STUDENT HANDBOOK

Undergraduate Program
Department of Civil Engineering

www.ryerson.ca/civil

2015 - 2016

RYERSON UNIVERSITY

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RYERSON UNIVERSITY

DEPARTMENT OF CIVIL ENGINEERING

UNDERGRADUATE STUDENT HANDBOOK
FALL 2015 / WINTER 2016

The Department of Civil Engineering is located at:
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It is the responsibility of each full-time undergraduate student to access the updated online Ryerson University Full-time Undergraduate Calendar each year and to follow his/her curriculum as stated in the relevant Calendar. The online Undergraduate Ryerson University Calendar is available at www.ryerson.ca/calendar

Since Ryerson University Calendars are legal documents, they take precedence over this Student Handbook. In the event of any inconsistency, the Fall 2015 / Winter 2016 Ryerson University Undergraduate Calendar and The 2015 / 2016 Yeates School of Graduate Studies Calendar will prevail.

If you have any suggestions or comments for future editions of this Student Handbook, please write to:

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TABLE OF CONTENTS

CHAIR'S WELCOME

Welcome to the Department of Civil Engineering at Ryerson University and the road to excellence! Our vision is to become one of the best civil engineering programs in Canada and we are making steady progress toward the realization of this goal! We proudly provide state-of-the-art undergraduate and graduate studies civil engineering education and research in the dynamic field of civil engineering. When you study Civil Engineering in our Department, you learn many new exciting and challenging engineering concepts and theories in our classrooms and labs.

The Department of Civil Engineering provides students with many excellent learning experiences leading to successful careers and engaged students who enable change. The Department through the sustained work of faculty members and staff is continuing on a transformative path to meet the changing needs of students and helping to shape Canada's future generation of change makers and advocacy leaders, innovators and entrepreneurs. Civil Engineering students, graduates, faculty members and staff will contribute significantly to Ontario's and Canada's social, cultural and economic well-being.

Students who commenced the program on or after Fall 2014, after completing two years in the Civil Engineering program, may continue in the regular Civil Engineering program or choose the Structural Engineering option. There will be a 60% cap for enrolment in either the Civil Engineering program or the Structural Engineering option. Enrolment in the Civil Engineering program or the Structural Engineering option after the second year will be made on a competitive basis, subject to program capacity. (Please visit www.ryerson.ca/civil for more details.) In addition, students continuing in the Civil Engineering program will have the option of pursuing either the Environmental or Transportation Engineering Streams in the fourth year of the program. An enrolment cap for the Environmental or Transportation Streams will be similar to that mentioned above. Students who commenced the program prior to Fall 2014, should refer to the Program Overview as published in the 2013-2014 Ryerson University Undergraduate Calendar http://www.ryerson.ca/calendar/2013-2014/pg1147.html

Our undergraduate and graduate students excel in many peer competitions at international, national and regional levels and we are very proud of their many great successes and awards! Our Concrete Canoe Team, for example, won Fourth Place out of twelve participating universities in the Final Product Category and was ranked Eighth Team Overall. Our students also participated in the 31st Annual Canadian Society for Civil Engineering Troitsky Bridge Building Competition held during National Engineering Week and our teams placed Third, Sixth and Twenty-Eighth. Another great achievement this past year is by two of our PhD students who won First, Second, and Fourth Places at the Ninth Annual Graduate Student Geomatics Paper Competition. As well, the Best Student Paper Awards in Engineering Materials were given each to one of our Masters and PhD students at the Fourth International Engineering Mechanics and Materials Specialty Conference held concurrently with the 2015 Canadian Society for Civil Engineering Annual Conference. Outstanding achievements were also accomplished by four of our many talented students who won the 2015 Dennis Mock Student Leadership Awards. This award recognizes graduating students' leadership and outstanding contributions to Ryerson through their extra-curricular involvements. There are many other great achievements and awards accomplished by our students at the undergraduate and graduate levels.

In the Department of Civil Engineering you will be taught by dedicated faculty members who are engaged in many exciting engineering research and development projects, many in collaboration with industry who bring this expertise to the classroom and labs. Your faculty members have won many national, provincial and university awards for their teaching and research and have also collectively published over 300 peer-reviewed journal papers and won over 30 national and international awards. Leaders from industry and government in our Advisory Council also help keep our curriculum more relevant.

I hope that you will find the information in this Student Handbook useful. Please visit our website at www.ryerson.ca/civil. If you have any further inquiries, please contact our Department.

Khaled Sennah

Best Regards,
Dr. Khaled Sennah, P.Eng.
Chair

UNDERGRADUATE PROGRAM

PROGRAM OVERVIEW

The program provides graduates with the knowledge and skills to enter the Civil Engineering profession. The curriculum provides for a general four-year Civil Engineering program. Graduates from the Civil Engineering program would expect to be employed by engineering technology and consulting companies, the construction industry, the mining industry, and municipality and government agencies.

Students who commence the program on or after Fall 2014, after completing two years in the Civil Engineering program, may continue in the regular Civil Engineering program or choose the Structural Engineering option. There will be a 60% cap for enrolment in either the Civil Engineering program or the Structural Engineering option. Enrolment in the Civil Engineering program or the Structural Engineering option after the second year will be made on a competitive basis, subject to program capacity. (Please visit www.ryerson.ca/civil for more details.) In addition, students continuing in the Civil Engineering program will have the option of pursuing either the Environmental or Transportation Engineering Streams in the fourth year of the program. An enrolment cap for the Environmental or Transportation Streams will be similar to that mentioned above.

Students who commenced the program prior to Fall 2014, should refer to the Program Overview as published in the 2013-2014 Ryerson University Undergraduate Calendar.
http://www.ryerson.ca/calendar/2013-2014/pg1147.html

The Civil Engineering program curriculum focuses mainly on four areas: environmental, geomatics, structural/materials and transportation engineering. The subjects include environmental sustainable development, impact of civil engineering, water and wastewater management, soil mechanics, geomatics measurement, remote sensing and digital mapping, satellite navigation, structural analysis and design, concrete and highway materials, highway design, transportation planning, road safety, traffic and transit operation, pavement design and project management.

The curriculum of the Structural Engineering option provides further focus on structural analysis, computer-aided structural analysis, structural building systems, structural design of concrete, steel, timber and masonry, bridge design and construction, and renovation/repair of existing structures.

A student graduating from the Civil Engineering program will earn a Bachelor of Engineering (BEng) degree in Civil Engineering. A student graduating from the Structural Engineering option will earn a BEng in Civil Engineering with a Structural Engineering option. .

A student graduating with a BEng in Civil Engineering may apply for registration by the Professional Engineers Ontario (PEO) as a Professional Engineer (PEng).

CRITERIA FOR CONTINUING IN THE CIVIL ENGINEERING PROGRAM OR JOINING THE STRUCTURAL ENGINEERING OPTION IN THE FALL 2016 / WINTER 2017 ACADEMIC YEAR

1. Students entering their third year with a CGPA equal to or greater than 2.5 will be automatically admitted to the option of their choice, provided that (i) they achieved a minimum grade of C- in their first attempt in each of the following courses: CVL 323, CVL 316, and CVL 400 for the Civil Engineering Program and CVL 320, CVL 420, and CVL 434 for the Structural Engineering

Option and (ii) enrollment in either the Civil Engineering Program or the Structural Engineering Option does not exceed 60% of total students entering the third year.

2. The remaining students will be ranked according to their cumulative performance in their first attempt in the relevant courses (CVL 323, CVL 316, and CVL 400 for the Civil Engineering Program and CVL 320, CVL 420, and CVL 434 for the Structural Engineering Option), and admitted to the option of their first choice subject to enrollment limit of 60% of total students joining the third year.

