

Energy Audit Techniques

Renewable Energy Technician

Program Guide



School of Skilled Trades,
Apprenticeship and Renewable
Technology

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Please note the following important information:

Durham College strives to ensure the accuracy of the information in this publication. Please note that the academic curriculum is continually reviewed and revised to ensure program quality and relevancy. As such, the college reserves the right to modify or cancel any course, program, fee, procedure, and timetable or campus location at any time. Please consult our website at www.durhamcollege.ca for the most current information.

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Welcome Students

A Message from the Dean

Welcome to Durham College's School of Skilled Trades, Apprenticeship, and Renewable Technology at Whitby. You are beginning a career path of your choice and our faculty and staff are committed to helping you achieve your goals.

To do this, our faculty, who are dedicated professionals chosen from your field of study, have developed relevant programs of study and look forward to engaging you to achieve success in your program. These courses of study are a mix of both theoretical and hands-on activities that are appropriate to your career field. Our classroom and shop facilities are well equipped and designed to support your learning experience. Your time at Durham College is an opportunity for concentrated study to prepare for your career. Please use your time here to your best advantage.

Our faculty and staff take pride in our mission to provide a progressive and motivating learning environment to produce exceptional graduates who meet industry expectations. If at any time you require help please feel free to approach our faculty and staff for assistance. Your success matters to us!

Welcome



Darrin Caron

Dean, School of Skilled Trades, Apprenticeship and Renewable Technology

A Message from the Vice-President Academic

Congratulations on choosing Durham College and taking a very important step in preparing for your future. Durham College is known for high quality programs, leading edge technology, an award winning library and a student-centered approach to learning. Supporting our mission that the student experience comes first, Durham College is committed to providing students with quality learning experiences and support in finding fulfillment in education, employment and lifelong learning.

Our programs are continually shaped by market needs and delivered by exceptional teachers with real-world experience. The program you have chosen has been designed to help you develop the necessary skills and knowledge to support your success in your chosen career path. Our dedicated and professional staff and professors are committed to helping you achieve your educational goals and your career aspirations.

Durham College strives to be accountable to students and employers through the preparation of work-ready graduates who will continue to live our “success matters” focus in their professional work environment.

We are pleased you have chosen to study at Durham College and we look forward to supporting your learning journey – work hard, have fun, enjoy your college experience and campus life.

I wish you much success with your studies.

A handwritten signature in black ink that reads "Judy Robinson". The signature is written in a cursive, flowing style.

Judy Robinson,

Vice President, Academic

School of Skilled Trades, Apprenticeship & Renewable Technology

Whitby Faculty & Staff

Individuals may be contacted by dialing directly (905) 721-2000, followed by the appropriate extension.

Administration	Title	Phone	E-mail Address
Caron, Darrin	Dean/Principal	3302	darrin.caron@durhamcollege.ca
Chard, Shelley	Student Liaison	4087	shelley.chard@durhamcollege.ca
Hauber, Julie	Administrative Assistant	3344	julie.hauber@durhamcollege.ca
Moore, Sue	Manager – Academic Operations	4040	sue.moore@durhamcollege.ca
Nippard, Anne	Purchasing (Central Stores)	4043	anne.nippard@durhamcollege.ca
Nokes, Rob	Technologist, Pipe Trades	4074	robert.nokes@durhamcollege.ca
Parker, Greg	Technologist, IMM	4079	gregory.parker@durhamcollege.ca
Pearce, Mary	Administrative Coordinator	4025	mary.pearce@durhamcollege.ca
Stairs, Gary	Technologist, Motive Power	4073	gary.stairs@durhamcollege.ca
Tamlin, Brad	Technologist, Electrical	4312	brad.tamlin@durhamcollege.ca
Zilstra, Don	Technologist, Machining	4079	don.zilstra@durhamcollege.ca

Faculty	Department	Phone	Office	Email Address
Beals, David	PET	4167	22-16	david.beals@durhamcollege.ca
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Brooks, Graham	Electrical	4150	22-33	graham.brooks@durhamcollege.ca
Bruyea, Lindsay	Electrical	4159	22-30	lindsay.bruyea@durhamcollege.ca
Chilton, Bill	Electrical	4149	22-18	bill.chilton@durhamcollege.ca
Cholmondeley, John	Motive Power	4173	22-31	john.cholmondeley@durhamcollege.ca
Coady, Glenn	Plumbing	4186	22-39	glenn.coady@durhamcollege.ca
Cook, Mike	Electrical	4004	22-09	mike.cook@durhamcollege.ca
Cooney, Martin	Communications	4157	22-08	martin.cooney@durhamcollege.ca
Cornish, Clair	Online	3328	22-38	clair.cornish@durhamcollege.ca
Cunningham, Colin	MTNT/Machining	4179	22-35	colin.cunningham@durhamcollege.ca
Deline, Rodney	Electrical	4164	22-09	rodney.deline@durhamcollege.ca
Dewar, Dave	Electrical	4199	22-21	dave.dewar@durhamcollege.ca
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Fielding, Steve	Electrical	4038	22-34	stephen.fielding@durhamcollege.ca
Fishley, Don	Carpentry	4202	22-06	don.fishley@durhamcollege.ca
Forderer, Henry	MTNM/IMM	4188	22-13	henry.forderer@durhamcollege.ca
Foss, Ron	Motive Power	4171	22-27	ron.foss@durhamcollege.ca
Gambier, Michael	PET	4133	22-16	mike.gambier@durhamcollege.ca
Godfrey, Craig	Precision Metal Fabrication	4194	22-32	craig.godfrey@durhamcollege.ca
Grant, Bob	Motive Power	4180	22-29	robert.grant@durhamcollege.ca
Griffin, Peter	Energy	4156	22-36	peter.griffin@durhamcollege.ca

Faculty	Department	Phone	Office	Email Address
Haynes, Doug	Electrical	4169	22-18	doug.haynes@durhamcollege.ca
Heale, Robert	Energy/Electrical	4196	22-40	robert.heale@durhamcollege.ca
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Keays, Kevin	Hoisting	3324	22-11	kevin.keays@durhamcollege.ca
Kelly, Ben	Electrical	4019	22-20	ben.kelly@durhamcollege.ca
Marley, Tom	MTNM/IMM	4187	22-37	tom.marley@durhamcollege.ca
Martin, Al	Energy	4182	22-07	al.martin@durhamcollege.ca
McKenney, Mike	Electrical	4178	22-15	mike.mckenney@durhamcollege.ca
Moran, Greg	HVAC	4174	22-36	greg.moran@durhamcollege.ca
Murdock Don	Energy	4192	22-07	don.murdock@durhamcollege.ca
Noordstra, Gary	MTNM/IMM/Online	4195	22-38	gary.noordstra@durhamcollege.ca
Peel, Gregg	Welding	4200	22-10	gregg.peel@durhamcollege.ca
Platnar, John	Plumbing	4197	22-39	john.platnar@durhamcollege.ca
Poirier, Tony	Electrical	4170	22-33	tony.poirier@durhamcollege.ca
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Quantrill, Steve	Motive Power	4176	22-30	steve.quantrill@durhamcollege.ca
Ross, Jeff	Welding	4201	22-10	jeffrey.ross@durhamcollege.ca
Ruffo, Ralph	Motive Power	4155	22-31	ralph.ruffo@durhamcollege.ca
Sauve, Dan	HVAC	4039	22-23	daniel.sauve@durhamcollege.ca
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St. Arnaud, Jean	MTNT/Machining	4158	22-06	jean.st.arnaud@durhamcollege.ca
Stoneham, Pam	Mathematics	4109	22-15	pamela.stoneham@durhamcollege.ca
Trauzzi, Ralph	Electrical	4165	22-34	ralph.trauzzi@durhamcollege.ca
Voynov, Violin	Electrical	4185	22-40	violin.voynov@durhamcollege.ca
Watkins, Dave	Gas Technician 2	4175	22-08	david.watkins@durhamcollege.ca
Wood, Jerry	Plumbing	4172	22-12	jerry.wood@durhamcollege.ca

Office of the Registrar – Whitby Campus responds to general inquiries and provides course information and registration for post-secondary, apprenticeship and continuous education programs.

