two-year Ontario College Diploma program focuses on the theoretical and practical aspects of energy efficient, environmentally-responsible, and healthy housing. The first year of the program develops fundamental carpentry skills from the layout and framing of floor, wall and roof systems, to installing interior and exterior finishes. In the second year, students examine energy efficient design and assemblies; advanced framing techniques; green building principles and materials; and construction practices, while completing a major construction project.

Green Architecture

<http://www2.algonquincollege.com/acce/program/green-architecture/>
Ontario Graduate Certificate

This one-year program offers students an opportunity to broaden their existing knowledge and skills in the burgeoning field of sustainable (green) architecture. Students are exposed to a specialized range of design strategies and technologies that reduce environmental impact, make buildings healthier and livable for people, and achieve these goals in an economical way. The curriculum includes courses in materials and methods designed to provide sustainable energy conservation improvements, reduce reliance on fossil fuels and harness the energy resources of the sun, wind and water. Working in teams, students apply their new knowledge to a sustainable design project. Design factors which build on students' existing knowledge base include: sustainable site development, managing material resources, conservation of energy and water and improving interior environments.

Green Home Building Essentials

http://www3dev.algonquincollege.com/corporate/files/2012/11/Green_Home_Building_Essentials.pdf

This practical one-day workshop helps students to better understand, plan for, and meet the growing market demand for green and healthy homes. Students will understand the fundamentals of green home building, including: sustainability language; building rating systems (including LEED); codes; standards and practices.

LEED Green Building Strategies and Green Associate Exam Preparation

<http://www.algonquincollege.com/corporate/courses/leed-green-building-strategies-and-ga-exam-prep/>

This higher-education course is an intensive 36-hour program that provides a comprehensive overview of techniques, approaches, materials and technologies used in creating green buildings and communities. It describes the LEED rating systems and highlights how various strategies can be used to meet LEED requirements. The course provides an excellent preparation for writing the LEED Green Associate exam; it also meets the eligibility requirements for that exam.

Cambrian College

Sudbury

Energy Systems Technology (ESTY)

<http://www.cambriancollege.ca/Programs/Programs/201509ESTY.HTM>

Ontario College Advanced Diploma

Cambrian College's Energy Systems Technology program prepares students to meet the growing needs of employers in the fields of alternate energy, sustainability and energy systems management. Students will explore the processes of energy audits and modeling of existing conventional systems as well as calculating energy efficiency improvements for residential and commercial buildings. Using specialized equipment, such as geothermal, hydronics, wind and solar, and labs of the Xstrata Nickel Sustainability Energy Centre, you will gain hands on experience and develop a strong understanding of how society consumes and produces energy in our building systems.

Sustainable Residential Design

<http://www.cambriancollege.ca/Programs/Pages/programDetails.aspx?code=SRGC>

Ontario College Graduate Certificate

Optimizing residential building performance is the focus of this one-year online program. Students will take a holistic approach to design to improve the health, comfort, and overall environment of a home and community.

Wind Turbine Technician (WTTN)

<http://www.cambriancollege.ca/Programs/Programs/201309WTTN.HTM>

Ontario College Diploma

Graduates of this four-semester program will be able to install, test, and commission wind turbines. In addition, graduates will be able to maintain and repair wind turbines; analyze and troubleshoot electrical circuits, equipment and systems; and understand the mechanical systems associated with wind turbines. Graduates will participate in quality control and assurance programs and will apply communication, documentation, computer applications, information technology and teamwork skills to support the installation and operation of wind farms.

Centennial College

Toronto

Aboriginal Training: Solar Energy – Photovoltaics

<http://www.centennialcollege.ca/SETAS/CEI/Aboriginal%20Initiatives>

This photovoltaics training is exclusively designed for Aboriginal people. The six-week course covers the fundamentals of solar powered electrical generation systems. These include practical considerations related to system design, as well as hands-on installation and safety training. It also includes basic business skills. The course is followed by opportunities for graduates to continue to a variety of other on-the job training, self-employment, and work preparation pathways. These opportunities are provided through a number of leading organizations in the solar industry who have partnered with Centennial College.

Architectural Technician

<http://www.centennialcollege.ca/Programs/ProgramOverview.aspx?Program=3101>

Ontario College Diploma

This program prepares graduates for a career in the construction industry working with architects, engineers, builders, contractors and municipal building departments. Using state-of-the-art computer technology, students prepare designs, construction drawings, and specifications needed to communicate with clients, construction professionals, and approval authorities. This program places a strong emphasis on protecting the environment, energy conservation, and sustainable design and construction strategies.

Architectural Technology

<http://www.centennialcollege.ca/Programs/ProgramOverview.aspx?Program=3105>

Ontario College Advanced Diploma

Student activities include preparing drawings for residential, industrial, commercial, and institutional building types, as well as complex buildings and multi-use buildings. Students will also be introduced to building materials, construction methods, structural design, mechanical and electrical services, building codes, contracts, specifications, and the business environment for providing design and construction services. This program places a strong emphasis on protecting the environment, energy conservation, and sustainable design and construction strategies. Co-op program available.