3. Ranking of students and selection of students continuing in the Civil Engineering Program or joining the Structural Engineering Option will be finalized on May 30, 2016. Students who do not meet the above-mentioned criteria on, or before, May 30, 2016 will not be considered regarding their first choice of either the Structural Engineering Option or the Civil Engineering Program.

4. The above criteria are for students entering third year in Fall 2016/Winter 2017 and are subject to change in future academic years.

FIRST YEAR TRANSITION PROGRAM

The objective of the transition program is to provide the first year students, who may need more time to adapt to the demanding university curriculum, with an immediate opportunity to upgrade their academic standing. In the second semester, Phase I of the transition program offers all first semester core courses: CHY 102, MTH 140, MTH 141, and PCS 211 in parallel to the second semester regular program courses. Students who have failed and/or are missing these courses at the end of the first semester are required to upgrade their Academic Standing through enrolling in the transition program. During the condensed Spring term (May-July) Phase II of the transition program offers all second semester core courses: AER222, BME 100, CHE 200, CHY 211, CPS 125, CVL 207, ELE 202, MEC 222, MTH 240, MTL 200, and PCS 125. These courses represent a repeat of the second semester regular program courses that were not taken by students enrolled in Phase I of their transition program. These courses will be offered subject to adequate enrollment.

COMMUNICATIONS PROFICIENCY AND WRITING SKILLS

All new engineering students are automatically enrolled in CEN 199: Writing Skills.

CEN 199 is graded on a Pass/Fail basis, and is used to track the results of the Writing Skills Test (WST) and/or Ryerson Test of English Proficiency (RTEP).

All students admitted into engineering, except those who wrote the RTEP and achieved a grade of ‘B' or higher, are required to write the mandatory Writing Skills Test (WST) during Orientation Week. Students who pass the WST (by achieving a grade of ‘B' or higher) or the RTEP (by achieving a grade of ‘B' or higher) will receive a PASS in CEN 199 and therefore may enroll in the lower level Liberal Studies course of their choice (subject to availability).

Students who **do not pass** the WST, or achieved a ‘C' level remedial pass on the RTEP, will receive an INP (In Progress Grade) in CEN 199 and will be required to enroll in one of LNG 111, LNG 112, LNG 113, or LNG 121 as their first-year lower level Liberal Studies course. These courses, which count towards lower level Liberal Studies requirements, are writing-intensive humanities and social science courses designed to give students the opportunity to strengthen their foundations in

communication. These students will then have three additional opportunities to write and pass the WST:

- In May, following Semester 2.
- During Orientation Week prior to Semester 3.
- In May, following Semester 4.

A PASS in CEN 199: Writing Skills is required to enroll in all third-year engineering courses. Students with a grade of INP in CEN 199 will not be allowed to enroll in any third-year engineering course.

Detailed information is available from the First-Year and Common Engineering Office. Room ENG-377 Telephone: 416-979-5000 ext. 4261.

OPTIONAL INDUSTRIAL INTERNSHIP PROGRAM (IIP)

The Industrial Internship Program (IIP) provides full-time undergraduate students who have successfully completed three years of the civil engineering program the opportunity to obtain valuable work experience and practical on-the-job training in an industrial organization. Third year students with a CLEAR academic standing may opt to enroll in the IIP. If they are selected by one of the partner corporations, they spend a period of 12-16 months, from May to September of the following year, as engineering interns at the corresponding corporations. After the completion of the industrial internship, students return to the academic program to complete their final year of studies. Enrollment in the IIP extends the undergraduate program to five years.

The IIP students register in the course WKT 090 Industrial Internship Program during the academic year in which they work as interns. This course is graded on a pass/fail basis. A PSD grade has no numerical value and is not included in a student's grade point average; a Failure is graded as an 'F' and is included in a student's grade point average. Participation and successful completion of the IIP,

however, appears in the student's academic transcript. You may also use the 12 to 16 month work experience time period in your application for Professional Engineers of Ontario licencing. Please

see www.peo.on.ca for further information. For further information on the Civil Engineering IIP, please visit www.ryerson.ca/civil

OPTIONAL SPECIALIZATION IN ENGINEERING INNOVATION AND ENTREPRENEURSHIP

This option provides students with a solid foundation in innovation and entrepreneurship theory as well as the immersive experience of advancing and shaping an idea into a business. The lecture courses cover principles of engineering economics, entrepreneurship and innovation management, and technology based new venture creation. The practicum will guide students through the process of identifying a new business concept, developing their technology, and preparing their business for market readiness. For eligibility, registration and court information see Optional Specialization in Engineering Innovation and Entrepreneurship (OS EIE) in the 2015/2016 Ryerson Calendar.

OPTIONAL SPECIALIZATION IN MANAGEMENT SCIENCES (OSMS)

Students who opt for this specialization will gain a solid foundation in management science courses, specifically tailored to better prepare them for a career in engineering or applied science management or for graduate studies in management related specializations (e.g. MBA). Students must complete all first year courses and obtain a CLEAR Standing to be eligible to enroll in this specialization.

Furthermore, in order to continue taking courses within the specialization, students must maintain their CLEAR Standing. Students' CGPAs will continue to be calculated based only on their required program courses and separate CGPAs will be computed for courses in the specialization. In order to have the specialization designation reflected on their degrees, students must successfully complete all six courses in the specialization and achieve a CGPA of 1.67 or more before graduation.

Courses within the optional specialization cover four major areas in management sciences: Strategic Engineering Management, Operations Management/Operations Research, Finance and Organizational Behaviour. Required courses include: Entrepreneurship & Innovation Management, Operations Management, Managerial Accounting, and Organization Design & Dynamics. Elective courses span the following: Investment Analysis, Management Information Systems, Operations Research, and Project Management.

Required courses:

EMS 201 Entrepreneurship and Innovation Management

EMS 202 Operations Management

EMS 204 Organization Design and Dynamics

EMS 303 Managerial Accounting

ECN 801 Principles of Engineering Economics

Elective courses (select one):

EMS 203 Investment Analysis

EMS 301 Management Information Systems

EMS 302 Operations Research

EMS 304 Project Management

Courses are only offered in the Spring (May-July) term. All required courses are prerequisite to the corresponding elective courses. For example, EMS 201 is a prerequisite to EMS 301 . Additional prerequisites may be required. See the course description pages for details.

Contact the First-Year and Common Engineering Office (FYCEO) or visit www.ryerson.ca/feas/current/osms/index.html for more information.

ENGINEERING TRANSFER CREDITS

Applicants approved into an Engineering program cannot expect to receive any transfer credits in Engineering discipline or Engineering related discipline courses if their applicable post secondary education was not completed at a program accredited by The Canadian Engineering Accreditation Board (CEAB). Refer to www.ccpe.ca/e/index.cfm for a listing of CEAB accredited institutions.

Core and professional engineering course transfer credits will ONLY be granted at the time of admission. An Offer of Admission will notify the applicant of transfer credit decision(s) subject to acceptance of their Offer.

Liberal Studies discipline courses taken at CEAB accredited or non-accredited schools will be considered for either lower- or upper-level liberal studies transfer credit. College courses, in general, are not eligible for transfer credit except in the case of lower-level liberal studies courses.

LIBERAL STUDIES AND MINORS

Liberal Studies

Students must complete two lower level liberal studies courses and two upper level liberal studies courses to graduate.

Liberal Studies - Students approved to first year prior to Fall 2008

Students must complete two lower level liberal studies courses and four upper level liberal studies courses to graduate.

Minors

Students may pursue any Minor offered by Ryerson with exceptions. Please refer to the Minors Policy section of the Calendar for further information on individual Minor requirements and restrictions.