Important Numbers

Accounting, General Information (Oshawa)	3020
Admissions, Whitby	4041
Athletic Complex, Oshawa	3040
Bookstore, Oshawa	3026
Bookstore, Whitby	3306
Centre for Students with Disabilities, Oshawa	3123
Continuing Education, Whitby	3332/3330
Dental Clinic, Oshawa	3074
Financial Aid, Oshawa	3036
Financial Aid, Whitby (Wednesday only)	4010
General Program/Registration Information	3300
Career Services Whitby	3343
Housing, Oshawa	2472
Learning Commons	4015
Library, Oshawa	2214
Library/Media Services, Whitby	4015
Peer Tutoring	4087

Individuals may be contacted by dialing directly (905) 721-2000, followed by the appropriate extension.

Mission: The student experience comes first at Durham College

Vision

- Durham College is the premier college in Canada for career-focused students who will succeed in a challenging, supporting and inclusive learning environment.
- Our programs are continually shaped by market needs and delivered by exceptional teachers with real-world experience.
- Our vibrant campus community enriches the student life experience.

All of this combines to ensure our graduates have the market-ready skills to obtain great careers and make a difference in the world.

Values

Our values drive our organizational culture and our behaviour in delivering our vision and mission. They are:

Integrity and Transparency...

we will behave and communicate sincerely and honestly

Respect...

we will treat everyone with dignity and offer superior service

Equality and Diversity...

we will champion all learners and celebrate diversity

Innovation...

we will be leaders in market-responsive learning experiences and solutions

Personal and team accountability...

we will do what we say we will do



THE STUDENT EXPERIENCE COMES FIRST AT DURHAM COLLEGE

Important to All

Students and staff at Durham College are committed to academic excellence by:

- Demonstrating respect for one another and property
- Maintaining a clean and safe environment
- Taking an active role in the learning process
- Providing and receiving support when necessary
- Attending classes and/or appointments regularly and on time
- Modeling skills, attitudes and expectations of the workplace

Support Staff

- Provide professional quality customer service to students and staff
- Direct students and staff to appropriate resources
- Support and assist students in their learning and career goals
- Promote services that enhance student success

Faculty

- To be positive, enthusiastic, patient and flexible
- To be in the class early and prepared to begin on time
- To keep current in academic and professional knowledge
- To be prepared for activities, exercises and demonstrations
- To be available and show willingness to help students
- To ensure that all students get equal assistance and time
- To perform evaluations according to established criteria and within a reasonable time frame
- To return and take up any assigned homework, assignments, tests and projects promptly
- To identify students requiring remedial assistance, and to direct those students to the appropriate services
- To write constructive and helpful statements when evaluating student assignments
- To use a variety of teaching, questioning, and assessment techniques
- To motivate and engage learners in active and collaborative learning
- To encourage student participation and feedback wherever possible
- To effectively use learning technology
- To outline professional responsibilities, career alternatives, and avenues for further education following graduation
- To provide a course outline to each student at the beginning of the course, to review the outline with the students, and to adhere to the outline
- To adhere to Durham College policies, procedures and guidelines
- To place the safety and well being of the student above all other objectives, including fulfilling education obligations

Students

- To be prepared for class and professional practice activities. This will include reading appropriate textbook assignments prior to class and completing any homework assignments
- To be in class and arrive on time
- To participate in class activities
- To demonstrate respect for all persons and the learning environment
- To be trustworthy, honest, and accountable for own behaviour
- To complete tests, assignments and evaluations as required, striving for excellence
- To demonstrate effective communication skills
- To understand all course requirements and to follow them
- To seek assistance immediately if unable to follow the subject requirements for any reason
- To read and adhere to Durham College policies, procedures and guidelines

Administration

- Meet or exceed standards of excellence
- Manage budgets and resources
- Support students and staff in meeting their responsibilities
- Support/direct approved operational procedures
- Communicate relevant information in a timely fashion
- Be current in their field of leadership in a college environment

Important Dates 2011 – 2012

Please note the dates of your semester examinations. **Please ensure that you do not schedule vacation or employment during these times.**

FALL 2011 SEMESTER

July 4, 2011	Fees due date for first year students
July 12, 2011	Web registration - for 2 nd year students who have paid for fall semester - begins.
July 13, 2011	Web registration - for 3 rd year students who have paid for fall semester - begins.
July 19, 2011	Web registration - for 1 st year students who have paid for fall semester - begins.
July 20, 2011	Fees due date for returning students.
August 1, 2011	Civic holiday (no classes).
TBA	Registration for part-time Oshawa campus students begins and window opens for timetable changes.
August 29, 2011	Apprenticeship Classes begin.
September 5, 2011	Labour Day (no classes).
September 6, 2011	Orientation for first-year students.
September 7, 2011	Classes begin for most programs.
September 13, 2011	Last day for late program registration. Last day for fall semester course or program changes.
September 20, 2011	Last day for full-time students to withdraw with a refund of fees paid, less a \$100 administration fee. ^{1, 2} Last day for refund eligibility when dropping to part-time.
September 20, 2011	Last day for part-time students to withdraw with tuition fee refund less an administration fee. ^{1, 2} Last day to submit a Prior Learning Assessment and Recognition (PLAR) request for fall semester subjects.

September 30, 2011	Student Health Insurance Plan “Opt-out” deadline.
October 3, 2011	Due date for 2 nd instalment of Fall fees.
October 4, 2011	Last day for application for fall semester subject exemption/credit. Last day for withdrawal from a fall semester subject with no academic record. Subjects dropped after this date, will be recorded on the academic transcript with a “W” to indicate withdrawal. ^{1, 2}
October 10, 2011	Thanksgiving (no classes).
October 20, 2011	Fall Convocation (to be confirmed)
October 26, 2011	Deadline for submission of adjusted marks to clear INC grades from Summer 2011. INC grades after this date will revert to a fail.
November 16, 2011	Winter 2012 semester fees due date.
November 17, 2011	Scholarship Ceremony
November 14, 2011	Last day to withdraw from a fall semester subject. After this date, all subjects will be graded and recorded on the student’s transcript. ^{1, 2}
December 9, 2011	Last day of classes for most programs.
December 12 to 16, 2011	Fall semester final examinations/evaluation(s) for postsecondary students. Students are reminded not to schedule vacation or employment hours during these times. January 4 and 5, 2012 scheduled as tentative snow dates for the Oshawa campus.
December 22, 2011	Grades are available to view electronically as of 4 p.m. Note: official distribution date for the purpose of academic appeals is January 4, 2012.
TBA	Full-time students may process timetable changes for the winter semester through MyCampus as of 4 p.m.
December 24, 2011 –	
January 1, 2012 inclusive	Campus closed for the holiday season.

WINTER 2012 SEMESTER – JANUARY START

November 21, 2011	Web registration for Fall start 1 st year students for winter 2012 semester courses begins.
November 28, 2011	Web registration for 2 nd and 3 rd year students for winter 2012 semester courses begins.

