

Mechanical Technician – Mechanical Maintenance and Control
Mechanical Techniques – Industrial (Online)
Mechanical Techniques – Precision Machining (Online)

PROGRAM GUIDE



School of Applied Sciences,
Apprenticeship, Skilled Trades &
Technology
2009

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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.

Printed: June 2009

Welcome Students

A Message from the Principal

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

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

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

Welcome

John Maceroni

John Maceroni

Principal, School of Applied Sciences, Apprenticeship, Skilled Trades and Technology

A Message from the Vice-President Academic

Congratulations on choosing Durham College and taking a very important step in preparing for your future. Durham College is known for high quality programs, leading edge technology, an award winning library and a student-centered approach to learning. Student learning is at the heart of what we do. Our commitment to “the student experience comes first” guides our work and decision-making throughout the College.

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 highly 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.

Wishing you much success with your studies.

A handwritten signature in cursive script that reads "Judy Robinson". The signature is written in black ink and is positioned above the typed name and title.

Judy Robinson,
Vice President, Academic

School of Applied Sciences, Apprenticeship, Skilled Trades & Technology

Whitby Faculty & Staff

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

Administration	Title	Phone	E-mail Address
Maceroni, John	Principal, Whitby Campus	3302 (W)	john.maceroni@durhamcollege.ca
Fenton, Norm	Director of Apprenticeship	4056 (W)	norm.fenton@durhamcollege.ca
Chard, Shelley	Student Liaison (Whitby)	4087 (W)	shelley.chard@durhamcollege.ca
Ennis, Judy	Administrative Assistant -Apprenticeship	3344 (W)	judy.ennis@durhamcollege.ca
Moore, Sue	Project Manager	4040 (W)	sue.moore@durhamcollege.ca
Nippard, Anne	Purchasing (Central Stores)	4043 (W)	anne.nippard@durhamcollege.ca
Nokes, Rob	Technologist, Pipe Trades	4074 (W)	robert.nokes@durhamcollege.ca
Parker, Greg	Technologist, IMM	4079 (W)	gregory.parker@durhamcollege.ca
Pearce, Mary	Administrative Coordinator	4025 (W)	mary.pearce@durhamcollege.ca
Stairs, Gary	Technologist, Motive Power	4073 (W)	gary.stairs@durhamcollege.ca
Tamlin, Brad	Technologist, Electrical	4312 (W)	brad.tamlin@durhamcollege.ca
Zilstra, Don	Technologist, Machining	4079 (W)	don.zilstra@durhamcollege.ca

Faculty	Department	Office/Location		Phone	Email Address
Bremner, Robert	Motive Power	185	W	4055	robert.bremner@durhamcollege.ca
Brooks, Graham	Electrical	179	W	4051	graham.brooks@durhamcollege.ca
Bruyca, Lindsay	Electrical	195	W	4063	lindsay.bruyca@durhamcollege.ca
Chilton, Bill	Electrical	1108	W	4046	bill.chilton@durhamcollege.ca
Cholmondeley, John	Motive Power	190	W	4059	john.cholmondeley@durhamcollege.ca
Coady, Glenn	Plumbing	1105	W	4088	glenn.coady@durhamcollege.ca
Cook, Mike	Electrical	187	W	3342	mike.cook@durhamcollege.ca
Cooney, Martin	Communications	193	W	4061	martin.cooney@durhamcollege.ca
Cornish, Clair	Online	1113	W	3328	clair.cornish@durhamcollege.ca
Cunningham, Colin	MTNT/Machining	194	W	4066	colin.cunningham@durhamcollege.ca
Cunningham, Tom	Electrical	184	W	4058	thomas.cunningham@durhamcollege.ca
Deline, Rodney	Electrical	187	W	3342	rodney.deline@durhamcollege.ca
Dewar, Dave	Electrical	186	W	4097	dave.dewar@durhamcollege.ca
Eustace, Richard	MTNT/Machining	1104	W	4096	richard.eustace@durhamcollege.ca
Fernandes, Luiz	Energy	1103	W	4026	luiz.fernandes@durhamcollege.ca
Fielding, Steve	Electrical	180	W	4003	stephen.fielding@durhamcollege.ca
Forderer, Henry	MTNM/IMM	198	W	4065	henry.forderer@durhamcollege.ca
Foss, Ron	Motive Power	1106	W	4057	ron.foss@durhamcollege.ca
Gambier, Michael	PET	1112	W	4042	mike.gambier@durhamcollege.ca
Godfrey, Craig	Precision Metal Fabrication	Central Stores	W	4072	craig.godfrey@durhamcollege.ca
Grant, Bob	Motive Power	199	W	4067	robert.grant@durhamcollege.ca

Griffin, Peter	Energy	191	W	4060	peter.griffin@durhamcollege.ca
Hardy, John	Welding	1109	W	4045	john.hardy@durhamcollege.ca
Haynes, Doug	Electrical	1108	W	4046	doug.haynes@durhamcollege.ca
Heale, Robert	Electrical	1107	W	4086	robert.heale@durhamcollege.ca
Hewton, Mark	Motive Power	1106	W	4057	mark.hewton@durhamcollege.ca
Kelly, Ben	Electrical	197	W	4019	ben.kelly@durhamcollege.ca
Lawson, Peter	Motive Power	185	W	4055	peter.lawson@durhamcollege.ca
Marley, Tom	MTNM/IMM	196	W	4064	tom.marley@durhamcollege.ca
Martin, Al	Mathematics	1101	W	4069	al.martin@durhamcollege.ca
Moran, Greg	Energy	191	W	4060	greg.moran@durhamcollege.ca
Murdock Don	Energy	1101	W	4069	don.murdock@durhamcollege.ca
Noordstra, Gary	MTNM/IMM/Online	1111	W	4081	gary.noordstra@durhamcollege.ca
Platnar, John	Plumbing	1105	W	4088	john.platnar@durhamcollege.ca
Poirier, Tony	Electrical	179	W	4051	tony.poirier@durhamcollege.ca
Precoor, Wayne	Motive Power	199	W	4067	wayne.precoor@durhamcollege.ca
Prior, Andrew	MTNT/Machining	1102	W	4071	andrew.prior@durhamcollege.ca
Quantrill, Steve	Motive Power	195	W	4063	steve.quantrill@durhamcollege.ca
Ruffo, Ralph	Motive Power	190	W	4059	ralph.ruffo@durhamcollege.ca
Ryan, Mike	Plumbing	182	W	4054	mike.ryan@durhamcollege.ca
Sauve, Dan	HVAC	1110	W	4005	daniel.sauve@durhamcollege.ca
Smyth, Roy	MTNT/Machining	194	W	4066	roy.smyth@durhamcollege.ca
St. Arnaud, Jean	MTNT/Machining	188	W	4062	jean.st.arnaud@durhamcollege.ca
Tayles, John	MTNT/Machining	1102	W	4071	john.tayles@durhamcollege.ca
Trauzzi, Ralph	Electrical	180	W	4003	ralph.trauzzi@durhamcollege.ca
Voynov, Violin	Electrical	1107	W	4086	violin.voynov@durhamcollege.ca
Watkins, Dave	Gas Technician 2	193	W	4061	david.watkins@durhamcollege.ca
Wood, Jerry	Plumbing	184	W	4058	jerry.wood@durhamcollege.ca

Records & Registration responds to general inquiries and provides course information and registration for post-secondary, apprenticeship and continuous education programs.

Important Numbers

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

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

Mission: The student experience comes first at Durham College

Vision

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

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

Values

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

Integrity and Transparency...

we will behave and communicate sincerely and honestly

Respect...

we will treat everyone with dignity and offer superior service

Equality and Diversity...

we will champion all learners and celebrate diversity

Innovation...

