DURHAM COLLEGE
SUCCESS MATTERS

School of Science & Engineering Technology

2012-2013 Whitby Campus

Energy Management
Sustainable Building Technology

PROGRAM GUIDE

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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, timetable or campus location at any time. Please consult our website at www.durhamcollege.ca for the most current information.

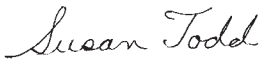
August 2012

Welcome Students

A Message from the Dean and Vice President, Academic

Thank you for choosing Durham College's School of Science and Engineering Technology to further your education. It is a great pleasure for the faculty and staff to guide and assist you in reaching your goals.
Your chosen program has been designed to provide you with the theoretical and hands on experience which will enhance and enrich your resume. Durham College provides a great many services for students so please do not hesitate to take advantage of them. Your professors are all dedicated professionals chosen for their knowledge and excellence in your field of study. They will be more than happy to share this knowledge and guide you along your journey.

The School of Science and Engineering Technology takes pride in our mission to encourage a progressive, motivating and experiential learning environment which produces exceptional graduates who exceed employer and industry standards. We welcome you and wish you every success!



Susan Todd, Dean

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.

Judy Robinson,
Vice President, Academic

SCHOOL OF SCIENCE AND ENGINEERING TECHNOLOGY
OSHAWA/WHITBY CAMPUS – SEPTEMBER 2012

Aug. 16, 2012

Administration/ Support Staff Name	Office #	Phone Voice Ext.	Voice Mail	E-mail Addresses	Position
Todd, Susan (A)	H140F Osh 117A Whitby	2319	2319	susan.todd@durhamcollege.ca	Dean
Calhoun, Maureen (A)	H140D Osh 117A Whitby	2168	2168	maureen.calhoun@durhamcollege.ca	Associate Dean
Derdall, Amy (S)	H140	3060	3060	amy.derdall@durhamcollege.ca	Administrative Assistant
Dillon, Linda (S)	H140E	2545	2545	linda.dillon@durhamcollege.ca	Administrative Coordinator
Green, Maureen (S)	NH140A	2383	2383	maureen.green@durhamcollege.ca	Student Advisor/Admin. Support
Knihnisky, Steve (S)	H230B	2378	2378	steve.knihnisky@durhamcollege.ca	IMC Technician, & teaching Electrical Control Fundamental
MacKay, Dave (S)	H220	2767	2767	dave.mackay@durhamcollege.ca	Electronics Technologist,& Electronic Circuits II
Myers, Jeff (S)	H166D	2385	2385	jeff.myers@durhamcollege.ca	Mechanical Technologist, & Teaching CAM I Lab
Oberg, Stacey (S)	A210	2210	22101	stacey.oberg@durhamcollege.ca	Science Lab Technologist, Oshawa Campus
Rigby, Terry (S)	22-28 Whitby	TBA		terrence.rigby@durhamcollege.ca	Field Laboratory Technologist
Thompson, Craig (S)	A210	2210	22102	craig.thompson@durhamcollege.ca	Science Lab Technologist
FACULTY:					**Subjects – Fall 2012**
Agnew, Allan	1100 Simcoe	2421	2421	allan.agnew@durhamcollege.ca	Calculus
Algera, Dick (CF)				dick.algera@durhamcollege.ca	Intro. Non-destructive Testing Non-destructive Testing, Ultrasonic I
Antle, Eugene	A310	2468	2468	eugene.antle@durhamcollege.ca	Statistical Qual. Control I, Statistical Methods in Quality Control
Benninger, Laura	A235	2381	23812	laura.benninger@durhamcollege.ca	Anal. Instrumentation, Chromatography I, Spectroscopy I
Bertrand, Louis (Prof. Development Leave)	C208	2785	2785	louis.bertrand@durhamcollege.ca	
Braithwaite, Rob (CF)				rob.braithwaite@durhamcollege.ca	Tool Design
Brooks, Brent	H230A	2416	2416	brent.brooks@durhamcollege.ca	Automation Systems, Integrated Automation II, Instrumentation & Control I, Field Placement
Comeau, Jennifer (CF)				jennifer.commeau@durhamcollege.ca	Chemistry I, Analytical Techniques
**Cornish, Clair	22-38 Whitby	3328		clair.cornish@durhamcollege.ca	Manufacturing Sciences
**Cunningham, Colin	22-35 Whitby	4179		colin.cunningham@durhamcollege.ca	Manufacturing Sciences
Curtis, Dave (CF)	Parkwood/ Whitby	TBA		dave.curtis@durhamcollege.ca	Horticulture Principles & Sustainability, Woody Deciduous & Evergreen
Daniel, Chris	C208	(was 3653)		chris.daniel@durhamcollege.ca	CAD III, Mechanics of Materials, Physical Science
Daniel, Joe	H138	2649	2649	joe.daniel@durhamcollege.ca	Fluid Power II, Industrial Controls I
DiMartino, Sebastian CF				sebastian.dimartino@durhamcollege.ca	Computer Applications I
Dragomatz, Don	A308	2298	2298	don.dragomatz@durhamcollege.ca	Engineering Drawings, Engineering Graphics I, Measurement I
Dragomatz, Terry	A310	2446	2446	terry.dragomatz@durhamcollege.ca	CAD I, CAM II
Duncan, David	A120C	2467	24672	david.duncan@durhamcollege.ca	Industrial Chemical Processes, Physical Chem.
Dvorkin, Alex (CF)	A107	2063		alex.dvorkin@durhamcollege.ca	Electricity I, Mathematics for Technology I
Forest, Ron (CF)				ron.forest@durhamcollege.ca	Electricity, Industrial Controls I
Fuentes, Lauren	A243	2276	22762	lauren.fuentes@durhamcollege.ca	Circuit Analysis, Electronic Circuits II, Telecommunications I
Gorantla, Rao	A242	2275	2751	rao.gorantla@durhamcollege.ca	Digital Circuits II, Signals & Systems, Technical Project
Grenier, Denis	H216	2248	2248	denis.grenier@durhamcollege.ca	Introduction to CAD
*Helmer, Kelly (CF)				kelly.helmer@durhamcollege.ca	Communications for Science & Technology
Henderson, Bruce (CF)				bruce.henderson@durhamcollege.ca	Chemistry I
Hossein, Ahari (CF)	Whitby			ahari.hossein@durhamcollege.ca	Energy & Mechanical Systems
James, Beau	H230C	2066	2066	beau.james@durhamcollege.ca	Integrated Automation II, Instrumentation & Control I, Automation Fundamentals, Field Plac.
Jarvis, Philip (CF)				philip.jarvis@durhamcollege.ca	CAD for Electronics II, Electronic Circuits II Microprocessors I
Jelavic, Matthew	C208	2061	2061	matthew.jelavic@durhamcollege.ca	Fluid Mechanics, Physical Science
Jessup, Tanya	C208	2285	2285	tanya.jessup@durhamcollege.ca	Biology, Mathematics I
*Johnston, Denise (CF)				denise.johnston@durhamcollege.ca	Communications for Science & Technology
Jones, Shane (CF)	Parkwood/ Whitby	A		shane.jones@durhamcollege.ca	Landscape Planning, Sustainable Garden Concepts
Kelly, Kevin	A307	2831	2831	kevin.kelly@durhamcollege.ca	Chromatography I, Pharmacology
Kirk, Ian (CF)				Ian.kirk@durhamcollege.ca	Measurement I
Kovacic, Frank (CF)				frank.kovacic@durhamcollege.ca	Mathematics for Technology I