December 5, 2011	Web registration for January start students begins.
December 7, 2011	Winter 2012 semester fees due date.
TBA	Registration for Oshawa campus part-time students begins.
January 2, 2012	Apprenticeship Classes begin
January 4, 2012	Classes begin for most programs. Official grade distribution date for the purpose of Academic Appeals.
January 10, 2012	Last day for late program registration. Last day for winter semester course or program changes.
January 10, 12 and 14, 2012	Dates for missed exams from Fall Semester 2011
January 17, 2012	Last day for full-time students, who started their program in September 2011, to withdraw with a refund of <u>winter tuition fees</u> . ^{1,2} Ancillary fees and school supply fees are not refundable. Last day for full-time students, who started their program in January 2012 to withdraw with a refund of fees paid less a \$100 administration fee. ^{1,2} Last day for refund eligibility when dropping to part-time. Last day to withdraw from part-time studies with tuition fee refund less an administration fee per subject. Last day to submit a Prior Learning Assessment and Recognition (PLAR) request for winter semester subjects.
January 31, 2012	January start students only: Student Health Insurance Plan "Opt-out" deadline.
January 30 to Feb 3, 2012	Winter Break week for Electrical Block Intermediate & Advanced apprenticeship students only.
January 31, 2012	Last day for application for winter semester subject exemption/credit.
January 31, 2012	Last day to withdraw from a January start subject with no academic record. Subjects dropped after this date, will be recorded on the academic transcript with a "W" to indicate withdrawal. ^{1,2}
February 8, 2012	Due date for 2 nd instalment of Winter fees.
February 17, 2012	T2202As available online via MyCampus as of 4 p.m.
February 20, 2012	Family Day (no classes).

February 20 to 24	Winter Break week; no classes with the exception of Apprenticeship and February-start students.
February 27 to March 2	Winter Break week for Apprenticeship students with the exception of Electrical Block Intermediate and Advanced students.
March 7, 2012	Deadline for submission of adjusted marks to clear INC grades from Fall 2011. INC grades after this date will revert to a fail.
March 12 to 16, 2012	Winter Break week for most OYAP apprentices (except OYAP hairstylists; please see your school office).
March 19, 2012	Last day to withdraw from a January-start subject. After this date, all subjects will be graded and recorded on the student's transcript. ^{1, 2}
April 6 2012	Good Friday (no classes).
April 10, 2012	Last day to apply to graduate – courses ending April 2012.
April 13, 2012	Last day of classes for most January-start programs.
April 16 to 20	Winter semester (January start) final examinations/ evaluation(s); students are reminded not to schedule vacation or employment hours during these times.
April 27, 2012	Grades are available to view electronically as of 4 p.m. Official distribution date for the purpose of academic appeals.
May 8, 10, and 12, 2012	Dates for Missed Exams from Winter Semester 2012.
June 21 & 22, 2012	Convocation (Time and location TBA)

WINTER 2012 SEMESTER – FEBRUARY START

December 7, 2011	Winter 2012 – February-start - semester fees due date. Web registration for February-start students begins.
January 30, 2012	February-start classes begin.
TBA	Registration for Oshawa campus part-time students begins.
February 3, 2012	Last day for February-start late program registration.

	Last day for February-start course or program changes.
February 10, 2012	Last day for full-time students, who started their programs in February 2012 to withdraw with a refund of fees paid less a \$100 administration fee. ^{1,2} Last day for refund eligibility when dropping to part-time for February start only. Last day for February-start students to submit a Prior Learning Assessment and Recognition (PLAR) request for winter semester subjects.
February 20, 2012	Family Day (no classes).
February 29, 2012 deadline.	February-start students only: Student Health Insurance Plan “Opt-out”
February 24, 2012	Last day for application for semester subject exemption/ credit. Last day to withdraw from a February-start subject with no academic record. Subjects dropped after this date, will be recorded on the academic transcript with a “W” to indicate withdrawal. ^{1,2}
March 7, 2012	Due date for 2 nd instalment of Winter fees – February-start students only. Deadline for submission of adjusted marks to clear INC grades from Fall 2011. INC grades after this date will revert to a fail.
April 6, 2012	Good Friday (no classes)
April 9, 2012	Last day to withdraw from a February start subject with no academic penalty. After this date, all subjects will be graded and recorded on the student’s transcript. ^{1,2}
May 4, 2012	Last day of classes for most February start programs.
May 10, 2012	Grades are available to view electronically as of 4 p.m. Official distribution date for the purpose of academic appeals.
June 21 & 22, 2012	Convocation (Time and location TBA)

SPRING 2012 SEMESTER

March 7, 2012	Spring 2012 semester fees due date.
April 10, 2012	Web registration for Spring/Summer programs begin.
May 7, 2012	Most Spring classes begin.
TBA	Registration for Oshawa campus part-time students begins.

May 11, 2012	Last day for late program registration. Last day for most spring semester course or program changes.
May 18, 2012	Last day for full-time students, who started their programs in Spring semester to withdraw with a refund of fees paid less a \$100 administration fee. ^{1,2} Last day to submit a Prior Learning Assessment and Recognition (PLAR) request for most spring semester subjects. Last day to withdraw from most spring semester subjects with no academic record. Subjects dropped after this date, will be recorded on the academic transcript with a "W" to indicate withdrawal. ^{1,2} Last day for application for spring semester subject exemption/credit.
May 21, 2012	Victoria Day (no classes).
May 31, 2012	Student Health Insurance Plan "Opt-out" deadline.
June 8, 2012	Last day to withdraw from most spring semester subjects. After this date, all subjects will be graded and recorded on the student's transcript. ^{1,2}
June 22, 2012	Last day of classes for most Spring-start programs.
June 29, 2012	Deadline for submission of adjusted marks to clear INC grades from January start Winter 2011 semester. INC grades after this date will revert to a fail.
June 28, 2012	Spring semester grades are available to view electronically as of 4 p.m. Official distribution date for the purpose of academic appeals.

SUMMER 2012 SEMESTER

April 10, 2012	Web registration for Spring/Summer programs begins.
May 2, 2012	Summer 2012 semester fees due date.
July 2, 2012	Canada Day (no classes).
July 3, 2012	Summer classes begin.
July 9, 2012	Last day for late program registration. Last day for most summer semester course or program changes.
July 16, 2012	Last day for full-time students, who started their programs in Summer semester to withdraw with a refund of fees paid less a \$100 administration fee. ^{1,2} Last day to submit a Prior Learning Assessment and Recognition (PLAR) request for most summer semester subjects.

Last day to withdraw from most summer semester subjects with no academic record. Subjects dropped after this date, will be recorded on the academic transcript with a “W” to indicate withdrawal.^{1,2}

Last day for application for summer semester subject exemption/credit.

August 3, 2012	Last day to withdraw from most summer semester subjects. After this date, all subjects will be graded and recorded on the student’s transcript. ^{1,2}
August 6, 2012	Civic Holiday (no classes).
August 17, 2012	Last day of classes for most Summer start programs.
August 23, 2012	Grades are available to view electronically as of 4 p.m. Official distribution date for the purpose of academic appeals.
October, 2012	Convocation (Time and location TBA)

NOTES:

1. Official Withdrawal forms must be completed by the student and submitted to the Office of the Registrar.
2. The administration fee for international students will vary.

These dates represent the best information at time of publication. The College reserves the right to make changes subject to amendments to existing legislation, Collective Agreements, or as required by the College. Dates may vary slightly from program to program.

Program Information

ENERGY AUDIT TECHNIQUES

Advanced Standing

Students with post-secondary credits may be considered for advanced standing on an individual basis.

Program Description

Energy Auditors assess the energy performance of new and existing homes and recommend ways to improve efficiency and effectiveness of systems related to energy use, in order to improve cost factors and reduce the production of greenhouse gas emissions that contribute to climate change and harm the environment.