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

Personal and team accountability...

we will do what we say we will do



THE STUDENT EXPERIENCE COMES FIRST AT DURHAM COLLEGE

Important to All

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

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

Support Staff

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

Faculty

- To be positive, enthusiastic, patient and flexible
- To be in the class early and prepared to begin on time
- To keep current in academic and professional knowledge
- To be prepared for activities, exercises and demonstrations
- To be available and show willingness to help students
- To ensure that all students get equal assistance and time
- To perform evaluations according to established criteria and within a reasonable time frame
- To return and take up any assigned homework, assignments, tests and projects promptly
- To identify students requiring remedial assistance, and to direct those students to the appropriate services
- To write constructive and helpful statements when evaluating student assignments
- To use a variety of teaching and questioning techniques
- To encourage student participation and feedback wherever possible
- 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 the student information handbook and be familiar with its contents
- 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 2009-2010

Fall semester examinations will take place Friday, December 11 to Thursday, December 17 2009.
Winter semester examinations will take place Monday, April 19 to Friday, April 23, 2010.

Please ensure that you do not schedule vacation or employment during these times.

FALL 2009 SEMESTER

August 31, 2009	Registration for part-time Oshawa campus students begins and window opens for timetable changes. Apprenticeship Classes begin
September 8, 2009	Orientation for first-year students.
September 9, 2009	Classes begin for most programs.
September 15, 2009	Last day for late program registration. Last day for fall semester course or program changes.
September 22, 2009	Last day for full-time students to withdraw with full refund, less \$100 administration fee. ^{1,2} Last day for refund eligibility when dropping to part-time. Last day for part-time students to withdraw with tuition fee refund less an administration fee. ^{1,2} Last day to submit a Prior Learning Assessment and Recognition (PLAR) request for fall semester subjects.
September 30, 2009	Student Health Insurance Plan “Opt-out” deadline. Last day for application for fall semester subject exemption/credit. Last day for withdrawal from a fall semester subject with no academic record. Subjects dropped after this date, will be recorded on the academic transcript with a “W” to indicate withdrawal. ^{1,2}
October 12, 2009	Thanksgiving (no classes).
October 22, 2009	Fall Convocation (Time and location TBA)
November 12, 2009	Scholarship Ceremony
November 13, 2009	Winter 2010 semester fees due date.
November 16, 2009	Online registration for winter 2009 semester courses on the Oshawa campus begins.
November 20 2009	Last day to withdraw from a fall semester subject with no academic penalty. After this date, all subjects will be graded and recorded on the student’s transcript. ^{1,2}

December 17, 2009	Fall semester final examinations/evaluation(s) conclude; exams running from Friday, December 11 th to Thursday, December 17 th for post-secondary students. Note: tentative snow days for Oshawa campus will be January 6 and 11, 2010.
December 17, 2009	Last day of classes for most programs.
December 23, 2009	Grades are available to view electronically as of 4 p.m. Note: official distribution date for the purpose of academic appeals is January 6, 2010. Full-time Oshawa campus students may process timetable changes for the winter semester through MyCampus as of 4 p.m.
December 25, 2009 – January 3, 2010 inclusive	Campus closed for the holiday season.

WINTER 2010 SEMESTER

January 4, 2010	Registration for Oshawa campus part-time students begins. Apprenticeship Classes begin
January 6, 2010	Classes begin for most programs. Official grade distribution date for the purpose of Academic Appeals.
January 12/ 14/ 16, 2010	Dates for missed exams from Fall Semester 2009
January 12, 2010	Last day for late program registration. Last day for winter semester course or program changes.
January 19, 2010	Last day for full-time students, who started their program in September 2009, to withdraw with a refund of <u>winter tuition fees</u> . ^{1,2} Ancillary fees and school supply fees are not refundable. Last day for full-time students, who started their program in January 2010, to withdraw with a refund of full fees paid less \$100 administration fee. ^{1,2} Last day for refund eligibility when dropping to part-time. Last day to withdraw from part-time studies with tuition fee refund less an administration fee per subject. Last day to submit a Prior Learning Assessment and Recognition (PLAR) request for winter semester subjects.
January 31, 2010	January start students only: Student Health Insurance Plan “Opt-out” deadline.
February 2, 2010	Last day for application for winter semester subject exemption/credit.

	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 1, 2010	February start classes begin.
February 1 – 5, 2010	Winter Break week – No classes for Intermediate & Advanced Electrical Block students.
February 5, 2010	Last day for February start late program registration. Last day for February start course or program changes.
February 12, 2010	Last day for full-time students, who started their programs in February 2010, to withdraw with a refund of full tuition fees paid less \$100 administration fee. ^{1,2} Last day for refund eligibility when dropping to part-time for February start only. Last day for February start students to submit a Prior Learning Assessment and Recognition (PLAR) request for winter semester subjects.
February 15, 2010	Family Day (no classes)
February 19, 2010	T2202As available online via MyCampus as of 4 p.m.
February 22 – 26, 2010	Winter Break week. No classes with the exception of Apprenticeship and OFAD February start students.
February 26, 2010	Last day to withdraw from a February start subject with no academic record. Subjects dropped after this date, will be recorded on the academic transcript with a “W” to indicate withdrawal. ^{1,2}
February 28, 2010	February start students only: Student Health Insurance Plan “Opt-out” deadline.
March 1 to 5, 2010	Winter Break week – No classes for Apprenticeship students.
March 15 to 19, 2010	Winter Break week – No classes for OYAP Apprentices.
March 26, 2010	Last day to withdraw from a January start subject with no academic penalty. After this date, all subjects will be graded and recorded on the student’s transcript. ^{1,2}
April 1, 2010	Spring 2010 semester fees due date.
April 2, 2010	Good Friday (no classes).
April 9, 2010	Last day to withdraw from a February start subject with no academic penalty. After this date, all subjects will be graded and recorded on the student’s transcript. ^{1,2}
April 19 – 23, 2010	Winter semester final examinations/evaluation(s) concludes.
April 23, 2010	Last day of classes for most January start programs.
April 30, 2010	Grades are available to view electronically as of 4 p.m. Official distribution date for the purpose of academic appeals.

May 11/ 13/ 15, 2010

Dates for Missed Exams from Winter Semester 2010.

SPRING 2010 SEMESTER

May 10, 2010

Most Spring classes begin.

May 14 2010

Last day for late program registration.

Last day for most spring semester course or program changes.

May 21, 2010

Last day to withdraw from most spring semester programs and receive a partial refund.^{1,2}

Last day to submit a Prior Learning Assessment and Recognition (PLAR) request for most spring semester subjects.

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

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

May 31, 2010

Student Health Insurance Plan "Opt-out" deadline.

May 24, 2010

Victoria Day (no classes).

June 4, 2010

Last day to withdraw from most spring semester subjects with no academic penalty. After this date, all subjects will be graded and recorded on the student's transcript.^{1,2}

June 17 & 18, 2010

Convocation (Time and location TBA).

June 25, 2010

Last day of classes for most Spring start programs.

June 30, 2010

Grades are available to view electronically as of 4 p.m. Official distribution date for the purpose of academic appeals.

SUMMER 2010 SEMESTER

July 1, 2010

Canada Day (no classes).

July 5, 2010

Summer classes begin.

July 9, 2010

Last day for late program registration.

Last day for most summer semester course or program changes.

July 16, 2010

Last day to withdraw from most summer semester programs and receive a partial refund.^{1,2}

Last day to submit a Prior Learning Assessment and Recognition (PLAR) request for most summer semester subjects.

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

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

July 30, 2010

Last day to withdraw from most summer semester subjects with no academic penalty. After this date, all subjects will be graded and recorded on the student’s transcript.^{1,2}

August 2, 2010

Civic Holiday (no classes).

August 20, 2010

Last day of classes for most Summer start programs.

August 25, 2010

Grades are available to view electronically as of 4 p.m.
Official distribution date for the purpose of academic appeals.

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.

General Information

ATTENDANCE

Students are expected to attend and participate in every class and/or lab. Attendance has been closely linked to student success. Good attendance is strongly encouraged and may be included as part of the grading system.