The G. Raymond Chang School of Continuing Education Certificates

Undergraduate students wishing to pursue a continuing education certificate program should be aware of possible restrictions. Please refer to the Curriculum Advising website at www.ryerson.ca/curriculumadvising for complete details.

NEW CURRICULUM: FALL 2015 / WINTER 2016
FOR FALL 2014 - FIRST YEAR ADMITS AND
FALL 2015 - FIRST YEAR ADMITS

FIRST SEMESTER

Common to Aerospace, Biomedical, Chemical, Civil, Computer, Electrical, Industrial and Mechanical Engineering Programs

Common to the Civil Engineering Program and the Structural Engineering Option

REQUIRED

Course Title	Course Number	# Terms	Lect.	Lab
COMMON ENGINEERING: Introduction to Engineering	CEN 100	1	2	1 Tut
COMMON ENGINEERING: Writing Skills	CEN 199*	1	0	1
CHEMISTRY: General Chemistry	CHY 102	1	3	1
MATHEMATICS: Calculus I	MTH 140	1	4	2
MATHEMATICS: Linear Algebra	MTH 141	1	4	1
PHYSICS: Physics: Mechanics	PCS 211	1	3	1 Tut 1 Lab
LIBERAL STUDIES: One course required from Table A		1	3	

*This course is graded on a pass/fail basis.

SECOND SEMESTER

Common to the Civil Engineering Program and the Structural Engineering Option

REQUIRED

Course Title	Course Number	# Terms	Lect.	Lab
COMPUTER SCIENCE: Digital Computation and Programming	CPS 125	1	3	2
CIVIL: Graphics	CVL 207	1	2	2
ECONOMICS: Principles of Engineering Economics	ECN 801	1	3	0
MATHEMATICS: Calculus II	MTH 240	1	4	1
MECHANICAL: Materials Science Fundamentals	MTL 200	1	3	1*
PHYSICS: Physics: Waves and Fields	PCS 125	1	3	1 Lab 1 Tut

*Two hour lab every other week

THIRD SEMESTER (First Offered in Fall 2015)

Common to both the Civil Engineering Program and the Structural Engineering Option

REQUIRED

Course Title	Course Number	# Terms	Lect.	Lab
CIVIL: Environmental Science and Impact Assessment	CVL 300	1	3	1
CIVIL: Strength of Materials I	CVL 320	1	4	2
CIVIL: Fundamentals of Surveying	CVL 323	1	3	2
CIVIL: Geology for Engineers	CVL 423	1	3	1
MATHEMATICS: Differential Equations and Vector Calculus	MTH 425	1	4	2

Note: **All required core courses in first and second semesters are prerequisites to all required core courses in third semester.**

FOURTH SEMESTER (First Offered in Winter 2016)

Common to both the Civil Engineering Program and the Structural Engineering Option

REQUIRED

Course Title	Course Number	# Terms	Lect	Lab
COMMUNICATION: Communication In the Engineering Professions	CMN 432	1	2	2
CIVIL: Transportation Engineering	CVL 316	1	3	1 Tut
CIVIL: Hydrology and Water Resources	CVL 400	1	3	1 Lab 1 Tut
CIVIL: Probability and Statistics for Engineers	CVL405	1	3	1 Tut
CIVIL: Strength of Materials II	CVL 420	1	3	2
CIVIL: Geotechnical Properties of Soils	CVL 434	1	3	2

FIFTH SEMESTER (First Offered in Fall 2016)

Civil Engineering Program

REQUIRED

Course Title	Course Number	# Terms	Lect.	Lab
CIVIL: Geomatics Measurements Techniques	CVL 352	1	3	2
CIVIL: Introduction to Structural Design	CVL 500	1	3	2 Tut
CIVIL: Fluid Mechanics and Hydraulics	CVL 501	1	3	1 Tut 1 Lab
CIVIL: Concrete Materials	CVL 533	1	3	2
MATHEMATICS: Numerical Analysis	MTH 510	1	3	1
LIBERAL STUDIES: One course required from Table A		1	3	

SIXTH SEMESTER (First Offered in Winter 2017)

Civil Engineering Program

REQUIRED

Course Title	Course Number	# Terms	Lect.	Lab
CIVIL: Remote Sensing and Image Analysis	CVL 354	1	3	2
CIVIL: Wastewater Engineering	CVL 601	1	3	1
CIVIL: Civil Engineering Systems	CVL 609	1	3	2
CIVIL: Highway Materials	CVL 633	1	3	2
CIVIL: Highway Design	CVL 735	1	3	2
LIBERAL STUDIES: One course required from Table B		1	3	

NOTE: Students who have a CLEAR Academic Standing may opt to enroll in the Industrial Internship Program (IIP). Please contact the Department of Civil Engineering.

SEVENTH SEMESTER (First Offered in Fall 2017)

Civil Engineering Program

In the Seventh Semester, students select either the Environmental or the Transportation Stream. In the Eighth Semester, students must continue in that same Stream. Students will complete only one Stream.

Course Title	Course Number	# Terms	Lect.	Lab
REQUIRED:				
CIVIL: Geospatial Information Systems	CVL 736	1	3	2
REQUIRED: GROUP 1: Students complete one Capstone Design Project from their selected stream:				
CIVIL: Environmental Capstone Design Project	CVL 71A/B*	1	1	3
CIVIL: Transportation Capstone Design Project	CVL 72A/B*	1	1	3
PROFESSIONAL: Students complete **two courses from any ONE** of the Streams listed below. In the 8th Semester, students must continue in that same Stream. Students will complete only one Stream.				
ENVIRONMENTAL STREAM – TWO OF:				
CIVIL: Water Resources Engineering	CVL 903	1	3	1
CIVIL: Water Supply Engineering	CVL 913	1	3	1/1 *
TRANSPORTATION STREAM – TWO OF:				
CIVIL: Traffic Operations and Management	CVL 902	1	3	2
CIVIL: Transportation Planning	CVL 910	1	3	1
LIBERAL STUDIES: One course required from the following:				
ENGLISH: Science Fiction	ENG 503	1	3	
GEOGRAPHY: Technology and the Contemporary Environment	GEO 702	1	3	
HISTORY: Scientific Technology and Modern Society	HST 701	1	3	
PHILOSOPHY: Religion, Science and Philosophy	PHL 709	1	3	
POLITICS: Power, Change and Technology	POL 507	1	3	

* Two-hour lab and two-hour tutorial alternating weeks.

EIGHTH SEMESTER (First Offered in Winter 2018)

Civil Engineering Program

Course Title	Course Number	# Terms	Lect.	Lab
REQUIRED:				
COMMON ENGINEERING: Law and Ethics in Engineering Practice	CEN 800	1	3	
CIVIL: Satellite Geodesy	CVL 650	1	3	2
CIVIL: Project Management	CVL 742	1	3	1
REQUIRED: GROUP 1: Students continue with the Capstone Design Project started in the Fall term: **CIVIL:** Environmental Capstone Design Project **CIVIL:** Transportation Capstone Design Project	 CVL 71A/B* CVL 72A/B*	 1 1	 1 1	 3 3
PROFESSIONAL: In the 8th Semester, students must continue in that same Stream as chosen in 7th semester. Students complete two courses from ONE of the Streams listed below. Students will complete only one Stream.				
ENVIRONMENTAL STREAM: **CIVIL:** Municipal Solid Waste Management	 **CVL 901**	 1	 3	 1
TRANSPORTATION STREAM : **CIVIL:** Pavement Design and Management	 **CVL 900**	 1	 3	 1

*CVL 71A/B and CVL 72A/B are two-term courses.