Successful completion of program will enable students to:

- Perform accurate energy audits on new and existing homes to assess their energy performance
- Recommend realistic energy conservation strategies and efficiency modifications to improve the effectiveness of systems related to energy use
- Recognize and recommend ways to reduce energy costs in order to reduce the production of greenhouse gas emissions that contribute to climate change and harm the environment
- Evaluate the building envelope, insulation levels, combustion appliances, window efficiency, hot water pipes, the furnace, air conditioning, electrical motors and other items

Employment Opportunities

Graduates of the program may find employment as energy auditors with:

- Home energy assessment advisor
- Energy auditor for real estate developers and construction firms
- Entrepreneurial opportunities

Program Information

RENEWABLE ENERGY TECHNICIAN

Advanced Standing

Students with post-secondary credits may be considered for advanced standing on an individual basis.

Program Description

Students will receive basic exposure to the traditional energy consuming systems. With a solid foundation in the operation of renewable energy systems, such as solar power, wind power and ground source heat pumps, renewable energy technicians will be well positioned to procure an interesting and challenging career in the energy sector.

Successful completion of program will enable students to:

- Work in the operation of renewable energy systems, such as solar power and wind power and to promote the use of high energy efficient systems such as geothermal heat pump systems, heat recovery ventilation and other conservation solutions/ systems
- Perform accurate energy audits on new and existing homes to assess their energy performance
- Assist in the installation and assembly of solar energy panels, geothermal heat pump systems and wind turbines

Employment Opportunities

Graduates of the program may find employment as renewable energy technicians with:

- Energy consulting firms
- Engineering consulting firms
- Sales of energy related solutions/equipment
- Assist with the installation of energy related equipment
- Heating, ventilation, air conditioning and refrigeration industries
- Building owners
- Mechanical contractors
- Government agencies
- Home builders

To obtain program learning outcomes, you may wish to consult with your Dean. If you access the Ministry of Training, Colleges and Universities website, the published college program standards are listed.

<http://www.tcu.gov.on.ca/pepg/audiences/colleges/progstan/index.html>

Course Outlines

For each course, a Course Outline that describes course learning outcomes, course content, learning activities, evaluation methods, timelines and support resources is available online.

This is a binding document. Any changes will be agreed upon by students and the professor and requires approval from the Dean of the School. For further details, please refer to the Course Outlines Policy and Procedure documents (<http://www.durhamcollege.ca/academicpolicies>). Course outlines are important documents. Please refer to them during the semester and keep them safely afterward. For students who go on to other post secondary institutions or post diploma programs, these will be essential documents.

Please note that students are expected to download copies of their course outlines from MyCampus prior to the **first** class in each course. Instructions for downloading are located on MyCampus at www.durhamcollege.ca/mycampus .

General Education

General education courses strengthen students' skills in areas such as critical analysis, problem solving and communication in the context of an exploration of topics with broad-based personal and/or societal importance. Normally, programs of instruction leading to either an Ontario College Diploma or an Ontario College Advanced Diploma include three general education courses. Such courses are identified on the program of study using the designation of "G". General Education courses are typically a combination of mandatory and elective courses.

According to Durham College Academic Policy ACAD-103 and as a requirement for graduation, every Durham College student in a two or a three-year diploma program must have successfully completed a minimum of three General Education courses from at least **two different** General Education themes as follows:

GNED 1100 – Personal Understanding

GNED 1200 – Arts and Society

GNED 1300 – Civic Life

GNED 1400 – Social and Cultural Understanding

GNED 1500 – Science and Technology

Academic Integrity

Academic integrity refers to the pursuit of scholarly activity in an open, honest and responsible manner. Acts that undermine academic integrity, such as plagiarism, cheating and misrepresentation of work, contradict Durham College's core values.

To ensure the highest academic standards, students are accountable for the work they produce, and student work must be the product of his or her efforts. Durham College has purchased a license with Turnitin.com, an online service to detect unoriginal work and citation errors. The Academic Integrity Policy and Procedure documents (<http://www.durhamcollege.ca/academicpolicies>) provide a comprehensive explanation of Durham College's expectations regarding academic integrity.

Requirements For Promotion

Evaluation and Promotion

Academic courses are evaluated using a variety of methods such as tests, essays, labs, written or verbal assignments, in-process activities, group work and/or final examinations. The evaluation criteria for each course are noted in its course outline. Students are advised to familiarize themselves with these criteria early in the semester. Please refer to the Grading and Promotion Policy and Procedures documents (<http://www.durhamcollege.ca/academicpolicies>) for a complete overview of grading and promotion practices.

Academic Probation

Students who are not progressing satisfactorily according to criteria published in their respective program guides may be placed on academic probation, at the discretion of the school Dean or designate. Such students may be allowed to continue their studies on a Letter of Permission (an academic student contract) which will specify conditions which must be met to continue in their programs. Students who do not meet the conditions of their academic probation may be required to withdraw from full-time studies.

Aegrotat

Aegrotat refers to a 'compassionate pass' in a course in which, due to **emergency circumstances** related to health and wellness, a student was unable to complete all of the evaluation requirements. Emergency circumstances that may warrant the designation of an Aegrotat include, but are not limited to: injury, illness and/or bereavement. Documentation supporting the request for an Aegrotat designation may be required.

The awarding of an Aegrotat credit is noted in a student's transcript as AEG and is therefore not included in the calculation of a student's grade point average. A student shall receive Aegrotat standing only once in a five year period.

Further information about Aegrotat standing can be found in the Aegrotat Policy and Procedure documents (<http://www.durhamcollege.ca/academicpolicies>).

Missed Final Examinations

A final examination is a discretely designed assessment administered in Week 15 of a 14 week semester. Students who, as a result of **non-emergency circumstances**, miss one or more final examinations during a single examination period may be eligible to apply to defer/reschedule the writing of these assessments.

To be eligible, students must have no less than a cumulative 1.5 GPA, apply for consideration using the appropriate forms and pay a fee. This privilege can only be used by a student once in a five-year period. External accreditation requirements, the availability of appropriate examination facilities and other constraints necessitate that not all courses will be eligible.

For more details, students should speak with their Student Liaisons or review the Missed Final Examination Policy and Procedure documents (<http://www.durhamcollege.ca/academicpolicies>).

Academic Advising - Student Liaison

Durham College is committed to the success of every student during their educational experience. There are many resources available to support students on this journey. Academic Advising is a comprehensive service that is aimed towards meeting students' needs, increasing student satisfaction, improving retention and enhancing the quality of academic life. Each school has a **Student Liaison** to facilitate academic success. These representatives can assist students to:

- identify career goals and make sound academic decisions
- develop academic plans to promote success in the event of failed subjects or low grade point average (GPA);
- make decisions regarding full-time/part-time studies;
- review graduation requirements;
- set up academic plans with individual students upon request;
- find equivalent credits;
- transfer to another program;
- select electives and options; and
- access other college services to support student success.

While drop-ins may be possible for specific answers to short-term questions about courses, schedules, and procedures, it is advisable for students to set up a one on one appointment with their Student Liaison. Appointments may be made in person or by phone. Please visit your School office for further information.

Your Student Liaison is:

Name: Shelley Chard

Office #: 117 Administration Office

E-mail address: shelley.chard@durhamcollege.ca

Telephone: (905)721-2000 ext. 4087

CENTRE FOR STUDENTS WITH DISABILITIES

E-mail: disabilities@durhamcollege.ca

About the CSD

The Centre for Students with Disabilities (CSD) at Durham College provides services to students who are blind or have low vision, who are deaf or hard of hearing and those with physical, medical, psychiatric and learning disabilities. These services are designed in accordance with the Ontario Human Rights Code and the Accessibility for Ontarians with Disabilities Act by ensuring that students with disabilities have equal access to all aspects of the academic environment. Our services are confidential.

Registering for Accommodations

Accommodations are organized in co-operation with the student and as required, with the faculty on an individual basis. They are based on review of the medical or psycho-educational documentation completed by the appropriate medical professional or psychologist familiar with the student's particular diagnosis. The student is responsible for self identifying and submitting documentation of a permanent or temporary disability to the CSD in SW116. The documentation should outline the current impact of the disability. Assistance in obtaining the appropriate documentation may be available.