Administration/ Support Staff Name	Office #	Phone Voice Ext.	Voice Mail	E-mail Addresses	Position
Kudla, Sandra	A243	2062	2062	sandra.kudla@durhamcollege.ca	Dialysis I, Biomedical Terms & Devices II, Intro to Biomedical Eng, Tech.
Lagerwey Michelle (CF)	A308	2845	2845	michelle.lagerwey@durhamcollege.ca	Engineering Graphics I, Measurement I,
*Lapp, Valerie				valerie.lapp@durhamcollege.ca	Communications for Science & Technology
Lawrence, Nancy (CF)	Parkwood/ Whitby	TBA	TBA	nancy.lawrence@durhamcollege.ca	Annual & Herbaceous Perennials
Lewis, William (CF)				william.lewis@durhamcollege.ca	Medical Imaging Systems I
*Loze, Lara (CF)				lara.loze@durhamcollege.ca	Communications for Science & Technology
*Martin, Dean (CF)				dean.martin@durhamcollege.ca	Technical Communications
MacKay, Sarah (CF)				sarah.mackay@durhamcollege.ca	Biology, Analytical Techniques
McDowell, Doug (CF)				doug.mcdowell@durhamcollege.ca	Manufacturing Processes Metallurgy for Non-destructive
*McGuckin, Dawn				dawn.mcguckin@durhamcollege.ca	Communications for Science & Technology
**McKenney, Mike	22-15 Whitby			mike.mckenney@durhamcollege.ca	Electricity for Energy Management
Mehrnia, Iraj	A120C	2467	24671	iraj.mehrnia@durhamcollege.ca	Food & Drug Laws & Regulations, Processing Operations I, Field Placement
Morales, Leilani (CF)				leilani.morales@durhamcollege.ca	Chemistry- Technicians, Analytical Techniques.
Motum, Ron (CF)	H122	2362	23621	ron.motum@durhamcollege.ca	Chemistry – Technicians
Myers, Joyce, (Coord.)	H140B	2512	2512	joyce.myers@durhamcollege.ca	Intro. Microbiology, Microbial Applications II
Patel, Pravin (Coord.)	H140G	2221	2221	pravin.patel@durhamcollege.ca	Computer Apps & Simulation
**Prior, Andrew (CF)	22-23 Whitby			andrew.prior@durhamcollege.ca	Manufacturing Sciences
Robinson, Jacob (CF)	H122	2362	23622	jacob.robinson@durhamcollege.ca	Analytical Chemistry I, Chromatography I
Sandhu, Harmanjit (CF)	H140H	TBA		harmanjit.sandhu@durhamcollege.ca	Mathematics for Technology I
*Savelle, Robert (CF)				robert.savelle@durhamcollege.ca	Environmental Protection & Global Wellness
Schuett, Dave	C208	3655	3655	dave.schuett@durhamcollege.ca	Digital Circuits II, Computers & Networking, Physical Science, Telecommunications I
Scotland, Kevin (CF)				kevin.scotland@durhamcollege.ca	Organic Chemistry II, Physical Chemistry
Sigus Clair	A107	2063	TBA	clair.sigus@durhamcollege.ca	Engineering Materials, Non-destructive, Non-destructive Testing V, Radiation Safety
Smith, Jennifer (CF)				jennifer.smith@durhamcollege.ca	Analytical Chemistry
*Smith, Russell (CF)				russellsmith@durhamcollege.ca	Career Mapping
Smith, Wendy (CF)	H122	2362	23623	wendy.smith@durhamcollege.ca	Chemistry I
Sritharan, Jeavana (CF)				jeanana.sritharan@durhamcollege.ca	Anatomy & Physiology
St. Arnaud, Jean	22-06 Whitby	4158		jean.st.arnaud@durhamcollege.ca	Manufacturing Sciences
Stender, Corrie (Coord.)	H140BOshawa 22-28 Whitby	6556 4151 (Whitby)	6556	corrie.stender@durhamcollege.ca	Biology, Environmental Science, Water & Waste Water Engineering, Field Placement
Stevenson, Ross	A121	3013	3013	ross.stevenson@durhamcollege.ca	Environmental Enforcement, Industrial Waste
Suppelsa, Douglas (CF)	Whitby #TBA			douglas.suppelsa@durhamcollege.ca	Waste Water Collection & Treatment
Sweetman, Teresa	A235	2381	23811	teresa.sweetman@durhamcollege.ca	Intro. Microbiology, Water Microbiology II
Taylor, Gregg	A307	2415	2415	gregg.taylor@durhamcollege.ca	Spectroscopy I, Organic Chemistry II
Tidman, Rick	H140H	2065	2065	richard.tidman@durhamcollege.ca	Biomedical Tech Management, Biomedical Instrumentation I, Safety Standards/Risk Management I
Trieselmann, Bruce	A309	2202	22021	bruce.trieselmann@durhamcollege.ca	Biochemistry I, Protein Techniques
Trieselmann Nadia (CF)	A309	2202	22022	nadia.trieselmann@durhamcollege.ca	Cell Biology, Protein Techniques
Van Schyndel, Tony	H216	2411	2411	tony.vanschyndel@durhamcollege.ca	Electricity I, Telecommunications I
White, John	A242	2275	22752	john.white@durhamcollege.ca	Chemistry I, Community & Environment
Wang, John (CF)				john.wang@durhamcollege.ca	Electricity I
White, Sarah (CF)	A117	3737	37372	sarah.white@durhamcollege.ca	Health & Safety, Analytical Techniques
Wilson, Ted (CF)	Whitby			ted.wilson@durhamcollege.ca	Building as a System & Thermodynamics
Wilson, Katherine	C208	2617	2617	katherine.wilson@durhamcollege.ca	Chemistry I, Topics in Environmental Science, Environmental Samples, Field Placement
Wraight, Paul	A117	3737	37371	paul.wraight@durhamcollege.ca	Computer Applications I, Math for Water/Food Tech., Math I for Tech, Math III for Technician
Yacknowiec, Dennis(CF	1103 Whitby	4068	40681	dennis.yacknowiec@durhamcollege.ca	Water Hydraulics
Zaidman, Katy (Coord.)	H140C	3151	3151	katy.zaidman@durhamcollege.ca	Engineering Materials, Metallurgy for Non-destructive, Field Placement

A = Administration**; S =** Support Staff**; FACULTY =** Professors**, Coord. =** Program Coordinator**, CF –** Contract Faculty

Lab Extensions: H165 - 3881, H222 - 3883, H223 - 3884, H230 - 3885, H226 - 3535
A106 - 3565, A120 - 3566, H160 - 3879, H155 - 3878, H164 - 3880, H171 - 3882, H172 - 3434, H230 - 3885

A206 - 3852, A209 - 3859, A213 - 3569, A240 - 3594, I110 - 3886, UB4050 - 3281
H166A (emergency phone ext. 3948); **No Phones Currently:** A108, A123, A124

School of Interdisciplinary Studies & Employment Services (Cross Divisional): * Kelly Helmer, Denise Johnston, Dean Martin, Valerie Lapp, Lara Loze, Dawn McGuckin, Russell Smith

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

DURHAM COLLEGE SUCCESS MATTERS	**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 2012 – 2013

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

FALL 2012 SEMESTER

July 3, 2012	Fees due date for first year students
July 10, 2012	Web registration - for 2nd year students who have paid for fall semester - begins.
July 11, 2012	Web registration - for 3rd year students who have paid for fall semester - begins.
July 17, 2012	Web registration - for 1st year students who have paid for fall semester - begins.
July 20, 2012	Fees due date for returning students
August 6, 2012	Civic holiday (no classes).
August 27, 2012	Registration for part-time Oshawa campus students begins and window opens for timetable changes.
August 27, 2012	Apprenticeship Classes begin.
September 3, 2012	Labour Day (no classes).
September 4, 2012	Orientation for first-year students.
September 5, 2012	Classes begin for most programs.
September 11, 2012	Last day for late program registration
	Last day for fall semester course or program changes.
September 18, 2012	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 course load.
	Last day for part-time students to withdraw with tuition fee refund less an administration fee per subject. [1, 2]
	Last day to submit a Prior Learning Assessment and Recognition (PLAR) request for fall semester subjects.
September 26, 2012	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]
September 28, 2012	Student Health Insurance Plan “Opt-out” deadline.
October 1, 2012	Due date for 2nd instalment of Fall fees.
TBA	Last day for application for fall semester subject (transfer) exemption/credit.
October 8, 2012	Thanksgiving (no classes).

October 16, 2012	Deadline for submission of adjusted marks to clear INC grades from Spring/Summer 2012. INC designation reverts to the grade originally assigned or a grade of zero (0) if no grade is provided.
October 25, 2012	Fall Convocation
November 9, 2012	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]
November 16, 2012	Winter 2013 semester fees due date.
November 20, 2012	Web registration for Fall start 1st year students for winter (2nd semester) 2013 courses begins.
November 22, 2012	Scholarship Ceremony
November 27, 2012	Web registration for Fall start 2nd and 3rd year students for winter 2013 semester courses begins.
December 7, 2012	Last day of classes for most programs.
December 10 to 14, 2012	Fall semester final examinations/evaluation(s) for postsecondary students. Students are reminded not to schedule vacation or employment hours during these times. Monday January 7, 2013 and Tuesday January 8, 2013 scheduled as tentative snow dates for the Oshawa campus.
December 20, 2012	Grades are available to view electronically as of 4 p.m. Note: official distribution date for the purpose of academic appeals is January 7, 2013.
	Full-time students may process timetable changes for the winter semester through MyCampus as of 4 p.m.
December 24, 2012 to January 1, 2013 inclusive	College closed for the holiday season.
January 7, 2013	All apprenticeship and post-secondary classes begin.
	Official grade distribution date for the purpose of Academic Appeals.
January 12, 15, and 17, 2013	Dates for missed exams in the fall semester.
January 18, 2013	Last day for full-time students, who started their program in the fall (September 2012), to withdraw from their program with a refund of winter tuition fees.[1, 2] Ancillary fees and school supply fees are not refundable.
	Last day for refund eligibility when dropping to part-time course load.
	Last day to withdraw from part-time studies with tuition fee refund less an administration fee per subject. [1, 2]
	Last day to submit a Prior Learning Assessment and Recognition (PLAR) request for winter semester subjects
February 5, 2013	Deadline for submission of adjusted marks to clear INC grades from Fall 2012. INC designation reverts to the grade originally assigned or a grade of zero (0) if no grade is provided.
February 8, 2013	Due date for 2nd instalment of Winter fees.
February 15, 2013	T2202As available online via MyCampus as of 4 p.m.
February 18, 2013	Family Day (no classes).
April 5th, 2013	Spring/Summer 2013 semester fees due date.

April 9th, 2013	Web registration for Fall start 1st year students for Spring/Summer (3rd semester) 2013 courses begins.
	Web registration for Fall start 2nd and 3rd year students for Spring/Summer 2013 semester courses begins.
April 16, 2013	Last day to apply to graduate – courses ending April 2013.
May 31, 2013	Due date of 2nd instalment of Spring/Summer fees.