Students must come to class prepared to participate. Ensure that you arrive for class ahead of time, have all required texts, supplies, safety equipment and tools with you and are ready to submit any assignments or projects due.

Participation in all workshop and lab activities is mandatory. Workshop and lab projects cannot be completed outside the scheduled times.

If the student misses a class, it is his/her responsibility to obtain the lecture/homework material, complete the class lesson, including assignments and to be aware of any class announcements made prior to the next scheduled class.

- Students who are absent when labs, projects, assignments, quizzes and tests are completed in class may receive a grade of zero for that portion of their mark.
- Faculty reserve the right to restrict access to the classroom once class has commenced. If attendance is taken in this subject, you may be marked absent for that class. Students may return to class after break.
- Breaks are scheduled at the discretion of the professor.

You are encouraged to prearrange for another student to gather handouts and assignments for you in the event that you cannot attend class. Handouts and assignments may not be available from your professor after the class has been delivered. Time extensions will not be granted for work assigned while you were absent.

Faculty are available via email or voice mail. If you are leaving an email please be sure to insert the subject course code and subject name in the subject line. If leaving a voice mail, please be sure to speak clearly and leave your name, subject code and name, message and phone number. Messages may be left 24 hours/day.

HOURS OF OPERATION (WHITBY CAMPUS)

Monday – Friday 7:00 a.m. to 11:00 p.m.

Saturday – Sunday 8:00 a.m. to 4:30 p.m.

NOTE: After 4:30 p.m. and on weekends, you may be required to present a valid identification card or a current course registration form and sign the access book at the Security Desk in order to gain admittance into the College.

BOOKSTORE

The Campus Bookstores also offer convenient online shopping. Items can be found on our website <http://dc-uoit.bookware3000.ca>.

The Campus Bookstores' Hours and Locations:

Whitby Campus, opposite the Office of the Registrar

Monday to Friday 8:30 a.m. to 4:30 p.m.

(closed from 10:30 a.m. to 11 a.m. and 1 p.m. to 2 p.m.)*

T 905.721.3306

Oshawa Campus, Gordon Willey Building, Room A125

Monday to Thursday 8 a.m. to 8:00 p.m.*

Friday 8 a.m. to 4 p.m.

T 905.721.3026

CHANGE OF ADDRESS

If you have changed your address and/or phone number, please complete a Change of Address form. These forms are available in Office of the Registrar - Records and Registration and must be submitted to the Office of the Registrar in Whitby.

NOTE: All correspondence will be mailed to the address originally provided upon admittance to your program unless a Change of Address form is completed. Should you require any duplicate documentation an administrative charge will apply.

COMPUTER/LEARNING COMMONS

Located in the Office of the Registrar, the Learning Commons features 25 computers all equipped with Internet access, CD burners and all the software students will need to have a successful year. Printers and scanners are also available for students to use. Students are welcome to use the additional 25 computers in 1-1 when there are no classes. There are also 4 Learners Support computers available with on-line tutorial software. The Help Desk staff is available to provide students with technical support. Students are encouraged to utilize the tables and chairs for quiet study or reading.

NO FOOD OR DRINK PLEASE!

Hours of Operation:	Monday to Thursday	8:00 a.m. – 9:00 p.m.
	Friday	8:00 a.m. – 4:00 p.m.
	Saturday & Sunday	Required to sign in at the Security Desk. Students must present Student Card or Student number and Picture ID.

THE COLLEGE HAS A ZERO TOLERANCE POLICY FOR STUDENTS VIEWING PORNOGRAPHIC OR RACIST WEBSITES, EMAILS OR ONLINE PHOTOGRAPHS.

This is enforced and students may face expulsion or academic probation.

MY CAMPUS

The My Campus Intranet provides Durham College students access to services including: Checking grades, printing class schedules, tax receipts and unofficial transcripts, job site, study groups and accessing your Durham College email account including emailing your teachers' assignments. My Campus can be fully utilized from any computer that has internet access.

To access *My Campus*:

- ◆ Log onto:
<http://www.durhamcollege.ca/mycampus>
- ◆ Enter your username (9 digit student number)
- ◆ Enter your password. Your default password is your birth date or postal code (MMDDYY i.e. 022585 or postal code T4B 6J5 = T4B6J5). Click "Login"
- ◆ To access email: click the email icon at the top of the page
- ◆ Access class schedules or marks as follows:

To get your marks once logged on:	To access your class schedule:
Click on Administrative Services	Click on Administrative Services
Click on Student Information – Durham College	Click on Student Information – Durham College
Click on Student Records	Click on Registration
Click on appropriate tab Midterms or Finals	Click on Student Schedule by Day and Time
Select the appropriate term	Select the appropriate term

If you have difficulties accessing My Campus, please visit the Whitby Student Help Desk located in Office of the Registrar - Records and Registration, or call 905-721-2000 x4015. You must know your student ID number.

DRESS CODE

Students must adhere to all safety rules and regulations, including attire, as posted in each shop area.

EMERGENCY CALLS

WE ARE UNABLE TO ACCEPT CALLS FOR STUDENTS unless it is an emergency (e.g. accident, sick child, death, etc.). Emergencies do not consist of reminders about health appointments, meeting arrangements, transportation dilemmas etc. Please inform your family of the following procedure:

- ◆ Call 905-721-3344 and state the following;
 - ✦ Nature of the emergency
 - ✦ Student name
 - ✦ Program enrolled in
 - ✦ Name and phone number of the person who is calling
- Every effort will be made to contact the student if it is an emergency situation.

HEALTH CENTRE

The Health Care Centre is committed to providing the highest level of health care to all students of Durham College throughout the year. The Health Care Centre is located in the “new” Recreation and Wellness Centre building, on the Oshawa Campus. Students attending at all campuses are welcome to use the services available located on the Oshawa Campus.

Whether you have a health emergency, a concern about nutrition, or a bad case of the flu, you can expect care dispensed by health professionals who are friendly, concerned and accessible.

Services include a medical clinic, where you can receive medical assessment and treatment of illness or injury, annual health exams, gynecological exams, laboratory testing and screening, birth control counseling and pregnancy testing, immunizations and allergy injections and a variety of health education services which include resources such as: books, pamphlets, bulletin boards, web resources and health newsletters.

An on-site pharmacy, physio-therapy, chiropractic department and variety of alternative health care therapies, along with individual counseling services, are all located within the Health Care Centre.

If you require assistance dealing with relationship issues, family problems, nutrition, stress, depression, or other personal problems, our team of professional counselors are available to help you by providing support, discussions and education, and/or referrals to other campus or local resources.

A Registered Nurse is on-site at the Oshawa Campus for referrals and nursing assessment. Please bring your health card to every visit.

The Health Care Centre also provides opportunity for student placement from a variety of College Programs, along with a volunteer placement program.

Health Care Centre Operational Hours:

Oshawa Campus:

September to April: Monday to Friday 9:00 a.m. to 5:00 p.m.

Summer Hours: (May to August): Tuesday, Wednesday, Thursday 9:00 a.m. to 5:00 p.m.

Health Care Centre Contact Info:

T: 905-721-3037

F: 905-721-3133

E: healthcare@dc-uoit.ca

OUTSTANDING FEES/WITHDRAWAL POLICY

Students with outstanding classroom fees will be denied admission.

Any student who has outstanding classroom fees, library books or equipment/textbooks must make full restitution before being admitted into another program. A hold will be placed on the account and the College will not produce grade reports, certificates, or diplomas until the debt has been paid.

Withdrawal requests must be submitted in writing with the apprentice's signature to the Office of the Registrar (Whitby Campus, Room 103) and will be subject to a cancellation fee. You must personally withdraw on or before the first day of class in order to be eligible for any refund. After this day, no refund will be issued. If you do not officially withdraw, you will be responsible for all fees owing. Failure to attend does not constitute a withdrawal.