Accommodations may include extra time and/or technology supports for tests and exams, assistance obtaining records of class lecture material, reduced course load, material in alternate format, assistive technology assessment and training and learning strategies.

Things to Remember for Tests and Final Exams

In order to receive test and exam accommodations through the CSD, students **must** have completed the CSD Registration process including providing appropriate documentation. This can be a timely process – **contact the CSD as early as possible to ensure your accommodations and a seat in the test centre.**

Test Registration forms are available on our CSD website –**click on Test Centre Request Forms**. The Test Registration forms are also available in the CSD Test Centre (Room B216) as well as our main CSD Office (Room SW 116).

Completed test forms and notifications to your professors, **for each test**, need to be submitted to the CSD Test Centre (5) business days before the scheduled test, in order to reserve a space. **Accommodated tests cannot be guaranteed if a student submits the Test Center Form less than 5 business days in advance of the test date.**

CSD Final Exam sign-up **DEADLINES** are **ALWAYS** several weeks **BEFORE** the final exam period. The deadlines as well as the CSD final exam information, explaining our online sign-up process, will be posted on the CSD website each term

It is the student's responsibility to check their My Campus email address frequently as all important test and exam information including registration deadlines will be posted to My Campus.

The CSD may be **unable** to accommodate students who do not sign-up by the final exam sign-up deadline.

To Find Out More About CSD Services...

For further information please call 905-721-3123, drop by at SW116 to set up an appointment or visit our website at <http://www.durhamcollege.ca/student-experience/helping-you-succeed/centre-for-students-with-disabilities/>.

Student Academic Learning Services (SALS)

Success Matters start here! The staff and faculty at the Student Academic Learning Centre can help you achieve your educational goals. We can help you with writing, English (ESL), math, statistics, biology, chemistry, physics, and accounting.

You can use the centre to:

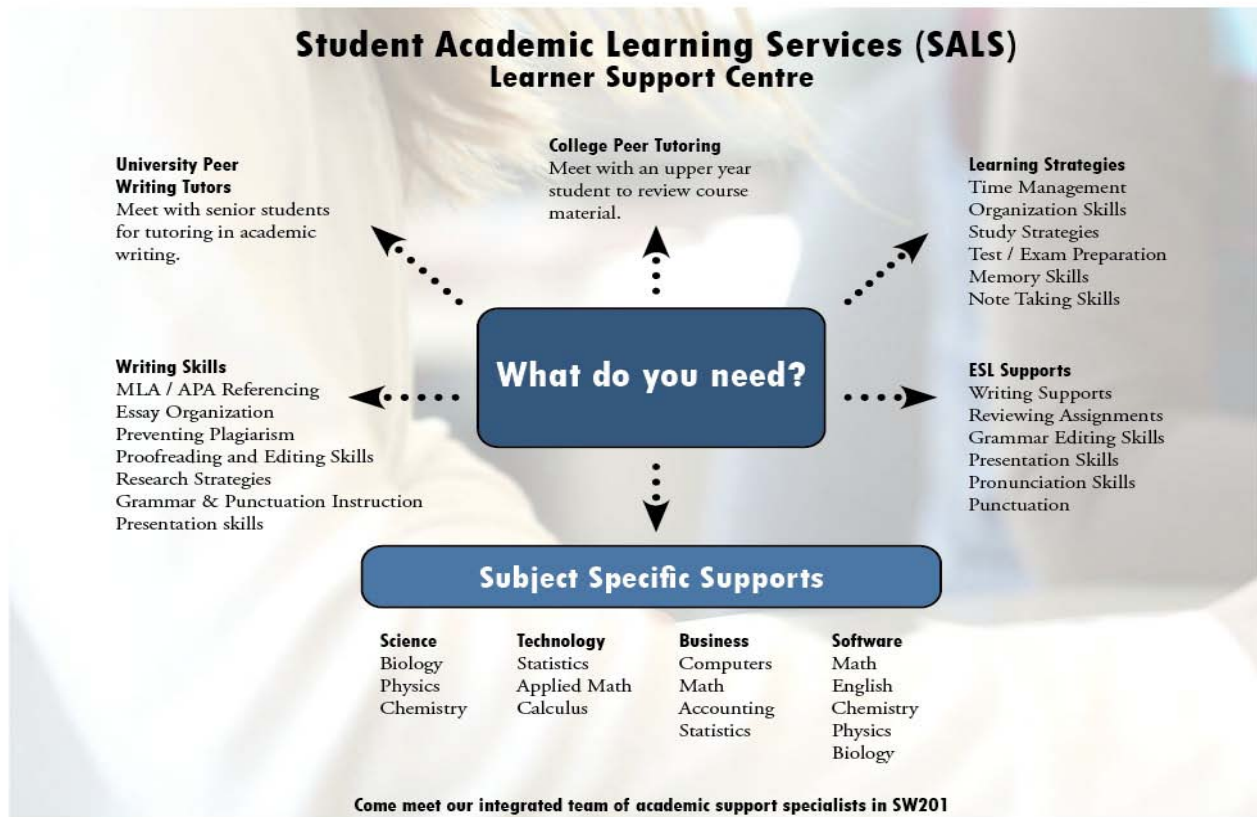
- Get peer tutoring help
- Learn how to study smarter, not harder
- Improve your reading skills and take better notes
- Increase your English (ESL) proficiency
- Improve your marks from a 'B' to an 'A'
- Learn strategies to manage your time & prepare for tests
- Improve your writing skills
- Have a quiet study space to do your work

Did you know?

There were **22,735** student visits to the centre last year.

All of the services at the centre are already included in your fees.

We will move from SW 201 to the new Student Services building in late 2010.



www.durhamcollege.ca/lsc

The Library

The Library is here to help you succeed!

Stop by for help to research a topic, complete an assignment, or when you just need a quiet place to study. The Library on the north side of the Polonsky Commons is easy to find. Both wired and wireless computer access is available along with 10 small group study rooms and the *Den* in the basement for group work. Although food is not permitted in the library, drinks in covered containers are allowed and you can buy a Starbucks coffee to go at the Library Café.

Students & faculty at the Whitby now have a small branch library at their location. They may also use the North Oshawa campus library in person, via internet, or request books to be sent to them at Whitby.

Most of the Library's resources are in digital format and are available 24x7 through the Library's web page. You can access them from on or off campus by logging in with your student number and computer password. The digital resources include e-books, magazines, journals, newspapers, statistical databases.

Visit the library virtually at www.durhamcollege.ca/library to:

- Research a Topic,
- Find books and articles,
- Renew materials,
- Request an interlibrary loan,
- Book a group study room,
- Get online help from a librarian
- Check on the hours the library is open

Your campus photo ID card is also your library card and is required to check out books and Reserve.

The librarians work closely with your professors to provide class presentations directly linked to your assignments. Additional sessions on using specialized resources are also offered throughout the year and help is also available on the library website. You may contact the Reference staff by phone or e-mail, and you are always welcome to visit our Reference desk in person. We look forward to helping you!

Check the website for library hours.

Circulation desk (905) 721.3082

Reference desk (905) 721.2000 ext. 2390

reference@dc-uoit.ca

College Publications

At Durham College, several publications provide the information you need before you start classes.

Program Guide

Durham College's Program Guides are a handy reference guide for everything students might want to know about their academic program. The program-specific guides provide essential information related to the program of study, policies, program requirements, faculty contact information, important dates, grading criteria, etc., as well as a starting point to help students find and navigate their way through academic and student support services.