WINTER 2013 SEMESTER – JANUARY START

December 5, 2012	Web registration for January start 1st year students begins.
December 7, 2012	Winter 2013 semester fees due date
January 2, 2013	Registration for Oshawa campus part-time students begins.
January 7, 2013	All apprenticeship and post-secondary classes begin.
January 11, 2013	Last day for late program registration.
	Last day for winter semester course or program changes.
January 18, 2013	Last day for full-time students, who started their program in January 2013 to withdraw from their program with a refund of fees paid less a $100 administration fee.[1, 2]
	Last day for refund eligibility when dropping to part-time course load.
	Last day to withdraw from part-time studies with tuition fee refund less an administration fee per subject. [1, 2]
	Last day to submit a Prior Learning Assessment and Recognition (PLAR) request for winter semester subjects.
January 31, 2013	January start students only: Student Health Insurance Plan “Opt-out” deadline.
TBA	Last day for application for winter semester subject (transfer) exemption/credit.
February 1, 2013	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, 2013	Due date for 2nd instalment of Winter fees.
February 15, 2013	T2202As available online via MyCampus as of 4 p.m.
February 18, 2013	Family Day (no classes).
February 25 to March 1, 2013	Winter break week for Postsecondary and Day Release apprenticeship students
March 4 to March 8, 2013	Winter break for all Apprenticeship students (with the exception of Day Release and OYAP)
March 11, 2013	Spring/Summer 2013 semester fees due date.
March 11 to March 15, 2013	Winter Break week for OYAP students
March 28, 2013	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]
March 29, 2013	Good Friday (no classes).

April 9, 2013	Web registration for Winter start 1st year students for spring/summer (2nd semester) 2013 courses begins.
	Web registration for 2nd and 3rd year students for spring/ summer semester courses begins.
April 16, 2013	Last day to apply to graduate – courses ending April 2013.
April 19, 2013	Last day of classes for most January-start programs
	April 22 to 26, 2013 Winter semester **(January start)** final examinations/ evaluation(s); students are reminded not to schedule vacation or employment hours during these times.
May 3, 2013	Grades are available to view electronically as of 4 p.m. Official distribution date for the purpose of academic appeals.
May 11, 14, and 16, 2013	Dates for Missed Exams from Winter Semester 2013.
May 31, 2013	Due date for 2nd instalment of Spring/Summer fees.
June 18, 2013	Deadline for submission of adjusted marks to clear INC grades from Winter 2013. INC designation reverts to the grade originally assigned or a grade of zero (0) if no grade is provided.

SPRING/SUMMER 2013 SEMESTER - MAY START

April 5, 2013	Spring/Summer 2013 semester fees due date.
April 11, 2013	Web registration for Spring/Summer programs begin.
May 6, 2013	Most Spring/Summer classes begin.
	Registration for Oshawa campus part-time students begins.
May 10, 2013	Last day for late program registration.
	Last day for most spring/summer semester course or program changes.
May 17, 2013	Last day for full-time students, who started their programs in Spring/Summer semester to withdraw from their program 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/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]
TBA	Last day for application for spring/summer semester subject (transfer) exemption/credit.
May 20, 2013	Victoria Day (no classes).
May 31, 2013	Due date for 2nd instalment of Spring/Summer fees.
May 31, 2013	Student Health Insurance Plan “Opt-out” deadline.
June 7, 2013	Last day to withdraw from most **Spring - 7 week** subjects. After this date, all subjects will be graded and recorded on the student’s transcript.[1, 2]
June 20 & 21, 2013	Convocation (Time and location TBA)
June 21, 2013	Last day of classes for most **Spring- 7 week** subjects

June 28, 2013	**Spring – 7 week** subjects grades are available to view electronically as of 4 p.m. Official distribution date for the purpose of academic appeals.
July 1, 2013	Canada Day (no classes).
July 2, 2013	**Summer – 7 week** subjects begin.
July 19, 2013	Last day to withdraw from most **Spring/Summer -14** week subjects. After this date, all subjects will be graded and recorded on the student's transcript.[1, 2]
August 2, 2013	Last day to withdraw from most **Summer - 7 week** subjects. After this date, all subjects will be graded and recorded on the student's transcript.[1, 2]
August 5, 2013	Civic Holiday (no classes).
August 16, 2013	Last day of classes for most Spring/Summer start programs.
August 22, 2013	Grades are available to view electronically as of 4 p.m. Official distribution date for the purpose of academic appeals.
October 15, 2013	Deadline for submission of adjusted marks to clear INC grades from Spring/Summer 2013. INC designation reverts to the grade originally assigned or a grade of zero (0) if no grade is provided.

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.

Durham College
Academic Policies & Procedures

To view the Durham College Academic Policies & Procedures, please go to:www.durhamcollege.ca/academicpolicies

Science and Engineering Administrative policies

Communication/MyCampus

Regular communication between college staff and students is very important to ensure that students stay informed about special events, changes in programming and various deadlines. The School of Science and Engineering Technology office will use MyCampus email to alert you to important details about your program. You are requested to visit MyCampus often to view campus-wide announcements and to check your MyCampus email account.
Professors will confirm their preferred method of communication. Emails sent to professors and/or staff must be professional in appearance and content. Inappropriate emails will be retained and a copy forwarded to the dean or associate dean for appropriate action.

Timetables and timetable changes

Timetables are available online through our intranet – "MyCampus". You can view and/or print your timetable from any computer with internet access. If you require assistance, please contact the Help Desk: (905) 721-3333. MyCampus provides students with the ability to modify timetables at specified times as listed in the Academic Calendar (posted on MyCampus). **Please note: students have the responsibility to ensure that all of their required courses are on their schedules**. Assistance is available via your Student Advisor. Should you find a discrepancy on your timetable, **seek assistance immediately.**

Disclaimer

Because of our commitment to continuous improvement of our curriculum, there may be some changes in courses offered. If this occurs, we will notify those affected.

Course/program changes

Adding and/or deleting courses or changing a program must be done within the first week of course or program commencement.

Application for a course credit

Applications must be submitted to the Registrar's Office no later than two weeks from the course commencement.

Emergency Calls

The School of Science and Engineering Technology staff will accept messages for students in the event of a family emergency. Please make sure that anyone in your life who needs to locate you during class time for reasons other than an emergency has a copy of your timetable (e.g. classmates, family, day care provider, and employer). The staff is unable to release your schedule information to anyone due to the Freedom of Information Act.

Freedom of Information

Freedom of Information/Protection of Privacy - Pursuant to the Freedom of Information & Protection of Privacy Act, the School of Science and Engineering Technology office may not release any personal information regarding a student. This includes academic standing, personal data, timetable information etc. without a signed Release of Information form initiated by the student.

Course Completion/Attendance

Minimum course completion and attendance requirements will be specified in the course outlines. Students must be present and complete a lab before a report can be accepted unless alternative work is assigned. Students must attend their assigned lab period unless excused by the professor (due to exceptional circumstances). Class attendance and participation will enhance your opportunities for success. Please refer to the course outline for specific expectations for each course.

Assignments

Students should keep back-up copies of all assignments in case the original is lost. Electronic submission of assignments is at the option of the professor. Assignments submitted electronically must be in the software format as stated specifically by your professor. Attachments that will not open are the responsibility of the student and subject to the late penalty.

Handing in/Returning of Reports/Assignments

Deadlines will be clearly specified in each course outline and all submissions must meet specified guidelines as detailed by the section professor. Academic penalties for late assignments will be specified in course descriptions. This may be up to non-acceptance of assignment and a mark of zero. A secure method of handing in and returning reports will be specified by each professor.
Faculty will return tests/assignments to students within a **three** week time frame. Confidentiality will be maintained and tests, grades, or assignments will not be posted or left in areas for students to pick up.

Academic Dishonesty

Efforts will be made to deny opportunities for dishonesty. These may involve changing rooms, having more than one invigilator, providing exam booklets, disallowing personal items etc. Any student caught cheating will be dealt with under the Durham College Academic policy.

Examinations

In this section, a final examination is defined as an invigilated comprehensive evaluation given just after regularly scheduled classes. (Week 15) Final examinations will be held for courses as specified in the course outline. A final examination will be comprehensive, and examination questions should reflect the approximate time weighting specified in the course outline.

Prerequisite courses

Course prerequisites exist to promote student success. Exceptions to the established prerequisite course structure are not permitted. Students who do not have all credits completed from previous semesters may not be eligible for a full-time course load due to required prerequisites. Students with “non-standard” scheduling needs are urged to review their academic plan with the Student Advisor each semester.

Repeating courses

Durham College’s grading and promotion policy states that courses may be repeated only once without approval from the Dean or designate. The School of Science and Engineering Technology approves repeating of courses for all Science and Engineering students who are repeating a course a second time or more. Students are encouraged to meet regularly with the Student Advisor if they are struggling with academic success.

Withdrawing from a course

All withdrawals must be done within the first two weeks of the start of any module with no record notes on the student’s transcript. Students withdrawing from a course during week three, four or five of the start of the module will have the course recorded as a ‘W’ (withdrawn) on their transcript. Students may not withdraw from a course during the last two weeks of the module in which they are enrolled. After this date, all courses will be graded and recorded on the student’s transcript. Please refer to the “Important Dates” section for a listing of withdrawal deadlines.

Graduation Requirements

Students must have a minimum GPA of 2.0 to be eligible for graduation. In addition, a student must have successfully completed all required courses. A student who has a GPA of less than 2.0 should contact the School of Science and Engineering Technology office to arrange for academic counselling. Please refer to the academic policies posted on the Durham College website, www.durhamcollege.ca/policies, for more information. At least 25% of the completed program courses and/or weighted credit hours must be completed at Durham College to be eligible for a Durham College diploma. Students must complete an application for graduation on MyCampus or via paper form in Registration.

Application for graduation
Applications for graduation for those wishing to graduate at the June Convocation are available online via MyCampus in January and due by a specified deadline (usually mid-February). A diploma will not be prepared until the application is received. Applications for graduation for the October Convocation are usually due by mid-September. Check MyCampus for deadline dates and updates.

Computer Labs
Computer labs are reserved for coursework. Games are not permitted. Adult material must not be displayed at any time. Please refer to the Information Technology Acceptable Use policy posted on the Durham College website www.durhamcollege.ca/policies. Note: afterhours access to labs is unique by course and must be approved by the professor. Students must sign in and out with Security.