Students who stop attending and do not follow proper withdrawal procedures will be recorded as having failed the program.

For further information and/or clarification please call 905-721-3300.

PARKING INFORMATION - September 1, 2009 to August 31, 2010

Parking permits are required.

Online registration for Annual, Semester permits will be available as of June 1, 2009 at <http://durham.parkadmin.ca>.

On-campus Rates

Annual+	\$450	8-week block*	\$160
Semester*	\$225	6-week block*	\$130
Day-Release (1 day per week)	\$256	4-week block*	\$100
10-week block*	\$190	1-week block*	\$40

*applies to any consecutive week(s) period within set annual term

+ Please refer to Parkadmin regarding credits relating to the U-Pass

Daily Visitor Parking Rate - Flat Rate - \$ 8

Service Fees

First permit replacement	\$25 non-refundable
Subsequent permit replacement	\$ applicable full price
Access card deposit	\$10 refundable on return of card
Access card replacement	\$25 non-refundable
Towing fee	\$50 minimum or actual charge if more

Parking rates shown include all applicable taxes.

Once you have ordered your permit online, please expect the following prior to September 1, 2009:

First time permit holders will be required to attend the Records & Registration Office to have your permit and access card validated.

Existing permit holders are required to attend the Records & Registration Office to have your permit and access card validated.

Parking Services Office – permits, rates, by-law enforcement

Location:	Oshawa campus, Gordon Willey building, Reception		
Hours:	Monday to Friday from 8:00 a.m. to 4:00 p.m.		
Telephone:	905.721.2000 ext. 2460		
Fax:	905.721.3200	Email:	parking@dc-uoit.ca

Online registration will be available as of June 13, 2009.

Please type the address <http://durham.parkadmin.ca>. It is necessary to have an e-mail account. The Parking Services Office will not issue any parking permits without e-mail confirmation.

First Time Permit Holders

1. Click Create account.
2. Choose a unique username necessary for future logon.
3. Fill in all mandatory fields like mailing address, student/staff number, email and submit.
4. Confirm that information is correct and click Submit.
5. An email that contains your username and password will be sent to the e-mail address in Parkadmin.
6. Add the main vehicle that you will use during your time at DC/VOIT and click add vehicle.
7. Click Parking Permit and carefully read the agreement provided. Click on the 'agree' button if you wish to continue or click cancel.
8. All lots available are on a first come first serve basis. Choose the lot that may be more convenient for you. You can choose only the Annual Permit or the Semester Permit.
9. After choosing, you will be sent to the Payment screen. Here you will choose how you will pay for your permit (cash, visa or master card). Click Submit ...then Confirm Payment.
10. You will be sent an email confirming your purchase or reservation. It is important that you print and show this email as proof of purchase to the parking office as we **will not** issue any permits without it.

Existing Permit Holders:

Most permit holders who have purchased an Annual or Semester Permit since 2003 will have an account created. To purchase your permit please follow these steps:

1. Enter your username and password. If you do not know your username and password, click on the password reminder. You must enter the email address that you gave to parking services, and you will be sent your username and password in an email.
2. Once you receive the email then you can logon to the website and purchase your permit.
3. After logging on, refer to step 3-9 in New Users.

Be sure to put the first **five or seven** digits of access card number in the required fields. As an existing user, you do not have to pay a \$10.00 deposit for permit and access card, if you already paid a deposit.

SCHOOL CLOSURE

For an update concerning school closure due to inclement weather, please listen to the following stations for an update: AM1350, KX96 FM, 94.9 FM The Rock, Y92FM Lindsay (CKLY), AM680 News (CHFI), CBC Radio.

Program Information

Mechanical Technician – Mechanical Maintenance and Control

Advanced Standing

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

Program Description

This two-year diploma program is designed to prepare students to become maintenance mechanics or technicians. The program will focus on the installation, service, repair, and overhaul of industrial machinery. Students who successfully complete year 1 and choose to leave at that time, will receive an Ontario College certificate in Mechanical Techniques-Industrial.

Successful completion of this program will enable students to:

- Work safely while performing a maintenance function in a manufacturing, or processing environment
- Use precision measuring tools
- Operate common machine tools (drills, mills, lathes and grinders) to repair or remake machine components
- Read and interpret mechanical, electrical and fluid power prints and schematics
- Build pneumatic and hydraulic circuits following a schematic
- Use applied math to perform a variety of trade-related calculations
- Plan and safely perform rigging and hoisting operations
- Select, align, and install a variety of mechanical power transmission components
- Inspect and repair centrifugal pumps and valves
- Join metals using oxy-acetylene and electric arc welding techniques
- Explain the operation of AC/DC motor control systems
- Interpret a conventional electrical relay ladder logic control diagram
- Design a conventional electrical relay ladder logic control diagram at a beginner's proficiency level
- Interpret an Allen Bradley SLC 500 Programmable Logic Control (PLC) control diagram
- Design an Allen Bradley SLC 500 Programmable Logic Control (PLC) diagram using offline programming techniques as a beginner's proficiency level
- Wire up and test elementary circuits using the various devices described above
- Communicate effectively in both verbal and written form

Employment Opportunities

Upon completion of this program, graduates may seek employment in a variety of mechanical or maintenance positions including:

- Entry-level position as a machine builder
- Junior mechanic or technician, as part of a maintenance team
- Inside or outside salesperson for mechanical or fluid power transmission distributor
- Apprenticeship as an industrial or construction mechanic millwright

Program Information

Mechanical Techniques– Industrial (Online)

Advanced Standing

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

Program Description

This program is designed for those intending to pursue a career as an industrial mechanic millwright. The unique delivery of this curriculum will be of interest to those who are unable to attend college on a full time basis, but wish to prepare for a career change.

This program will focus on the installation, service, repair and overhaul of industrial mechanical equipment. Theory is delivered online and practical components are delivered on Saturdays. Students can contact their teacher by e-mail, phone or they can arrange a tutorial.

Graduates of the program would be eligible to enter the second year of the Mechanical Technician – Mechanical Maintenance and Control program and would also be eligible to challenge a trade exemption examination for the first year of the industrial mechanic millwright apprenticeship program.

Students wishing to challenge exemption exams are required to pay an examination fee.

Employment Opportunities

All manufacturing and processing companies employ Industrial Mechanic Millwrights. Upon completion of this program, graduates may seek employment in the following positions:

- Apprentice industrial mechanic millwright or construction millwright
- Inside or outside salesperson for mechanical or fluid power transmission distributor
- Entry-level position as a machine builder, junior mechanic, or technician as part of a maintenance team

Program Information

Mechanical Techniques – Precision Machining (Online)

Advanced Standing

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

Program Description

This online program is designed for those intending to pursue a career as a machinist, mould maker or tool and die maker. The unique delivery of this curriculum will be of interest to those who are unable to attend college on a full time basis, but wish to prepare for a career change.

This online program emphasizes practical, hands-on training delivered on Saturdays, and allows the student to complete the required theoretical training online.

Graduates of the program would be eligible to enter the second year of the Mechanical Technician- Tool and Die/CNC program and would also be eligible to challenge a trade exemption apprenticeship program.

Students wishing to challenge exemption exams are required to pay an examination fee.

General machinists

- Cut, shape and finish metal to make machine parts used in all areas of manufacturing
- Build precision parts for machine tools using metal-cutting machines and specialized equipment

Mould makers

- Design, make and repair moulds to mass produce plastic or metal components and products, using metal-cutting machines and specialized equipment

Tool and die makers

- Design, fabricate, modify and repair dies, forms, cutting tools, gauges, jigs, fixtures and prototypes
- Uses metal-cutting machines or specialized equipment to build machines and tooling to produce all kinds of industrial and consumer products, from plastic containers to airplane parts

Employment Opportunities

- Automation controls designer
- Programmable logic controller (PLC) programmer
- Robotics programmer
- Technical sales and support
- Controls technologist
- Automation specialist
- Automated machinery technologist
- Plant maintenance

To obtain program learning outcomes, you may wish to consult with your Dean.