Building Green with LEED: LEED Canada for New Construction Rating System

<http://db2.centennialcollege.ca/ce/coursedetail.php?CourseCode=CGBC-001>

This seminar course teaches you a working knowledge of the Canada Green Building Council's (CaGBC) LEED Canada for New Construction Rating System 1.0 (LEED – NC). Key areas of sustainable site development, water savings, energy efficiency, materials selection, and indoor environmental quality will be discussed in detail.

Energy Systems Engineering Technician

<http://www.centennialcollege.ca/Programs/ProgramOverview.aspx?Program=3755>

Ontario College Diploma

This program teaches the fundamental skills to understanding energy and its uses in modern society. It offers a unique blend of technical, managerial, and entrepreneurial skills that are highly sought after in modern energy and sustainable building companies.

Energy Systems Engineering Technology

<http://www.centennialcollege.ca/Programs/ProgramOverview.aspx?Program=3756>

Ontario College Advanced Diploma

Students are taught the fundamental skills to understand energy and its uses in modern society. This program offers an optional professional technology year (PTY). Academically-qualified students enhance their education by working a full calendar year as paid employees in the field. The experience not only allows students to put classroom learning into practice, but also provides valuable contacts for future careers.

Solar PV Level I – Installation Workshop

<http://www.centennialcollege.ca/events/solarpvworkshop>

This workshop will cover fundamental principles of solar PV systems and their installation. It will include solar radiation data analysis, site evaluation tools and techniques, solar electric component selection, connection, and operation, system sizing, component selection, installation, commissioning, troubleshooting, and standard safety requirements and practices.

Conestoga College

Multiple Locations in Ontario

Energy Systems Engineering Technology

<http://www.conestogac.on.ca/fulltime/0029.jsp>

Ontario College Advanced Diploma

This innovative three-year program has been designed to prepare students with both theoretical and practical experience, enabling them to work in a wide variety of alternative energy fields which require an individual with knowledge of energy production, management, and its application to industry. Areas of study include: power systems; alternative energy sources such as wind, geothermal and solar; industrial solid state controls;

instrumentation; programmable logic controllers; and motor-generator controls. Throughout the program, students will gain experience in safety practices, safety standards and equipment, technical writing, and cad.

Environmental – Civil Engineering Technology

<http://www.conestogac.on.ca/fulltime/1021.jsp>

Ontario College Advanced Diploma

This three-year program provides students with career opportunities in the field of civil/environmental engineering at the engineering technologist level. The curriculum is designed to provide a balanced education in civil engineering, catering to students' special interests by means of a major project in the third year. Classroom instruction will be complemented by participation at an in-house training session in a local civil/environmental engineering consulting firm, environmental monitoring training in the field, visits to solid waste management facilities and to sites undergoing environmental remediation.

Renewable Energy Techniques

<http://www.conestogac.on.ca/fulltime/1044.jsp>

Ontario College Certificate

This program is designed to give students the skills and knowledge needed to effectively create, install and maintain functional renewable energy systems. Students are introduced to the different sectors of the renewable energy field. Both theoretical and practical applications in solar power, wind, solar thermal technologies, and other forms of alternative energies will be explored. One of the courses offered in the program is Building Green with LEED. This course teaches the participant a working knowledge of core concepts and strategies to reduce the environmental impact of the built environment in Canada. It will provide an introductory level of familiarity with the Rating System but should not be construed as a study prep course for those students who wish to take the LEED Professional Accreditation Exam.

Durham College

Whitby

Construction Carpentry - Sustainable

<http://www.durhamcollege.ca/programs/construction-carpentry-sustainable-two-year/>

Ontario College Diploma

In as little as 16 months, students can acquire the knowledge required to construct energy efficient and environmentally responsible residential buildings, gain the knowledge required to perform a wide range of carpentry tasks, and obtain the skills required to upgrade existing buildings.

Energy Management and Sustainable Building Technology

<http://www.durhamcollege.ca/programs/energy-management-and-sustainable-building-technology/>

Ontario College Advanced Diploma

This program offers the opportunity to learn how to integrate a variety of technologies to quantify energy efficiency and conservation within commercial and institutional buildings through the application of energy management, business principles, and clean energy technologies.

Renewable Energy Technician

<http://www.durhamcollege.ca/programs/renewable-energy-technician/>

Ontario College Diploma

Renewable energy technicians are part of the rapidly growing field of renewable, sustainable and alternative energy solutions. As an introduction, students receive a basic exposure to traditional energy consuming systems followed by a solid foundation in the operation of renewable energy systems including solar and wind power and ground source heat pumps. As a renewable energy technician, graduates will be well positioned to pursue an interesting and challenging career in the energy sector.

Fleming College

Haliburton/Peterborough

Sustainable Building Design and Construction

<http://www.flemingc.on.ca/index.cfm/go/programs/sub/display/code/SBD/style/d.cfm>

Ontario College Certificate

This is an intensive, hands-on experience that puts students at the center of the construction of a full-sized and cutting-edge sustainable building. The curriculum of this program is unique; rather than focusing on specialization within the sustainable building field, Fleming College hopes to graduate people who are strong generalists.