STRUCTURAL ENGINEERING OPTION

FIFTH SEMESTER (First Offered in Fall 2016)

Structural Engineering Option

REQUIRED

Course Title	Course Number	# Terms	Lect.	Lab
CIVIL: Structural Analysis	CVL 313	1	3	2
CIVIL: Introduction to Structural Design	CVL 500	1	3	2 Tut
CIVIL: Concrete Materials	CVL 533	1	3	2
CIVIL: Foundation Engineering	CVL 600	1	3	2
MATHEMATICS: Numerical Analysis	MTH 510	1	3	1
LIBERAL STUDIES: One course required from Table A		1	3	

SIXTH SEMESTER (First Offered Winter 2017)

Structural Engineering Option

REQUIRED

Course Title	Course Number	# Terms	Lect.	Lab
CIVIL: Computer Aided Structural Analysis	CVL 312	1	3	2
CIVIL: Structural Concrete Design I	CVL 410	1	3	2
CIVIL: Structural Steel Design	CVL 411	1	3	2
CIVIL: Civil Engineering Systems	CVL 609	1	3	2
CIVIL: Highway Materials	CVL 633	1	3	2
LIBERAL STUDIES: One course required from Table B		1	3	

NOTE: Students who have a CLEAR Academic Standing may opt to enroll in the Industrial Internship Program (IIP). Please contact the Department of Civil Engineering.

SEVENTH SEMESTER (First Offered in Fall 2017)

Structural Engineering Option

Course Title	Course Number	# Terms	Lect.	Lab
REQUIRED:				
CIVIL: Structural Capstone Design Project	CVL 70A/B*	1	1	3
CIVIL: Structural Concrete Design II	CVL 904	1	3	2
CIVIL: Bridge Design and Construction	CVL 905	1	3	1
CIVIL: Structural Building Systems	CVL 908	1	3	2
LIBERAL STUDIES: One course required from the following:				
ENGLISH: Science Fiction	ENG 503	1	3	
GEOGRAPHY: Technology and the Contemporary Environment	GEO 702	1	3	
HISTORY: Scientific Technology and Modern Society	HST 701	1	3	
PHILOSOPHY: Religion, Science and Philosophy	PHL 709	1	3	
POLITICS: Power, Change and Technology	POL 507	1	3	

EIGHTH SEMESTER (First Offered in Winter 2018)

Structural Engineering Option

Course Title	Course Number	# Terms	Lect.	Lab
REQUIRED:				
COMMON ENGINEERING: Law and Ethics in Engineering Practice	CEN 800	1	3	
CIVIL: Project Management	CVL 742	1	3	1
CIVIL: Structural Capstone Design Project	CVL 70A/B*	1	1	3
CIVIL: Pavement Design and Management	CVL 900	1	3	1
CIVIL: Renovation/Repair of Existing Structures	CVL 906	1	3	1

*CVL 70A/B is a two-term course. Students must continue the same project they started in the Fall. Contact the Department for more details.

FORMER CURRICULUM: FALL 2015 / WINTER 2016
FOR STUDENTS ADMITTED: FALL 2011, 2012 AND 2013

FIFTH SEMESTER (Last Offered in Fall 2015)

Common to the Regular Program and the Geomatics Engineering Option

REQUIRED

Course Title	Course Number	# Terms	Lect.	Lab
CIVIL: Structural Analysis	**CVL 313**	1	3	2
CIVIL: Geomatics Measurement Techniques	**CVL 352**	1	3	2
CIVIL: Concrete Materials	**CVL 533**	1	3	2
CIVIL: Environmental Science and Engineering	**CVL 553**	1	4	2
MATHEMATICS: Numerical Analysis	**MTH 510**	1	3	1
LIBERAL STUDIES: One course required from Table A		1	3	

SIXTH SEMESTER (Last Offered in Winter 2016)

Common to the Regular Program and the Geomatics Engineering Option

REQUIRED

Course Title	Course Number	# Terms	Lect.	Lab
COMMUNICATION: Communication In the Engineering Professions	**CMN 432**	1	2	2
CIVIL: Transportation Engineering	**CVL 316**	1	3	1 Tut.
CIVIL: Structural Concrete Design I	**CVL 410**	1	3	2
CIVIL: Highway Materials	**CVL 633**	1	3	2
CIVIL: Civil Engineering Systems	**CVL 609**	1	3	2
LIBERAL STUDIES: One course required from Table B		1	3	

NOTE: Students who have a CLEAR Academic Standing may opt to enroll in the Industrial Internship Program (IIP). Please contact the Department of Civil Engineering.

SEVENTH SEMESTER (Last Offered in Fall 2016)

CIVIL ENGINEERING

In the Seventh Semester, students select one of the Environmental, Structural and Materials, or Transportation Streams. In the Eighth Semester, students must continue in that same Stream. Students will complete only one Stream.

Course Title	Course Number	# Terms	Lect.	Lab
REQUIRED:				
CIVIL: Structural Steel Design	**CVL 411**	1	3	2
REQUIRED: GROUP 1: Students complete one Capstone Design Project from their selected stream:				
CIVIL: Structural Capstone Design Project	**CVL 70A/B***	1	1	3
CIVIL: Environmental Capstone Design Project	**CVL 71A/B***	1	1	3
CIVIL: Transportation Capstone Design Project	**CVL 72A/B***	1	1	3
PROFESSIONAL: Students complete two courses from ONE of the Streams listed below. Not all courses will be offered every semester.				
ENVIRONMENTAL STREAM – TWO OF:				
CIVIL: Waste Water Treatment Design	**CVL 638**	1	3	1
CIVIL: Municipal Solid Waste Management	**CVL 901**	1	3	1
CIVIL: Water Resources Engineering	**CVL 903**	1	3	1
CIVIL: Environmental Impact Assessment	**CVL 912**	1	3	1
STRUCTURAL AND MATERIALS STREAM – TWO OF:				
CIVIL: Computer Aided Structural Analysis	**CVL 312***	1	3	2
CIVIL: Foundation Engineering	**CVL 600**	1	3	2
CIVIL: Pavement Design and Management	**CVL 900**	1	3	1
CIVIL: Structural Concrete Design II	**CVL 904**	1	3	2
CIVIL: Bridge Design and Construction	**CVL 905**	1	3	1
CIVIL: Renovation/Repair of Existing Structures	**CVL 906**	1	3	1
CIVIL: Behaviour and Design of FRP Structures	**CVL 907**	1	3	1
CIVIL: Structural Building Systems	**CVL 908**	1	3	2 Tut.
***CVL 312** must be selected in Structural and Materials Stream.*				
TRANSPORTATION STREAM – TWO OF:				
CIVIL: Pavement Design and Management	**CVL 900**	1	3	1
CIVIL: Traffic Operations and Management	**CVL 902**	1	3	2
CIVIL: Non-Highway Transportation Systems	**CVL 909**	1	3	1
CIVIL: Transportation Planning	**CVL 910**	1	3	1
LIBERAL STUDIES: One course required from the following:				
ENGLISH: Science Fiction	**ENG 503**	1	3	
GEOGRAPHY: Technology and the Contemporary Environment	**GEO 702**	1	3	
HISTORY: Scientific Technology and Modern Society	**HST 701**	1	3	
PHILOSOPHY: Religion, Science and Philosophy	**PHL 709**	1	3	
POLITICS: Power, Change and Technology	**POL 507**	1	3	

*CVL 70A/B, CVL 71A/B and CVL 72A/B are all two-term courses. Students must continue the same project they started in the Fall. Contact the Department for more details.