Program Guides are distributed in print format to every registered student in the first class of the Fall semester and are available electronically on the college website. It is important that students read this guide at the beginning of their studies as it contains pertinent information for academic success and will be useful throughout the duration of the program.

Note:

- This guide is not intended to be a complete statement of all procedures, policies, rules and regulations at Durham College.
- The College reserves the right to change or cancel any provisions, requirements or subjects at any time.
- Student Liaisons and/or Faculty Advisors will assist in planning programs, but it is the student's responsibility to meet the academic requirements for completion of certificates and diplomas.

Continuing Education Course Book

Continuing Education publishes course calendars – Fall, Winter/Spring, listing courses for credit towards Post-Secondary Programs, and personal and professional development. The same course outlines are used for full-time and Continuing Education courses.

Courses may be accessed through classroom setting, correspondence (distance education) or online courses (Internet).

If you are unable to access a day-time course (timetable conflicts, repeat of a course, etc.) or want to get a head start on your next semester, check out Continuing Education's current course book and register at the Office of the Registrar early to ensure a seat is reserved for you.

Please check our website for comprehensive information @ www.durhamcollege.ca.

Scholarships, Bursaries and Awards

Scholarships: Scholarships are awarded to students who have achieved academic and personal excellence. Some scholarships are awarded solely on academic performance. Others are based on a combination of academic achievement and proven personal excellence including leadership and community involvement.

In-Course scholarships: In-Course scholarships are awarded to returning full-time students in post secondary programs who have demonstrated academic excellence in their studies. Students must have been registered in full-time studies in the same program in consecutive years to be considered. In-course scholarships are solely based on GPA and no application is necessary unless otherwise noted. Recipients are notified via MyCampus e-mail.

Bursaries: Bursaries may be available to full time post secondary students requiring additional financial assistance to cover their educational costs. When students' personal and family resources are not sufficient to cover costs they are expected to apply for OSAP. Before applying for a bursary, students should investigate all other forms of financial assistance. Other resources may include scholarships, family support, student line of credit and part time employment.

Durham College supports access to post secondary education following these principles:

- No qualified Ontario student should be prevented from attending Ontario's public colleges and universities due to lack of financial support programs.
- Students in need should have access to the resources they need for their postsecondary education.

Durham College Access Bursary Program: This bursary is available to Ontario students offered admission to a full time, first year program at Durham College.

Durham College Upper Year Student Bursary Program: Students must complete the Student Financial Profile application for consideration for bursary funding.

Awards: Awards may be based on scholastic achievement and/or financial need. There may be other requirements for qualification such as membership in certain organizations, enrolment in specific programs, leadership abilities and/or community service. Students must be in good academic standing to be considered.

Eligibility: Students who are currently enrolled full-time at Durham College are eligible to apply for scholarships and bursaries. Many awards have specific guidelines and students are advised to read all information about the award before applying. are based on information available at the time of publication.

Application process: Information on all scholarship, bursaries and awards for registered Durham College students including application, submission and deadline details will be posted on the DC Student tab of the MyCampus section of the College website. Students are advised to check MyCampus regularly for updates.

Eligibility: Students who are currently enrolled at Durham College are eligible to apply for scholarships and bursaries. Many awards have specific guidelines and students are advised to read all information about the award before applying.

Scholarships: Scholarships are awarded to students who have achieved academic and personal excellence. Some scholarships are awarded solely on academic performance. Others are based on a combination of academic achievement and proven personal excellence including leadership and community involvement.

In-Course scholarships: In-Course scholarships are awarded to returning full-time students in post secondary programs who have demonstrated academic excellence in their studies. Students must have been registered in full-time studies in the same program in consecutive years to be considered. In-Course Scholarships are solely based on GPA and no application is necessary unless otherwise noted. Recipients are notified via MyCampus e-mail.

Awards: Awards may be based on scholastic achievement and/or financial need. There may be other requirements for qualification such as membership in certain organizations, enrollment in specific programs, leadership abilities and/or community service. Students must be in good academic standing to be considered.

Bursary Program: Durham College supports access to post secondary education following these principles:

- No qualified Ontario student should be prevented from attending Ontario's public colleges and universities due to lack of financial support programs.
- Students in need should have access to the resources they need for their postsecondary education.

Bursaries may be available to full time post secondary students requiring additional financial assistance to cover their educational costs. When students' personal and family resources are not sufficient to cover costs they are expected to apply for OSAP. Before applying for a bursary, students should investigate all other forms of financial assistance. Other resources may include scholarships, family support, student line of credit and part time employment.

All students must complete the online Student Financial Profile application for consideration for bursary funding. Information, application instructions and submission deadlines for the Student Financial Profile may be found on the MyCampus website under the DC Student tab. The student is notified of the application results via MyCampus email.

Durham College Access Bursary Program

This bursary is available to Ontario students offered admission to a full time, first year program at Durham College in September 2009. This program is intended to assist students with financial need.

Returning Student Bursary Program

Returning students must complete the Student Financial Profile application for consideration for bursary funding.

For further information on scholarships, bursaries and awards, please contact studentawards@dc-uoit.ca.

Title of Award	Award Value (\$)
Albis Award	\$500
Business & Professional Women of Durham Award – In Course (Application Required)	\$500
Campus Living Centre Residence Award	\$250
Canadian Federation of University Women Oshawa and District Award	\$500
CAW Family Auxiliary 27 Award	\$250
Carpenters Union Local 397 Award	\$800
Durham College Access Bursary	Various amounts
Durham College Alumni Association Award	\$1200
Durham College Alumni Association Award – In Course (Application Required)	\$1000
Durham College Bursary	Various amounts
Durham College Endowed Award – In Course	\$1000
Durham College International Student Scholarship	\$1500
Durham College Scholarship – In Course	\$500 or \$1000
Durham Region Chairman's Award	\$1000
Durham Region Chairman's Scholarship	\$1000
Fairfax Financial Holdings Ltd. Scholarship	\$3500
Garfield Weston Award	\$2500 + up
Greenbriar Foundation Award	\$1000
Harold "Pat" Dooley Bursary	\$1300
International Student Emergency Bursary	Various amounts
June White Memorial Entrance Award	\$500
Lenovo (Canada) Inc. Access Awards	\$500
Lifelong Learning Award – In Course (Application Required)	\$500
Lifelong Learning Bursary	\$500
Lois and Gary Polonsky Award	\$1000
Lois Sleightholm Award	\$2000
Lois Sleightholm 21 st Century Award	\$1000
Marjorie Elizabeth Willoughby Award	\$3000
Ontario Aboriginal Bursary	Up to \$3000
Ontario First Generation Bursary	\$3000
Ontario International Educational Opportunity Scholarship	\$2500
OPG Employees' and Pensioners' Charity Trust	\$1000
Oshawa B'Nai B'Rith Lodge Scholarship	\$300
Oshawa Double B Sports Club Bursary	\$800
Purdue Pharma Award	\$800
Retired Teachers of Ontario District 28 Award	\$500
Ross Mackie Award	\$2000
UA Local 463 Award	\$400
The Central East Community Care Assess Centre Award	\$500 & \$750
Wordham Family Award	\$3,000
Your Student Association Award	\$400

School of Skilled Trades, Apprenticeship & Renewable Technology

Award for Excellence in Electrical Technician -	Electrical Technician – Instrumentation	\$300
Award for Excellence in the Automotive Technician	Motive Power Technician – Service and	\$600
Durham Region Heavy Contractors Association Award	Programs directly related to the construction industry	\$1600
Durham Region Home Builder's Association Award	Skilled Trade programs	\$880
General Motors of Canada Bursary	Engineering, Technology and Skilled Trades	\$1000
General Motors of Canada Scholarship - <i>In Course</i>	Engineering, Technology and Skilled Trades	\$1000
Jamie Striemer Memorial Award	Skilled Trades programs	\$1000
Master Insulators' Association Bursary	Trades program with an insulation component	\$1000
Mike Kavanaugh Award	Mechanical Technician Program – Tool and Die/CNC	\$800
OACETT Durham Chapter Award – <i>In Course</i>	Programs which are recognized and eligible for membership in OACETT	\$500
Pine Ridge Corvette Club Award – <i>In Course</i>	Motive Power Technician - Service and Management	\$500

Transfer Guide

Diploma to Degree Pathways

Turn your Durham College diploma into a degree!!