If you access the Ministry of Training, Colleges and Universities website, the published college program standards are listed. (www.edu.gov.on.ca/eng/general/college/progstan/intro.html)

Course Outlines

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

This is a binding document. Any changes will be agreed upon by students and the professor and requires approval from the Dean of the School. For further details, please see Academic Policies and Procedures – Procedure for Changes to Course Outlines, www.durhamcollege.ca/policies. 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

Durham College strives to ensure that students who graduate are immediately employable in their field of study; able to succeed in employment through the ability to continuously learn; and are capable of contributing positively to the society in which they live and work. Therefore, each program of study will strive to provide students with the skills related to a specific field of study (vocational skills), essential employability skills, and general education.

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

Missed Final Examinations

Students who, as a result of an **emergency circumstance**, (i.e. a death in the family or illness), are unable to complete all of their program evaluation requirements must notify their Dean or designate as soon as possible. The Dean will consult with the appropriate faculty member(s) to determine and validate the reason(s) and eligibility for Aegrotat (AEG) standing. Please note a student is eligible for an AEG only once in his/her academic career at Durham College. For more details on AEG eligibility, please go to www.durhamcollege.ca/policies, to view the Aegrotat Policy (ACAD-110).

Students who, as a result of a **non-emergency circumstance**, miss a final examination now have an option under a new college policy. It provides an avenue for a student with no less than a cumulative 1.5 GPA to pay a fee to defer/reschedule the writing of one or more final examinations during a single exam period. This policy can only be used 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.

Procedure for “Missed Final Examination” policy

1. As soon as the examination schedule is posted and the student becomes aware of the problem/conflict or within two (2) college days of missing the examination(s), he/she must notify their School office and make arrangements to meet with the Student Liaison or designate for advising regarding the missed examination policy.
2. Student meets with Student Liaison or designate for advising. Advising is extremely important to ensure students make the right decision/choice (AEG or missed examination) and understands that this is a **once only** in a five-year period opportunity.
3. During the interview, the Student Liaison or designate:
 - a) Checks the Veteran Information screen in Banner to ensure the student has not utilized the Missed Exam privilege before within a five-year period.
 - b) Confirms the course is eligible for this policy.
 - c) Confirms the student has a cumulative GPA of at least 1.5 or reviews midterm grades in consultation with school dean or designate for 1st year students.
4. Student Liaison or designate assists student in completing the Application for Missed Examination form, ensures accuracy, notes the due date for student to make payment to the Office of the Registrar, and identifies special software/lab requirements or laptop usage prior to signing form. Note: Exams which require special software/lab requirements or are laptop exams may require a directive from the Dean/Associate Dean.
5. Student takes signed copy of completed Application for Missed Examination form to the Office of the Registrar and makes \$150/course payment within two (2) college days of the missed exam date (as noted on the application form). The application will not be processed until payment has been

received. Payments will **not** be refunded. If a student is writing a missed exam due to a religious holiday, the fee will be waived.

6. The Office of the Registrar must receive a copy of the Application for Missed Examination form from the student with the Student Liaison or designate signature and checks the student's record in the Veteran Information screen (part of GSR) in Banner to ensure student has not had the Missed Exam privilege within the past five (5) years.
7. The registration clerk will process the application and payment (\$150.00 per course), enter the information on the "Veteran Information screen (part of GSR)" screen, and provide student with receipt and completed application form. The Office of the Registrar keeps gold copy of form.
8. The student takes the receipt and copy of the completed application to the School of Career Development and Continuing Education, Room A165. The School of Career Development and Continuing Education gives to the PLAR office, Room A165, for processing.
9. The PLAR office, Room A165, receives completed application and payment receipt from students, prepares faculty contract and notifies the faculty member(s) and school of need to create a new exam. The PLAR office receives exam package from faculty and, if required, confirms special requirements with faculty. The PLAR office ensures the Test Centre receives the exam package.
10. The student is responsible for confirming their exam sitting time and date with the Test Centre by phone at 905.905.2000 ext. 2557 or by email at TestCentre@dc-uoit.ca. The exam date will occur within two weeks of the next term for December exams and within two weeks after the formal examination period for the April exams. The exam date and time may be scheduled at night and on weekends. The student will not be able to reschedule this date under any circumstance.
11. The student completes the rescheduled exam and the PLAR office gives, exam, marks change form and contract to faculty for signing. Within 3 days of scheduled exam, the professor returns the assessed exam, completed Mark Change form and signed contract to the PLAR office, Room A165, for processing.
12. The Office of the Registrar posts the student's final grade on MyCampus and, if necessary, informs the student and student liaison if the student is not eligible to be registered into pre-requisite courses.
13. The faculty member receives payment as per contract prepared by the PLAR office.

For more details on this policy and the procedure, please speak with your Student Liaison or see the website www.durhamcollege.ca/policies under Academic Policies.

Academic Honesty

Academic Integrity

To maintain academic integrity, student work shall be the product of his or her own efforts. In an effort to ensure the highest standards, Durham College has purchased a license with Turnitin.com, an online plagiarism detection service. Such practices as cheating and plagiarism cannot compromise academic integrity as defined in the Academic Integrity Policy and Procedures documents www.durhamcollege.ca/policies.

Requirements For Promotion

Evaluation and Promotion

Academic subjects are evaluated in a variety of ways. These may include tests, written or oral assignments, and group work as well as final examinations. The evaluation criteria for each course are included with the 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 www.durhamcollege.ca/policies.

Academic Probation

Students who do not achieve/maintain a cumulative GPA of 2.0 (exceptions are listed below), or are otherwise not progressing satisfactorily, may be placed on academic probation at the Dean's discretion. Such students may be allowed to continue in the program on a Letter of Permission (a Student Success initiative contract) which will specify conditions which must be met. Students who do not meet the conditions of their academic probation will be required to withdraw from the program.

Academic Advising - Student Liaison

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

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

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

Your Student Liaison is:

Name: Shelley Chard

Office #: 117 Administration Office

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

Telephone: (905)721-2000 ext. 4087

CENTRE FOR STUDENTS WITH DISABILITIES

Supporting students to REACH their full potential

E-mail: disabilities@durhamcollege.ca

About the CSD

The Centre for Students with Disabilities (CSD) at Durham College provides services to students who are blind or have low vision, who are deaf or hard of hearing and those with physical, medical, psychiatric and learning disabilities. These services are designed to support students and the college in our responsibility to meet our legal obligations under the Ontario Human Rights Code and the Accessibility for Ontarians with Disabilities Act by ensuring that we have the supports in place to allow students with disabilities to fully participate in all aspects of the academic environment. Our services are confidential.

Registering for Accommodations

Accommodations are organized in co-operation with the student and as required, with the faculty on an individual basis. They are based on review of the medical or psycho-educational documentation completed by the appropriate medical professional or psychologist familiar with the student's particular diagnosis. The student is responsible for self identifying and submitting documentation of a permanent or temporary disability to the CSD in B297. Assistance in obtaining the appropriate documentation may be available. Accommodations may include extra time and/or technology supports for tests and exams, assistance obtaining records of class lecture material, reduced course load, material in alternate format, assistive technology assessment and training and learning strategies.

Things to Remember for Tests and Final Exams

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

Test Registration forms are available on our [CSD website](#) –**click on Test Centre Request Forms**. The Test Registration forms are also available in the CSD Test Centre (Room B216) as well as our main CSD Office (Room B297).

Completed test forms need to be submitted to the CSD Test Centre (5) business days before the scheduled test, in order to reserve a space. If a space is unavailable, the alternative may be you have to write that test with your class.

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

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

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

To Find Out More About CSD Services...

For further information please call 905-721-3123, drop by at B297 to set up an appointment or visit our website at www.durhamcollege.ca/csd.