EIGHTH SEMESTER (Last Offered in Winter 2017)

CIVIL ENGINEERING

Course Title	Course Number	# Terms	Lect.	Lab
REQUIRED:				
COMMON ENGINEERING: Law and Ethics in Engineering Practice	**CEN 800**	1	3	
CIVIL: Project Management	**CVL 742**	1	3	1
REQUIRED: GROUP 1: Students continue with the Capstone Design Project started in the Fall term:				
CIVIL: Structural Capstone Design Project	**CVL 70A/B***	1	1	3
CIVIL: Environmental Capstone Design Project	**CVL 71A/B***	1	1	3
CIVIL: Transportation Capstone Design Project	**CVL 72A/B***	1	1	3
PROFESSIONAL: Students must continue in the same stream started in 7th Semester. Complete two courses from any ONE of the Streams listed below. Not every course will be offered every semester.				
ENVIRONMENTAL STREAM – TWO OF:				
CIVIL: Municipal Solid Waste Management	**CVL 901**	1	3	1
CIVIL: Water Resources Engineering	**CVL 903**	1	3	1
CIVIL: Environmental Impact Assessment	**CVL 912**	1	3	1
STRUCTURAL AND MATERIALS STREAM – TWO OF:				
CIVIL: Computer Aided Structural Analysis	**CVL 312***	1	3	2
CIVIL: Foundation Engineering	**CVL 600**	1	3	2
CIVIL: Pavement Design and Management	**CVL 900**	1	3	1
CIVIL: Structural Concrete Design II	**CVL 904**	1	3	2
CIVIL: Bridge Design and Construction	**CVL 905**	1	3	1
CIVIL: Renovation/Repair of Existing Structures	**CVL 906**	1	3	1
CIVIL: Behaviour and Design of FRP Structures	**CVL 907**	1	3	1
CIVIL: Structural Building Systems	**CVL 908**	1	3	2 Tut.
***CVL 312** must be selected in Structural and Materials Stream.*				
TRANSPORTATION STREAM – TWO OF:				
CIVIL: Highway Design	**CVL 735**	1	3	2
CIVIL: Pavement Design and Management	**CVL 900**	1	3	1
CIVIL: Traffic Operations and Management	**CVL 902**	1	3	2
CIVIL: Non-Highway Transportation Systems	**CVL 909**	1	3	1
CIVIL: Transportation Planning	**CVL 910**	1	3	1

*CVL 70A/B, CVL 71A/B and CVL 72A/B are all two-term courses. Students must continue the same project they started in the Fall. Contact the Department for more details.

SEVENTH SEMESTER (Last Offered in Fall 2016)

GEOMATICS ENGINEERING OPTION

REQUIRED

Course Title	Course Number	# Terms	Lect.	Lab
CIVIL: Satellite Geodesy	**CVL 650**	1	3	2
CIVIL: Photogrammetry and Digital Mapping	**CVL 710**	1	4	3
CIVIL: Geospatial Information Systems	**CVL 736**	1	3	2
CIVIL: Data Modeling and Estimation	**CVL 737**	1	3	2
LIBERAL STUDIES ELECTIVE GROUP: One course required from the following:				
ENGLISH: Science Fiction	**ENG 503**	1	3	
GEOGRAPHY: Technology and the Contemporary Environment	**GEO 702**	1	3	
HISTORY: Scientific Technology and Modern Society	**HST 701**	1	3	
PHILOSOPHY: Religion, Science and Philosophy	**PHL 709**	1	3	
POLITICS: Power, Change and Technology	**POL 507**	1	3	

EIGHTH SEMESTER (Last Offered in Winter 2017)

GEOMATICS ENGINEERING OPTION

REQUIRED

Course Title	Course Number	# Terms	Lect.	Lab
COMMON ENGINEERING: Law and Ethics in Engineering Practice	**CEN 800**	1	3	
CIVIL: Remote Sensing and Image Analysis	**CVL 354**	1	3	2
CIVIL: Project Management	**CVL 742**	1	3	1
CIVIL: Geomatics Network Design and Analysis	**CVL 810**	1	3	2
CIVIL: Geomatics Capstone Design Project	**CVL 899**	1	1	3

COURSE DESCRIPTIONS

CEN 100 Introduction to Engineering

This course is aimed at familiarizing the first year students with the basic information of the academic structure and expectations. Exposure to public and worker safety and the impact of engineering activities on health as well as safety standards and safety codes will be covered. The course also stresses integration with other first year courses. The principal objectives of the course are to provide a general introduction to the field of engineering; to convey the social, professional, and ethical responsibilities of engineers and why they are important to an engineering education; to introduce the undergraduate engineering programs available at Ryerson University; and to provide a general description of the skills needed to become a practicing engineer. Case studies in engineering are used to illustrate engineering fields and scientific principles.

Tut: 1 hr. / Lect: 2 hrs
GPA Weight: 1.00
Billing Units: 1

CEN 199 Writing Skills

All first year engineering students are required to write a mandatory Writing Skills Test (WST) or the diagnostic Ryerson Test of English Proficiency (RTEP), administered during Orientation Week before the beginning of the first semester. Students who pass the WST (grade of 'B' or higher) may enroll in their chosen breadth elective (liberal studies) courses. Those students who do not pass the WST and those students who achieve a 'C' level remedial pass on the RTEP, will be required to enroll in LNG 111, LNG 112, LNG 113, or LNG 121 as a breadth elective (lower level liberal studies) course. Students who do not pass the WST or who achieve a 'C' level remedial pass on the RTEP, will have three additional chances to write the WST. The second test will be scheduled in May following the completion of the first year Engineering curriculum. The third and fourth WST will be administered during the next academic year Orientation Week, and again, in May. This course must be successfully completed prior to enrolling in third-year engineering courses. This course is graded on a Pass/Fail basis.

Lab: 1 hr.
GPA Weight: 1.00

CEN 800 Law and Ethics in Engineering Practice

Study of the legal and ethical aspects of engineering practice, including Canadian legal system and business organizations, tort liability, business contract law, intellectual and industrial property, principles of arbitration and alternative dispute resolutions, the practice of engineering, occupational health and safety, ethical aspects of engineering practice, ethical dilemmas in project management, sustainable development and ethical behavior, and globalization and international standards for ethical and social responsibility.

Lect: 3 hrs
GPA Weight: 1.00
Billing Units: 1

CHY 102 General Chemistry

This course is intended for engineering students. This course deals with stoichiometry, gases, liquids and solids, chemical equilibria, thermodynamics, kinetics, nuclear chemistry and electrochemistry. The treatment of these topics will emphasize problem solving and calculation.

Lect: 3 hrs. / Lab 1 hr.
GPA Weight: 1.00
Billing Units: 1

CMN 432 Communication in the Engineering Professions

Communication lies at the heart of what engineers do. This course introduces students to the unique and varied communication challenges of their profession. Through a combination of lectures, readings, and workshops, students are exposed to the types of communication they will engage in as professionals and given the opportunity to refine their analytical, writing, presentation, and problem solving skills.

Lect: 2 hrs. / Lab: 2 hrs.
GPA Weight: 1.00
Billing Units: 1

CPS 125 Digital Computation and Programming

The C programming language is used to develop good programming techniques. Topics covered include: C program form, language statements, pseudo-code algorithmic representation, numeric data types, flow of control with selection and repetition, standard C libraries, functions and call modes, arrays, pointers, sorting, matrix operations, character and string data types, dynamic storage, structures and linked lists, file I/O. Only regular first year students from the Faculty of Engineering and Architectural Science and the Faculty of Science may preregister for this course.

Lect: 3 hrs. / Lab: 2 hrs.
GPA Weight: 1.00
Billing Units: 1

CVL 70A/B Structural Capstone Design Project A/B

The Capstone is a practically designed project integrated over the different areas of Civil Engineering. Students will operate in consultant groups and complete a design for a typical Engineering undertaking. The course involves professional engineers acting as clients and bringing in real-life design problems to pre-selected teams of 4 - 6 students or as the course instructor dictates given the type of projects. Students are required to submit at least two design alternatives for the project that will be evaluated based on economic, environmental, and other considerations. At the end of the fall semester each team will determine the best alternative design for the project. At the end of the winter semester, each team will present and submit a detailed design report.