Laptop & Desktop Computers: (Instant Messaging, (MSN, etc.) Chat, Gaming, Cell phones)
Research studies and feedback have shown that these activities can cause a distraction to other students. They are not acceptable classroom behaviours. Students involved in chatting or gaming during a teaching session will be asked to leave the classroom.

Safety in Science Labs
Before students begin working in the laboratories they must undergo **documented** safety training and evaluation. This is available on line through Durham Connect (D2L) and must be completed before admittance to any laboratory. Students who endanger themselves or others in the lab will receive a warning and a written report (Academic Alert Form). After the second occurrence the student will be required to meet with the dean. After the third occurrence the student will be asked to withdraw from the course. Please refer to the Lab Safety Regulations for detailed expectations.

Missed Laboratories
If a student misses a lab due to illness, documentation must be provided. If documentation cannot be provided, the student will receive a mark of zero for the missed lab. If a student misses labs due to compassionate reasons, a note from the program manager/coordinator will be required. Students will not write up a laboratory report for labs they did not attend.

Lab Cleanliness
Everyone is expected to leave the labs clean and neat. Course outlines may specify an academic reward/penalty to encourage this. Students will not be signed out of the laboratory until their work area is clean and tidy.

Placement
Students must have a 2.0 GPA and no failures or outstanding courses in order to qualify for placement in third year. Students must successfully complete 80 hours of on the job placement in their chosen field and five (5) hours of required workshops. Proper documentation must be provided to Maureen Green in the Technology Office (H140) before May 15th in the graduating year.

Examinations
a) Graduating students requesting exemption from final exams because of employment must provide their dean or designate with a letter from their potential employer explaining the situation. The opportunity must be for a full time permanent position in a program related field. The student's grades must be reviewed in order to ensure that the student is in good standing, maintaining a minimum 2.0 GPA and eligible to graduate with Aegrotat already on file.
b) Students writing exams in the Student Academic Learning Centre, see Table of Contents for specific information page.

Grade Point Average GPA

Students must have a 1.5 or greater GPA at the end of year one to proceed to year two. Students with a GPA less than 1.5 will be advised to repeat year one, but may get credit for any courses with a 60% or better. Students with 0.0 to .99 GPA will be automatically suspended; students with a 1.0 to 1.49 GPA will automatically be on probation. Students on suspension and probation do not receive an invoice to proceed and must meet with their Student Advisor. Second year students with a GPA less than 1.75 will be advised to repeat year two. Note: these are the minimum requirements. All students want to maintain a 2.0 GPA to ensure academic success. All students must have a 2.0 GPA and no failures to graduate from the program. Students in a 3 year program will be required to complete a Field Placement component (minimum 80 hours on the job and 5 hours required workshops) to be eligible to graduate. Please refer to your Student Handbook or your Student Advisor for more information on GPA.

Grade appeals

Students who do not agree with their marks have 15 days from receipt of that mark to launch a grade appeal. The first step in the appeal is to speak to the professor who issued the grade. For more details on the grade appeal process please consult the procedures regarding grade appeals posted on MyCampus.

Energy Management & Sustainable Building Technology Program
3 Year Advanced Diploma

Program Description

Communities and companies across the province are working to become more energy efficient. The Energy Management and Sustainable Building Technology program will prepare graduates to assist with solving technical problems related to energy efficiency and energy conservation within industrial, commercial and institutional buildings through the application of energy management, business principles, building science and clean energy technologies. The program includes strategies, practices and techniques for generating, managing, optimizing, capturing, storing and distributing energy from renewable and conventional energy sources. The energy management challenge has an exciting future. It will continue for centuries. You can play a part in securing our energy future.

Program Learning Outcomes

The successful completion of this program will enable the graduate to:

1, Analyze and solve complex technical problems through the application of the theoretical principles of renewable and clean energy systems and technologies.
2. Analyze electrical and/or mechanical components, processes and systems through the application of engineering principles to construct various types of energy systems.
3. Analyze and prepare graphics and other technical documents to appropriate engineering and architectural standards using industry-specific software and procedures.
4. Use a variety of troubleshooting techniques and test equipment to identify problems with electrical and/or mechanical components of conventional, renewable and clean energy technologies.
5. Assemble and troubleshoot working prototypes of sustainable energy systems and subsystems to meet job requirements, functional specifications and relevant standards; and integrate renewable and clean energy technology into the system design.
6. Adhere to the legal, regulatory and health and safety codes and guidelines.
7. Contribute to the financial and technical planning and implementation of sustainable construction and development projects.
8. Practice principles and ethics associated with environmental management issues.
9. Apply principles of networking, instrumentation and other related technologies to monitor and control energy systems in residential or small-scale industrial or commercial facilities.
Ministry of Training, Colleges and Universities Postsecondary Education Division Postsecondary Accountability Branch
10. Apply strategies, practices and techniques to manage and optimize the generation, capture, storage, integration and distribution of renewable (e.g. wind, solar, geothermal etc.) and clean energy (e.g. nuclear) using conventional and emerging technologies such as smart metres and smart grids.
11. Analyze, assemble and retrofit existing conventional systems applying green energy management techniques for efficient and clean energy generation and distribution

Note: The learning outcomes have been numbered as a point of reference; numbering does not imply prioritization, sequencing, or weighting of significance.

Employment Opportunities

Graduates will enter the workforce job-ready and with the knowledge and skills to be employed by a variety of industries in the energy sector. This includes working in energy systems manufacturing, energy management, building management, consulting or for a municipal and government agency as a:

- Energy auditor or evaluator for large buildings
- Financial advisor for energy option alternatives
- Sustainable and green energy specialist
- Municipal energy officer
- Energy consultant assistant
- Building commissioning assistant
- Sales
- Advisor for financial lending agencies
- Advisor for insurance companies
- General contractor assistant
- New systems installer assistant

ESSENTIAL EMPLOYABILITY SKILLS

"Essential Employability Skills (EES) are skills that, regardless of a student's program or discipline, are critical for success in the workplace, in day-to-day living, and for lifelong learning.[1]" All 11 Essential Employability Skills must be met by the end of the program.

Students must be able to reliably demonstrate the ability to:

1. Communicate clearly, concisely and correctly in the written, spoken, and visual form that fulfills the purpose and meets the needs of the audience.

2. Respond to written, spoken, or visual messages in a manner that ensures effective communication.

3. Execute mathematical operations accurately.

4. Apply a systematic approach to solve problems.

5. Use a variety of thinking skills to anticipate and solve problems.

6. Locate, select, organize, and document information using appropriate technology and information systems.

7. Analyze, evaluate, and apply relevant information from a variety of sources

8. Show respect for the diverse opinions, values, belief systems, and contributions of others.

9. Interact with others in groups or teams in ways that contribute to effective working relationships and the achievement of goals.

10. Manage the use of time and other resources to complete project.

11. Take responsibility for one's own actions, decisions, and consequences.

Advanced Standing

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

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 to the course learning outcomes or evaluations 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' capabilities in areas such as critical analysis and problem solving 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

LAB POLICIES AND EXPECTATIONS

1. Laboratory attendance is compulsory; there will be no makeup laboratories.

2. Students must attend in their scheduled lab section unless otherwise approved by the instructor.

3. Students must arrive to all laboratories on time in order to hear the pre-lab instruction. Students arriving **later than 20 minutes past the hour may not be admitted** and will receive a mark of zero for that lab.

4. If a student misses a laboratory, documentation must be provided. If documentation cannot be provided the student will receive a mark of zero.

5. Students may be excused from completion of a lab, with proper documentation, for a maximum of **2 lab periods.** Beyond this they will receive a mark of zero regardless of whether documentation is provided or not. (This may reflect a 20% maximum based on various laboratory schedules and will be clarified by the professor as appropriate)

6. Students must have their lab workbook data signed off by the professor where appropriate, **before leaving** the laboratory.

7. Students must be present and actually complete the laboratory in order for a report to be accepted.

8. Students must work cooperatively, respectfully and safely. Students who do not follow the college code of conduct or lab safety rules and regulations may be asked to leave the laboratory.

LAB SAFETY REGULATIONS

Before starting work in the labs, all students must complete the safety training as provided on line through Durham Connect (D2L). This includes a safety video and quiz where students are required to achieve a grade of 80% (multiple attempts are permitted). Any special health conditions or safety concerns may be noted here. Completion of this training confirms the student understands and agrees to the safety regulations put forth. **Students not completing this requirement will be denied access to the labs and will receive a mark of zero for the missed lab periods.**

1. Supervision is required in all labs for first, second and third year students. Exceptions to this may be permitted in certain labs with professor approval.

2. Eating, drinking and horseplay in the lab are not permitted.

3. PPE: Lab coats, safety glasses required in A209, A213, A240, A120, I210, 11-06 (Whitby) at all times.
   Lab coats required in A206 at all times.
   Students must wear closed heel and toe shoes and long pants or skirts while working in any lab.
   Lab coats are to be worn in laboratory area only. Lab coats are not worn in public places.

It is essential that everyone in the laboratory be aware of their surroundings at all times. Therefore hearing devices including ear buds and headphones are not to be worn in the lab. Please inform your lab professor if you are required to wear medical devices.

4. Read the safety warning on reagent containers. Become familiar with the Material Safety Data Sheets. Use the fume hood for all chemicals/reactions producing offensive odours/or toxic fumes.