George Brown College

Toronto

Building Renovation Technician

<http://www.georgebrown.ca/T110-2013-2014/>

Ontario College Diploma

There is a growing demand in the building industry for qualified renovators sensitive to our environment. According to the Canadian Home Builders Association, more than half the spending in the Canadian construction industry takes place in the renovation field. This two-year program is designed to prepare students for employment in the renovation and construction field, with sustainable design principles being key.

Topics include residential renovations, custom home construction, cabinetry, site layout, demolition, framing and finishing and the building code. You will learn custom millwork, stair construction, basic wiring and plumbing, and drywall installation and finishing. Introductory business topics include business management, site management, estimating and project management. Hands-on training takes place in fully equipped labs where students practice framing and finishing techniques using sustainable design principles.

LEED Green Building Strategies and Green Associate Exam Preparation

http://coned.georgebrown.ca/owa_prod/cewskcrss.P_CrseGet?subj_code=BLDG&crse_num=9228

Acquire a working knowledge of the core Leadership in Energy and Environmental Design (LEED®) concepts and strategies that are used to reduce the environmental impact of the built environment in Canada. This intensive course provides a comprehensive overview of the techniques, approaches, materials and technologies used to create greener buildings and communities.

Georgian College

Barrie

Sustainable Systems

<http://www.georgianc.on.ca/engineering/programs/sustainable-systems/>

Ontario College Certificate

This one-year program gives students the knowledge and experience to transform and lead organizations in the sustainable and efficient use of energy and resources. Building on the skills of their post-secondary education and profession, students in multidisciplinary teams work on the development of innovative projects that: reduce waste; make better use of limited natural resources; and use renewable energy. Students also expand their understanding and appreciation of the disciplines beyond their own field of expertise so that they are prepared to give careful consideration of the complex interconnectedness of people, processes, resources, and technology related to sustainable systems.

Humber College

Toronto

LEED Green Building Strategies and Green Associate Exam Preparation

<http://calendardb.humber.ca/LIS/WebCalendar/CE/CourseOffering.do?name=LNC.101>

Looking to take the first initiative towards becoming familiar with green building practices? Get started with this 36-hour approved course from the (CaGBC) Canada Green Building Council. In the current green building market it will be imperative to stay abreast of the concepts and strategies being implemented in today's building environment to ensure a healthy environment for today and the future. In this course you will gain knowledge in the core concepts and strategies utilized to reduce the impact of the built environment. Learn about different types of techniques to utilize the materials and technologies involved in creating green buildings. Students will gain insight into the rating system that LEED utilizes. This course will help prepare you to write the Green Associate Exam.

Sustainable Energy and Building Technology

<http://www.humber.ca/appliedtechnology/sustainableenergy>

Ontario College Advanced Diploma

This three-year, multidisciplinary program will position graduates to work effectively with other professionals to provide integrated solutions for the energy efficiency, green building and renewable energy sector. You will be able to assess site characteristics and client needs, provide advice on renewable energy, building design and heating/cooling system alternatives, promote energy efficiency through energy audits and energy performance simulation, cost the energy system and select appropriate suppliers and contractors.

Lambton College

Sarnia

Alternative Energy Engineering Technology

http://www.lambton.on.ca/Programs/FT_Program_page.aspx?id=9106

Ontario College Advanced Diploma

Answer the call for trained specialists in the energy technology field with a comprehensive education in Alternative Energy Engineering Technology. This program was designed to combine theory in current and emerging energy technologies with hands-on experience. Students will learn about hydrogen fuel cells in Lambton College's own Sustainable Smart Home, gain on-the-job experience with a four-month co-op placement, and become familiar with renewable energy concepts through project-based assignments such as building wind turbine models and testing them in Lambton's on-site wind tunnel machine.

Alternative Energy Engineering Technician

http://www.lambton.on.ca/Programs/FT_Program_page.aspx?id=2147490097

Ontario College Diploma

This program is designed to provide students with a combination of theory and hands-on skills in solar photovoltaic systems, solar thermal systems, wind turbine technology and geothermal energy. Students will perform sizing and feasibility analysis of solar and wind energy systems by using industry standard software.

Mohawk College

Hamilton

Energy Systems Engineering Technology – Clean & Renewable Energy

<http://www.mohawkcollege.ca/engineering-technology-programs/energy-systems-engineering-technology-advanced-diploma.html>

Ontario College Advanced Diploma

In this three-year program, students will: gain an integrated skill sets for a variety of employment opportunities tied to the implantation of renewable and clean energy systems; experience a unique new program introducing a multi-disciplinary approach that focuses on the generation, capture, storage, and distribution of clean and renewable energy and their integration with conventional systems; learn strategies for conservation and clean energy supported by micro grids and distributed energy systems.

Energy Systems Engineering Technician – Clean and Renewable Energy

<http://www.mohawkcollege.ca/engineering-technology-programs/energy-systems-engineering-technician-clean-renewable-energy-diploma.html>

Ontario College Diploma

This two-year program provides students with the opportunity to develop an excellent theoretical and practical understanding of clean and renewable energy technologies and systems and their application in small-scale residential and commercial environments. Students will also learn installation and repair techniques required for the various distributive generation sources emerging in this rapidly developing power sector.