Lect: 1 hr. / Lab/Tut: 3 hrs.
Corequisite: CVL 411
Prerequisites: CVL 313 and CVL 410
GPA Weight: 2.00
Billing Units: 1/1

CVL 71A/B Environmental Capstone Design Project A/B

The Capstone is a practically designed project integrated over the different areas of Civil Engineering. Students will operate in consultant groups and complete a design for a typical Engineering undertaking. The course involves professional engineers acting as clients and bringing in real-life design problems to pre-selected teams of 4 - 6 students or as the course instructor dictates given the type of projects. Students are required to submit at least two design alternatives for the project that will be evaluated based on economic, environmental, and other considerations. At the end of the fall semester each team will determine the best alternative design for the project. At the end of the winter semester, each team will present and submit a detailed design report.

Lect: 1 hr. /Tut: 3 hrs.
Prerequisite: CVL 553
GPA Weight: 2.00
Billing Units: 1/1

CVL 72A/B Transportation Capstone Design Project A/B

The Capstone is a practically designed project integrated over the different areas of Civil Engineering. Students will operate in consultant groups and complete a design for a typical Engineering undertaking. The course involves professional engineers acting as clients and bringing in real-life design problems to pre-selected teams of 4 - 6 students or as the course instructor dictates given the type of projects. Students are required to submit at least two design alternatives for the project that will be evaluated based on economic, environmental, and other considerations. At the end of the fall semester each team will determine the best alternative design for the project. At the end of the winter semester, each team will present and submit a detailed design report

Lect: 1 hr. /Tut: 3 hrs.
Prerequisite: CVL 316
GPA Weight: 2.00
Billing Units: 1/1

CVL 207 Graphics

Principles of traditional descriptive geometry of points, lines, planes and solids, done with modern tools. Selections, auxiliary views, intersections and developments, pictorial drawings. Principles of 2D and 3D computer-aided drafting (AutoCAD) used in areas of civil engineering. Structural drafting pertaining to steel, concrete and timber construction, standards and conventions. Drafting room and computer lab exercises are assigned. Constructed solutions with vector diagram projection; comparison with equivalent vector algebraic methods. Graphical statistics, concurrent force problems including pure axial force plane structures.

Lect: 2 hrs. / Lab: 2 hrs.
GPA Weight: 1.00
Billing Units: 1

CVL 300 Environmental Science and Impact Assessment

This course overviews the environmental disturbances and the roles of civil engineers in environmental protection. Concepts of sustainability and pollution prevention are reviewed. In order to achieve sustainable development, it introduces the concepts and methods of environmental impact assessment in Ontario and Canada. It examines the biological, economic, and social impacts that are commonly associated with development activities and the means used to predict, evaluate, and mitigate impacts in human and natural environments. It includes a review of the history of environmental assessment and its relation to environmental planning principles. The course concludes with a review of current practice in impact assessment and the major controversies in the field.

Tut: 1 hr. / Lect.: 3 hrs
GPA Weight: 1
Billing Unit: 1

CVL 312 Computer Aided Structural Analysis

Basic concepts of structural analysis: flexibility and stiffness methods, applications to trusses, beams and frames; computer analysis of structures; structural analysis programs; loadings due to force,

support displacement, temperature change and member prestrains; introduction to the finite element method of analysis.

Lect: 3 hrs / Lab: 2 hrs.
Prerequisites: CVL 313 and (MTH 340 or MTH 425)
GPA Weight: 1.00
Billing Units: 1

CVL 313 Structural Analysis

Deflections of structures: moment-area theorems, conjugate-beam method, virtual work and Castigliano's theorem. Approximate analysis of statically, indeterminate structures. Analysis of continuous beams and frames using the slope-deflection methods. Analysis of statically indeterminate structures using the moment-distribution method. Influence Lines for statically determinate structures.

Lect: 3 hrs / Lab: 2 hrs.
Prerequisite: CEN 199 and CVL 420
GPA Weight: 1:00
Billing Units: 1

CVL 316 Transportation Engineering

Introductory level course on transportation engineering, including transportation system characteristics, classification, mathematical models, and modes; transportation planning (trip generation, trip distribution, mode choice, and traffic assignment); highway geometric design; traffic flow characteristics; capacity and level of service; queuing and simulation models; and evaluation of transportation impacts.

Tut: 1 hr. / Lect: 3 hrs.
Prerequisite: CEN 199 and MTH 425
GPA Weight: 1.00
Billing Units: 1

CVL 320 Strength of Materials I

Analysis of trusses, frames, beams, arches and cables. Analysis and diagrams of reactions, shear forces and bending moments. Review of moments of inertia. Normal, shearing, and bearing stresses. Deformation and strains. Temperature effects. Stress-strain relationship and the generalized Hooke's law. Axial loading applications and pressure vessels. Stress concentrations. Stress transformation equations and Mohr's circle for plane stress analysis. Analysis of plane stresses and strains. Strain measurement and rosette analysis. Laboratory work for experimental learning.

Lect: 4 hrs. / Lab: 2 hrs.
Prerequisites: CEN 100, CHY 102, CPS 125, CVL 207, MTH 140, MTH 141, MTH 240, MTL 200, PCS 125, PCS 211
GPA Weight: 1.00
Billing Units: 1

CVL323 Fundamentals of Surveying

Introduction to surveying theory and techniques; distance, angular and height measurement methods; traversing and traverse adjustments; field calibration of instruments; topographic mapping; coordinate geometry; geometry of horizontal and vertical curves; curves and construction layout; use of surveying software.

Lect: 3 hrs. / Lab: 2 hrs.
Prerequisites: CEN 100, CHY 102, CPS 125, CVL 207, MTH 140, MTH 141, MTH 240, MTL 200, PCS 125, PCS 211
GPA Weight: 1.00
Billing Units: 1.

CVL 352 Geomatics Measurement Techniques

Introduction to photogrammetry, remote sensing, satellite positioning and geographic information systems; Introduction to the use of various sensors and techniques for the acquisition of precise metric and attribute data. Applications in the field of geomatics and civil engineering.

Lect: 3 hrs. / Lab: 2 hrs.
Prerequisite: CEN199 and CVL 323
GPA Weight: 1.00
Billing Units: 1

CVL 354 Remote Sensing and Image Analysis

The course covers an overview of the principles of remote sensing and image analysis from a Geomatics Engineering perspective. Topics include: basic characteristics of electromagnetic radiation, radiation interactions with terrestrial materials and atmospheric effects, remote sensing platforms, active and passive sensors, geometric and radiometric corrections, visual image interpretation, image enhancement and transformation, thematic classification, applications of change detection, environmental monitoring and mapping.

Lect: 3 hrs. / Lab: 2 hrs.
Prerequisites: PCS 125 and (MTH 203 or MTH 410)
GPA Weight: 1.00
Billing Units: 1

CVL400 Hydrology and Water Resources

Introduction to hydrologic principles. Components of the hydrologic cycle: Precipitation, interception, abstraction, infiltration, evapotranspiration, overland runoff, stream flow. Hydrological data measurement and monitoring. Rainfall-runoff relationships and analyses: unit hydrograph theory, synthetic hydrographs, flow routing. Flow through porous media: saturated and unsaturated groundwater flow, well hydraulics and pumping tests. Urban hydrology: The Rational Method, sewer system hydraulics, detention basin design. Use of computer simulation models for urban and rural watersheds.
Tut: 1 hr. / Lect. 3 hrs / Lab: 1 hr.
GPA Weight: 1
Billing Units: 1

CVL 405 Probability and Statistics for Engineers

Description of statistical samples in civil engineering. Measurement errors. Elements of probability theory. Discrete probability distribution. Continuous probability distributions: uniform on an interval, Normal distribution, t-distribution, Exponential distribution, x^2 distribution. Confidence interval and hypothesis testing concerning mean, variance and population. F-distribution. Correlation and covariance. Covariance propagation. Multi-dimensional Normal distribution. Error ellipse and error ellipsoid. Principles of least-squares estimation.

