Electrical and Computer Engineering
Important Information for New Students (MASc/PhD)

Welcome to Graduate Studies in Electrical and Computer Engineering!

The information contained in this handout has been prepared to provide you with an overview of the services and information you will need as you begin your graduate program at UW. Please take the time to carefully review this handout. Any questions may be directed to members of the Graduate Studies Office Administrative Staff.

Before You Arrive On Campus

You should already have access to Quest and a University of Waterloo email account. There are step by step instructions as to how you can access Quest and what you can use it for.

Quest:

- **Quest** is the UW Student Information System. You will use Quest to access your student record, enroll in or drop and swap graduate level courses each term, update your contact information, view tuition fees and your account summary, link to online banking to pay your fees, view your financial aid, awards, scholarships and bursaries, link to myHRinfo, term grades, order unofficial transcript, view your class schedule and access the UW Course Catalog and Schedule of Classes. *Note: you must consult with your Supervisor(s) or Advisor for approval on all course enrolments.*
- An overview, access information and step-by-step instructions for Quest are available on the *Quest website*. If you have any questions about Quest, please contact gsquest@uwaterloo.ca

Email Accounts:

WatIAM is an identity and access management system for phone and email accounts for University of Waterloo students, staff and faculty. The WatIAM account is used by many UW applications and services including Quest, myHRinfo, and WatIAM person search. Your campus email is the primary means of communication used by the University. It is important for you to keep your email address up to date. **The Campus Email Address is the official email address the University community will use to communicate with you as a student.** To configure your Waterloo email address please visit the *Quest E-mail Help* page.

- Regardless of what e-mail address you use, **it is very important that you set your WatIAM profile to send your email to the correct place,** so that electronic mail reaches you.
- You are responsible for checking your email frequently and read all email from "gradinfo" for important information and deadlines.
- Please refer to the *Computing Resources* website to help with questions and provide help contacts.

Safety Training

Once you have set up your WatIAM user ID you can preemptively complete the online safety training for ***SO1001 - Employee safety orientation*** and ***SO1081 - Workplace violence awareness*** (this is mandatory for ALL students and must be completed before you are assigned office space).

If you are interested in being a TA we also encourage you to preemptively complete ***SO1100 - Supervisor Safety Awareness, SO1002 - WHMIS for Employees,*** and ***Accessible Customer Service Training (AODA)***

If you will be requiring a lab key you will need to find out from your supervisor what additional safety training is required and complete that as well before being assigned a lab key

UW Student Portal

Newly launched in Winter 2015, the UW Student Portal is a mobile friendly tool that delivers information from across campus to students. Students can customize the content that appears in their portal, so they get the most relevant information. You can login to the UW Student Portal as soon as you get your WatIAM user ID set up and start exploring and customizing before you even arrive on campus.

The UW Student Portal is growing and changing each week. There is always new information, new widgets, and new content to be explored.

MappedIn Campus Map:

Before you arrive on campus consider downloading the MappedIn app for your smart phone. MappedIn and the University of Waterloo have partnered to provide you with a detailed map of campus that allows you to get directions from room to room. Navigating a new space for the first time can be difficult; we want to make your experience as easy as possible. MappedIn is free to download and can help you find your way while you're adjusting to life at uWaterloo. You can download MappedIn for BlackBerry, iPhone and Android.

Fee Payments:

- **Student Fees:** Student Fee information is available on the *Finance – Student Accounts* website. There is information on fee schedules, due dates and late fees, how to pay your fees (including Promissory Note details), tax receipts and contact information for questions about your account. Your up-to-date financial account information is available through Quest.
  - The University of Waterloo bills students on a per-term basis. For each academic term you're enrolled at Waterloo, you'll need to attain the registered status "Fees Arranged."
  - Being "Fees Arranged" for the term means that you are fully registered (not just enrolled) and that you do not risk being un-enrolled from your studies. You must make your own fee arrangements every term – your tuition is **NOT** automatically paid by your GRS
  - For instructions on how to become fees arranged and payment options please visit the *Student Finance* website.

It's important to be sure your student account indicates "Fees Arranged" within one week of payment.

Promissory Notes:

- If you're paying your fees in full by the due date, you ***don't*** need to submit a Promissory Note
- In order to use a promissory note for payment you will need to follow the instructions on the *Promissory Note* website.
- To use a *Promissory Note*, you need to enter the amount of funding available to you for the term, on the appropriate line(s) of the form; follow all instructions on the link above very carefully. Then, you attach proof of that funding. Your proof document should include, the term being funded and the amount of the funding. If you're claiming an external scholarship (i.e. not from University of Waterloo), your proof also needs to indicate that the funding is *payable to University of Waterloo*. **PLEASE NOTE: Scholarships and student loans from foreign governments or agencies, employee-reimbursement programs and funding from RESPs are not accepted on a Promissory Note**.

- **Submitting your Promissory Note online is the best way to be sure it is received**. If you submit your Promissory Note electronically to the Student Finance Office website, your submission will be confirmed with a receipt number and an e-mail.
- **BE SURE TO READ THE INSTRUCTIONS BEFORE COMPLETING THE FORM.** ***Promissory Notes filled out correctly and with all required proof attached will be processed first*.**

Using Scholarships (*Waterloo* & *External*), Awards & Bursaries to Pay Fees:

- Scholarships, bursaries and awards indicated as Anticipated Aid on your Quest account ***will not be deducted*** from your account balance automatically. The registered status on your account must indicate "Fees Arranged".
- If you'd like to deduct the amount of scholarship funding you're going to be receiving during the term from the balance you have to pay the University of Waterloo (as indicated on your Quest student account), you **MUST** submit a *Promissory Note* along with proof of the financial aid. You need to do this *even if* the scholarships are already showing on your student account as Anticipated Aid.
- If you'd prefer not to submit a Promissory Note but simply have your scholarship amounts refunded to you during the term, you can simply pay the full amount of fees posted to your student account by the due date using one of the stated payment options.
- Scholarships and awards indicated as "Anticipated Aid" on graduate student Quest accounts will be applied to the student's account balance during the first week of classes provided the student's registered status is "Fees Arranged."
- A print-out of your Quest account financial page qualifies as proof for any scholarships and bursaries which are indicated on your Quest account as "Anticipated Aid."

After You Arrive On Campus

International Students:

- **Study Permits/Status Changes**:
  - International students must provide a valid Study Permit to the University Graduate Studies Office (GSO), NH 2201, upon arrival on campus. You can upload a copy of your valid study permit to Quest. To submit a copy of your Study Permit, log in to Quest and go to *Student Center>Personal Information>Demographic Data>Citizenship/Immigration Documents*. You can upload a PDF or an image (taken from your smart phone) of your Study Permit.
  - If your Study Permit expires prior to the completion of your program, you must submit a copy of the renewed Study Permit to the GSO. International students should contact our International Student Office or Immigration Canada for further details about renewing your Study Permit.
  - If your status in Canada changes (to Permanent Resident/Canadian Citizen), please inform your Program Coordinator in the ECE Graduate Office as well as the GSO as a change in status impacts your tuition fee assessment.
- ***The International Student Experience*** **(ISE)** provides assistance with Social Insurance Number (S.I.N.), Health Insurance and other helpful information to international students.

Graduate Research Studentship (GRS) / Graduate Research Assistantship (GRA) / Teaching Assistantship (TA):

- If you will be receiving a **GRS** or **GRA**, you must make arrangements to be added to the UW Payroll system by completing the *Direct Deposit Form* available from Human Resources (HR) located in the General Services Complex

[GSC], Room 130, or through the HR website. *(Full payroll sign up procedures and information can be found on the HR website).* **Note: If you are funded by NSERC, you do not have to go to HR.**

- **Payroll:** Once the Payroll Office receives the completed payroll forms and payment authorizations, they make arrangements for payments to take place on the last Friday of the month. You will be able to access your payroll information on-line through *myHRinfo*.
- **Teaching Assistantship –** There are teaching assistantships available each term to assist in the teaching, tutoring and marking of undergraduate courses. An e-mail is sent out approximately 2 months prior to the start of the term with application instructions. Students in their first term of study are not eligible for a TAship. ***Teaching Assistantship's are not guaranteed for ECE graduate students***
  - All Teaching Assistants are expected to attend an **ExpecTAtions** workshop held in September and April each year. You only need to complete this workshop once. You may apply for Teaching Assistantships each term, but preference is given to those who have completed the workshop. Approximately one month prior to an ExpecTAtions Workshop, you will receive an email sign-up reminder sent to all currently registered students.
- ***Please note it is your responsibility to provide Human Resources with a valid Social Insurance Number.*** If you are an International Student employed as a Teaching Assistant or a Research Assistant you must have a Social Insurance Number (SIN).You will need this to submit your income tax return. If you require assistance with process, please contact the International Student Experience

Enrolment Status Changes:

- **Enrolment Status Changes** require department approval and impact your tuition fees. Students contemplating an enrollment status change (e.g., full-time to part-time/part-time to full-time/inactive/voluntary withdrawal) must complete a Graduate Studies *Change of Enrolment Status/Voluntary Withdrawal form* and submit it to the ECE Graduate Studies Office. (This form and other graduate studies forms which may be required throughout your program are available through the Graduate Studies Office website).

Courses:

- **Enrollment:** You cannot enroll in classes before you have matriculated (met all of your admission requirements) and paid your fees. Courses can be added and removed online via Quest. Open enrollment dates and add/drop deadlines can be found on the Graduate Academic Deadlines website.
- **Course Numbers:** Graduate courses in ECE are listed at the 600 and 700 levels. Depending on your program, you may be required to take certain courses in your first or subsequent term(s) as specified in the contract letter or by your supervisor(s). Visit the Schedule of Classes website for course number, timetables and other details.
- **Permission Numbers:** A 'permission number' may be required to allow you to add courses through Quest when they are offered by another department. Please request a permission number as needed from the course instructor.
- **Course Drop/Add Forms:** You may only add graduate level courses on-line using Quest; all undergraduate level courses (500-level or lower) or courses enrolled in with a status of Audit (AUD) or EXTRA (XTR), can only be added by using the Course Drop/Add Form (also available in EIT 3024 & 3022). You must obtain the signatures of the instructor(s) and your supervisor before returning the form to the ECE Graduate Office, who will obtain an approval signature from the Associate Chair, Graduate Studies. The form will be forwarded to the GSO to enroll you in the course.