Niagara College

Welland

Renewable Energies Technician

<http://www.niagaracollege.ca/content/Programs/EnvironmentalStudies/RenewableEnergiesTechnician.aspx>

Ontario College Diploma

As the focus increases to use and integrate renewable energy as a preferred energy source, the need for a qualified workforce is being sought by industry, communities, environmental groups, and federal and provincial governments. Opportunities for graduates of this program include: wind turbine maintenance and operation; solar energy farm operations and maintenance; geothermal installations, operations and maintenance; bio-

mass and bio-fuels energy production; green energy building retrofits; clean energy project management, amongst others.

Ryerson University

Toronto

Graduate Programs in Environmental Applied Science and Management

<http://www.ryerson.ca/graduate/programs/ensciman/index.html>

Master; Doctorate

The programs take a systems management approach to environmental problem solving in the private and public sectors. In order to respond to the complex environmental challenges in air, water and soil quality, energy and resource utilization, waste management and development impacts, industries and governments must develop an improved scientific and technical understanding of environmental issues and a proficiency in environmental analysis and decision-making. An environmental systems management approach, one that attempts to integrate a number of decisions an organization can make and their effects on the environment, is the focus of these graduate programs.

Sault College

Sault Ste. Marie

Renewable Energy and Green Construction Techniques

<http://www.saultcollege.ca/AcademicCalendar/PDF/SKI/4046.pdf>

Ontario College Certificate

This entry-level certificate program covers two semesters of study addressing the expanding and emerging fields of renewable energy, energy conservation and green construction.

Students will gain the knowledge and practical skills relating to renewable energy sources such as wind, solar, geothermal and bio-based fuels. Graduates will be in a position to assist with feasibility assessments, renewable energy system installations, and green construction and renovation.

Seneca College

Toronto

Building Systems Engineering Technician

<http://senecac.on.ca/fulltime/BTS.html>

Ontario College Diploma

In this two-year course, students will learn the theory and practice of heating, air conditioning, refrigeration, air handling, electricity and control systems. The course will focus on emerging renewable energy technologies and energy efficiency principles, which are applied to all studies. Building systems software training is included. Students will also benefit from practical hands-on experiences throughout the program.

Energy Management - Built Environment

<http://www.senecacollege.ca/fulltime/EMB.html>

Ontario College Graduate Certificate

This is a program designed to help graduates succeed in Canada's environmental sector. Through eight months of intensive environmental training in building systems and energy management, graduates will be prepared for a career in the environmental sector.

Mechanical Engineering Technology - Building Sciences

<http://www.senecac.on.ca/fulltime/MBT.html>

Ontario College Advanced Diploma

In this three year course, students will benefit from: advanced studies in theory and practice of heating, air conditioning, refrigeration, air handling, electricity and control systems; advanced studies in emerging renewable energy technologies; advanced studies in energy efficiency principles; training in building systems software training; and practical hands-on experiences throughout the program.

St. Clair College

Windsor

Building Environmental Systems

http://www.stclaircollege.ca/programs/coned/technology_trades_coned.html

Ontario College Certificate

The training focuses on the building as a system in which heating, refrigeration, air handling, electricity, controls, and water treatment are interwoven and connected. Each course is delivered within the framework of the overall operation of the building so that students understand how their actions affect the entire system. Creative solutions to improve energy efficiency and environmental management of the building are sought so that the owner or manager may maintain an economically competitive position. The student is able to integrate these components in the Energy Management component of the Building Environmental Systems training.

Energy Systems Design Technology

http://www.stclaircollege.ca/programs/postsec/energy_systems/

Ontario College Advanced Diploma

This new program is the first of its kind to be offered in Ontario. It will prepare graduates for careers in energy utilization with a focus on the efficient application, design, control and management of energy conversion systems for industry, buildings, and transportation. Both traditional and alternative energy resource development and applications will be part of the curriculum. Graduates can pursue numerous careers paths in the field of energy conversion and design of energy systems for buildings, industrial processes, and transportation. Sectors served will include multi-residential, commercial, institutional and industrial energy users.

Sustainable Energy Technician

http://www.stclaircollege.ca/programs/postsec/sustainable_energy/

Ontario College Diploma

The Sustainable Energy Technician program prepares graduates to work in both residential and light commercial occupational settings. By completion of the program, students will have gained experience and knowledge enabling them to perform site assessments with the ability to integrate renewable electrical and thermal systems with current existing energy sources. The technician will have an understanding of photovoltaic and wind turbine generating systems as well as solar thermal, geothermal and biomass systems making it possible for graduates to work in sales, marketing or installation and maintenance of these

technologies. Students will also graduate with a working knowledge of 'green' building concepts and energy efficient design principles allowing for more efficiency and sustainable systems.