Tut. 1 hr. / Lect: 3 hrs.
GPA Weight: 1.00
Billing Units: 1

CVL 407 Structure III

This course considers structural systems, commencing with the design of individual members discussed in Structures II and moving to the design of the whole building. The course develops the concept of a building comprised of horizontal and vertical systems that are organized strategically. Alternative arrangements of structural systems are considered based on their structural behaviour and their relationship to materials of construction. Building lateral loads and load transfer mechanisms are explored. The course concludes with a discussion on connections and detailing of components of complex systems, exploring examples for specific materials.

Lect: 3 hrs
Prerequisite: ASC 303
GPA Weight: 1.00
Billing Units: 1

CVL 410 Structural Concrete Design I

Limit states of design; Engineering properties of concrete and reinforcement; Design of reinforced concrete beams for shear and flexure; Design of continuous beams and T-beams; Development, anchorage, and splicing of reinforcement; Design of one-way slabs; Design of columns; Design of concrete members for serviceability.

Lect: 3 hrs / Lab: 2 hrs
Prerequisite: CEN 199 and CVL 420
GPA Weight: 1.00
Billing Units: 1

CVL 411 Structural Steel Design

Engineering properties of steel; tension members; compression members; beams subjected to bending and shear; composite beams; welded plate girders; beam-column; welded and bolted connections; base plates under axial load and bending; overall stability; fatigue design; introduction to plastic analysis and design; complete design of a one-storey building in steel.

Lect: 3 hrs / Lab: 2 hrs
Prerequisites: CVL 313 and CVL 420
GPA Weight: 1.00
Billing Units: 1

CVL 420 Strength of Materials II

Torsion and angle of twist. Beam bending. Flexural and shear equations. Compound stresses. Theories of failure. Deflection of beams. Euler's formula for columns and its modification for codes. Inelastic behaviour of members. Experimental laboratory work involving flexural stress, deflection of beams and buckling load of columns.

Lect: 3 hrs. / Lab: 2 hrs
Prerequisite: CVL 320
GPA Weight: 1.00
Billing Units: 1

CVL 423 Geology for Engineers

This course provides Civil Engineering students with an understanding of the physical world in which they work and live. The course deals with the following topics: structure of the earth, plate tectonic theory and continental drift, minerals, rocks and their mode of formation, erosion and weathering, soil

formation, folding and fracturing of rocks, earthquakes, volcanoes, glacial landforms and permafrost, ground and surface water, rock mass stability, mass wasting, and the physiography of Canada. The engineering significance of each topic is illustrated by practical examples. Laboratory activities include mineral and rock identification and interpretation of topographic and geological maps.

Lect: 3 hrs. / Lab: 1 hr.
Prerequisites: CEN 100, CHY 102, CPS 125, CVL 207, MTH 140, MTH 141, MTH 240, MTL200, PCS 125, PCS 211
Billing Units: 1
GPA Weight: 1.00

CVL 434 Geotechnical Properties of Soils

Introduction of structural and glacial geology; rock cycle; mineral and soil identification and classification; clay soil structure; weight-volume relationship; Atterberg limits; relative density; seepage theory; hydraulic conductivity measurements in the field and in the lab; flow nets; and principle of effective stress. Mohr-Coulomb failure criterion; shearing strength of saturated soils; consolidation theory, settlement prediction and computer assisted processing of laboratory test results.

Lect: 3 hrs. / Lab: 2 hrs.
Prerequisite: CVL 320
GPA Weight: 1.00
Billing Units: 1

CVL 500 Introduction to Structural Design

Types of structures; Load and Load factors based on National Building Code of Canada Part 4; Transfer of loads from floor and roof to foundation; Engineering properties of structural steel, Design of steel compression members; Design of statically-determinate steel beams subjected to flexural and shear loading; Engineering properties of concrete and reinforcing steel; Behavior of uncracked and cracked reinforced concrete beam; Design of statically-determinate one-way slabs; Design of statically-determinate reinforced concrete rectangular, T and L beams for flexural and shear; Design of reinforced concrete beam for serviceability; Design of axially-loaded reinforced concrete compression members. Timber Design: Sawn lumber and Glulam members subjected to bending, axial compression and combined bending and compression.

Lect: 3 hrs. / Tut.: 2 hrs.
Prerequisite: CVL 420
GPA Weight: 1.00
Billing Units: 1

CVL 501 Fluid Mechanics and Hydraulics

Fluid mechanics. Fluid properties. Fluid statics. Forces on submerged bodies and planes. Fluid motion: flow path, velocity, acceleration. Continuity, energy and momentum equations. Dimensional analysis and model similitude. Hydraulic applications in conduit flows: flow classification, shear stress and velocity distribution, pipe friction formula, energy equations, pump/pipeline systems. Open channel flow: application of the energy, momentum and continuity equations, channel bed friction, steady and uniform flow, specific energy, hydraulic jump, gradually varied flow, natural channel designs. Appropriate experimental laboratory work related to the area of hydraulic engineering.

Tut: 1 hr / Lect.: 3 hrs / Lab: 1 hr.
GPA Weight: 1
Billing Unit: 1

CVL 533 Concrete Materials

Introduction to concrete as a construction material: performance requirements, strength, and durability. Aggregates: types, processing, beneficiation, testing, and quality control. Reclaimed concrete aggregates: uses and properties. Portland cement of different types: raw materials, manufacturing, composition, physical properties, testing, blended cement, hydration, and porosity. Supplementary Cementing materials: types, properties, hydration, and effects on concrete. Design of concrete mixtures for different applications. Chemical admixtures: types and uses. Mixing, placing, finishing, fresh and hardened properties and quality control testing of concrete. Concrete durability: freezing and thawing, reinforcement corrosion and chemical attacks. Volume change in concrete: shrinkage of different types, deformation and creep.

Lect: 3 hrs. / Lab: 2 hrs.
Prerequisite: CEN 199 and CVL 320
GPA Weight: 1.00
Billing Units: 1

CVL 553 Environmental Science and Engineering

This course provides an overview of the effects of environmental disturbances arising from over-population, urbanization, industrialization, and energy consumption. The basic scientific principles of environmental science in the areas of chemistry, physics, ecology, meteorology, microbiology, and epidemiology are reviewed. Preventive solutions and sustainable development are introduced.
Concepts on the design of water supply and treatment are described. Water pollution studies include the introduction of water quality parameters, with a discussion on potable water supply including the source, quantity and quality requirements, and water distribution networks. Unit processes of water treatment, such as screening, solids separation, coagulation, flocculation, sedimentation, filtration, softening, and disinfection will be discussed in detail. Experimental laboratory work involving water quality determination: solids, alkalinity, hardness, BOD, chlorination, coliform and bacterial analyses.

Lect: 4 hrs./Lab: 2 hrs.
Prerequisites: CEN 199 and CVL 425 (or CVL 400)
GPA Weight: 1.00
Billing Units: 1

CVL 600 Foundation Engineering

Active and Passive earth pressure calculations. Design of earth retaining structures, walls, dikes, dams, open and supported excavations, shallow and deep foundations. Soil bearing capacity. Design of pile foundation and drilled caissons.