5. **Report all spills, accidents or injuries to the professor immediately.**
   If chemical enters the eye, immediately use eye wash and flush for a minimum of 5 minutes.
   If chemical is spilled on skin, immediately wash with plenty of water.
   The Lab professor and student must jointly complete an online incident report form and forward as directed. The supervisor should be noted as maureen.calhoun@durhamcollege.ca to ensure a copy of the report is sent to the office for appropriate follow up.
   http://www.durhamcollege.ca/forms/accidentinjury/

6. **Use proper lab techniques at all times:**
   Use appropriate pipetting devices. Oral pipetting of any substance is prohibited.
   Waft fumes to nose rather than smelling directly.
   Carry all strong acids and bases in an approved rubber container.
   Pour acid slowly into water. NEVER WATER INTO CONCENTRATED ACID.
   Point test tube away from yourself and others when carrying out reaction.
   When inserting anything glass into a rubber stopper, lubricate with water or glycerol; wrap hand in towel; apply gentle pressure with twisting motion, never force.
   Discard cracked or chipped glassware in “broken glassware” box located in each lab.
   Flammable liquids should never be used with open flame in lab.
   Extremely corrosive materials should be handled only while wearing gloves.
   Label each container of material as you remove it from a reagent bottle according to WHMIS.
   Do not put extra removed material back into reagent bottles.
   Do not use Parafilm as a lid for volumetric flasks or other glassware unless directed to do so by the professor.

7. **Pour or scoop out only quantities of reagents or chemicals as required by the experiment.**
   Weigh quantities directly from containers and do not transfer excessive amounts to large weigh boats. Return lids to all containers immediately after use.

8. **Clean up spills immediately using appropriate method**
   For acids use sodium bicarbonate or the acid spill kit
   For bases use water or the base spill kit
   For organics use absorbent or the organic spill kit.
   (Spill kits are in the balance room – A211) Inform your instructor when there is a spill.

9. Clean up balance immediately after use. Brushes are at each balance for this purpose.

10. Disposal of chemicals: When in doubt consult professor. Never mix chemicals unless specifically instructed to do so.

    Organic Compounds: In general, all liquid is to be placed in "Halogenated" or Non-halogenated" waste cans as appropriate. Non-toxic organic solids may, on advice of the professor, be placed in garbage.

Inorganic Compounds: Follow specific instructions. In general, if water soluble, dissolve in water and flush down drain with lots of water. Insoluble materials may be placed in garbage.

Acids and Bases: Neutralize strong acids and bases prior to disposal. Pour slowly into sink **in the fume hood**, while water is running. Keep water running for a few minutes after. Never dispose of acids and bases together.

11. Any sample that needs to be stored must be clearly labelled, dated and stored in an appropriate container and designated laboratory cabinet. Samples stored in laboratory glassware such as a volumetric, will be disposed of.

12. At end of lab period your work station should be left clean with all glassware cleaned and returned to the appropriate location. **NO BEAKERS ARE TO BE LEFT IN THE FUME HOODS.** Wash your hands before leaving the lab.

13. Special rules will apply to A206 for Microbiology and will be detailed by professor as needed. No material or equipment is to be removed from A206 without professor's permission.

14. Students are not to remove any chemicals, solvents, equipment or supplies from the laboratory without permission. If a student does, he/she may be asked to withdraw from the program.

15. Familiarize yourself with the location of fire extinguishers, fire blankets, emergency showers, eyewash, emergency gas shut off and evacuation routes.

Please note that Safety for Electrical lab, Solar Energy lab, Wind Energy lab, HVAC lab, Carpentry lab & other applicable labs will be discussed in class

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 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 Advisor or review the Missed Final Examination Policy and Procedure documents (http://www.durhamcollege.ca/academicpolicies).

Field Placement

Field training provides valuable experience in the workplace. When on field placement, students must realize that their behaviour reflects upon the entire student body and the image of the college. Students are expected to act in a professional manner. This includes punctuality and regular attendance. It is **strongly recommended** that students do not carry any outstanding courses in third year to ensure that they meet field placement pre-requisite requirements and graduation deadlines.

Evaluation criteria and weighting

- In order to be eligible to graduate, the student must successfully complete a minimum of 80 hours on the job placement in his/her chosen field and 5 hours of required workshops on or before May 15, 2013.

- The student must have the employer complete and sign the "student evaluation form" and submit the form to the Student Advisor in Room 117 Whitby on or before May 15, 2013. **The evaluation must indicate a satisfactory rating.** Please be aware that employers may also be contacted by the Student Advisor or the Program Coordinator.

- If a student does not successfully complete his/her placement requirements he/she will not be eligible to graduate.

- The student must also submit a completed tracking form (Task Log) to the Student Advisor in the Room 117 Whitby on or before May 15, 2013. This tracking form (Task Log) is attached to the employer evaluation form in your placement package and must be **signed** by the employer.

Terms and conditions of placement

Students must have a minimum 2.0 GPA and have successfully completed all of their first and second year courses before they can begin their placement. Exceptions may be made with the written consent of the Dean.
Placement must be completed before final grades are due in order to graduate.
Placement comes in different formats for different programs. The minimum requirement is that each student obtains at least 80 hours of program related, practical work experience in his/her chosen field plus 5 hours required workshops.

The placement options are:

1) One day a week during the fall and/or winter semester for a minimum of 80 hours.
2) A summer position after second year related to your field of study.
3) An "internship" for 4, 8, 12 or 16 months.
4) A prior work experience with proper approval and documentation.
5) Working during a block period of time such as the Xmas break, Reading week or in May once all course work is complete.

Students are responsible for their own transportation, safety glasses and safety boots. Placement should be treated as a job and proper work attire should be worn. If sick, it is the student's responsibility to call his or her workplace supervisor. In addition, any work issues should be discussed with support person first. If there is no resolution, please speak to the Program Coordinator or Shelley Chard, the Student Advisor in Room 117.

Should the field placement assignment not meet the needs of the student, the student, in conjunction with the placement coordinator will attempt to find another placement company for the student. The student should notify the field placement coordinator within two weeks of the assignment if alternate arrangements need to be made.

Academic Advising - Student Advisor

Durham College is committed to the success of all students 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 Advisor** 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 and select electives and options if applicable;
- transfer to another program;
- access other college services to support student success.

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

Your Student Advisor is:

Name: Shelley Chard

Office #: 117 (Whitby campus)

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

Telephone: (905) 721-2000 Ext. 4087

Appointment time available: 8:30 a.m.– 4:30 p.m.

CENTRE FOR STUDENTS WITH DISABILITIES

Phone: 905 721 3123
E-mail: disabilities@durhamcollege.ca
Web: www.durhamcollege.ca/csd
North Oshawa location: SW 116
Whitby location: Room 180

About the CSD
The Centre for Students with Disabilities (CSD) at Durham College provides services to students with disabilities to ensure that equal access is available to all aspects of the academic environment. These services are designed in accordance with the Ontario Human Rights Code and the Accessibility for Ontarians with Disabilities Act. Our services are confidential.

Registering for Academic Accommodations
Accommodations, intended to reduce the impact of a disability in the academic arena, are organized in co-operation with the student and communicated to students' faculty members through accommodation letters. Accommodations 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. The documentation should outline the current impact of the disability on the student's ability to learn/participate in an academic environment. 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.

Students who are approved for test accommodations will need to meet all timelines for test/exam sign-up facilitated by the Test Centre. The Centre for Students with Disabilities bears no responsibility for students missing Test Centre deadlines.

It is the student's responsibility to check their MyCampus email address frequently as all important CSD related information will be posted to student email accounts.

Student Academic Learning Services (SALS)

Success Matters Start Here! The staff and faculty at the Student Academic Learning Services Centre can help you achieve your educational goals. Here are your SALS services:

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 Starbuck's 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 Reserves.

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

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 available to every registered student 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 or 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.

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.

Unless otherwise noted, all students must complete the online Student Financial Profile application for consideration for bursary and award 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.

For further information on scholarships, bursaries and awards, please contact studentawards@durhamcollege.ca.

NOTE: Awards, amounts and availability are subject to change at the discretion of the Student Awards office or the donor. All awards are based on information available at the time of publication.

Awards Open to Students in All Programs

Title of Award	Award Value ($)
Anne Sabat Award	400
Business & Professional Women of Durham Award	$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	$1000
Durham College Bursary	Various amounts
Durham College Endowed Award	$1000
Durham College International Student Scholarship	$1500
Durham College Scholarship	$500 or $1000
Durham Region Chairman's Award	$1000
Durham Region Chairman's Scholarship	$1000
Durham Region Police Services Board Bursary Award	500
Garfield Weston Award	$2500 + up
Greenbriar Foundation Award	$1000
Harold "Pat" Dooley Bursary	$1300
International Student Emergency Bursary	Various amounts
Lenovo (Canada) Inc. Access Awards	$500
Lifelong Learning Award	$500
Lifelong Learning Bursary	$500
Lois and Gary Polonsky Award	$1000
Lois Sleightholm Award	$2000
Lois Sleightholm 21st Century Award	$1000
McErlean Family Award	500
Marjorie Elizabeth Willoughby Award	$3000
Ontario Aboriginal Bursary	Up to $3000
Ontario First Generation Bursary	$3000
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	$4000
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 - Instrumentation and Control	Electrical Technician – Instrumentation and Control	$300
Award for Excellence in the Automotive Technician Program	Motive Power Technician – Service and Management	$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
Jamie Striemer Memorial Award	Skilled Trades programs	$1000
Master Insulators' Association Bursary	Trades program with an insulation component	$1500
Mike Kavanaugh Award	Mechanical Technician Program – Tool and Die/CNC	$800
Millwork Home Centre Award	Construction Carpentry Sustainable	$500
Pine Ridge Corvette Club Award	Motive Power Technician - Service and Management	$500