St. Lawrence College

Kingston

Energy Systems Engineering Technician

<http://www.stlawrencecollege.ca/index.aspx?iPageID=139&iMenuID=6&progId=554>

Ontario College Diploma

Businesses and consumers are becoming more concerned with the financial and the environmental costs of energy usage. Graduates of the Energy Systems programs will learn about helping individuals and organizations to become more energy efficient – reducing energy demand (and cost) – and will work on the design and installation of sustainable energy technologies – to help reduce the impact of energy usage.

Energy Systems Engineering Technology

<http://www.stlawrencecollege.ca/index.aspx?iPageID=139&iMenuID=6&progId=555>

Ontario College Advanced Diploma

Graduates build on the skills developed during the first two years of the program through more analysis and design activities in their final year studies. Technologist graduates will assist developers, designers, architectural, construction and sustainable energy companies to incorporate energy efficiency and sustainable energy technologies in their projects. The final semester Technologist's project and work placement experience will further develop energy auditing and target area technical competence.

Geothermal Engineering Technician

<https://www.stlawrencecollege.ca/index.aspx?iPageID=139&iMenuID=6&progId=577>

Ontario College Diploma

The Geothermal Technician program will produce skilled workers for the geothermal energy industry, which is growing rapidly to meet the demands for clean, renewable and domestic energy. Skilled geothermal heating and cooling professionals are in high demand. Combining hands-on experience with theory, students are trained in the sizing, specification, and design of geothermal systems for both residential and industry applications. With the cooperation of the Canadian Geoechange Coalition, students are ready to be certified as both installers and designers of geoechange systems.

Wind Turbine Technician

<https://www.stlawrencecollege.ca/index.aspx?iPageID=139&iMenuID=6&progId=566>

Ontario College Diploma

This program will provide students with in depth knowledge and hands-on experience of the electrical and mechanical aspects as they relate to wind turbines. They will also learn fiberglass repair techniques as they relate to wind turbines. They will receive safety training for working at heights and in confined spaces.

Wind Turbine Technician / Industrial Electrician Co-op Diploma Apprenticeship

<http://www.stlawrencecollege.ca/index.aspx?iPageID=139&iMenuID=6&progId=559>

Ontario College Diploma

This unique program combines a registered Industrial Electrician apprenticeship with a Wind Turbine Technician Ontario College Diploma. Students who enroll in this program will be registered as Industrial Electrician apprentices while attending college and upon graduation students will have to complete the balance of the practical work experience requirements of the apprenticeship program to be eligible for certification as an Industrial Electrician.

Universities

Carleton University

Ottawa

Architectural Conservation and Sustainability Engineering

<http://admissions.carleton.ca/programs/architectural-conservation-and-sustainability-engineering>

Bachelor of Engineering

In a world where sustainability is becoming a guiding principle, there is a great need for engineers with expertise in the areas of heritage conservation and sustainable or green building design. Carleton's program in Architectural Conservation and Sustainability Engineering teaches students to approach the design and retrofit of new and existing buildings with sustainability as the primary objective, which includes considering the life cycle costs and impacts of the materials selected, energy needs and consumption, and the effective reuse and adaptation of existing structures. Students in the program, working closely with Carleton's architecture students, have the option of following a structural stream or an environmental stream after their second year.

Environmental Engineering

<http://admissions.carleton.ca/programs/environmental-engineering>

Bachelor; Master; Doctorate

Carleton University's Bachelor of Engineering (BEng) degree program in Environmental Engineering is one of only a few in Canada. The program includes a modified common engineering core program, a group of courses specific to environmental engineering, and additional courses in biology and chemistry

Sustainable Energy

<http://graduate.carleton.ca/programs/sustainable-energy-masters/>

Master of Engineering; Master of Arts; Master of Applied Science

Sustaining energy production and use is becoming increasingly challenging and requires innovative research into new and existing technologies, changes in consumer behaviour, and more creative policy and regulatory approaches. This graduate program in sustainable energy addresses these crucial challenges in a unique interdisciplinary fashion that involves both engineering and public policy.

Sustainable and Renewable Energy Engineering

<http://admissions.carleton.ca/programs/sustainable-and-renewable-energy-engineering>

Bachelor of Engineering (BEng)

There is an increasing demand for clean sources of energy such as nuclear, wind, solar, geothermal, hydropower and biomass energies. Truly sustainable development, however, will require the clever integration of renewable energy technologies into existing infrastructure, along with vastly improved efficiencies in non-renewable energy use. This program provides analytical and hands-on skills for designing, building, operating and enhancing sustainable energy systems that combine energy generation, distribution and utilization in an

environmentally responsible and economically beneficial manner. Two streams are offered: Smart Technologies for Power Generation and Distribution, and Efficient Energy Generation and Conversion.

University of Guelph

Guelph

Environmental Engineering

<http://www.uoguelph.ca/engineering/undergrad-environmental-engineering>

The Environmental Engineering program at Guelph was designed from the ground up as a complete, comprehensive environmental program. It provides in-depth knowledge of relevant physical, chemical and biological systems with a strong emphasis on engineering design. Students experience the important role Environmental Engineering plays in serving the current and future needs of all humanity. Topics include energy conservation and sustainable energy solutions.