Student Academic Learning Services

Learner Support Centre

Student Academic Learning Services provides academic skills instruction and tutoring for students wishing to improve their academic success.

Services offered to students include:

- One-to-one appointments with our:
 - Academic Writing Specialists
 - English Second Language Specialists
 - Learning Strategies Advisors
 - Learning Skills Advisors (subject specific)
 - Peer Writing Tutors
- Academic clinics and workshops held monthly, per semester and/or at a professors' or students' request. Examples include:
 - Time management and organization
 - Note taking and reading skills
 - Test / exam preparation
 - Referencing
 - Research and essay writing
- Subject specific supports in a variety of disciplines
- College peer tutoring program
- Drop-in assistance when schedules permit
- Software tutorials in the subject areas of Math, English and Science.
- Links to online academic resources

Students are invited to visit the Centre or take a look at our website to determine the most appropriate way to make use of the services available.

Visit our website at www.durhamcollege.ca/lsc or drop by SW201 to learn more.

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 and is easy to find. Both wired and wireless computer access is available along with 10 small group study rooms. Although food is not permitted in the library, drinks in covered containers are allowed and you can buy a Starbucks coffee to go at the Library Café.

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 <http://www.durhamcollege.ca/EN/library/library.php> 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

reference@dc-uoit.ca

College Publications

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

Program Guide

The “Program Guide” provides specific information about your program. It will describe the program of studies and give a description of each course contained in the program. The Program Guide is distributed to all students in print format and is also available on the Durham College website. It provides specific requirements, policies and procedures that are applicable to the individual 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 and/or Faculty Advisors will assist in planning programs, but it is the student’s responsibility to meet the requirements for 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 and Bursaries

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.

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

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

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

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

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

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

No qualified Ontario student should be prevented from attending Ontario's public colleges and universities due to lack of financial support programs.

Students in need should have access to the resources they need for their postsecondary education.

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

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

Durham College Access Bursary Program

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

Returning Student Bursary Program

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

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

Transfer Guide

Turn your Durham College diploma into a degree!!

If your post-secondary school 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.

A Durham College diploma can earn you credit toward a university degree. University admissions policies and partnership transfer agreements between Durham College and a number of universities facilitate university admission for Durham College graduates from specific programs by giving credit for college study. Graduates may receive credit for several courses or for a year or more toward a university degree. These opportunities are detailed, by program, on the **Durham College Transfer Guide** (http://www.durhamcollege.ca/EN/main/programs_courses/transferguide.php). Look for your program name on the left hand side of the chart. 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.

MECHANICAL TECHNICIAN-MECHANICAL MAINTENANCE & CONTROL

COURSE NAME	MOD	CODE	PREREQUISITES	COREQUISITES	LECT. HRS	LAB HR	ALT. DEL .	FIELD PLMT. HRS
SEMESTER 1								
MECH MAINT PRINT READING 1		BLUE 1410			1	0		
MATHEMATICS 1		MATH 1424			2	0		
PNEUMATICS 1		PNEU 1401			2	0		
MECH MAINT PRACTICAL 1		PRAC 1413			0	9		
MECH MAINT THEORY 1		TRAD 1414			4	0		
MECH MAINT WELDING 1		WELD 1408			3	0		
					12	9		
SEMESTER 2								
MECH MAINT PRINT READING 2		BLUE 2401	BLUE 1410		1	0		
COMMUNICATIONS		COMM 2400			2	0		
MECH MAINT ELECTRICITY 1		ELEC 2411			2	0		
MECH MAINT HYDRAULICS 1		HYDR 2400			2	0		
MATHEMATICS 2		MATH 2401	MATH 1424		2	0		
MECH MAINT PRACTICAL 2		PRAC 2402	PRAC 1413		0	9		
MECH MAINT THEORY 2		TRAD 2401	TRAD 1414		4	0		
					13	9		
SEMESTER 3								
MECH MAINT ELECTRICITY 2		ELEC 3410	ELEC 2411		3	0		
MECH MAINT HYDRAULICS 2		HYDR 3400	HYDR 2400		3	0		
MATH FOR TECHNOLOGY 1		MATH 3401			3	0		
MECH MAINT PRACTICAL 3		PRAC 3401	PRAC 2402		0	6		
INTRO TO SMALL BUSINESS 1		SMBS 3400			2	0		
MECH MAINT THEORY 3		TRAD 3401	TRAD 2401		6	0		
					17	6		

MECHANICAL TECHNICIAN-MECHANICAL MAINTENANCE & CONTROL

COURSE NAME <i>SEMESTER 4</i>	MOD	CODE	PREREQUISITES	COREQUISITES	LECT.	LAB	ALT.	FIELD
					HRS	HR	DEL	PLMT.
								HRS
MECH MAINT CAD		CAD 4400			2	0		
MECH MAINT FLUID PWR-ADV CONTROLS		FLUI 4401	HYDR 2400 HYDR 3400		3	0		
MATH FOR TECHNOLOGY 2		MATH 4401	MATH 3401		3	0		
MECH MAINT PLC		PLC 4400			3	0		
PNEUMATICS 2		PNEU 4400	PNEU 1401		3	0		
MECH MAINT PRACTICAL 4		PRAC 4401	PRAC 3401		0	6		
INTRO. TO SMALL BUSINESS 2		SMBS 4400	SMBS 3400		2	0		
MECH MAINT WELDING 2		WELD 4400	WELD 1408		3	0		
					19	6		

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.

TO GRADUATE:

Accumulated GPA of 3.0 or Higher with:

Minimum pass of 70% in each subject, however, one subject only is permitted to be between 60% to 69% throughout each year of the Program.

No subject failures (below 60%)

MECHANICAL TECHNIQUES - INDUSTRIAL - ONLINE (1 YR)

COURSE NAME	MOD	CODE	PREREQUISITES	COREQUISITES	LECT. HRS	LAB HR	ALT. DEL .	FIELD PLMT. HRS
SEMESTER 1								
MTI ENGINEERING DRAWINGS 1		BLUO 1410			0	0	1	
MTI ENGINEERING DRAWINGS 2		BLUO 2401			0	0	1	
COMMUNICATIONS		COMO 2400			0	0	2	
MTI ELECTRICITY 1		ELEO 2411			0	0	2	
MTI HYDRAULICS 1		HYDO 2400			0	0	2	
MATHEMATICS I		MATO 1424			0	0	2	
MATHEMATICS II		MATO 2401			0	0	2	
MTI PNEUMATICS 1		PNEO 1401			0	0	2	
MTI TRADE PRACTICAL 1		PRAO 1413			0	0	9	
MTI TRADE PRACTICAL 2		PRAO 2402			0	0	9	
MTI TRADE THEORY 1		TRAO 1414			0	0	4	
MTI TRADE THEORY 2		TRAO 2401			0	0	4	
MTI WELDING 1		WELO 1408			0	0	3	
					0	0	43	

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.

MECHANICAL TECHNIQUES - PRECISION MACHINING - ONLINE (1YR)

COURSE NAME	MOD	CODE	PREREQUISITES	COREQUISITES	LECT. HRS	LAB HR	ALT. DEL	FIELD PLMT. HRS
SEMESTER 1								
MTM CAD 1: BASIC		CADO 2401			0	0	1	
MTM CNC 1: PRACTICAL		CNCO 1403			0	0	3	
MTM CNC 1: BASIC PROGRAMMING		CNCO 2400			0	0	2	
COMMUNICATIONS		COMO 2400			0	0	2	
MTM ENGINEERING DRAWINGS 1		EDRO 1401			0	0	2	
MTM ENGINEERING DRAWINGS 2		EDRO 2400			0	0	2	
MATHEMATICS I		MATO 1424			0	0	2	
MATHEMATICS II		MATO 2401			0	0	2	
MTM METROLOGY		METO 1400			0	0	1	
MTM TRADE PRACTICAL 1		PRAO 1410			0	0	10	
MTM TRADE PRACTICAL 2		PRAO 2401			0	0	9	
MTM RIGGING & HOISTING		RIGO 2400			0	0	1	
MTM TRADE THEORY 1		TRAO 1412			0	0	2	
MTM TRADE THEORY 2		TRAO 2400			0	0	3	
					0	0	42	

NOTES:

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

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

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

Course Descriptions

Mechanical Technician – Mechanical Maintenance and Control

COMMUNICATIONS COMM 2400 Technical writing is written communication that provides specific information about a specialized subject for a specific audience for a specific purpose. Technical writing is used in everyday writing in the form of textbooks, manuals, instructions, memos, letters, reports, speeches, and more. The student will apply reading, writing, listening, and thinking to the standard forms of technical communications. Students will be able to apply active listening and clarifying techniques, conflict resolution strategies, and explain professional behaviour.