Degree Requirements:

- Degree Requirements by program are available through the Graduate Studies Calendar. Non-course degree requirements, e.g., theses, projects, seminars, comprehensive examinations, etc., are automatically added as "Milestones" to student records and must be completed according to the Faculty of Engineering and Electrical and Computer Engineering department requirements.

- All faculty requirements information can be found on the Faculty of Engineering Graduate Office website.
- **Academic Integrity Module** - The Graduate AIM is an online course that all new graduate students are required to take through Waterloo LEARN. Students must read the information about academic integrity and then receive a mark of at least 75% on an online quiz. The quiz must be successfully completed by November 1, 2015.
- **Core Course Requirements** – All incoming students are be required to complete a minimum of two core courses from their area of specialization. The list of core courses can be found on the department website. If you are unsure of what your area of specialization is, please refer to your offer letter. (***Note:*** this does not apply to students enrolled in the QI or Nano collaborative programs as they have a separate set of course requirements.)
- **PhD Course Requirements** – All incoming PhD students are required to complete 4 courses as part of their degree requirements instead of the previous 3. Two of these courses must be from the Core Course list mentioned above.
- **PhD Comprehensive Milestones (**NEW**)** – Effective Fall 2015, all incoming PhD students are required to complete a two part Comprehensive Exam. The first exam, the Background Comprehensive Examination, will be held before the end of your third term, and the second exam, the Comprehensive Proposal Examination, will be held no later than your sixth term and only after the Background Comprehensive Examination has been successfully completed.

Office Space:

- Office space is available only to ***full-time*** MASc/PhD on-campus students (not part-time, 'inactive' or off-campus students). Office space cannot be guaranteed, but an office desk will be provided when and if there is availability and you have completed the necessary safety training. In order to obtain office space and access your supervisor's lab you will need to complete a Key Contract. Once the Key Contract has been completed *(your supervisor must give an account number and sign the form)*, please return the form to the Facilities Coordinator, Brenda McQuarrie (EIT 3156). You will be contacted within 10 days at your uwaterloo.ca email address to pick up your permit, once your space has been assigned. **Note: before going 'inactive' or degree completing, you must return your key(s) to the department.**

Mailboxes:

- Full-time student mailboxes are located in the ECE graduate student mailroom in EIT 3023. **You are responsible for checking your mailbox frequently for important notices** and to prevent accumulation. Mail such as credit cards, telephone or bank statements, personal bills or packages **are not permitted** to be delivered to the University. Please use your home address for such items.

ECE Safety Manual:

All students must be familiar with the *University of Waterloo, Department of Electrical and Computer Engineering Safety Manual* enclosed in your welcome package and must submit a signed *Acknowledgement Form,* contained in the manual to the ECE Graduate Studies Department. ***(Please note that your supervisor must also sign the Student Acknowledgement Form found on the last page of the Safety Manual. Completed forms are to be returned to your Program Coordinator)***

WatCards:

The **WatCard** is your one card to access many facilities and services both on and off campus. You can use this card to purchase food, pay for photocopying, and access libraries and computer labs. You may pick up your WatCard at the WatCard Office located in the **Student Life Centre** (SLC) Room 0107. You must bring photo identification with you. (See the *WatCard* website for details.)

Parking Services

If you require parking please visit or contact Parking Services in the General Service Complex (GSC) or Ext. 33100. For information on lots and cost of parking please visit the UW Parking website. There is pay parking also available if you are a part-time student.

Student Supplementary Health Plan

Students are automatically enrolled in a supplementary health plan that provides more coverage than provincial insurance. See the HR Student Health and Dental Plans website for more details including how to opt out.

- **UHIP** - University Health Insurance is mandatory health insurance for all **international students**. For more information you can visit www.uhip.ca.
- **Dental Insurance** - Any Graduate Student that has comparable dental coverage can opt out of the dental plan provided by Student Care Networks. All you need to do is go to the following website www.studentcare.net/works. Here select your school as University of Waterloo, GSA (not feds) and scroll over "Change of Coverage" near the top of the page, which gives you a link to opt out of the plan online. You will be charged a fee on your statement each term regardless of opting out, but then a cheque will be issued to you with your full refund on a term basis.

Where to find Graduate Studies Information…

	Title	Website	What's Here?
Electrical and Computer Engineering	Home Page	https://ece.uwaterloo.ca	-
	Current Graduate Students	https://uwaterloo.ca/electrical-computer-engineering/current-graduate-students	Instructional documents/forms such as Term Activity Reports, Convocation Requirements, and GRS Confirmation Letter Requests
	Course Information	https://uwaterloo.ca/electrical-computer-engineering/current-graduate-students/courses-0	Access to the ECE Course Offerings and the Schedule of Classes
	ECE Contact List	https://uwaterloo.ca/electrical-computer-engineering/our-people	Faculty and Administrative contacts and information
	ECE Graduate Student Association	https://uwaterloo.ca/electrical-computer-engineering-graduate-student-association/	Information about the ECEGSA and its activities
Graduate Studies Office	Home Page	http://uwaterloo.ca/graduate-studies/	Registration and Enrolment Information, Scholarships and Financial Aid, etc.
	Graduate Studies Organization	http://uwaterloo.ca/graduate-studies/about-graduate-studies/organization-graduate-studies	Explanation of the various roles of the GSO
	Graduate Studies Forms	http://uwaterloo.ca/graduate-studies/forms	Transcript orders, Enrolment Confirmation, Add/Drop, Status Changes etc.)
	Thesis Regulations	http://uwaterloo.ca/graduate-studies/thesis/thesis-regulations	A list of resources and requirements that will support you in the preparation and submission of your thesis
	GSO Contact List	http://uwaterloo.ca/graduate-studies/about/people	GSO staff by area of responsibility
	Course List	http://www.adm.uwaterloo.ca/infocour/CIR/SA/grad.html	Course numbers, timetables and other details for all UW Grad courses
	Graduate Academic Integrity Module	http://uwaterloo.ca/academic-integrity/graduate-aim	A new online course that all new graduate students are required to take
	Graduate Student Association	http://uwaterloo.ca/graduate-student-association/	Information about the GSA and its activities
	Graduate Studies Calendar	http://gradcalendar.uwaterloo.ca/group/Electrical-and-Computer-Engineering	University Policies and Guidelines/Academic Deadlines/Academic Regulations, etc.
University of Waterloo	Home Page	http://uwaterloo.ca/	The starting point for all things UW
	Current Student Portal	http://uwaterloo.ca/pathway/current-students	Links to all of the most important information for students
	Campus Map	http://uwaterloo.ca/map/	An interactive map of campus
	Quest	https://uwaterloo.ca/quest/	Quest is Waterloo's student information system
	Student Accounts (Finance)	https://uwaterloo.ca/finance/student-accounts	Information regarding fees, tuition payment, due dates, etc.
	Human Resources - Payroll	http://uwaterloo.ca/human-resources/pay-administration/payroll-forms	Full payroll sign up procedures, forms and information
	International Student Office	http://uwaterloo.ca/international-students/	Information for International Students
	WatCard	http://www.watcard.uwaterloo.ca	Check your WatCard balance, add money, change your pin, etc.

Electrical and Computer Engineering Graduate Studies Office - Administrative Staff

Associate Chair for Graduate Studies
Sherman Shen (EIT 4155) (ext. 32691 or email: sshen@uwaterloo.ca)

Graduate Studies Admissions Coordinator
Douglas Harder (EIT 4018) (ext.37023 or email: dwharder@uwaterloo.ca)

Title	Contact	Responsibilities	Contact Information
MASc/PhD Admissions Administrator	**Jackie Leach**	• Admissions for MASc and PhD *(including special programs and accelerated Masters*) • Admission Deferrals • Exchange Programs	EIT 3025 / ext 38231 jackie.leach@uwaterloo.ca
MEng and MEng Power Admissions Administrator (Part-time)	**Stephanie Forsyth**	• Admissions for the MEng program • Admission Deferrals • Scholarship Backup	EIT 3038/ ext. 37780 sforsyth@uwaterloo.ca
MEng and MEng Power Program Coordinator/ Advisor	**Susan King**	• MEng Program advising including Electric Power Engineering • Change of program to MEng • OVGS • MEng Course Drop/Add forms • MEng Academic Progression • MEng Program Extensions • Grade revisions • Grade submissions and exam collection • MEng Transfer credit coding	EIT 3157/ ext. 33586 s2king@uwaterloo.ca
MASc Program Coordinator/ Advisor & Graduate Funding Coordinator	**Susan Widdifield**	• MASc program requirements • Nano/QI MASc Programs • MASc Enrollment • MASc Course Add/Drops • MASc Academic Progression • MASc student advising • Congese-Software Eng • MASc Program Extensions • MASc Thesis Distribution • MASc Change of Supervisor • Change of Program to MASc • MASc Term Activity Reports • MASc Seminar arrangements • MASc Transfer Credits • International Visiting Graduate Student (IVGS) Program • All Graduate Student Scholarships and payments (GRS)	EIT 3022/ ext. 32912 swiddifield@uwaterloo.ca

PhD Program Coordinator/ Advisor	**Cassandra Brett**	• PhD program requirements • Nano/QI PhD Programs • PhD Enrollment • PhD Course Add/Drops • PhD Academic Progression • PhD Student Advising • Comprehensive Exams • Comprehensive Extensions • PhD Program Extensions • PhD Thesis Distribution • PhD Change of Supervisor • Change of Program to PhD • PhD Defenses • PhD Term Activity Reports • PhD Seminar arrangements • PhD Transfer Credits • All Graduate Teaching Assistantships and payments (GTA) • All Graduate Research Assistantships and payments (GRA)	EIT 3024 / ext 35339 cbrett@uwaterloo.ca
Academic Assistant (Part-time)	**Liz Hadland**	• Scholarships - Ontario Graduate Scholarships & Natural Sciences, Engineering Research Scholarships, and all other internal and external scholarships	EIT 3038/ ext. 33634 liz.hadland@uwaterloo.ca
Manager- Graduate Studies	**Sarah Landy**	• Manage daily operations of the Graduate Studies Team • Graduate Course Critiques • Graduate Studies Website • Graduate Calendar • Administer OGSST, other miscellaneous Scholarships	EIT 3158/ ext. 33330 sarah.landy@uwaterloo.ca
Facilities Coordinator	**Brenda McQuarrie**	• Office Space Assignments • Room Key Assignments • Health & Safety Administrator	EIT 3516/ ext. 33645 bmcquarrie@uwaterloo.ca

Other Offices to Know

Title	Office
Engineering Graduate Studies Office (EGO)	Physics (PHY) 3004
University Graduate Studies Office (GSO)	Needles Hall (NH) 2072
International Student Experience (Student Success Office)	South Campus Hall (SCH) 2nd Floor
Cashier's Office (Tuition payment)	Needles Hall (NH) 1110
Engineering Counseling Services	Carl Pollock Hall (CPH) 1320

UNIVERSITY OF WATERLOO
FACULTY OF ENGINEERING
Department of Electrical & Computer Engineering

Facilities Coordinator
EIT 3025
(519) 888-4567 ext. 33645

Electrical and Computer Engineering Graduate Student

Resource and Key Contract

By signing this contract, Graduate students assigned Electrical and Computer Engineering office space, and/or University key(s) agree to adhere to the Electrical and Computer Engineering rules, regulations and responsibilities governing office space and keys as identified on the reverse of this document.