University of Ottawa

Ottawa

Civil Engineering, Environmental and Water Resources Option

http://www.engineering.uottawa.ca/en/programs_of_study

Bachelor of Applied Science

To follow this option, students must complete the course required for the BAsC in Civil Engineering with the exception of the fourth year courses which are replaced by alternate courses, including environmental or water resources engineering electives. Co-operative education is available with this program.

Electrical Engineering

http://www.engineering.uottawa.ca/en/programs_of_study

Bachelor of Applied Science

Electrical Engineering is at the heart of today's exciting changes in technology and integral to their every aspect including development, design, manufacture, operation, and management. Graduates will work with other engineers or scientists on emerging technologies. The curriculum includes courses in engineering science and design, electronics, circuits and computers. Power and sustainable energy is included as one of the available technical specializations.

University of Toronto

Toronto

Environmental Engineering

http://www.undergrad.engineering.utoronto.ca/Programs/Minors_Certificates/Engineering_Minors_Certificates/minors/environmentaleng.htm

Minor program in an undergraduate Engineering Degree

Students interested in learning more about ecology, sustainable design, risk assessment and environmental impact may be interested in the Environmental Engineering Minor. Our broad definition of environmental engineering reaches all areas at the interface of engineering and the environment. This includes ecology and

ecological impacts, waste management, water and wastewater treatment, environmental microbiology, water resources engineering, hydrology, preventive engineering, life cycle analysis, design for the environment, and extends to the social and environmental impacts of technology.

LEED Green Building Strategies and Green Associate Exam Preparation

<http://2learn.utoronto.ca/uoft/search/publicCourseSearchDetails.do?method=load&cms=true&courseId=11959599>

This course, which is approved by the Canada Green Building Council (CaGBC), is a first step to being a green-building practitioner. During the intensive 12-week program, students will receive a comprehensive overview of the techniques, approaches, materials and technologies used to design and build greener buildings and communities. They will also gain familiarity with the core concepts of the Leadership in Energy and Environmental Design (LEED) Green Building Rating System® and learn how to apply these strategies to reduce the environmental impact of Canada's built environment.

Sustainable Energy

http://www.undergrad.engineering.utoronto.ca/Programs/Minors_Certificates/Engineering_Minors_Certificates/minors/sustainableenergy.htm

Minor program in an undergraduate Engineering Degree

The Sustainable Energy Minor is intended for students interested in learning more about energy, its sustainable use, energy demand management, and the public policy context in which energy use and production is regulated. Courses reach all areas of energy use, production, distribution, transmission, storage, and development. This includes energy use and production for transportation, for space cooling and heating demands, and electrical production (from both alternative and conventional sources), energy distribution and storage, and extends to energy conservation, price, greenhouse gas production and control, and aspects of public policy.

University of Ontario Institute of Technology

Oshawa

Energy and the Environment Physics

<http://www.science.uoit.ca/undergraduate/programs-and-information-for-prospective-students/physics/energy-and-the-environment-specialization.php>

Bachelor of Science

This specialization is designed to meet the urgent demand for graduates with the knowledge and skills to address global issues of escalating energy consumption and declining resources. It emphasizes expertise in alternative and conventional energy and the scientific principles underlying the development of novel and economical means of generating and harvesting energy, while simultaneously minimizing their environmental impact.

Energy Systems Engineering

<http://www.uoit.ca/programs/energy-systems-and-nuclear-science/energy-systems-engineering.php>

Bachelor of Engineering (Honours) / Bachelor of Engineering and Management (Honours)

Students will learn the skills to design and develop tomorrow's energy systems. This degree program is the first stand-alone program of its kind in Canada. The curriculum provides students with an understanding of the principles and applications of the full range of energy systems and technologies from traditional fossil-fuelled

energy systems to alternative energy technologies. This includes the production, storage, distribution and utilization of energy.

University of Waterloo

Waterloo

Environmental Engineering

<https://uwaterloo.ca/civil-environmental-engineering/environmental-engineering>

Bachelor of Engineering

The Environmental Engineering program takes the best of engineering courses and principles to lay the foundation of quantitative skills, legendary to Engineering at Waterloo, and augments these skills with the diversity and robustness of technical elective courses in Earth Sciences, Biology, Chemistry, Ecology and Planning to provide a program unique and able to meet the current and future challenges in managing and restoring our natural environment.

Masters of Engineering with a Green Energy Certificate

<http://www.greenenergy.uwaterloo.ca/>

The objectives of this certificate program are: to produce engineers with more specialized technical training and a specific focus in green energy; to offer a course-work professional development graduate program for practicing engineers to be formally trained in the area of green energy; to provide new Canadian, foreign-trained engineers a degree program that facilitates quicker entry to the Canadian workforce in an important technical area of significant national interest; to provide newly graduated engineers an opportunity to pursue graduate education in the area of green energy.