INTRODUCTION TO SMALL BUSINESS 1 SMBS 3400 Students learn to deal confidently with any business situation or problem. Topics include legal forms; start up costs, financing, marketing, staffing, inventory control and government regulations.

INTRODUCTION TO SMALL BUSINESS 2 SMBS 4400 Students gain a working knowledge of organizations, management behaviour and shop management. As well, students learn about goal setting and time management.

MATHEMATICS 1 MATH 1424 Students gain a fundamental understanding of trade-related calculations. Throughout the course, students solve problems using fractions, decimals and algebraic equations. In addition, they solve geometric calculations involving area perimeter volume, trade-related problems using Pythagorean Theorem and right-angled trigonometry.

MATHEMATICS 2 MATH 2401 Students demonstrate their ability to solve problems using ratios and proportions. They cover systems of equations in two and three variables and polynomials and factoring as they relate to rational expressions. There is emphasis placed on problem solving in terms of trade related materials.

MATHEMATICS FOR TECHNOLOGY 1 MATH 3401 Students interpret and analyze practical problems. Topics include systems of equations in two and three unknowns; polynomials (addition, subtraction, multiplications, division and equations); rational expressions and equations; and radical expressions and equations.

MATHEMATICS FOR TECHNOLOGY 2 MATH 4401 Students learn about quadratic equations, relations and functions, exponential and logarithmic functions and trigonometry. Problem solving is stressed through appropriate examples from technology.

MECH MAINT ELECTRICITY 1 ELEC 2411 Through this course, students will learn about the hazards of electricity and its effects on the human body; how and when to implement lockout procedures; study the electron theory and be able to define voltage, current, resistance and power; and analyse, series, parallel and combination DC circuits by applying Ohm's law and Kirchoff's Law.

MECH MAINT CAD CAD 4400 In this course, students are introduced to CAD through a series of exercises building upon the basic creation of lines and circles. Students will create section views and merge files and symbols to produce fully dimensioned assembly drawings for manufacturing. As part of this course, they will also be able to produce two-dimensional wire frame drawings using the latest CAD software.

MECH MAINT ELECTRICITY 2 ELEC 3410 This course introduces students to applying lock-out and tag-out procedures; the role and function in a circuit of fuses and circuit breakers; the function and role of electrical devices (including sensors and transducers used to control flow, level, temperature and movement); and the operation of AC and DC motors and their related components such as coils, transformers, contact and relays.

MECH MAINT FLUID PWR—ADV CONTROLS FLUI 4401 This course builds on skills and knowledge gained in **HYDRAULICS 1 (HYDR 9400)** and **HYDRAULICS 2 (HYDR 3400)**. Students will learn about cartridge valves; proportional control and servo control of hydraulic valves, as well as actuators; and learn to troubleshoot faults in hydraulic circuits.

MECH MAINT HYDRAULICS 1 HYDR 2400 Students will: Learn the basic physical principles that apply to industrial hydraulic systems, including calculations for pressure, force, area and flow rate. Be able to identify common schematic symbols and interpret schematic diagrams. Learn the functions and operating method of pressure, flow and directional control valves. Build common circuits on hydraulic training units.

MECH MAINT HYDRAULICS 2 HYDR 3400 This course continues on from and builds on the skills acquired in **Hydraulics 1**. Students will: Learn how contamination control is critical in a well maintained hydraulic system. Learn by hands-on experience how a variety of valves, pumps and actuators are assembled. Learn the principles of circuit design and apply those by designing and building a variety of circuits. Learn the function and operating characteristics of hydraulic accessories.

MECH MAINT PLC PLC 4400 This course allows students to state the functions and applications of a programmable logic controller (PLC); determine the language used; demonstrate the programming of common relay instructions, timers, counters, math functions and work comparisons on a PLC; and design programs to operate machines in a specific manner using many of the internal functions of a PLC.

MECH MAINT PRACTICAL 1 PRAC 1413 Students learn how to use the common measuring tools found in a maintenance shop. They use a variety of layout tools, hand files and hacksaws to accurately produce a small gauge and learn how to safely operate machine shop power tools including drill presses, lathes, milling machines and grinders. Their use of these machines enables them to accurately produce a number of components from a blueprint.

MECH MAINT PRACTICAL 2 PRAC 2402 In this course, students will learn how to align shafts and couplings using straight edges and dial indicators; use a mechanics level to accurately level a piece of machinery; identify, select, mount and dismount a selection of anti-friction bearings; identify, install and remove lip seals; perform tasks on mechanical drive systems that incorporate belt, chain, and coupling systems; and dismantle, inspect, rebuild and test a variety of centrifugal pump and valve systems.

MECH MAINT PRACTICAL 3 PRAC 3401 In this course, students will be given detailed drawings to produce a variety of projects to specification and tolerance within a given time frame. To accomplish this, students will utilize skills acquired in previous units. These would include print reading, layout, safe operation of all machine tools, measurement, calculations, etc.

MECH MAINT PRACTICAL 4 PRAC 4401 Students learn advanced alignment and levelling techniques through optical and laser tools; working from a print and building a piping system using a variety of fittings and connections; performing routine inspections and maintenance tasks on a variety of industrial valves and heat exchangers; and learning about preventative and predictive maintenance tools and procedures such as vibration analysis, dynamic balancing, oil analysis and non-destructive testing.

MECH MAINT PRINT READING 1 BLUE 1410 Students will learn to read and interpret information from the title block and any change or revision information given in the print; identify the various line representation, terminology and abbreviations used in common prints; and recognize reference and datum dimensioning, units of measure and tolerances used in prints.

MECH MAINT PRINT READING 2 BLUE 2401 In this course, students identify and interpret information provided in sectional drawings, including full, half, removed, revolved, off-set and broken-out sections views; interpret thread information and specifications in both metric and imperial systems; and interpret and extract information from assembly and detail drawings.

MECH MAINT THEORY 1 TRAD 1414 Students learn information about occupational health and safety, screw-threads and fasteners, precision measuring tools, drill press operation and related tools.

MECH MAINT THEORY 2 TRAD 2401 Students learn about safe hoisting and rigging techniques, the mechanical and metallurgical properties of a variety of metals, centre lathe operation and related tools, grinder operations and related tools.

MECH MAINT THEORY 3 TRAD 3401 Students learn about material handling and conveying systems, air compressors, fans and blowers, lubrication methods and systems, optical and laser alignment and levelling systems, preventative and predictive maintenance procedures and practices, milling machine operation and accessories, and the function and role played by components in a mechanical power transmission system including gears, chains, belts, clutches, couplings, etc.

MECH MAINT WELDING 1 WELD 1408 This course provides students with the skills required to safely set and use oxy-fuel welding and cutting equipment, as well as shielded metal arc welding equipment.

MECH MAINT WELDING 2 WELD 4400 In this course, students will interpret drawings and welding symbols; use correct layout and joint preparation procedures; utilize welding jigs; select the correct electrode for a given application; demonstrate the ability to weld in vertical and horizontal positions; and check those welds using the guided bend test or equivalent.