Surname: ____ **Given Name(s)**: ___________________________________

UW ID No.: ________________ **Program: MASc** ☐ **PhD** ☐ **MEng** ☐ **Enrollment Status: Part-Time** ☐ **Full-Time** ☐

Supervisor(s): ____________________________________ / ____

Email Address: UW: ___________________________________ **Other:** _____________________________________

Home Phone: ____ **Cell Phone:** _________________________________

To be completed by the Supervisor:

Office Space Required?	☐ **Laboratory**	☐ **Laboratory**	☐ **Laboratory**
☐ Yes ☐ No	Building: ______________ Room: ________________ Lab Owner Approval ______________________	Building: ______________ Room: ________________ Lab Owner Approval ______________________	Building: ______________ Room: ________________ Lab Owner Approval ______________________

Requests for laboratory keys must be authorized above by the lab owner or designate and submitted directly to the ECE Key Administrator

I support the above student's request and all Research/Computer Support funding commitments.

																														0	0	0
ORG UNIT				ACTIVITY			FUND			FUND CLASS				PROJECT						OBJECT				PRODUCT						PHASE		

<u>**Note:**</u> Object codes for Graduate students are dependent on their immigration status. Product codes for Graduate students are dependent on program (MASc/PhD).

Supervisor Signature: ____ **Date:** _______________________________

For Office Use Only:

☐ Student Signature
☐ Supervisor Signature
☐ SMA
☐ Space/Desk Assigned
☐ AFF Approved
☐ Copy to Finance ______________________
☐ E-mailed to P/U Key ___________________

SPACE REQUESTED: ☐ **Approved** ☐ **Denied**

____ ____
Building – Room – Desk # **J. Barby**

Rules, Regulations and Responsibilities Governing ECE Office Space and/or Key Assignments

Office space in ECE is available to students registered as full-time Electrical and Computer Engineering MASc and PhD students only. A change of enrolment status to part-time, inactive, or full-time off-campus will mean that students must relinquish their office keys before the end of the current term. Students are often assigned more than one key (eg. office, lab or mailroom key). A common study room is available to students in the Master of Engineering (MEng) program.

Requesting Office Space and/or Room Keys

Step #1:

- **MASc and PhD students** are issued a Key Resource Contract by their Program Coordinator for room assignments and keys. The student completes the form with his/her supervisor and returns the form to the Facilities Coordinator.
- **MEng students**: Department is unable to provide office space. Students are encouraged to use NEXUS labs.

Step #2:

- The Facilities Coordinator submits the Key Resource Contract to the Senior Associate Chair who will make the decision on all office space assignments and authorizes requests for keys
- The office will be assigned within 10 working days of submitting this form

Step #3:

- Once the student's office has been assigned and all keys requested approved by the Senior Associate Chair, the key holder will be contacted via e-mail when the key permit is available for pickup and signature

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TO OBTAIN KEYS

- Key Holder takes the Key Permit to the University Key Control Office (GSC 105C) adjacent to the Davis Centre. This office is responsible for distributing, receiving and safekeeping of keys to facilities on campus. *(See:* http://plantoperations.uwaterloo.ca/services/keys.php)

KEYS REMAIN THE PROPERTY OF THE UNIVERSITY OF WATERLOO

- Key Holders must maintain personal possession of issued University Keys and/or FOBs and are responsible for their physical security. Key transfer from one person to another is strictly prohibited

Do not LEND or DUPLICATE any keys

- Individual users are responsible for the security of any space to which they have keys and shall not admit unauthorized or non-registered persons into that space. Do not "prop" doors open or leave them unlocked during hours when the facility is normally locked/closed.

Continuing Students:

- Students who subsequently decide to request office space and/or keys as a result of a program change or who require access to lab space, must contact the Facilities Coordinator. Requests for laboratory keys must be authorized by the lab manager and communicated directly to the Facilities Coordinator.

Vacating Office Space / Returning Keys:

Students vacating their office space must:

- In consideration of the next occupant, remove all personal belongings from the office and leave the space tidy *(anything left behind is immediately discarded)*
- leave the desk and cabinet keys in the desk drawer/hutch
- return any and all keys **directly** to the Facilities Coordinator (EIT 3156)

Lost Keys:

Lost or stolen keys must be immediately reported to the ECE Key Administrator.

I agree to abide by the Electrical and Computer Engineering rules and regulations governing student office space and key allocations as referenced above.

E-mail: _____

Key Holder Signature: _____ **Date:** _____

2015-16 Academic Dates & Deadlines

Terms and Deadlines	Fall 2015 Sept 1 – Dec 31	Winter 2016 May1 – Aug 31	Spring 2016 May1 – Aug 31
Graduate Open Class Enrolment Begins	July 27	November 22	March 21
Lectures Begin	September 14	January 4	May 2
Course Drop/Add Deadline	October 23	February 12	June 10
Reading Week	N/A	February 15-19	N/A
100% Withdrawal Refund Deadline	October 2	January 22	May 20
50% Withdrawal Refund Deadline	October 30	February 19	June 17
Registration/Enrolment Closes Last day for students to pay fees/enrol or change status	November 1	February 1	June 30
Centre For Extended Learning Open Class Enrolment Ends	May 15	TBA	TBA
Government Reporting Date	November 1	February 1	June 30
Lectures End	December 4	April 4	July 26
Examinations Begin	December 8	April 8	August 2
Center For Extended Learning Examination Days	December 11 & 12	April 8 & 9	TBA
Examinations End	December 22	April 23	August 13
Electronic Grade Submission Dates/Grades Deadlines	December 23	April 30	August 31
Grades available on QUEST	January 1	May 1	September 1
Program Completion Deadline for Convocation	Spring Convocation April 30, 2016	Spring Convocation April 30, 2016	Fall Convocation August 31

*These dates are subject to change

Holidays (University Closed)	Fall 2015	Winter 2016	Spring 2016
Labour Day	September 7		
Thanksgiving Day	October 12		
Christmas Holidays	December 24-31		
New Year's Day		January 1	
Family Day		February 15	
Good Friday		March 25	
Victoria Day			May 23
Additional Day			
Canada Day			July 1
Civic Holiday			August 1

UNIVERSITY OF Waterloo

BANK DEPOSIT AUTHORIZATION

Please submit this completed form to Human Resources, GSC

Name (please print): _____ Date: _____

Department:_____

Social Insurance Number: _____ Expiry Date (if applicable): _____

Employee ID (if known): _____ Student ID:_____

Phone number or email address: _____

Please check one: ☐ Faculty ☐ Temporary Contract ☐ Graduate Student
☐ Staff ☐ Casual Staff ☐ Undergraduate Student

NOTE: Deposits are processed through electronic funds transfer. **It is essential that we have your exact account number so that we can identify your bank's branch number. Forms which are received late, or with incomplete/inaccurate information, will result in delay in payment.**

PLEASE ATTACH ONE CHEQUE MARKED "VOID" TO ENSURE ALL THE CORRECT INFORMATION IS PRESENT.

Please check here if this is a change to current information ☐ Effective date of change _____

Bank: _____

Branch (street address):_____

City: _____ Prov.: _____ Postal Code: _____

Branch/Transit Number:_____

Account Number:_____

I hereby authorize the University of Waterloo to deposit my net pay and any reimbursements to the above bank account.

Signature:_____ Date:_____

CONFIRMATION OF HEALTH COVERAGE

I confirm that I have valid basic provincial health insurance or UHIP coverage.

Signature:_____ Date:_____

Improve your English this *Fall 2015* Term

English Language Studies offers a variety of ESL credit courses to University of Waterloo **graduate** students during the Fall 2015 term

- No additional tuition fees are required
- All courses are 4.5 hours per week
- Visit the graduate schedule of classes on Quest for times and locations
- You are graded on a credit/non-credit basis in EMLS courses. A number grade will not appear on your transcript

Graduate Level ESL Courses

EMLS 601R - Professional Spoken English

Learn how to identify pronunciation errors and develop delivery skills for teaching, presenting papers, and defending theses. The course includes strategies for improving listening comprehension.

EMLS 602R - Scholarly Writing in English

Learn how to write academic texts common to graduate studies. You will develop thesis and article writing skills as well as grammar and vocabulary skills.

EMLS 102R - Error Correction in Academic Writing

Develop your ability to write and edit sentences and paragraphs. There is a strong emphasis on grammatical accuracy and vocabulary development.