Environment Resource Studies

<https://uwaterloo.ca/environment-resource-studies/>

Bachelor; Master; Doctorate

The Department of Environment and Resource Studies (ERS) offers programs which focus on sustainability and the ethics of solving environmental and resource problems, ranging from water and food to energy and biodiversity. The program draws on techniques and ideas from many disciplines to seek integrative solutions that cross the boundaries between the natural and social sciences, thereby linking knowledge of resources and ecosystems with sustainability policy and governance.

University of Western Ontario

London

Green Process Engineering

<http://www.eng.uwo.ca/undergraduate/programs/GreenProcess.html>

Bachelor of Engineering

The curriculum integrates the fundamental principles of chemical engineering to design commercial products and processes that are safe, economical and environmentally friendly by reducing waste generation. The program also explores alternative sources of energy with reduced carbon emissions. Some of the distinguishing features of the program include the emphasis on green chemistry, green power, solar and bio-fuel cells, and conversion of waste, such as agricultural byproducts to bio-diesel and bio-ethanol products.

January 2015 update by Ecology Ottawa, on behalf of the Community Energy Network of Eastern Ontario

For more information, see: www.community-energy.ca and www.ecologyottawa.ca/green-jobs-training-education

University of Windsor

Windsor

Environmental Engineering (with optional Co-op)

<http://www.uwindsor.ca/futurestudents/programprofile/environmental-engineering-with-optional-co-op>

Bachelor of Applied Science

Tackle the challenges that can harm human and ecosystem health. Design real-world processes and systems that remove contaminants before they are released into our air, water and soil. Study and apply the skills that lead to the latest technologies, systems, and approaches for preventing and reducing pollution, increasing eco-efficiency, and promoting renewable energy that lead to innovative, sustainable, and economical solutions for our planet.

York University

Toronto

Certificate in Sustainable Energy

<http://fes.yorku.ca/students/current/bes/certificates/se>

Certificate in a Bachelor of Environmental Studies program

Explore and gain applied skills in the area of sustainable energy (SE), specifically in energy efficiency, conservation and demand management and renewable energy sources. The certificate encompasses the policy, economic, technological and managerial aspects of sustainable energy and provides students with applied skills in the field. By completing the certificate as part of the Honours Bachelor of Environment Studies degree, students enhance the theoretical foundation provided by their Area of Concentration with expertise in sustainable energy policy, economics, law, technology, management, communications and evaluation and hands-on applied training. Students completing the certificate program can pursue career paths with government agencies, local energy distribution companies, renewable energy developers and energy service companies.

Training Institutions/Other

Canadian Solar Institute

Toronto

5-Day Solar PV Design and Installation Workshop

http://www.solarinstitute.ca/CSI_5DAY_SolarPV_Design_and_Install.html

This five-day workshop will provide a thorough understanding of the unique aspects of solar PV system design and installation. It will cover the importance of system sizing, component selection as well as good design and installation practices.

Renewable Energy Turnkey Business Solution

<http://www.solarinstitute.ca/turnkey.html>

This workshop will help you start a business in one of the fastest growing industries in North America. Included is extensive training, a customized two week design and installation workshop for you and your crew, assistance on your first install by an experienced solar technician, and more.

Clean Energy Institute of GPEKS

(Green Power Environment Knowledge Systems)

Ottawa

Distance Learning Programs

<http://info.cleanenergyeducation.net/?q=node/12>

The Clean Energy Institute of GPEKS delivers four renewable energy project feasibility analysis certificate programs that consist of a combination of certificate courses: Clean Energy; Green Heat; Green Power; and Solar Building.

Wind Turbine Technician Training Program (6 Month)

<http://info.cleanenergyeducation.net/?q=node/26>

Courses include workplace safety, sources of electromotive force, wind turbine electrical, wind turbine hydraulics, wind park construction, and more.

Solar Technician Program (6 Month)

<http://info.cleanenergyeducation.net/?q=node/25>

Working in partnership with an organization registered with the Ontario Ministry of Training, Colleges and Universities, this program is geared toward those interested in a career as a Solar Energy installer. The course curriculum will enable participants to challenge the *North American Board of Certified Practitioners* Certified Solar PV Installer examination.

Hybrid Solar PV Design and Installation Workshop

<http://info.cleanenergyeducation.net/?q=node/22>

This PV design and installation course is made of a five-week eLearning course followed by a 2.5 days hands-on workshop and is based on NABCEP learning objectives and prepares participants to challenge the entry level exam. The eLearning course will be delivered in partnership with Solar Energy International, where the Clean Energy Institute will provide localized content to adapt the US curriculum to the Canadian/Ontario regulatory and climate context. Target audience: professional electricians, engineers, solar installers, building contractors, roofers and even home-owners who feel competent enough to install a PV system on their own house or cottage.

College of Renewable Energy

Newcastle

Certified Solar Energy Technician (6 Month)

http://www.collegeofrenewableenergy.com/coresite_002.htm

January 2015 update by Ecology Ottawa, on behalf of the Community Energy Network of Eastern Ontario

For more information, see: www.community-energy.ca and www.ecologyottawa.ca/green-jobs-training-education

A six-month full-time program that completely qualifies students to work in a number of capacities: Solar Installer, Solar Designer, Consultant, Assembler, Sales Professional, & more. Includes NABCEP Certification opportunities and Fall Arrest Certification.