If your post-secondary education plans include a diploma and a degree, you can take advantage of many degree completion programs offered through partnerships negotiated by Durham College with many universities, including UOIT, our campus partner.

A Durham College diploma can earn you credit toward a university degree. University admissions policies and partnership transfer agreements between Durham College and a number of universities facilitate university admission for Durham College graduates from specific programs by giving credit for college study. Graduates may receive credit for several courses or for a year or more toward a university degree. These opportunities are detailed, by program, on the **Durham College Transfer Guide** (<http://www.durhamcollege.ca/programs-and-courses/diploma-to-degree-options/>)

Interested students looking for further information are encouraged to consult with their program faculty or the admissions office of the receiving institution.

If you do not see your program on the chart, you may find pathway opportunities and information on collaborative programs, articulation agreements and credit transfers between Ontario universities and colleges available on the Ontario College University Transfer Guide website at www.ocutg.on.ca.

ENERGY AUDIT TECHNIQUES

COURSE NAME	MOD	CODE	PREREQUISITES	COREQUISITES	ALT. FIELD		
					LECT. HRS	LAB HRS	DEL.PLMT HRS
SEMESTER 1							
ENERGY COMMUNICATIONS 1		COMM 2105			2	1	0
ELECTRICITY 1		ELEC 1110			2	2	0
ENERGY POLICIES AND REGULATIONS		ENER 1000			2	0	0
INTRODUCTION TO ENERGY AUDITING		ENER 1010			1	2	0
BUILDING AS A SYSTEM		ENER 1020			2	2	0
MATHEMATICS FOR ENERGY		MATH 1134			3	0	0
MATHEMATICS FOR ENERGY LAB		MATH 1136			0	1	0
					12	8	0
SEMESTER 2							
COMPUTER APPLICATIONS IN ENERGY AUDITS		COMP 2110			0	3	0
ELECTRICITY 2		ELEC 2110	ELEC 1110		2	2	0
INTRODUCTION TO HVAC SYSTEMS		ENER 2001	ENER 1020		2	2	0
ENERGY AUDIT PROJECTS		ENER 2010	ENER 1010		0	3	0
THERMODYNAMICS		ENER 2100	MATH 1134 MATH 1136		2	2	0
ISSUES AND ETHICS IN SCIENCE		GNED 1503			2	1	0
					8	13	0

NOTES:

ELE - ELECTIVE - Students may take one or many subjects, depending on the requirements of their program. **ELET** - represents a typical subject load and IS included in the total hours per week, to reflect the total hours per week required.

OPT1/OPT2/OPT3 - OPTIONS - Students choose subjects. **OPT1** subjects are included in total hours per week.

G - GENERAL EDUCATION - Subjects marked at the left margin with **G** are "General Education" subjects.

RENEWABLE ENERGY TECHNICIAN

COURSE NAME	MOD	CODE	PREREQUISITES	COREQUISITES	ALT. FIELD		
					LECT. HRS	LAB HRS	DEL.PLMT HRS
SEMESTER 1							
ENERGY COMMUNICATIONS 1		COMM 2105			2	1	0
ELECTRICITY 1		ELEC 1110			2	2	0
ENERGY POLICIES AND REGULATIONS		ENER 1000			2	0	0
INTRODUCTION TO ENERGY AUDITING		ENER 1010			1	2	0
BUILDING AS A SYSTEM		ENER 1020			2	2	0
MATHEMATICS FOR ENERGY		MATH 1134			3	0	0
MATHEMATICS FOR ENERGY LAB		MATH 1136			0	1	0
					12	8	0
SEMESTER 2							
COMPUTER APPLICATIONS IN ENERGY AUDITS		COMP 2110			0	3	0
ELECTRICITY 2		ELEC 2110	ELEC 1110		2	2	0
INTRODUCTION TO HVAC SYSTEMS		ENER 2001	ENER 1020		2	2	0
ENERGY AUDIT PROJECTS		ENER 2010	ENER 1010		0	3	0
THERMODYNAMICS		ENER 2100	MATH 1134 MATH 1136		2	2	0
ISSUES AND ETHICS IN SCIENCE		GNED 1503			2	1	0
					8	13	0
SEMESTER 3							
ENERGY COMMUNICATIONS 2		COMM 2126	COMM 2105		2	1	0
ELECTRICITY 3		ELEC 3110	ELEC 2110		0	2	0
CANADIAN BUSINESS FUNDAMENTALS		GNED 1421			3	0	0
WIND ENERGY SYSTEMS 1		RENEW 3001	ELEC 2110		2	1	0
GEOHERMAL SYSTEMS 1		RENEW 3002	ELEC 2110 ENER 2100 ENER 2001		2	1	0
SOLAR THERMAL SYSTEMS		RENEW 3003	ELEC 2100 ENER 2100		2	1	0
SOLAR PHOTOVOLTAIC SYSTEMS		RENEW 4003	ELEC 2110		2	2	0
					13	8	0

RENEWABLE ENERGY TECHNICIAN

COURSE NAME <i>SEMESTER 4</i>	MOD	CODE	PREREQUISITES	COREQUISITES	LECT. LAB		ALT. FIELD	
					HRS	HRS	DEL.	PLMT HRS
GENERAL EDUCATION ELECTIVE		GNED 0000			3	0	0	
ELECTRICITY 4		PROG 4000	ELEC 3110		0	2	0	
ENERGY BATTERY SYSTEMS		RENEW 3000	ELEC 3110		2	2	0	
WIND ENERGY SYSTEMS 2		RENEW 4001	RENEW 3001		2	2	0	
GEOHERMAL SYSTEMS 2		RENEW 4002	RENEW 3002		2	2	0	
DESIGN PROJECT		RENEW 4004			1	2	0	
					10	10	0	

NOTES:

ELE - ELECTIVE - Students may take one or many subjects, depending on the requirements of their program. **ELET** - represents a typical subject load and **IS** included in the total hours per week, to reflect the total hours per week required.

OPT1/OPT2/OPT3 - OPTIONS - Students choose subjects. **OPT1** subjects are included in total hours per week.

G - GENERAL EDUCATION - Subjects marked at the left margin with **G** are "General Education" subjects.

Course Descriptions

ENERGY COMMUNICATIONS 1 COMM 2105 This course is designed to reinforce and expand on the writing skills students require in the technical workplace. Students will learn to select and use appropriate research, language, layout and graphics for technical documents. Emphasis will be placed on: the process of completing any on-the-job writing assignment, the specific formats most often used, and related communication tasks such as oral presentations. To help reach these goals, the course will focus on the elements of clear writing, and the necessary critical thinking that must precede good writing.

ELECTRICITY 1 ELEC 1110 This course gives students a background in basic electric circuit theory and applications. The topics include electrical units, resistance, energy, power, series/parallel, inductance and capacitance. These components are analyzed under both direct and alternating current conditions. In labs, students practice their electrical measurement and analytical skills, and verify principles covered in lectures. Students learn the basic laws of electricity and to solve problems involving various circuit components. Students will be introduced to battery systems, rectifiers and other associated technology.