How to register:

- Graduate students may register for EMLS 601R and 602R on QUEST
- Graduate students may register for EMLS 102R by completing the DROP/ADD form available online

For more information:

- Visit **https://uwaterloo.ca/english-language-institute/credit-courses/graduate-credit-courses**
- Contact Julia Williams, **julia.williams@uwaterloo.ca** or call 519-884-4404 ext. 28658

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UNIVERSITY OF WATERLOO

Electrical & Computer Engineering Graduate Student Association

Assem Hussein
Chair of ECEGSA
University of Waterloo
ece_gsa@ecemail.uwaterloo.ca

To the new graduate students joining our department,

On behalf of the ECEGSA, I would like to welcome you to the University of Waterloo. The Electrical and Computer Engineering Graduate Student Association (ECE GSA) is a departmental graduate student association recognized by the Graduate Student Association of the University of Waterloo and provides services to all full time and part time graduate students in the Electrical and Computer Engineering department (ECE).

These services include, but are not limited to, promotion of social interaction among ECE graduate students, participating in the development of policies which relate to graduate students, particularly ECE graduate students, organizing and/or participating in academic activities related to electrical and computer engineering and ECE graduate students, and promotion of the exchange of information with ECE graduate student representatives and departmental representatives.

Upon becoming a graduate student in our department you automatically become a member of the ECE GSA and with it all the rights and privileges that come with it and we hope that you find our organization to be a useful resource for all of your needs.

As a part of your welcome package I would like to provide you with some information to familiarize you with the ECEGSA, our duties and your rights. First, for information regarding the council and the constitution of the ECEGSA, please check our website at https://uwaterloo.ca/electrical-computer-engineering-graduate-student-association/

Second, I would like to present some of the accomplishments of last years' team to familiarize you with the ECEGSA work. The main accomplishment was the revision and amendment of the GSA constitution. We modified and clarified existing roles, responsibilities, and procedures.
For the events, the ECEGSA holds social events nearly every month, so please join our Facebook group (ECE GSA) where we provide most of the information regarding new events and activities. Moreover, we regularly attend the department meetings to transfer our members concerns and feedback.

Finally, please feel free to contact me or any of the other ECEGSA representatives with your issues and ideas. I look forward to meeting you at forthcoming social events. Wish you all the best in your studies at our department. Thank you very much for your attention.

Regards,
Assem Hussein

UNIVERSITY OF WATERLOO

ECE Graduate Research Seminars

JUST COME

You get to:

- Share your work
- Exchange ideas
- Practice your presentation skills
- Find out what your colleagues are doing
- Learn about topics outside of your specialty

...no profs...no suits...no stress...

Guidelines:

- Present so that any ECE graduate student can follow
- Tutorial talks are encouraged
- Talks regarding incomplete work are welcomed
- $50 honorarium for each speaker and one $300 award per term for the best speaker

Monthly, on Wednesdays, 4:00 PM in EIT 3142

gradtalks@ecemail.uwaterloo.ca

WATERLOO | CENTRE FOR CAREER ACTION

Dear Graduate Student:

Congratulations on becoming a UW graduate student and starting a new academic adventure. We want to introduce you to the Centre for Career Action and what we have to offer: online and print resources, workshops, events, individual advising, and job postings. All of these will support your career/job development plans.

Check our website www.careeraction.uwaterloo.ca under the following areas for more details:

Workshops/Events Calendar: This section includes a listing of this term's workshops and events, dates/times/locations, and registration information by month. You might be particularly interested in the Career/Job Fairs and academic-related workshops. "Term at a glance" provides the full brochure of events and workshops for the term.

Appointments: This section allows you to book an individual appointment, on various topics, with a career advisor. To make appointments more efficient we ask you to finish the relevant module in the Career Development eManual (www.cdm.uwaterloo.ca) and to bring a draft document (if relevant) to your appointment.

Handouts/Library: The Centre for Career Action has an extensive collection of print resources that are catalogued through the library system and can be signed out. The books are divided into four areas: career planning, education, employment, and work/study abroad.

Career-related Websites: There is a wide variety of websites organized by categories.

Job Listings: All job postings can be viewed in this section.

Employer Information Sessions and Career Events: To connect you to potential employers we coordinate fairs and information sessions that bring hundreds of companies to Waterloo.

Join Mailing List: If you want to ensure that you receive the latest news from the Centre for Career Action, subscribe to our mailing list and be informed!

We wish you all the best in your studies. We hope to connect with you soon!

Elisabeth Adrian and Pam Waechter
Career Advisors
emadrian@uwaterloo.ca or waechter@uwaterloo.ca

Welcome to the University of Waterloo Library!

This is your library and while you are a student here we encourage you to make use of it. Visit us online at http://www.lib.uwaterloo.ca/

Specifically for grad students
As a grad student you have library privileges and responsibilities. These are explained at http://www.lib.uwaterloo.ca/usered/grad/index.html which has links to library courses, how to put material on reserve if you're a TA, where else your library card can be used besides at UW and more. Check out the library information sessions designed for graduate students.

Looking for articles? There *is* life beyond Google
Google, Yahoo and Alta Vista provide links to a lot of good resources but even more garbage – it's up to you to decide whether what you find is of good quality. Go to "Resources for Research / Journal Articles etc." to find indexes to peer-reviewed journal articles, often with links to ejournals (look for GetIt@Waterloo!). Try out *Compendex2* or *Web of Science.*

Getting articles we don't have here - CISTI Source & RACER
We can't have a copy of every book or subscribe to every journal, but when we don't have something you need there are several options:

- Our catalogue (Trellis) also lists what's at University of Guelph and Wilfred Laurier University – you can request that items be sent to you within 3 working days.
- CISTI Source provides copies of articles from journals we don't have that were published since 1994. Contact you Liaison Librarian for the username and password.
- Interlibrary Loans will track down the remaining unfound items and either borrow copies or get photocopies for you. The online request form is called RACER.

The cost for these services is absorbed by the library.

Your library card – get it activated
If you want to access research databases and ejournals from home or use RACER you will be asked for your barcode number and last name. This identifies you as a current member of the university. You can activate your card in person at any of the libraries on campus or online at http://tug.lib.uwaterloo.ca/trellis/regist.html

Ask for help!
This is a one-page handout. There's a lot more on the web or you can call on us and get help.

- Davis Library Information Desk: drop by or call ext. 35766
- Email reference for quick, factual questions
- Online chat reference
- Give your liaison librarian a call

Liaison Librarian for Electrical and Computer Engineering
Rachel McNeil
Davis Centre Library
ext. 33214
rmcneil@uwaterloo.ca

UNIVERSITY OF WATERLOO
FACULTY OF ENGINEERING
Department of Electrical & Computer Engineering

SAFETY MANUAL

Updated: July 2013

Electrical and Computer Engineering faculty and staff conduct research in laboratories (labs) and provide educational opportunities to many undergraduate and graduate students. People who work in labs are exposed to potential hazards and this manual will provide information on health and safety policies and procedures for safe practices in research and teaching labs.

Table of Contents

Everyone who works in an ECE lab must read and understand the information in this document with regard to laboratory safety and emergency procedures prior to the first laboratory session.

1. EMERGENCY TELEPHONE NUMBERS

AMBULANCE, FIRE DEPARTMENT, POLICE	**911**
Fire alarm pull station for fire department	
UW POLICE	519-888-4911 or Ext. 22222
HEALTH & SAFETY (8:30-4:30 Monday- Friday)	Ext. 33587
Spill Control	519-888-4911 or Ext. x22222
Health Services	Ext. 33544/34096
Electronics Shop (People Trained in First Aid)	Ext. 33324, 36179
Ontario Poison Centre	1-800-268-9017

Other Important Numbers:

Plant Operations (24 hrs.)	Ext. 33793
Director of Safety (Kevin Stewart)	Ext. 35814
Health & Safety Coordinator (Robert Mullins)	Ext. 31153
Laboratory Director (Roger Sanderson)	Ext. 36184
Administrative Officer (Jayne Dean)	Ext. 33942
Department Chair (Manoj Sachdev)	Ext. 84016

All departmental telephones should have a yellow emergency number sticker affixed to them. If you see an ECE phone without a sticker, please notify the Lab Director at extension 36184.

2. FIRST AID

2.1 First Aid Kits

Undergraduate Lab Areas

In the undergraduate lab area, a major first aid kit is located in E2 3349 and a minor kit is located in CPH 1332. Technical staff with first aid training is located in E2 33349, ext. 33324.

Research Areas

First aid kits are located in CPH 1332, CPH 3373, DC 3577A, DC 2548, DC 2568, DC 2741, DC 3577A, EIT 4151, EIT 4177 and PRC 1807.

2.2 First Aid Procedures

Minor injuries may be treated at Health Services or by trained ECE Staff. If in doubt, call Health Services at 33544. Note that vehicle access is off Westmount Road.

Major injuries or illness are best handled by phoning **911**. The ambulance entrance for your area is listed on the first aid poster. First aid posters are located near the door in all undergraduate labs and in EIT 3028.

If you encounter someone who is suffering from a medical condition or injury take the following action:

- If an ambulance is required contact **911** or UW Police Ext. 22222 advising of your location and the condition of the individual. Advise UW Police if you contact **911** direct.
- UW Police will dispatch a constable to the location.
- UW Police will meet the Fire/Paramedic Service and escort them to your location.
- If qualified, administer First Aid, if not, seek assistance from someone who is qualified.
- Monitor the individual until the arrival of Fire/Paramedic Service personnel.

2.3 Electrical shock:

- **ACT FAST – CALL UW POLICE Ext. 22222**
- **GET EMERGENCY CARE**
- Do not touch the person until the power has been shut off
- Do not remove the person from the electric source until the power has been shut off
- If you cannot shut off the power, use an insulator such as dry rope, cloth, or broom handle to drag the person away from live wire
- If there is not heartbeat and no breathing, do CPR only if you are trained
- If there is a heartbeat but no breathing, immediately start rescue breathing

- Check for burns and treat as third degree burns
- If the person is breathing, put them in the recovery position
- Get person to doctor if heart skipping beats, fever or coughing up sputum.

2.4 Reporting Accidents

All accidents, incidents, and near misses must be reported. Should an injury or incident occur:

1. Obtain medical aid if necessary.
2. Report any injury to your supervisor immediately.
3. Complete injury/incident report with supervisor and forward to the Safety Office, Commissary Building within 1 day of the injury.
4. Should you have any questions or concerns contact Kate Windsor at ext. 36359 or Sheila Hurley at ext. 33587.