NABCEP Solar Certification (5 Day)

http://www.collegeofrenewableenergy.com/coresite_002.htm

Certification for the North American Board of Certified Energy Practitioners (NABCEP) is a first-step qualification that is recognized both in Canada and the United States.

Intro to Solar Photovoltaics (5 Day)

http://www.collegeofrenewableenergy.com/coresite_002.htm

This intensive five-day course prepares students for the ability to install PhotoVoltaic (PV) panels safely and competently, whether for a project for their own home, or preparation for further education in Solar.

Intro to Solar Thermal (5 Day)

http://www.collegeofrenewableenergy.com/coresite_002.htm

If you've been considering installing Solar Thermal panels to generate hot water for your home (for heating or augmenting your hot water tank), this intensive five-day course will give you the practical information needed to do a quality job. Or if you are an installer seeking to upgrade your range of hardware experience, this course will speed your successful career enhancement.

EFAN Green

Multiple Locations in Ontario

Planning and Installing Solar PV Systems with Hands-on Training (5 Day)

http://site.efan.ca/solar_training.html

This course will provide an overview of the three basic PV system applications, primarily focusing on grid-direct systems. The goal of the course is to create a fundamental understanding of the core concepts necessary to work with all PV systems, including: system components, site analysis, PV module criteria, mounting solutions, safety, and commissioning. The course will also cover the basics of sizing a residential grid-direct system, wire sizing, overcurrent protection, and grounding. Based on NABCEP Learning Objectives. Customized for compliance to Canadian Building and Electrical Code.

Kortright Centre for Conservation

Woodbridge

<http://www.kortright.org/groups-and-education/energy-workshop/>

These are one-day to one-week workshops for individuals, organizations and companies looking for introductory education and training in various renewable energy technologies. Options include professional training, installation workshops, technology workshops, and introductory seminars.

Ontario Solar Academy

Toronto

5-Day Solar PV Design & Installation Course

<http://www.solaracademy.com/ontario/solar-course-details/five-day-course-details-outline>

The 5-Day Solar PV Design and Installation Course (Level One) covers fundamental knowledge and reviews the design, installation, and evaluation of residential and commercial solar photovoltaic (PV) systems. The solar training, based on the NABCEP learning objectives, includes site evaluation tools and techniques, solar electric component operation and connection, system design and sizing, and standard requirements and practices. This special Ontario Solar Academy course guides students from system fundamentals to advanced mechanical and electrical concepts in accordance with Electrical Code requirements in Ontario. All students completing the course receive Solar Academy International's "Solar Practitioner Certificate: Level One." Courses are offered throughout Ontario.

2-Day Advanced Solar PV Design & Electrical Code

<http://www.solaracademy.com/ontario/solar-course-details/special-solar-training-classes/2-day-advanced-solar-pv-design-electrical-code>

The 2-Day Advanced Solar PV Design and Electrical Code covers in depth coverage of inverter string sizing, wire sizing, system design and installations that follow local electrical code for residential and commercial solar photovoltaic (PV) systems.

Windfall Ecology Centre

Aurora

REpower Ontario

<http://www.repowerontario.ca/>

<http://windfallcentre.ca/repower/what/>

REpower Ontario initiative orients, trains, and connects eager participants with employment and self-employment opportunities and possibilities in the new green economy. This program empowers participants to recognize existing aptitudes and passions while identifying how to transition those skills to build a career within the green economy. Through unique learning activities and methodologies, REpower Ontario integrates the areas of renewable energy, water, social innovation and community development. Financial assistance is available to eligible applicants to attend the REpower Ontario course.

Additional Resources

<http://www.eco.ca/training/> - ECO Canada is the country's largest online resource for environmental jobs, training, and certification.

<http://www.eco.ca/publications/Careers-in-Sustainability:-Current-Job-Trends-and-Future-Growth/53/Featured-Report/> - ECO Canada's 2013 Sustainability Occupational Study. Details the required skills, education, and experience required for sustainability careers.

<http://www.evergreen.ca/docs/res/Green-Jobs-Map-Ontario-2012.pdf> - A regional analysis that provides a closer examination of the unique characteristics of jobs in Ontario's green economy.

<http://thegreenstudent.ca/> - The Green Student strives to maximize the opportunities for environmentally-minded post-secondary students across Canada by sharing information, resources, and links to jobs, funding, and scholarship opportunities.

<http://www.greencollarcareers.ca/> - Green Collar Careers has information available for students, teachers, and industry partners; it offers resources on career planning, "green" careers, scholarships & grants, and education/training programs.

<http://ecologyottawa.ca/green-jobs-training-education> - as a founding member of the Community Energy Network of Eastern Ontario, Ecology Ottawa is helping people in Eastern Ontario have an increased ability to access training, mentorships, and the good green-collar job opportunities being provided by the clean energy economy. Visit the website to find information on the following subjects: 1. green job postings (on-line); 2. job and career centres; 3. apprenticeships and mentorships; 4. training opportunities; and 5. education opportunities.