School of Business, IT & Management

Award for Excellence in Accounting	Business Administration - Accounting	$500
BDO Canada LLP Award	Business Administration - Accounting	$500
Certified General Accountants Association of Ontario Award	Business Administration - Accounting	$150 + CGA $2500 tuition credit
Durham Region Concert Association	Business Administration – Music	$400
Eva Loraine Cornish Memorial Award	Business Administration	$800
General Motors of Canada Limited Bursary	Business Administration – Operations Management	$1000
General Motors of Canada Limited Scholarship	Business Administration – Operations Management	$1000
Golf Association of Ontario Award	Professional Golf Management - Business Administration	$1000
Human Resources Professionals Association of Durham Award	Business Administration – Human Resources	$1250
Greater Oshawa Chamber of Commerce Award	School of Business program	$800
Ian J. Ball Award	Business Administration – Marketing	$1000
Jeffrey and Julia Boyce Business Award	All Business Administration programs	$2000
Matt Ludlow Spirit Scholarship	Sport Management	$1500
Messier-Dowty Inc. Award	Business Administration – Operations Management	$500
Millwork Home Centre Award	Business Administration – Marketing	$500
Oshawa Community Credit Union Award	Alternates yearly between School of Business & Information Technology students and School of Health and Community Services, Nursing Program students	$800
Paul Vessey Premier's Award	Business Administration – Marketing	$1000
Roberts, Marlowe, Jackson, Jackson & Associates Award	Business Administration - Accounting	$500
Rotary Club of Oshawa Award	Business Administration – Human Resources	$1000
Xerox Canada Award	School of Business or Information Technology program	$700

School of Continuing Education

Durham College Award for Continuing Education	Continuing Education	$500

School of Interdisciplinary Studies & Employment Services

Optimist Club of Whitby – Teachers' Award	Academic Upgrading	$500
Special Olympics 2008 Spring Games Award	Community Integration through Cooperative Education	$1000

School of Media, Art & Design

Dann Torena Memorial Award	Graphic Design	$750
Frank Cowan Company Limited Award	Public Relations	$1000
Lewis Beaton Trust Award	Advertising	$1000
Ralph Sagar Award	Animation – Computer Arts	$900
Robert McLaughlin Gallery Award	Graphic Design	$500
Rotary Club of Oshawa Award	Public Relations	$1000
Shawn Simpson Memorial Award	Journalism – Print & Broadcasting	$500
Sodexo Services Canada Ltd. Award	Public Relations	$1000
Tyncel Hasan Award	Graphic Design	$400
Zoom Media	Graphic Design	$2000

School of Health & Community Services

Central East Community Care Access Centre Award	Practical Nursing and Personal Support Worker	2 at $500 2 at $750
Daryl and Cindy Austin Award	Any Health & Community Services program	$750
Durham Filipino-Canadian Society and Dr. Gregorio Bayang Award	Dental Assisting/Dental Hygiene	$800
Dwayne Moses Memorial Award	Social Services Worker	$800
Durham Region Dental Hygiene Society	Dental Hygiene	$500
George & Gennie Chaput Award for Excellence in Patient Care	Practical Nursing	$1000
Joyce Marshall Bursary	Early Childhood Education	$500
Stanley Lovell Memorial Award	Practical Nursing	$1000
Nursing Faculty Memorial Award	Practical Nursing	$500
Oshawa Community Credit Union Award	Alternates yearly between School of Business & Information Technology students and School of Health and Community Services, Nursing Program students	To be determined
Oshawa Folk Arts Council – Anne Racz Memorial Award	School of Health and Community Services	$500
Oshawa Folk Arts Council – Jay Drygala Memorial Award	School of Health and Community Services	$500
Victorian Order of Nurses Award	Practical Nursing - For outstanding commitment to patient care	$500

School of Justice & Emergency Services

A. Alan H. Strike Award	Legal Administration	$1000
Durham Police Appreciation Committee Award	2ND Year Police Foundations	To be determined
Bert Dejeet Justice Bursary	2nd or 3rd year of Paralegal (2 year diploma); Law and Security Administration; Legal Administration/Law Clerk or Police	4 awards of $200 – $250

	Foundations	each
Midge Day Memorial Award	Legal Administration	$500
Patricia O'Connor Premier's Award	Paramedic	$1000
Robert Anderson Memorial Award	Police Foundations or Law and Security - for excellence in Criminal and Civil Law	$250
Roger Pardy Memorial Award	Police Foundations	$800
Steven Shumovich Memorial Award	Legal Administration	$500
Stikeman Elliott Award	Legal Administration	$500

School of Science & Engineering Technology

Andrew Foundation Award	Electronics Engineering Technician/Technology	$500
Bruce MacMillan Memorial Award	Robotics or related field in technology	$800
Canadian Healthcare Engineers Society, Ontario Chapter Award	Biomedical Engineering Technology	$1200
Canadian Institute of Food Science & Technology – Toronto Section Award	Pharmaceutical and Food Science Technology	$1000
CINDE – Student Scholarship	Mechanical Engineering Technician Non-Destructive Evaluation	$1000
Christopher Kresmir Maly Award	Pharmaceutical and Food Science Technology	$800
Durham Land Stewardship Council	Environmental Technology	$500
General Motors of Canada Limited Bursary	Engineering, Technology and Skilled Trades	$1000
General Motors of Canada Limited Bursary	Engineering, Technology and Skilled Trades	$1000
Marigold Ford Lincoln Sales Ltd. Award	Mechanical Engineering Technology	$500
OACETT Durham Chapter Award	Programs which are recognized and eligible for membership in OACETT	$500
Ontario Food Protection Association Award	Pharmaceutical and Food Science Technology	$1000
Oshawa Garden Club	Horticulture Technician program	$500
Patheon Inc. Award	Pharmaceutical and Food Science Technology	$500
TD Bank Group Award	Environmental Technology	$1,600
Xerox Canada Award	School of Technology program	$600

Convocation Awards

Founder's Cup	$200
Durham College Medal: Top Student – Three year Program	$500
Durham College Medal: Top Student – Two year Program	$500
Durham College Medal: Top Student – One year Program	$500
Durham College Medal: Top Student – Apprenticeship Program	$500
Governor General's Academic Medal and W. Bruce Affleck Memorial Scholarship	$2000
President's Leadership Award	$500

Diploma to Degree Options

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 Diploma to Degree Chart.**

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.

PROGRAM OF STUDY 2012/2013 **SCHOOL OF SKILLED TRADES, APPRENTICESHIP & RENEWABLE TECHNOLOGY** **02-Aug-12** **-WEEKLY BREAKDOWN-**

ENERGY MANAGEMENT - SUSTAINABLE BUILDING TECHNOLOGY

COURSE NAME	MOD	CODE	PREREQUISITES	COREQUISITES	LECT. HRS	LAB HRS	ALT. DEL. HRS	FIELD PLMT. HRS
SEMESTER 1								
BUILDING AS A SYSTEM & THERMODYNAMICS		BULD 1000			2	2	0	
COMMUNICATIONS FOR SCIENCE & TECHNOLOGY		COMM 2103			2	1	0	
ELECTRICITY I FOR ENERGY MANAGEMENT		ELEC 1112			2	2	0	
ENERGY & MECHANICAL SYSTEMS I		EMMS 1000			2	2	0	
INTRODUCTION TO ENERGY AUDITING		ENER 1010			1	2	0	
MATHEMATICS FOR TECHNOLOGY		MATH 1131			4	0	0	
					13	**9**	**0**	
SEMESTER 2								
ELECTRICITY II FOR ENERGY MANAGEMENT		ELEC 2012	ELEC 1112		2	2	0	
APPLIED MATHEMATICS FOR ENERGY		EMAM 2010	MATH 1131		3	0	0	
DRAFTING & BLUE PRINT READING		EMDR 2030			2	2	0	
ENERGY & MECHANICAL SYSTEMS II		EMES 2000	EMMS 1000		2	2	0	
SOLAR THERMAL AND SOLAR PV		EMPS 2040	ELEC 1112		2	2	0	
ENERGY REGULATIONS, POLICIES & ISSUES		EMRE 2020	ENER 1010		2	0	0	
					13	**8**	**0**	
SEMESTER 3								
TECHNICAL COMMUNICATIONS		COMM 2136	COMM 2103		1	1	0	
ELECTRICITY III FOR ENERGY MANAGEMENT		ELEC 3012	ELEC 2012		2	2	0	
DESIGN CONCEPTS FOR SUSTAINABLE BUILDING 1		EMDC 3000	EMDR 2030	BULD 1000	3	0	0	
ENERGY PERFORMANCE SIMULATION		EMEP 3010	EMMS 1000		0	3	0	
ENERGY & MECHANICAL SYSTEMS III		EMMS 4030	EMES 2000		2	2	0	
INTRO TO ELECTRONICS FOR BUILDING SYSTEMS		EMTH 2020	ELEC 1112	BULD 1000	2	2	0	
					10	**10**	**0**	

PROGRAM OF STUDY 2012/2013 | **SCHOOL OF SKILLED TRADES, APPRENTICESHIP & RENEWABLE TECHNOLOGY** | **02-Aug-12** | **-WEEKLY BREAKDOWN-**