Major Accidents

Critical injuries must be reported immediately to the Safety Office ext. 35755. Critical injuries meet at least one of the following criteria:

- Place life in jeopardy
- Produce unconsciousness
- Substantial loss of blood
- Fracture of leg or arm, but not finger or toe
- Amputation of a leg, arm, hand or foot, but not a finger or toe
- Burns to major portion of body
- Loss of sight in one eye

In the event of a death or critical injury, do not "interfere with, disturb, destroy, alter or carry away any wreckage, article or thing at the scene of or connected with the occurrence until permission so to do has been given by an inspector", unless necessary to:

a. save life or relieve human suffering;
b. maintain an essential public utility service or a public transportation system;
c. prevent unnecessary damage to equipment or other property.

Minor Accidents

- If you use material from a first aid kit, you must record the details in the first aid log book.

If you require the services of a health professional or lose time from work as a result of an accident, a UW accident investigation form must be completed. This is a government (Workers Compensation Act) regulation and results in a fine if ignored. Remember that breaches of the OHSA can result in fines of up to $500,000 to the corporate employer.

3. FIRES AND EVACATION PROCEDURES

EVACUATION IS MANDATORY
DO NOT USE THE ELEVATORS

3.1 Emergency Shutdown Procedures

Lab personnel or the instructor in charge of the class must follow basic steps for an emergency shutdown if time permits.

- STOP ALL ACTIVITIES
- Shutdown experiments that could be affected by the loss of electricity, water, gas or other services.
- Turn off, unplug and cover all electrical or electronic equipment.
  CAUTION: Do not cover ventilation vents and/or fan motors that could result in over-heating and possible fire.
- Remove all material and equipment from inside ventilated hoods.
  Close the sash on all chemical fume hoods in the event that ventilation is lost.
- Cap all chemical containers. Ensure that water reactive chemicals are in sealed containers and stored in areas that are unlikely to become wet.
- Ensure that all chemical, radioactive materials and hazardous waste containers are properly covered and sealed.
- Ensure that all gas valves are closed.
- Vent all containers of cryogenic liquids to prevent buildup of internal pressure.
- Check that all gas cylinders are secured and in an upright position.
  Remove regulators and install transport caps where possible.
- Turn off all appliances, computers, Bunsen burners, and other equipment.
- Refrigerator and freezers must be closed.
- Elevate equipment, materials and supplies, including electrical wires and chemicals, off of the floor, particularly in lower elevations that are prone to flooding.
- Close all doors, including cabinets, storage areas, offices and utility chase-ways.
- Secure lab notebooks/CDs, and backup critical data on computers.
- Close and secure windows.
- Lock all exterior lab doors before leaving.

Upon returning to laboratory or facility:

- Visually inspect the lab through the room or door windows to determine lab condition before entering
- Conduct a damage assessment of the lab

3.2 Evacuation Procedure

All undergraduate laboratories have fire and first aid posters located in the lab near the door.

Upon hearing the fire alarm or when an evacuation order is received, WALK immediately to the nearest exit. Remain outside until further instructions are received.

Laboratory supervisors are responsible for ensuring that there are appropriate evacuation procedures in place for those persons with mobility difficulties.

3.3 Fires

1. Notify others in the immediate area that there is a "FIRE"
2. Attempt to extinguish the fire only if you are trained to do so and if you can extinguish the fire without putting your own safety or the safety of others at risk. NOTE the type of fire extinguisher must correspond to the type of fire e.g. Class C for energized electrical equipment (wiring, fuse boxes, circuit breakers, plugged in electrical equipment).
3. Close the windows if you can do this safely.
4. Assist physically impaired to a safe location (stairwell or office with phone)
5. Leave the room and close the door.
6. Activate the nearest alarm or, if there is no convenient fire alarm, call **911** and alert the University Police at ext. 22222.
7. WALK out of the building via the closest safe emergency exit.
   DO NOT USE THE ELEVATOR.
8. Report location of fire.
9. Report to the fire department the location of physically impaired or if anyone is thought to be still in the building
   (phone 911)

3.4 Fire Extinguishers

All laboratories in E2 and CPH have a fire extinguisher located in the room near the door or in a fire hose cabinet in the corridor just outside. In the Davis Centre they are located in the hose cabinets in the main corridors near each group of project rooms.

4. EMERGENCY PROCEDURES

It is your responsibility to read safety posters and follow instructions during an emergency.
Know the location of the fire extinguisher, eye wash and safety shower in your lab and know how to use them.
Know the building evacuation procedures.

General Advice

- Do not panic
- Size up the situation quickly and decide what to do
- If you are in personal danger, first get to safety and then summon help
- If you are asked to leave the area, make your area safe if time permits by turning off hazardous experiments or equipment, and closing the door. Then leave promptly.

4.1 Earthquake

- **Stay calm**
- Get under a table, desk or bench, or stand in a doorway.
- Avoid windows.
- Leave building by stairs after shaking has stopped.
- Do not use elevators.
- When outside, stay clear of buildings and overhead hazards.

4.2 Flooding/Water Damage/Leaks

Serious water damage can occur from a number of sources: overland flooding, broken water pipes, clogged drains, damaged skylights or windows, or leaking roofs.

If flooding or water leaks occur:

- Contact Plant Operations Ext. 33793 and report the exact location and severity of the flood or leak.
- If there is a hazard of electrical shock evacuate the area immediately;
- If safe to do so take steps to avoid or reduce water damage by covering vulnerable objects;
- If you know the source of the water and are confident of your ability to stop it (e.g. close window) do so.
- If in doubt, phone ext. 22222

4.3 Gas Leaks

When a natural gas odour/leak is detected take the following action:

- Evacuate the immediate area.
- If safe to do so turn off the natural gas supply
- Depending on the strength of the odour or size of the leak, contact Emergency Services **911**, Physical Plant Ext. 33793 or UW Police Ext. 22222 advising them of the location of the odour/leak.
- If the odour/leak is from an off campus site, evacuate the area and contact Emergency Services **911**.

4.4 Utility Failure

All utility failures (electrical, elevators, heat etc) must be reported immediately to Plant Operations Ext. 33793.
Note phones will not work in power outages; please use your cell phone.

In partial electrical power disruption students, faculty and staff should move to areas where there is light and not return to the affected area until power has been restored. Take all personal belongings and secure the room, if possible.

In complete electrical power disruptions students, faculty and staff should leave the buildings and not return until power has been restored. Take all personal belongings and secure the room, if possible.

Students, faculty or staff who need to enter the affected area(s) to pick up personal belongings, should report to the UW Police and request an escort.

NOTIFY YOUR SUPERVISOR/INSTRUCTOR IMMEDIATELY
AFTER ANY INJURY, FIRE, EXPLOSION OR SPILL.

5. MANDATORY SAFETY TRAINING

All faculty, staff, students, postdoctoral fellows, research personnel, work term placements, volunteers, and visitors (paid or unpaid) working in any research or teaching laboratory must take the following courses to comply with UW Health and Safety requirements:

Employees include:

- Faculty
- Staff
- Graduate Students
- Undergraduate Students
- Research personnel e.g. Postdoctoral Fellows, Research Assistants/Associates
- Visiting Faculty
- Teaching Assistants

- Employee Safety Orientation (requires 30-60 minutes to complete)
- Workplace Violence Awareness (requires 30-60 minutes to complete)

These courses can be found at: http://www.safetyoffice.uwaterloo.ca/hse/training/cbt.html

Training is provided to all laboratory users. Emphasis in this training is placed on safe operating procedures; hazards related to specific equipment usage and general laboratory safety. Personal Protective Equipment (PPE) is issued to each laboratory user while working in the facility. This PPE includes, but is not limited to, safety glasses and goggles, masks or respirators as needed. Numerous first aid kits and fire extinguishers are mounted throughout the Laboratory. Eye wash stations are easily accessible to all laboratory users.

5.1 Hazard Specific Training

All lab workers must receive adequate training in the use of specific equipment and how to use the information provided by warning labels and Material Safety Data Sheets (MSDSs).

Safety training and/or information should be provided by a faculty member, teaching assistant, or staff member at the beginning of a new assignment or when a new hazard is introduced into the workplace.

The following training modules are mandatory for those working with the specific hazard or performing the specified functions. Online sessions may be taken at any time. Classroom sessions are scheduled on a regular basis each term.

Format	Title	Course Number	Approximate Duration
Online	BioSafety	SO1069	1.5 hours
Online	Cryogenic and Compressed Gas Safety	SO1030	45 minutes
Classroom	Fire Extinguisher Use	SO1088	1 hour
Classroom	Emergency First Aid	SO1038	8 hours
Classroom	Inspection of Slings & Chains	SO1035	1 hour
Online	Laboratory Safety	SO1010	45 minutes
Online	Laser Safety Training Theory	SO1066	2 hours
Online	Radiation Safety Open Sources	SO1013	3 hours
Online	Radiation Safety Devices	SO1017	45 minutes
Online	Radiation Safety Sealed Sources	SO1015	2 hours
Online	Radiation Safety Transportation	SO1021	2 hours
Online	WHMIS for Employees	SO1002	1 hour
Online	Working in Cleanrooms	---------	2 hours
Online	X-Ray Safety	SO1011	2 hours

Every person working in a laboratory is responsible for ensuring that he or she:

- **Completes all applicable health and safety training**
- **Follows all applicable safety rules and practices**
- **Uses and wears protective equipment as require**
- **Reports unsafe equipment and working conditions to the laboratory supervisor**
- **Reports all accidents/incidents to the laboratory supervisor**

YOU ARE RESPONSBILE FOR YOUR OWN SAFETY!

6. MATERIAL SAFETY DATA SHEETS (MSDS)

MSDSs provide information about chemical and toxicological properties and hazards, and recommended handling and emergency procedures. MSDSs must be current and available for all controlled products in labs.