PNEUMATICS 1 PNEU 1401 Students will: Learn the basic physical principles that apply to industrial pneumatic systems, including calculations for pressure, force, area, and flow rate. Be able to identify common schematic symbols and interpret schematic diagrams and will build common circuits on pneumatic training units.

PNEUMATICS 2 PNEU 4400 This course builds on skills and knowledge gained in Pneumatics 1. Students will: Learn to design and build pneumatic circuits using the cascade methods, shift registers and quick-steppers. Learn to design circuits using ladder diagrams and build circuits using pneumatic relay valves. Build pneumatic circuits using electrically operated solenoids, switches and sensors.

Mechanical Techniques – Industrial (Online)

COMMUNICATIONS COM0 2400 Technical writing is written communication that provides specific information about a specialized subject for a specific audience for a specific purpose. Technical writing is used in everyday writing in the form of textbooks, manuals, instructions, memos, letters, reports, speeches and more. Students apply reading, writing, listening and thinking to the standard forms of technical communications. They also apply active listening and clarifying techniques and conflict resolution strategies and explain professional behaviour.

MATHEMATICS 1 MATO 1424 Students gain a fundamental understanding of trade-related calculations. Throughout the course, they solve problems using fractions, decimals and algebraic equations. In addition, students solve geometric calculations involving area perimeter volume, and trade-related problems using Pythagorean Theorem and right angled trigonometry.

MATHEMATICS 2 MATO 2401 Students demonstrate their ability to solve problems using ratios and proportions. They cover systems of equations in two and three variables as well as polynomials and factoring as they relate to rational expressions. There is emphasis placed on problem solving with trade-related materials.

MTI ELECTRICITY 1 ELEO 2411 Students learn about the hazards of electricity and its effects on the human body; how and when to implement lockout procedures; the electron theory including being able to define voltage, current, resistance and power; and how to analyze series and parallel and combination DC circuits by applying Ohm's law and Kirchoff's Law.

MTI ENGINEERING DRAWINGS 1 BLUO 1410 Students read and interpret information from the title block including how to change or revise information given in the print; how to identify the various line representation, the terminology and abbreviations used in common prints; and how to recognize reference and datum dimensioning, units of measure and tolerances used in prints.

MTI ENGINEERING DRAWINGS 2 BLUO 2401 Students identify and interpret information provided in sectional drawings including full, half, removed, revolved, off-set and broken-out sections views; how to interpret thread information and specifications in both metric and imperial systems; and how to interpret and extract information from assembly and detail drawings.

MTI HYDRAULICS 1 HYDO 2400 Students learn the basic physical principles that apply to industrial hydraulic systems including calculations for pressure, force, area and flow rate. They also identify common schematic symbols and interpret schematic diagrams; learn the functions and operating method of pressure, flow and directional control valves; and build common circuits on hydraulic training units.

MTI PNEUMATICS 1 PNEO 1401 Students learn the basic physical principles that apply to industrial pneumatic systems including calculations for pressure, force, area and flow rate. They also identify common schematic symbols, interpret schematic diagrams and build common circuits on pneumatic training units.

MTI TRADE PRACTICAL 1 PRAO 1413 Students learn to use the common measuring tools found in a maintenance shop. They use a variety of layout tools, hand files and hacksaws to accurately produce a small gauge and learn how to safely operate machine shop power tools including drill presses, lathes, milling machines and grinders. They also learn how to use each machine to accurately produce a number of components from a blueprint.

MTI TRADE PRACTICAL 2 PRAO 2402 Students learn how to align shafts and couplings using straight edges and dial indicators; use a mechanics level to accurately level a piece of machinery; identify, select, mount and dismount a selection of anti-friction bearings; identify, install and remove lip seals; perform tasks on mechanical drive systems that incorporate belt, chain, and coupling systems; and dismantle, inspect, rebuild and test a variety of centrifugal pump and valve systems.

MTI TRADE THEORY 1 TRAO 1414 Students learn information about occupational health and safety; hand and power tools; screw-threads and fasteners; precision measuring tools, drill press operation; centre lathe operation; and related tools.

MTI TRADE THEORY 2 TRAO 2401 Students learn about safe hoisting and rigging techniques, the mechanical and metallurgical properties of a variety of metals, milling machine operations and related tools, grinder operations and related tools, lubrication, bearings, seals, power transmission, pumps, valves and piping.

MTI WELDING 1 WELO 1408 Students learn the skills required to safely set and use oxy-fuel welding and cutting equipment as well as shielded metal arc welding equipment.

Mechanical Techniques – Precision Machining (Online)

COMMUNICATIONS COM0 2400 Technical writing is written communication that provides specific information about a specialized subject for a specific audience for a specific purpose. Technical writing is used in everyday writing in the form of textbooks, manuals, instructions, memos, letters, reports, speeches and more. Students apply reading, writing, listening and thinking to the standard forms of technical communications. They also apply active listening and clarifying techniques and conflict resolution strategies and explain professional behaviour.

MATHEMATICS 1 MATO 1424 Students gain a fundamental understanding of trade-related calculations. Throughout the course, they solve problems using fractions, decimals and algebraic equations. In addition, students solve geometric calculations involving area perimeter volume, and trade-related problems using Pythagorean Theorem and right angled trigonometry.

MATHEMATICS 2 MATO 2401 Students demonstrate their ability to solve problems using ratios and proportions. They cover systems of equations in two and three variables as well as polynomials and factoring as they relate to rational expressions. There is emphasis placed on problem solving with trade-related materials.

MTM CAD 1: BASIC CADO 2401 Students are introduced to computer-aided design (CAD) through a series of exercises. Topics include the basic creation of lines and circles, creating section views, merging files and symbols and producing fully dimensional assembly drawings for manufacturing. Students produce two-dimensional wire frame blueprints using current CAD software.

MTM CNC 1: BASIC PROGRAMMING CNCO 2400 Students are introduced to the techniques used to manually program a FANUC-controlled three-axis milling machine. Topics include linear and circular positioning, canned cycles, speeds, feeds, tool calculations, program editing and machine set up and running.

MTM CNC 1: PRACTICAL CNCO 1403 Students learn the techniques used to set up and run a FANUC-controlled three-axis milling machine and a two-axis turning centre. Topics include machine startup, work holding, tool selection, work and tool offsets, program editing, part machining and inspection.

MTM ENGINEERING DRAWINGS 1 EDRO 1401 Students learn about, interpret and apply graphic language in this course. In addition they study dimensional terminology and practices, sketch to scale, sectionalize drawing views and perform dimensional calculations on drawings.

MTM ENGINEERING DRAWINGS 2 EDRO 2400 Students learn to visualize three-dimensional objects, sectionalize drawing views and read and interpret drawings that depict jigs, fixtures, bearings, gears and cams. Geometric dimensions and tolerances are also studied.

MTM METROLOGY METO 1400 Students gain a fundamental understanding of the principles of dimensional metrology and the applications of precision measurements in metal machining.

MTM RIGGING & HOISTING RIGO 2400 Students learn techniques to move and hoist heavy equipment. As well, they explore the physical shape, size, weight and type of material being lifted and how to select rigging and hoisting hardware and equipment.

MTM TRADE PRACTICAL 1 PRA0 1410 Students apply their theoretical knowledge, working on manual machines such as engine lathes, milling machines and grinders as well as bench and hand tools.

MTM TRADE PRACTICAL 2 PRAO 2401 Continuing to apply their theoretical training, students work on bench and hand tools, lathes, milling machines and surface and cylindrical grinders to manufacture and assemble parts.

MTM TRADE THEORY 1 TRAO 1412 Students learn to use hand and machines tools safely and effectively in a workshop environment. They also learn about machine shop techniques and procedures.

MTM TRADE THEORY 2 TRAO 2400 Students learn about jig and fixture theory and design, and review the use of grinders, milling machines, engine lathes and attachments.