ENERGY MANAGEMENT - SUSTAINABLE BUILDING TECHNOLOGY

	COURSE NAME	MOD	CODE	PREREQUISITES	COREQUISITES	LECT. HRS	LAB HRS	ALT. DEL. HRS	FIELD PLMT. HRS
SEMESTER 4									
	COMPUTER APPLICATIONS FOR ENERGY		EMCO 4050			0	3	0	
	ENERGY AUDIT AND MANAGEMENT IN LARGE		EMEA 4000	ENER 1010		3	2	0	
	BUILDING AUTOMATION I		EMEN 5020	ELEC 3012		2	2	0	
	ENERGY MANAGEMENT FOR INDUSTRIAL		EMIP 4010	EMMS 4030		3	0	0	
	PROJECT MANAGEMENT		EMPM 6030			2	0	0	
	SUSTAINABLE DEVELOPMENT POLICIES & ISSUES*		EMTO 3040	EMRE 2020		3	0	0	
	CANADIAN BUSINESS FUNDAMENTALS		GNED 1421			3	0	0	
						16	**7**	**0**	
SEMESTER 5									
	COMPUTER APPLICATIONS FOR ENERGY MGMT II		EMCO 5020	EMCA 4050		0	4	0	
	DESIGN CONCEPTS FOR SUSTAINABLE BUILDING II		EMDC 5010	EMDC 3000		3	0	0	
	ENERGY MANAGEMENT PROJECT I		EMEM 5000	EMMS 4030		0	4	0	
	ENERGY OPTIONS EVALUATION		EMEO 5030	EMMS 4030		3	0	0	
	BUILDING AUTOMATION II		EMSI 6010	EMEN 5020		2	3	0	
G	GENERAL EDUCATION ELECTIVE		GNED 0000			3	0	0	
						11	**11**	**0**	
SEMESTER 6									
	COMMUNICATIONS FOR CAREER DEVELOPMENT		COMM 2132	COMM 2136		2	0	0	
	ENERGY MANAGEMENT PROJECT II		EMEM 6000	EMEM 5000		0	4	0	
	FINANCIAL IMPLICATIONS OF ENERGY MANAGEMENT		EMFI 6040	EMAM 2010		2	0	0	
	GEOTHERMAL & CLEAN ENERGY ALTERNATIVES		EMGE 3030			3	0	0	
	WATER CONSERVATION AND WATER RE-USE		EMWC 6020	EMMS 4030		2	0	0	
	GENERAL EDUCATION ELECTIVE		GNED 0000			3	0	0	
						12	**4**	**0**	

PROGRAM OF STUDY 2012/2013 **SCHOOL OF SKILLED TRADES, APPRENTICESHIP & RENEWABLE TECHNOLOGY** **02-Aug-12** **-WEEKLY BREAKDOWN-**

ENERGY MANAGEMENT - SUSTAINABLE BUILDING TECHNOLOGY

COURSE NAME	MOD	CODE	PREREQUISITES	COREQUISITES	LECT. HRS	LAB HRS	ALT. DEL. HRS	FIELD PLMT. HRS

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.

***Hybrid 1 hour**

Course Descriptions

APPLIED MATHEMATICS FOR ENERGY EMAM 2010 This course is a continuation of Mathematics for Mathematics for Technologists. Students develop problem-solving skills by applying topics of study to related practical problems. Students will calculate problems relating to electrical generation, heat gain and loss and energy utilization. Where applicable, areas of study may include systems of linear equations in two and three unknowns; exponents; radicals; quadratic equations; exponential and logarithmic functions; and analytic geometry.

BUILDING AS A SYSTEM & THERMODYNAMICS BULD 1000 This course stresses the evaluation of the house/building as system using principles, such as, the basic concepts of building science and thermodynamics. Students examine the various factors which affect the energy inputs and losses to the system. Basic concepts of temperature, types of heat, heat capacity, expansion of solids and gases and heat transfer are studied. A comparison of the components of the system is required to determine how air, water and water vapour leakage and building movements contribute to maintaining a healthy indoor 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 also learn how the entire system/structure interacts to produce the overall effect/impact and, in doing so, are exposed to the fundamental science involved constructing buildings for Canadian climatic conditions including durability, energy use efficiency, healthy living conditions and to some basic concepts of sustainable design. The students study the fundamentals of energy loads on the building. The students are introduced to the concepts of embodied energy of building components. Associated policies such as R2000, LEED, BOMA BESt and EnergyStar will be introduced and developed in greater detail in subsequent courses.

BUILDING AUTOMATION I EMEN 5020 The two courses relating to building automation will introduce and enhance topics associated with computers and networking in buildings. This course studies electronic devices used to control and monitor energy systems, available from building automation suppliers. Where possible, basic troubleshooting of the systems will be investigated. Students will be introduced to direct digital control systems in buildings. Some coverage of the fundamentals of process control theory and applications will also be presented. The basic concepts of proportional-integral-derivative (PID) controllers for parameters such as: level, flow, pressure, temperature, etc. will be studied. Concepts and principles to quantify and analyze inputs and outputs from measurement devices utilized to determine parameters such as temperature, pressure, voltage, amperage and flow rate.

BUILDING AUTOMATION II EMSI 6010 This course enhances the experience with direct digital building automation systems with particular focus on the integration of various control systems and operational functions. Topics, including energy evaluation of automation of conveyor systems, pneumatic and hydraulic systems, and interfacing of sensors and smart devices are introduced. Students will design, build and demonstrate a basic programmable control system. Where practical, linkages to renewable and clean energy technology will be discussed. While this course will focus on energy related systems other networking applications within buildings will be discussed.

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. Students who have knowledge and understanding of these businesses and opportunities will become our entrepreneurs of tomorrow. Knowledge of business fundamentals will provide students a better appreciation of the workings of the Canadian business system.

COMMUNICATIONS FOR CAREER DEVELOPMENT COMM 2132 The goal of this course is two-fold. Primarily it assists students in developing a well planned and organized job search plan. In order to accomplish this, students develop professional cover letters, resumes, portfolios and career action plans. The second goal of this course is to introduce students to subject matter which will assist them to meet today's workforce challenges. An introduction of Organizational Behaviour is explored including; Understanding and working with management to attain company and career goals, working and communicating in a team environment, functioning and managing stress in today's workplace and understanding why organizational change and development take place.

COMMUNICATIONS FOR SCIENCE & TECHNOLOGY COMM 2103 Today's employers give preference to job candidates who are team players with strong verbal communication skills. This course will help students find their voice and develop their ability to work in teams, giving them the competitive advantage they need in today's job market. It will also strengthen reading comprehension, writing ability, presentation skills and computer application proficiency, all of which are skills fundamental to success in college and in the workplace.

COMPUTER APPLICATIONS FOR ENERGY MGMT I EMCO 4050 In this course students are introduced to the basic functions of MS Project through hands on work in a computer lab. The course covers importing and exporting data from/ to other computer applications including MS Excel and other industry standard software. Students will also get an introduction to other energy management specific software.

COMPUTER APPLICATIONS FOR ENERGY MGMT II EMCO 5020 This course introduces students to the current version of AutoCAD and Revit with hands on work in a CAD lab. Students study basic drawing and editing commands in both drafting programs. In lab exercises, students will accumulate and export data for use in energy management applications.

DESIGN CONCEPTS FOR SUSTAINABLE BUILDING 1 EMDC 3000 Design and construction of sustainable buildings are introduced in this course with particular reference to energy use efficiency and energy conservation. Materials selection, components, internal services, air quality and economic factors relative to construction and future energy use will be discussed. The commissioning of buildings under LEED, BOMA BESt or other evaluation systems will be covered in some detail and the course will stress that the commissioning or approval under these systems should include all credit points, to ensure the goals are met. The course will examine the integrated design process noting the roles of architects, civil, mechanical and electrical engineers, consultants, owners and municipalities.

DESIGN CONCEPTS FOR SUSTAINABLE BUILDING II EMDC 5010 This course builds on Design Concepts 1 and involves further integration of ideas and sustainable components into more complex structures and systems. Net zero energy consumption and low energy building concepts will be introduced in this course. Like other courses in this program, course content will evolve as new systems are developed. Fundamental principles studied in thermodynamics, solar thermal energy and building components along with factors such as building orientation and design will be studied relative to their applications in green building systems. Topics will include selected renewable energy systems,

high performance building envelope, localized thermal mass and radiant wall panels. Rating systems, such as, LEED EB and BOMA Go Green and their applications will be studied for green buildings.

DRAFTING AND BLUE PRINT READING EMDR 2030 This course introduces the student to: the fundamentals of free-hand sketching and blueprint reading as it pertains to building systems and architectural details. Students will become familiar with the use of free-hand sketching using both orthographic and perspective views. The use of dimensioning features, symbols, layout and presentation will be discussed and identified. Students will study blueprints of existing buildings and learn to identify features used as it relates to: architectural details, floor plans, symbols for: electrical, HVAC, plumbing, etc., and learn to conduct take-off calculations from same to generate required values of the building envelope.

ELECTRICITY I FOR ENERGY MANAGEMENT ELEC 1112 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 get an introduction to battery systems, rectifiers and other associated technology.

ELECTRICITY II FOR ENERGY MANAGEMENT ELEC 2012 This course builds on the concepts developed in Electricity I by examining the more principles of AC circuits, power factor, transformers, three phase power generation, and the basics of the electrical distributions grid in Ontario. Inverters will also be studied. Students will be alerted to issues relating to connecting renewable energy sources to the local grid and will receive a brief introduction about smart grid improvements in the future.

ELECTRICITY III FOR ENERGY MANAGEMENT ELEC 3012 This course offers students the opportunity to expand on the theory from Electricity I & II; 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.

ENERGY & MECHANICAL SYSTEMS I EMMS 1000 This course examines the basic applications of conventional energy systems i.e. combustion and fuels, gas, oil and electric heating, ventilation, air conditioning and lighting in homes and small scale industrial and commercial buildings. Air to air heat pumps and radiant heating will be discussed. The basic principles of refrigeration, refrigerants and management of refrigeration systems, heating and cooling loads and load calculations are studied. The course deals with strategies and equipment in the aforementioned systems using blueprints and layouts so that these features will be easily recognizable to the graduates the field. This course will stress applications, configurations and controls as opposed to design and installation. This course will stress energy use by the systems, major appliances and equipment and suggest possible energy conservation measures.