Hazardous materials likely to be found in labs include:

- lead/tin solder
- solder flux remover
- humidity calibration salts

- circuit board fabrication chemicals such as developer
- Sodium chloride
- Potassium carbonate and nitrate
- Lithium chloride
- Aluminum
- Adhesives

7. LABORATORY SAFETY

GENERAL LAB RULES

- **No food or drink allowed in the lab**
- **No tampering with wires or network cables**
- **No use of illegal software**
- **No compromising building or network security**

7.1 General Safety

- Be aware of the risks that are present in the particular lab you are working in
- Know and follow the safety rules and safe procedures.
- Fire doors must be kept closed at all times.
- Know and understand the hazards, safe handling and standard operating procedures of the materials, equipment and methods being used.
- Review MSDSs, equipment manuals, and procedures instructions before attempting to operate any machine or instrument.
- Read labels carefully.
- Never hurry. Work deliberately and carefully.
- Learn the location of emergency exits, fire alarms, fire extinguishers, etc.
- If you are unsure of any work to be done, ask the lab supervisor before proceeding
- Running, horseplay, pranks, and practical jokes are prohibited
- Report accidents and new misses promptly to the lab supervisor immediately

Housekeeping

- Do not use stairways or hallways for storage
- Aisles must be kept clear
- Never block access to exits, emergency equipment, e.g. fire extinguishers/eye washes/emergency showers, or electrical panels
- Maintain a clear 36” diameter area around all fire sprinkler heads
- Keep work area clear of all materials except those needed for your work.
- Extra books, purses, etc. should be kept away from equipment that requires air flow or ventilation to prevent overheating
- Equipment and chemicals must be properly stored and labeled

- Clean up your work area once experiments are completed and before leaving
- Properly dispose of used materials if any in proper containers. Waste batteries can be deposited into receptacles for recycling
- If leaving a lab unattended, turn off all ignition sources and lock the doors.
- Ensure drawers and doors are closed after use so they do not present a bump or trip hazard
- Store large, heavy or breakable items on lower and middle shelves
- Be careful when lifting heavy objects
- Step stools must be used to access items on high shelves
- Do not overcrowd storage areas and shelves
- Remove empty boxes and packing materials from lab

Food

- Consumption of food, gum and/or drink (including water) in research and teaching labs is **prohibited.**
- Use of lab equipment to store or prepare food is prohibited.
- Wash hands before leaving lab and before eating.

Clothing and Personal Protective Equipment

- No open toes shoes or sandals allowed
- Restrain loose clothing, long hair, and dangling jewelry
- Wear appropriate clothing for the task, for example:
  - Long sleeves should be worn to minimize burn hazards e.g. when using the soldering station
  - short sleeves or long sleeves rolled above elbow should worn around moving parts to minimize entanglement hazards.
  - no shorts.
- Remove any conductive watch bands or chains, rings, wrist watches, etc.
- Personal protective equipment must be used as required and in consideration of the hazards present in each lab
- Gloves must be worn to protect hands and arms e.g. rubber insulated gloves tested to appropriate voltage or lead-lined rubber, plastic or leather gloves for radiation
- Face shields are required over safety glasses when grinding, chipping, brushing and abrasive metal cutting, to provide protection against flying objects
- Safety glasses should be worn to avoid danger from any arc which may occur across the switch terminals
- Do not apply any lip balm or cosmetics in any lab
- Remove gloves before touching computers or phones, opening doors, etc.

Smoking

Smoking is not permitted in any University building or vehicle and in areas within ten metres of all buildings.

7.2 LABORATORY SECURITY

Keep laboratories locked when unoccupied to avoid unauthorized entry.
Leave doors unlocked while working in laboratory in case assistance is needed.

Individual users are responsible for the security of any space to which they have keys and shall not admit unauthorized or non-registered persons into that space. Safeguarding University resources from unauthorized access, misuse or removal is a duty of all faculty and staff. All laboratory users have a responsibility to take reasonable precautions against theft or misuse of materials, particularly those that could threaten the public. Any extraordinary laboratory security measures should be commensurate with the potential risks and imposed in a manner that does not unreasonably hamper research.

7.3 WORKING ALONE

Never work alone in laboratory.
Always work in the lab with another person in case of an accident which might render you helpless to call for assistance.

If you are working with energized circuits or equipment over 50 volts peak, make sure that at least one other person can see you and hear you.

7.4 ELECTRICAL SAFETY

There is always a potential danger of electric shock or fire whenever there are outlets, plugs, wiring or connections. In addition to the usual electrical hazards, some labs have high voltage electrical equipment.

- Familiarize yourself with the location of Circuit breaker panels in labs.
- Maintain an unobstructed access to all electrical panels.
- Electrical cords must be secured
- Connect to the power source **LAST**.
- Turn off and unplug equipment (instead of relying on interlocks that can fail) before removing the protective cover to replace a part, adjust or troubleshoot.
- Do not use an electrical outlet or switch if the protective cover is ajar, cracked or missing
- All electrical apparatus must be properly grounded.
- Never remove the ground pin of a 3-pronged plug.
- Do not run wires over moving or rotating equipment, or on the floor, or string them across walkways from bench to bench as this creates a trip hazard.
- DO NOT use electric wires as supports and never pull on live wires.
- Ensure that all wires are dry before plugging into circuits.

- Remove electrical cords from the receptacle by grasping and pulling the plug not the cord
- Always pick up and carry portable equipment by the handle or base.
- Only use DRY hands and stand on a dry surface when using electrical equipment, plugging in an electric cord, etc.
- If electrical equipment emits smoke or a burning smell, shut off power immediately and take it out of service for repair.

Extension Cords

- Avoid using extension cords whenever possible.
- Extension cords must only be used as a temporary solution and should be appropriately rated for the job.
- Do not run extension cords under doors, across aisles, or hang from ceiling
- Don't overload circuits by using power strips or multiple outlets on regular sockets.
- "Piggy-backing" of extension cords is prohibited.

High Voltage

- Obtain permission before operating any high voltage equipment
- Never modify, attach or otherwise change any high voltage equipment
- Always make sure all capacitors are discharged (using a grounded cable with an insulating handle) before touching high voltage leads or the inside of any equipment even after it has been turned off. Capacitors can hold charge for many hours after the equipment has been turned off.
- When you are adjusting any high voltage equipment or a laser which is powered with a high voltage supply, USE ONLY ONE HAND. Your other hand is best placed in a pocket or behind your back. This procedure eliminates the possibility of an accident where high voltage current flows up one arm, through your chest, and down the other arm.

Report any Abnormal Wear, Damage or Equipment Failure

- Inspect electrical cords regularly – replace frayed or damaged cords and repair broken plugs.
- Inspect electrical equipment with power off and unplugged for frayed and damaged connections
- If a piece of equipment fails while being used, report it immediately.
- Report defects/faults to your supervisor.
- If you receive a mild shock from a piece of equipment, turn it in for repair
- Tag/Label equipment UNSAFE – DO NOT USE and describe the problem.
- Do not attempt to repair electrical equipment yourself. Only qualified and trained people should repair or modify electrical or electronic equipment.

All electrical equipment purchased, regardless of voltage, must be certified by an approved authority. Equipment will have a field approval mark from the Canadian Standards Association (CSA), Electrical Safety Authority (ESA), or an equivalent field approval mark

acceptable under the Electrical Safety Code i.e. Ontario Hydro (OH), International Approval Services (IAS), ULc. Do not bring into the lab or use in the lab equipment that does not conform to ESC rules without specific permission from your instructor, TA or Lab Technical personnel.

7.5 HAZARDOUS VOLTAGES, CURRENTS OR ROTATING COMPONENTS

- If you turned on any lab power, turn it off when you leave. Also ensure that all energy storage capacitors are discharged.
- Do not work alone and ensure that the other person is familiar with the location of the emergency switch.
- Ensure that the emergency switch is easily accessible.
- Install proper current protection in your circuit.
- Wherever possible, cover the hazardous voltage points (self-adhesive warning labels are available from ECE stores).
- Turn the power off before making any circuit changes and ensure that all energy storage capacitors are discharged.
- Wherever possible, cover all moving components.
- Ensure that devices are being operated within their specified limits.
- Ensure that instrument grounds are not connected to points which are at voltages higher than ground. Differential/isolation pods are available.

7.6 STATIC ELECTRICITY AND SPARKS

Static electricity and sparks may cause a fire under the right circumstances. Always be conscious of the potential for generating sparks.

- Electrical equipment must have spark protection in areas where there is a danger of fire or explosion.
- Some protection from static electricity and sparks is obtained by proper grounding and bonding of containers and equipment.
- A dry atmosphere promotes the formation of electrical charges.

Common sources of sparks and static electricity are:

- plastic aprons
- metal clamps, nipples or wires used with non-conducting hoses
- gases released quickly from cylinders under high pressure
- switches and thermostats
- Electrical contacts (eg. light switches and thermocouples, refrigerators) may produce sparks.

7.7 CHEMICALS

- Treat every chemical as if it were hazardous
- Make sure all chemicals are clearly and currently labeled with the substance name, concentration, date, and name of the individual responsible
- Never return chemicals to reagent bottles. Try for the correct amount and share any excess
- Comply with fire regulations concerning storage quantities, types of approved containers and cabinets, proper labeling, etc. If uncertain about regulations, contact the Lab Manager/Instructor/Teaching Assistant.
- Use volatile and flammable compounds only in a fume hood. Procedures that produce aerosols should be performed in a hood to prevent inhalation of hazardous material.
- Never allow a solvent to come in contact with your skin. Always use gloves.
- Never "smell" a solvent. Read the label on the solvent bottle to identify its contents.
- Dispose of waste and broken glassware in proper containers.
- Clean up spills immediately.
- Do not store food in laboratories

7.8 COMPRESSED AND CRYONGENIC GASES

Laboratory gases are supplied in high-pressure cylinders. These cylinders present their own hazards and must be stored, handled and used with extra care. There are specific procedures required for handling cryogenic and compressed gases.

Compressed gas cylinders can be extremely hazardous when misused or abused. Certain precautions must be observed when storing, handling, and using compressed gas cylinders in order to keep the hazards to a minimum. The uncontrolled release of a compressed gas can result in serious consequences, not only because of possible toxicity and flammability, but also because a high pressure cylinder can become a lethal missile if the cylinder valve is broken off.

Cryogenic liquids (argon, nitrogen, helium, hydrogen and oxygen) and certain other liquefied gases are at extremely low temperatures (-60/C to -266/C). Very small amounts of these liquids produce large amounts of gas. Consult the product's MSDS for specific guidelines regarding health and safety information, personal protective equipment and emergency recommendations.
Safety precautions that must be taken with compressed gases also apply to cryogenic liquids. There are, however, additional precautions necessary when dealing with cryogenic materials.