ENERGY POLICIES AND REGULATIONS ENER 1000 This course provides overview of the content, context and impact of federal and provincial energy legislation and regulations. The significant impact that climate change has on policy development will be studied through an examination of various Government Acts such as the Green Energy Act, Ontario Energy Board Act, the Electricity Act, the Energy Efficiency Act and the Building Code. Specific applications related to energy auditing will be emphasized. Current federal and provincial incentive programs will be examined and strategies to keep current with these programs will be explored.

INTRODUCTION TO ENERGY AUDITING ENER 1010 Introduction to Energy Auditing

This course is an introduction to energy auditing techniques and procedures. It will stress the collection, interpretation and presentation of energy audit data. Students will also study the content of the government and/or sectoral requirements for certification of energy auditors.

BUILDING AS A SYSTEM ENER 1020 This course stresses the evaluation of the house or building as system or envelope in which various factors affect the energy inputs and losses to the system. A comprehensive analysis of all the components of the system is required to develop a plan for the enhancement of energy use efficiency while maintaining a healthy environment. This course studies all the aspects of a building as a system in order that the students can appreciate the relative significance of each component. Students will also learn how the entire system/structure interacts to produce the overall energy effect/impact. The students will learn the concepts of embodied energy of building components.

MATHEMATICS FOR ENERGY MATH 1134 Students will refresh and develop their skills in fundamental mathematics applying appropriate methods and formulas to their calculations. Their analytical ability to solve problems will be utilized to develop a clear understanding of the fundamentals of algebra, geometry, trigonometry and vector calculation as it relates to their field of study.

MATH FOR ENERGY LAB MATH 1136 This course is designed for those individuals who do not have a high school physics background. The course will review basic principles of physics and the mathematical analysis of these phenomena. Topics covered will include:

- Units of measure and the conversion of these units from one system to another
- Basic concepts of mass, velocity and acceleration
- Weight and force concepts
- The goal of this course is to act as a stepping stone, preparing the students for the Thermodynamics course which they will take in second semester.

COMPUTER APPLICATIONS IN ENERGY AUDITS COMP 2110 This course is an extension to energy auditing techniques and procedures, as it allows for the on-site and simulation Data Collection to be inputted into energy simulation software applications.

ELECTRICITY 2 ELEC 2110 This course builds on the concepts developed in Electricity I by examining the principles and methods of metering of energy use in buildings. New metering systems, programmable controllers, and metering of the sale to the grid of excess building-produced electricity will be studied. The course will provide a basic understanding of the electrical distribution grid in Ontario.

INTRODUCTION TO HVAC SYSTEMS ENER 2001 Students will be introduced to various HVAC equipment design and their uses. By understanding basic heat transfer methods, the student will be able to appreciate which type of HVAC equipment that is best suited in a particular application. The student will be able to recognize basic maintenance concepts in order to keep equipment efficiencies high. By understanding HVAC equipment of yesterday, the student will be able to understand how to incorporate new renewable technologies with old.

ENERGY AUDIT PROJECTS ENER 2010 Students will examine case studies of energy audits and recommendations for a range of home types and small commercial buildings. The students will conduct audits of a houses and virtual homes, as projects and prepare and present audit reports.

THERMODYNAMIC FLUID SYSTEMS ENER 2100 Students will study the first law of thermodynamics to overall evaluate and compare different energy systems. Through the compilation of theoretical and practical studies, students will identify, differentiate and evaluate systems potentially involving HVAC, solar, wind and other alternative and conventional energy equipment.

ISSUES AND ETHICS IN SCIENCE GNED 1503 This course examines the nature of science and some of the technologies that have been developed using the scientific process. Every new technology affects society in some way, usually bringing hope, as well as potential problems for the future. By studying technologies from a historical perspective, to the present, and into future, students will be challenged to identify and analyze controversial issues associated with these developments. Topics include technologies relating to information and communication, biology and health (e.g. organ transplants, reproductive interventions, biotechnology and genetic engineering), and energy. Through discussions, research, and presentations, students will acquire a basic understanding of ethics, critical thinking and decision-making as they relate to developments in science and technology.

ENERGY COMMUNICATIONS 2 COMM 2126 This course is designed to reinforce and expand on the writing skills students require in the technical workplace and build upon knowledge gained in COMM2105. Students will learn to select and use appropriate research, language, layout and graphics for technical documents. Emphasis will be placed on: the process of completing any on-the-job writing assignment, the specific formats most often used, and related

communication tasks such as oral presentations. To help reach these goals, the course will focus on the elements of clear writing following appropriate APA format, and the necessary critical thinking that must precede good writing.

ELECTRICITY 3 ELEC 3110 This course offers students the opportunity to expand on the theory from Electricity 1 & 2 it will also encompass new material such as three phase power generation, and advanced electronics. In the Lab students will practice their electrical measurement and analytical skills, and verify principles covered in lectures. Students will gain the hands on skills-set needed to have a working knowledge in the related topics.

CANADIAN BUSINESS FUNDAMENTALS GNED 1421 Students will be introduced to business fundamentals and will explore the different aspects and issues that entrepreneurs and corporate leaders face on an ongoing basis. Students will reflect on both the opportunities and challenges found in today's business world; economic, business management and operations, marketing and financial. Through case studies and research students will examine these aspects and apply them accordingly.

WIND ENERGY SYSTEMS 1 RENW 3001 Students will study the theory of harvesting energy from wind. Through the compilation of theoretical and practical studies, students will identify, differentiate and evaluate different commercial wind turbine geometries. Students will also be exposed to different criteria commonly used to appraise if a particular site is suitable for wind energy utilization.

GEOTHERMAL SYSTEMS 1 RENW 3002 In this course the student will be introduced to the theory behind various geo-exchange systems and their applications. Students will discuss the materials, components and fluids of different geothermal heat exchanger installations. The student will be exposed to the geological criteria considered as it pertains to geo-exchange applications and installations.

SOLAR THERMAL SYSTEMS RENW 3003 Students will study active and passive solar systems applied to residential homes. Through the compilation of theoretical and practical thermodynamic and heat transfer studies, students will be able to identify, differentiate and evaluate solar thermal configurations, including assistance on installing solar thermal technologies.

SOLAR PHOTOVOLTAIC SYSTEMS RENW 4003 In this course, students will learn the theory of collecting energy from sunlight and converting it to electricity. Through hands-on labs, students will gain a working knowledge of the fundamentals of solar panel installation including orientation, connection, and site evaluations.

GENERAL EDUCATION ELECTIVE GNED 0000

ELECTRICITY 4 PROG 4000 Students learn the functions and applications of programmable logic controllers in the field of energy management systems. They determine the language and addressing requirements of a PLC to program common relay instructions, timers, and other energy system devices. Students will also gain an understanding of the components and connection of electrical control circuits and learn how to interpret electrical schematic diagrams.

ENERGY BATTERY SYSTEMS RENW 3000 In this course students will gain a working knowledge of storage batteries and battery charging systems. Students will learn the principles and components of connecting an independent energy producing system to the public power grid. Students will also become familiar with the Electrical Code requirements governing these installations in Ontario.

WIND ENERGY SYSTEMS 2 RENW 4001 Students will study the theory of harvesting energy from wind. Through the compilation of theoretical and practical studies, students will identify, differentiate and evaluate different wind turbine systems with respect to installation and maintenance requirements.

GEOHERMAL SYSTEMS 2 RENEW 4002 This course is designed to further the students understanding of geoexchange from geothermal systems one. This course will concentrate on the interior components and spaces to be conditioned, as a result the students will be exposed to components and materials used to complete various geoexchange systems. The students will also learn valuable commissioning and troubleshooting techniques for installation and maintenance of different geoexchange systems.

DESIGN PROJECT RENEW 4004 This course is currently under development. Students will examine case studies of wind turbine, solar panels and geothermal heat pump installations. Students will design a wind turbine, solar energy or ground source pump system for a proposed location and use computer simulation software to predict the efficiency of the installation.