ENERGY & MECHANICAL SYSTEMS II EMES 2000 Students study basic concepts of hot water and steam boilers , controls and safety devices, routine boiler operation and maintenance along with the basics of associated hydronic heating systems and fuel system management. Feed water

systems and water treatments are discussed. The principles of heat transfer and steam thermodynamics are introduced so that students have a basic understanding of the mechanism of water heating and steam generation by boilers and other heating systems. The basic concepts of combustion, drafts and fuel systems are also presented. The fundamentals of hydronic heating systems will be presented. This course, also, will stress applications, configurations and controls as opposed to design and installation.

ENERGY & MECHANICAL SYSTEMS III EMMS 4030 This course builds on the content of Energy and Mechanical Systems I & II with additional study of larger HVAC components. HVAC unit sizing and selection, forced air systems in general, chillers and psychrometrics are studied. Types of lighting systems for external and interior use, from conventional to LEDs will be discussed in relation to specific purposes, initial costs and energy use efficiency. The fundamentals of other internal services such as plumbing, hydraulic, pneumatic and elevator systems are presented. Students will gain familiarity with architectural drawing and blue prints particularly as they relate to larger buildings. As previously, this course will stress applications and configurations as opposed to design and installation. Control systems for mechanical components will be studied and where possible basic troubleshooting will be practiced. Combined heat and power systems will be discussed and a tour of the CHP system on the Oshawa Campus of Durham College will be conducted.

ENERGY AUDIT AND MANAGEMENT IN LARGER BUILDINGS EMEA 4000 This course builds on ENER 1010 with the study of the procedures and techniques of energy assessments of larger existing buildings. The building envelope, components and energy utilization of all systems, equipment and appliances will be evaluated. Student will relate supply-side energy management parameters with demand side practices. The importance of collection, interpretation and presentation and communication of data to the client will be emphasized. Additionally, this course will study the practice of retrofitting or recommissioning of a building. The RCx investigation phase will provide a very similar analysis to an audit, with the added bonus (following NRCan or BOMA methodology) of focussing on operational, low-cost opportunities first (some conventional energy auditing tends to be focussed on equipment retrofits). The course will clarify the distinction between these two activities. The concepts of energy benchmarking, tracking and analysis, and Energy Information System (EIS) tools will be introduced.

ENERGY MANAGEMENT FOR INDUSTRIAL PROCESSES EMIP 4010 This course builds on EMEA 4000, Energy Audits in larger buildings, with emphasis on the performance of processing and manufacturing equipment within a plant from an energy use efficiency perspective relative to industry best practice. The comparison between measured performance and industry best practice determines the potential for energy savings. Students will experience how statistics obtained from energy use observations can assist managers in improving energy efficiency, setting energy priorities and monitoring progress. Energy management systems such as ISO 50001 will be studied.

ENERGY MANAGEMENT PROJECT I EMEM 5000 The students will work in small teams, as part of field placement, and produce a detailed energy evaluation on existing industrial, commercial or institutional building stock. The project can be as (1) a recommissioning project leading to a possible LEED application or BOMA certification by the owner or (2) as a study for possible retrofits to the building and ideas for inclusion of renewable energy and enhanced energy efficiency into the energy management system. Working with a mentor, students will design, plan and justify their proposal for changes to the existing building and system. As another project option, the student team could work with the mentor in the development of a new green, sustainable building project. Interim deadlines will be set for completion of the various stages and meeting the target deadlines will be a meaningful component in the evaluation.

ENERGY MANAGEMENT PROJECT II EMEM 6000 Students will continue to work with a mentor and team from Energy Management Project I and summarize and analyze data. Students will complete a final report including simulation results on the proposed energy management modifications or on a new development. Reports will be presented to the owners and the reports will be evaluated by faculty with input from the owners or managers of the project site.

ENERGY OPTIONS EVALUATION EMEO 5030 Students will conduct targeted financial analyses of various energy options ranging from energy purchase contracts, to various retrofit possibilities and potential green energy options. Capital costs, operational costs, financing, time for capital pay back, return on investment and other important financial considerations will be analyzed in a similar format that would be undertaken by a company pondering investments in new energy management options.

ENERGY PERFORMANCE SIMULATION EMEP 3010 This course briefly refreshes the knowledge of students of diverse backgrounds with basic computer operations and expands into computer applications for analyzing the energy performance of buildings. Software such as HOT2000, RETScreen and other building energy performance simulation programs will be examined. This course also will examine design tools, such as CANQUEST, (successor to NRCan's EE4), which forms the basis for the Design Validation program as well as LEED energy scoring. As new energy performance software comes available it will be added to the curriculum to replace outgoing programs.

ENERGY REGULATIONS, POLICIES & ISSUES EMRE 2020 This course provides a thorough review 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 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 energy policies and incentive programs will be examined and strategies to keep current with these programs will be explored.

FINANCIAL IMPLICATIONS OF ENERGY MANAGEMENT EMFI 6040 Case studies will be used to examine the previous energy costs, retrofit and new management system costs and the return on investment on the alterations to the building envelope, demand side management, and/or renewable options utilized. Similar evaluations of will be conducted to compare energy efficiency for selected industrial process options.

GENERAL EDUCATION ELECTIVE GNED 0000 Students may choose from a list of general education courses provided at Durham College.

GEOTHERMAL & CLEAN ENERGY ALTERNATIVES EMGE 3030 This course introduces the basic design, principles of installation and operation of geothermal systems. The theory behind various geo-exchange systems and their applications are studied. Students discuss the materials, components and fluids of different geothermal heat exchanger installations. The student is exposed to the geological criteria considered as it pertains to geo-exchange applications and installations. Students will observe the operation and control of the geothermal systems at both the Whitby and Oshawa campuses (the Oshawa campus installation is the largest in Canada – 300 wells 300 metres deep). The basic theory of harvesting energy from wind will be introduced. Through the combination of theoretical and practical studies, students will identify and compare the operating principles of different commercially available wind turbine designs. The fundamental theory of nuclear energy for generation on electricity is studied. Students will tour the combined heat and power plant on the

Oshawa Campus and studied the basic principles of CHP. Other clean energy alternatives including biomass gasifiers will be studied.

INTRO TO ELECTRONICS FOR BUILDING SYSTEMS EMTH 2020 Students are introduced to fundamental electronics and the basic concepts of digital logic circuits involved in HVAC and building automation technology. Topics include an introduction to rectifiers, PLCs and solid state residential control systems. The basics of residential line and low voltage controls used to control heating, air conditioning and heat pump applications will be studied. Students will use basic electronic test instruments.

INTRODUCTION TO ENERGY AUDITING ENER 1010 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.

MATHEMATICS FOR TECHNOLOGY MATH 1131 The purpose of this course is to refresh and upgrade existing mathematical skills such as algebra, geometry, trigonometry, and more. Emphasis is placed on developing problem solving techniques by applying these math topics to related engineering problems. This is configured as four one hour classes per week.

PROJECT MANAGEMENT EMPM 6030 This course provides the background for students to plan, organize, and manage resources to enable the successful completion of a specific project. Bringing a project in on schedule, on budget and up to design standards are key components of the course. The involvement of the project management process and its basic functions in relation to the early procurement procedures of a potential client company in a request for proposal (RFP) will be examined in some detail.

SOLAR THERMAL AND SOLAR PV EMPS 2040 Solar thermal energy and solar PV systems are discussed for onsite roof or ground mounts as applicable. Students will study active and passive solar systems applied to residential, commercial and industrial sectors. Through the compilation of theoretical and practical thermodynamic and heat transfer studies, students will be able to identify, differentiate and evaluate solar thermal configurations. In this course, students will study the fundamentals of collecting energy from sunlight and converting it into electricity. The pros and cons of each type of system, importance of site factors and economic considerations will be discussed.

SUSTAINABLE DEVELOPMENT POLICIES & ISSUES EMTO 3040 The students will study the planning process in Ontario. The Ontario Municipal Act, the Planning Act, the Green Belt Act and the Places to Grow policies and other related issues will be examined. The roles of the Regional (County) and local governments in the development of official plans will be discussed. Developing concepts of issues such as walkability, sustainable transit, cycling, built form and impact will be discussed. Possible new policies such as combined heat and power (CHP) in sustainable communities to provide decentralized electrical energy generation with the efficient use of waste heat to provide community heat and hot water. The concept of energy hierarchy will be introduced to emphasize efficient use of energy in communities and industry. Issues relating to waste management plans, safety plans and personal safety around demolition and construction sites will be studied. Evolving concepts of green energy, drop-in biofuels and biomass will be discussed.

TECHNICAL COMMUNICATIONS COMM 2136 Technical Communication is the “art and science of making complex technical information accessible, usable and relevant to most people in most settings.” This course reinforces and expands on technical communication skills introduced in first semester, which students will require in the workplace. Students will learn to select and use appropriate research, language, and layout for different technical documents, while further developing their written and verbal communication skills and their ability to work in a team.

WATER CONSERVATION AND WATER RE-USE EMWC 6020 Students will be introduced to the various systems and practices of water conservation and water re-use. Costs of municipal water are becoming an increasing burden to major building owners and many are examining and investing in grey water and rain water systems for use as a secondary water source for purposes in or around buildings. Opportunities for water conservation will be examined in detail for new and existing homes, multiple residential and ICI buildings.