- When using compressed air, use only approved nozzles and never direct the air towards any person
- Guards on machinery must be in place during operation

- Exercise care when working with or near hydraulically- or pneumatically-driven equipment. Sudden or unexpected motion can inflict serious injury.

7.9 LASERS

The use of lasers and the corresponding management of their hazards must comply with ANSI Z136.1. The hazards associated with the use of Class 3B or 4 lasers include eye or skin burns, fire and electrocution.

Below are key aspects of laser hazard management:

- Never look into any laser beam, no matter how low power or "eye safe" you may think it is.
- Always wear safety goggles if instructed by your Instructor/Teaching Assistant/Lab Manager
- Never lower your head to the level of the laser beam to avoid scattered laser light reflecting off mountings, sides of mirrors, etc.
- The laser beam should always be at or below chest level.
- Always use "beam stops" to intercept laser beams.
- Never walk through a laser beam. Some laser beams of only a few watts can burn a hole through a shirt in only a few seconds.
- Ensure that appropriate protective eyewear and protective clothing are worn as determined by the class of the laser.
- Ensure that operation, repair and maintenance are performed only by competent, trained and qualified personnel.
-
- Manufacturer installed safety devices such as shields or interlocks must not be altered, disconnected or removed without written approval from the laboratory supervisor.

If you suspect that you have suffered an eye injury, notify your Instructor/Teaching Assistant IMMEDIATELY. Your ability to recover from an eye injury decreases the longer you wait for treatment.

7.10 NANO MATERIALS

There are concerns about toxicity of nanoparticles that are inhaled, ingested, or absorbed through dermal exposure during initial contact, nanoparticle waste may present a hazard in the environment. The use of good work practices can help to minimize worker exposures to nanomaterials.

There are specific health and safety precautions for the use, cleaning, storage and disposal of nanomaterials. Specific research projects may require additional health and safety precautions.

Handling Requirements:

- Total enclosure of the particle handling process - Nanoparticle stocks that are dry should be handled inside an appropriate glove box. Workers should wear protective equipment, including safety goggles, lab coats, and gloves if handling or transporting materials outside of a glovebox.
- Total enclosure of stored stocks and nano-materials.
- Nanoparticle solutions may be handled on the lab bench once placed in solution. Workers should wear protective equipment, including safety goggles, lab coats, and gloves.
- Transport of nano-materials should employ a sealed secondary containment device.
- Limit access in areas where processes are being carried out. Only trained personnel may be permitted to work in these areas while nanomaterials are being used. Training procedures and operating procedures must be implemented before beginning work with nano-materials.
- Nanoparticle waste must be contained and labeled for chemical content in compliance with hazardous waste management requirements. Nanoparticle spills should be cleaned immediately using spill mitigation procedures developed by the laboratory.
- Follow the specified spill control and cleanup protocol.
- Regular cleaning of benchtops, floors and other surfaces should be implemented; the cleaning schedule should be documented. The cleaning solution should be compatible with the vehicle in which the nanoparticles are suspended such as cleaning of work areas using HEPA vacuum pickup and wet wiping methods,.
- Prohibition of eating and drinking in laboratories and controlled areas.
- Equipment used for handling of nanoparticles must be evaluated for safety concerns before it may be repaired, reused for other laboratory purposes or released for disposal.
- Use hand-washing facilities and facilities for showering and changing clothes.

7.11 UNATTENDED PROCEDURES

Do not leave an on-going experiment unattended.

Unattended lab procedures should be reviewed by the lab supervisor to ensure all hazards are controlled before leaving the experiment unattended.

- Unattended procedures should be visited periodically
- Post contact information for the person conducting the experiment in case of emergency
- Unattended heating may be done only with heating equipment that reliably maintains stable temperatures
- Remove any flammable or combustible materials from the area

7.12 UNAUTHORIZED EXPERIMENTS

Never do unauthorized experiments. Research or other activities involving the use of lab space, materials or equipment without the knowledge and approval of the responsible Principal Investigator is strictly prohibited.

7.13 ONLINE RESOURCES

The Safety Office serves as a Health, Safety and Environment (HSE) resource for health and safety. The Safety Office oversees many programs on campus and has specific procedures that must be followed to ensure compliance with UW policy and governmental regulations. http://www.safetyoffice.uwaterloo.ca/

Most governments have posted regulations pursuant to health and safety on the web and many institutions have placed their health and safety policies, procedures and programs on the web as well.

8. SAFETY TRAINING FOR UNDERGRADUATE STUDENTS

All undergraduate engineering students receive WHMIS and evacuation training in 1A. Graduate students receive the same training during their first on campus term. Upon completion of this instruction, a sticker is awarded to be affixed to the student's ID card.

When students take a course which has some unusual hazards associated with the laboratory, special instructions are given. These are written instructions documenting the hazard and safety procedure and are accompanied by a brief explanation by the lab instructor. The student then signs that he/she understands the safety procedures and will follow them.

Currently, the ECE courses deemed to have these unusual hazards are:
ECE 261, 361, 370, 375, 463, 464, 471, 475, 481, 484 and 486.
NE 320L, 340L, 450 L, 454L and 455L.

8.1 EXPECTATIONS FOR STUDENTS:

- Students must adhere to written safety rules, regulations and standard operating procedures.
- Follow verbal safety instructions throughout the academic term. Since additional instructions may be given at the beginning of laboratory sessions, it is important that students arrive at each session on time.
- Complete mandatory safety training.
- Consult with PI/Lab Supervisor before using hazardous materials or conducting high risk experimental procedures and obtain prior approval if required.

- Keep work area safe and uncluttered. Practice good housekeeping and chemical hygiene.
- Use personal protective equipment as required.
- Never work alone in the lab.
- Absolutely no food, drink, or smoking is permitted in the lab at any time.
- Use equipment for its intended purpose only.
- Report all broken equipment, emergencies, injuries, near misses or safety concerns to the PI/Lab Supervisor.
- In the event of an emergency, call **911** and the UW Police ext. 22222

It is expected that each student will work in a responsible manner and exercise good judgement and common sense. If at any time you are not sure how to handle a particular situation, ask your Teaching Assistant or Instructor for advice. ***The area lab manager can give you advice if it is requested, but he/she is probably not totally familiar with your project.***

DO NOT TOUCH ANYTHING WITH WHICH YOU ARE NOT COMPLETELY FAMILIAR.
It is always better to ask questions than to risk harm to yourself or others, or damage to the equipment.

9. TEACHING ASSISTANTS WORKING IN TEACHING LABORATORIES

All Teaching Assistants (TA) are considered supervisors and must ensure the safety of all those who enter the lab. TAs who work in teaching laboratories receive written information specifying their responsibilities with respect to safety in the laboratory.

TAs should provide a lab orientation to ensure that all students are familiar with the use and location of equipment and safety aids. Orientation should include information on:

- Electrical equipment and manuals
- Material Safety Data Sheets (MSDSs)
- Review safety manuals and resources
- Chemical inventories and demonstrated methods of access
- Explain use of and limitations of personal protective equipment (PPE) e.g. safety glasses, face shields, temp resistant gloves, etc.
- Importance of reporting every incident, accidents, and unsafe conditions to a supervisor
- Review emergency procedures and location of emergency equipment and supplies (nearest phone, fire extinguishers, first aid kits etc.)
- Fire alarm pull station
- Evacuation procedures (emergency routes and exits)
- Procedures for medical emergencies and injuries

- Information concerning the existence of, and procedures for dealing with any unusual hazard which may exist in a particular laboratory.

All teaching assistants must sign a form which states that they understand their responsibilities and will follow the specified procedures.

10. STUDENTS ON UNPAID WORK PLACEMENTS

A Work/Education Agreement Form is to be used by Faculties/Departments arranging unpaid placements. MTCU requires information on placement hours, grant eligible and visa status. The form, adapted from MTCU, includes a student accident/injury report form. To comply with MTCU reporting requirements, Faculties/Departments are to complete the form with the student before placement, then provide the Safety Office with the completed form (including total hours worked) at the end of each term.

11. SAFETY PROCEDURES FOR PERSONS WORKING IN RESEARCH LABORATORIES

All persons working in research labs must:

- Complete all applicable safety training.
- Become familiar with what to do in specific situations.
- Review all lab specific hazards and safety precautions with supervising researcher.
    - Become familiar with any unusual hazards in designated areas, and procedures for dealing with them. Know the specific Materials Safety Data Sheets and equipment manual(s) for these areas.
- Follow all departmental and university safety procedures and policies.
- Report any malfunction of equipment or equipment breakdowns to your project supervisor.
- Read this manual in its entirety and sign the form that they understand these regulations and will comply with them.

11.1 EXPECTATIONS FOR LABORATORY PERSONNEL

- Review and follow relevant lab safety manual(s) and materials and hazards
- Follow oral and written lab safety rules, regulations, and standard operating procedures required for the tasks assigned
- Keep work areas safe and uncluttered

Several ECE research labs have individual operating policies and procedures:

- Center for Integrated RF Engineering (CIRFE)
- Center for Advanced Photovoltaic Devices and Systems (CAPDS)
- Emerging Radio Systems Group (EmRG)

- GIGA-TO-NANOELECTRONICS Centre (G2N)
- High Voltage Engineering Lab (HVEL)

12. VISITING RESEARCHERS/SCIENTISTS

The Department is host to many visitors who use ECE facilities to pursue their own research or conduct collaborative research under faculty supervision. Those who are engaged in research activities in ECE are expected to comply with the University's policies designed to ensure that their work is conducted safely and in a professional manner. In particular, visitors who will participate in laboratory research must receive appropriate safety training and be familiar with the University's policies concerning laboratory safety and the handling and disposal of hazardous materials. Visitors to the laboratory are expected to follow the same requirements as the laboratory workers in regards to such items as personal protective equipment (PPE), proper dress, food and drink, etc.

The faculty host/supervisor or designate is responsible for the appropriate lab safety orientation and other project hazards. It is expected that visitors to the Laboratory have similar worker's compensation coverage from their own institutions or companies. It is required that visitors to ECE labs provide evidence of insurance coverage.

13. FIELD WORK RISK MANAGEMENT

Field Work Risk Management Form must be completed and approved prior to undertaking field work in any location external to UW that involves higher risk. The Field Work Risk Management Form is available on the Safety Office website.

Includes any activity that may cause personal harm and examples include, but are not limited to:

- Field work, field trips and internships outside Canada and USA
- Field work at industrial sites such as factories, mining operations and construction sites
- Activities that require specialized safety training and/or certification in the use of personal protective or safety equipment
- Field work at any international or remote location
- Travel to areas where immunization and/or significant health and safety precautions are required
- Work at sites with hazardous substances
- Field work which by nature entails risk (e.g., travelling on water or ice, high altitude work, etc).

14. RESPONSIBILITIES

The Principal Investigator/Laboratory Supervisor has overall responsibility for safety in the lab. All lab users (employees, students and visitors) must be provided with appropriate safety orientation when they are assigned to a lab. These apply to all persons working in any research laboratory and computer area whether they are receiving remuneration or not.

The Principal Investigator/Laboratory Supervisor should explain lab expectations, hazards, safety requirements/resources, and emergency procedures associated with the particular materials, equipment, procedures, etc. associated with their lab. The PI/LS is responsible for training staff and visitors on the use of all lab equipment and processes, and ensure that they work in a safe manner, follow standard operating procedures, and use the required personal protective equipment.

PI/Lab Supervisors are responsible for inspections of their lab and ensuring deficiencies are corrected. In addition, they must inform all lab users of any required corrective actions.

The responsibilities with respect to safety of university employees and students are outlined in Policy 34.

The lab supervisor or designate should escort all visitors to the lab due to potential hazards and to protect the security of the research, equipment and supplies. The lab supervisor must not knowingly permit entrance to anyone not qualified to be in the lab i.e. has not completed the mandatory training, or unauthorized persons without appointments.

Any critical injury at a workplace, whether suffered by a student, visitor, or another employee, may give rise to immediate reporting and evidence preservation obligations under the *Occupational Health and Safety Act* (the OHSA). These employer accident reporting obligations are initiated when any person, not just a worker is killed or critically injured.

Safety of visitors is the responsibility of the person in the department who is hosting them or bringing them into the department. If a visitor will only be in the department for one day or less, AND will not be performing any laboratory duties, they should be accompanied at all times to ensure they are kept safe. If the visitor will be staying for longer than one day AND/OR they will be working in a lab, they should read this safety manual.

15. UNIVERSITY SAFETY COMMITTEES

15.1 UW Joint Health and Safety Committee

Described in Policy 34 (available on the UW website)

15.2 Advisory Committee to the Dean of Engineering on Safety

This committee has two representatives from each department – usually one faculty and one staff member.

The current ECE department representatives are R. Sanderson and S. Jayaram.

15.3 Department of Electrical and Computer Engineering Safety Committee

The membership consists of:

- Department Chair or designate
- Laboratory Director
- Administrative Officer
- Department Health & Safety Coordinator
- Faculty member
- Manager Representative
- Administrative Staff Member
- Technical staff member

This committee meets at least once a term to perform the following duties:

- Review and update the Safety Manual
- Review any incident reports
- Emergency planning
- Ensure that laboratory areas are inspected regularly and that any safety infringements found are corrected promptly
- Ensure that all persons using laboratory facilities have acknowledged (by signature) that they will comply with the regulations pertaining to the laboratory that they are working in.

UNIVERSITY OF WATERLOO
FACULTY OF ENGINEERING
Department of Electrical & Computer Engineering

STUDENT SAFETY MANUAL ACKNOWLEDGEMENT FORM

Please complete this form, detach and return it to the appropriate Program Coordinator (MASc – EIT 3022 & PhD - EIT 3156)

I acknowledge receipt of a copy of the "E&CE Safety Manual" which sets forth the health and safety rules and practices to be followed in the Department of Electrical and Computer Engineering. I declare that I have studied the contents of this Manual, and any additional safety information specific to the designated areas, where applicable as per 7.3.

I understand that as long as I am a registered graduate or undergraduate student or an employee or an undergraduate student researcher or a _____ in the Department of Electrical and Computer Engineering, I am responsible for obeying the safety rules, plus the requirements of the University of Waterloo, Policy 34 and the Ontario Occupational Health and Safety Act and any later amendments or regulations thereof. I also understand that I am continuously to aim to be self-informed about all health and safety aspects of my research work and to exercise good judgement in the application of safe working practices in order to prevent accidents which may cause injury to either myself or to others. I also am aware that I am responsible for informing my supervisor in advance of using any new chemicals, materials, equipment or procedures which may be a hazardous or potentially-hazardous nature.

Name: _____ UW ID: _____

Signature: _____ Date: _____

SUPERVISOR'S ACKNOWLEDGEMENT

I have discussed the relevant sections of this Manual and other project-related health and safety background information with the above-named individual.

Name: _____

Signature: _____ Date: _____

UNIVERSITY OF WATERLOO

PARKING INDEX

VISITOR PARKING

All Day, Every Day

C, N, W, X: $5 per day – pay and display

Lot X is free on weekends

HV: Weekdays: $2 per hour up tp daily maximum of $15. After 5 p.m. and weekends: $5 coin entry

M: $6 pay and display

D: Weekdays: $2 per hour up to daily maximum of $15. After 5 p.m. and weekends: $5 coin entry

P: $4 coin entry for St. Jerome's University, Renison University College; $5 coin entry for St. Paul's University College; $1 per hour up to a $4 daily maximum at Conrad Grebel University College

OV: $5 coin exit

J, S, V: $5 pay and display. Pay in lot S

CL, UWP: $5 pay and display

AFTER 4 P.M. AND WEEKENDS

A, B, EC, H, R: $5 coin entry

PERMIT PARKING

Faculty and Staff: A, B, H, K, L, N, O, R, T, X
Resident: CL, J, S, V, UWP, T
Parking in any ungated lot after 4:30 pm with valid Faculty/Staff Permit

MOTORCYCLES

Purchase a term or day pass from Parking Services, in the COM building for use at motorcycle pads

ACCESSIBLE PARKING

Accessible parking for persons with disabilities is available in most lots. For details visit:
uwaterloo.ca/parking

SHORT-TERM PARKING

Fifteen minute parking is available on the Ring Road at Environment 2 and Ira G. Needles Hall. Meter parking is available, visit the Parking website for locations at:
uwaterloo.ca/parking

WATCARD PAYMENT

Available at Lot **C, N, W, X, M, UWP**

LEGEND

PARKING

- Accessible Parking
- Meter Parking
- Motorcycle Parking
- Permit Parking
- Short-term Parking
- Visitor Parking

COLOUR CODES

- Academic/Administrative Buildings
- Roads and Parking Lots
- City Roads and Parking Lots
- Pathways
- Residence Buildings
- Water
- Research Park Buildings

SYMBOLS

- Accessible Entrances
- Building Codes
- Construction Site and Future Site of Building
- Grand River CarShare
- GRT Grand River Transit
- Greyhound
- GO Transit
- Help Line Telephone
- Information
- Public Telephone
- Service Vehicle

BUILDING INDEX

CODE	BUILDING – LOCATION
ACW	Accelerator Centre – G1
AL	Arts Lecture Hall – G4
B1	Biology 1 – G4
B2	Biology 2 – G4
BMH	B.C. Matthews Hall – G3
BRH	Brubacher House – F2
C2	Chemistry 2 – G3, G4
CGR	Conrad Grebel University College – F5
CIF	Columbia Icefield – G2
CLN	Columbia Lake Village North – B2, C1, C2
CLV	Columbia Lake Village – B2, C2, D2
COG	Columbia Greenhouses – D2
COM	Commissary – H3
CPH	Carl A. Pollock Hall – H4
CSB	Central Services Building – G3
DC	William G. Davis Computer Research Centre – H3, H4
DWE	Douglas Wright Engineering Building – H4
E2	Engineering 2 – H4
E3	Engineering 3 – H4
E5	Engineering 5 – H3, H4
E6	Engineering 6 – H4
EC1	East Campus 1 – I3
EC2	East Campus 2 – H3
EC3	East Campus 3 – H3
ECH	East Campus Hall – H3, H4, I3, I4
EIT	Centre for Environmental & Information Technology – G4
ERC	Energy Research Centre – G3
EV1	Environment 1 – G5
EV2	Environment 2 – G5
EV3	Environment 3 – G5
ESC	Earth Sciences & Chemistry – G4
FED	Federation Hall – F3
GA	335 Gage Street – see back page
GH	Graduate House – G4
GSC	General Services Complex – G3, H3
HH	J.G. Hagey Hall of the Humanities – G5
HMN	Hildegard Marsden Nursery – G2
HS	Health Services – F4
KDC	Klemmer Day Care – G2
LHI	Lyle S. Hallman Institute for Health Promotion – G3
LIB	Dana Porter Library – G4
M3	Mathematics 3 – G3
MC	Mathematics & Computer Building– G3
MHR	Minota Hagey Residence – F5, G5
MKV	William Lyon Mackenzie King Village – E3
ML	Modern Languages – G4
NH	Ira G. Needles Hall – G4
OPT	School of Optometry – G2
PAC	Physical Activities Complex – G3
PAS	Psychology, Anthropology, Sociology – G5
PHR	School of Pharmacy – see back page
PHY	Physics – G4, H4
QNC	Mike & Ophelia Lazaridis Quantum-Nano Centre – G4
RAC	Research Advancement Centre – F1
RA2	Research Advancement Centre 2 – F1
RCH	J.R. Coutts Engineering Lecture Hall – H4
REN	Renison University College – F4
REV	Ron Eydt Village – E3
SCH	South Campus Hall – G4, G5, H5
SLC	Student Life Centre – G3
STJ	St. Jerome's University – F4
STP	St. Paul's University College – F4
TC	William M. Tatham Centre for Co-operative Education & Career Action – G4, G5
TH	Tutors' Houses – E3
UC	University Club – F3
UWP	University of Waterloo Place – I4, I5
V1	Student Village 1 – E3, F3