Lect: 3 hrs. / Lab: 2 hrs.
Prerequisite: CVL 434
GPA Weight: 1.00
Billing Units: 1

CVL 601 Wastewater Engineering

Wastewater collection: sewer system components, design of sanitary sewers, system layout and flow hydraulics. Sewage treatment: primary, secondary, tertiary processes. Wastewater microbiology: microorganism classification, population dynamics, kinetics of decomposition. Unit processes of secondary treatment: trickling filters, activated sludge, rotating biological contractors. Sludge management, treatment, and ultimate disposal. Experimental laboratory work involving sedimentation model, chemical treatment: coagulation and flocculation, softening, disinfection, and microscopic analyses of sludge.

Lect.: 3 hrs / Lab: 1 hr.
Course Weight: 1
Billing Unit: 1

CVL 609 Civil Engineering Systems

This course provides an introduction to systems analysis for problems in civil engineering. Systems analysis tools that facilitate decision-making in engineering design and management are presented with particular emphasis on fundamentals of systems approach, linear programming, integer programming, multi-objective programming, dynamic programming, sensitivity analysis, uncertainty modeling, Monte-Carlo simulation, and decision making under uncertainty. Applications to transportation systems, project management, civil structural design, geomatics engineering, water resources systems and environmental pollution control systems are emphasized.

Lect: 3 hrs. / Lab: 2 hrs.
Prerequisites: CEN 199, ECN 801, MTH 410 (or MTH 405) and MTH 510
GPA: 1.00
Billing Units: 1

CVL 633 Highway Materials

Pavements types: flexible, rigid and composite. Properties, testing and selection of aggregates for highway purposes. Subgrade preparation and testing. Effects of environment on highways: water infiltration, ice lenses, frost heave and spring breakup. Highway drainage and design of soil filters. Use of geotextiles in highway construction. Soil stabilization for highways: types and applications. Performance-Graded Asphalt Binder: development, testing, and short and long-term performance. Design of asphalt mixtures using Marshall and SUPERPAVE methods. Construction and quality control: plant mix, types of asphalt plants, hot and cold recycling, and end-result specification for pavement works.

Lect: 3 hrs. / Lab: 2 hrs.
Prerequisites: CEN 199, CVL 320, CVL 434
GPA Weight: 1.00
Billing Units: 1

CVL 638 Wastewater Treatment Design

Wastewater engineering: waste water collection, sewer pipe system and appurtenance. Sewage treatment: primary, secondary, tertiary processes. Wastewater microbiology: microorganism classification, population dynamics, kinetics of decomposition. Unit processes of secondary treatment: trickling filters, activated sludge, rotating biological contractors. Sludge management, treatment, and ultimate disposal. Experimental laboratory work involving sedimentation model, chemical treatment: coagulation and flocculation, softening, disinfection, and microscopic analyses of sludge.

Lect: 3 hrs./Lab: 1 hr.
Prerequisite: CVL 553
GPA Weight: 1.00
Billing Units: 1

CVL 650 Geodesy and Satellite Positioning

Introduction to geodesy, the earth and its motions, gravity field of the earth, the geoid, datums and coordinate systems, direct/inverse geodetic problems; basic concepts of satellite positioning, GNSS signal structure, orbital determination, pseudorange, carrier-phase and Doppler measurements, linear combinations of GNSS observables, GNSS errors and biases, mathematical models for

absolute and relative positioning, static, kinematic and real-time kinematic (RTK) GNSS positioning, practical considerations.

Lect: 3 hrs. / Lab: 2 hrs.
Prerequisite: CVL 352
GPA Weight: 1.00
Billing Units: 1

CVL 710 Photogrammetry and Digital Mapping

The overall objective of the course is to teach students the concepts and principles of determining spatial positions using photogrammetric techniques. This requires knowledge of terminology and concepts, imaging geometry, mathematical models, image acquisition techniques, processing and manipulation of image measurements, and processing and analysis of photogrammetric data. In addition, the students will be familiarized with digital mapping and digital terrain modeling (DTM) concepts and their implementation and applications in Geomatics and other related disciplines. Emphasis will be on mathematical techniques used in the acquisition, processing, storage, manipulation, and applications of digital map data and DTMs.

Lect: 4 hrs./Lab: 3 hrs.
GPA Weight: 1.00
Billing Units: 2

CVL 735 Highway Design

The course provides guidance for design choices for highway elements. Emphasis is placed on assessing the safety, operational and environmental implications of design decisions. Design elements include: horizontal and vertical alignment and cross-section design; intersection and interchange design; roadside; and rural and urban highway drainage facilities. Computer applications include interactive highway safety design and roadside safety design analysis.

Lect: 3 hrs. / Lab: 2 hrs.
Prerequisite: CVL 323
GPA Weight: 1.00
Billing Units: 1

CVL 736 Geospatial Information Systems

Introduction to geographical information systems (GIS) and science; spatial reference systems; vector and raster data, data structures and topological relationships; data modeling and managing and querying data in databases; vector and raster data exploration, analysis and processing; cartographic design principles, presentations, thematic maps and map generalization; geographic visualization and graphic communications; introduction to spatial analytical modeling; network and 3D representation and analysis; spatial data quality, data integration, metadata and standardization issues; web GIS, mapping services and geospatial information dissemination; GIS implementation and organizational issues.

Lect: 3 hrs. / Lab: 2 hrs.
Corequisite: CVL 650
Prerequisite: CVL 352
GPA Weight: 1.00
Billing Units: 1

CVL 737 Data Modelling and Estimation

Basic concepts of Geomatics data modeling and estimation, Geomatics measurements errors, measures of central tendency, covariance and correlation, covariance propagation, introductory probability theory, error ellipse and error ellipsoid, univariate statistical testing, principles of least-squares methods, parametric, condition and combined cases, partitioning, weighted and functional constraints, sequential solutions.

Lect: 3 hrs./Lab 2 hrs.
Corequisite: CVL 650
Prerequisites: CVL 323 and CVL 405 (or MTH 203 or MTH 410) and (MTH 340 or MTH425)
GPA Weight: 1.00
Billing Units: 1

CVL 742 Project Management

Aims to develop a body of knowledge, methods, skills and techniques that are essential for students to successfully manage future engineering projects within budget, deadline and resource limits. Topics discussed include: introduction to project management body of knowledge (PMBOK); project delivery systems and contracting methods; budget estimate and bid cost estimate; project planning, work breakdown structure; project scheduling: critical path method (CPM) and network diagram, resource allocation and leveling, line of balance (LOB), integration of CPM and LOB; project control and earned value analysis; project risk management, impact of uncertainty on schedule and cost, PERT; general principles of construction quality, health and safety management. Computer software for cost estimation and scheduling will be practiced in laboratory sessions.

Lect: 3 hrs. / Lab 1 hr.
Prerequisites: ECN 801
Antirequisites: EMS 304 and IND 713
GPA Weight: 1.00
Billing Units: 1

CVL 810 Geomatics Network Design and Analysis

Pre-analysis and design of surveys; error detection; analysis of survey measurements; high precision, deformation and ground surveys; network design and analysis; multivariate statistical testing.

Lect: 3 hrs./Lab: 2 hrs.
Prerequisites: CVL 650 and CVL 737
GPA Weight: 1.00
Billing Units: 1

CVL 899 Geomatics Capstone Design Project

Geomatics Engineering students will form their groups during the first week of the winter term; project briefs will be given to the student teams and proposals will be prepared. All students will operate in consultant groups and will complete a design for a typical Engineering undertaking. The course involves professional engineers acting as clients and bringing in real-life design problems to pre-selected teams of 4 to 6 students or as the course instructor dictates given the type of projects. All student groups will submit a final report that includes a complete detailed design.

Lect: 1 hr. / Tut: 3 hrs.
Prerequisites: CVL 650, CVL 710, CVL 736 and CVL 737
GPA Weight: 1.00
Billing Units: 1

CVL 900 Pavement Design and Management

Introduction to pavement: pavement types and properties. Pavement performance and distress. Stress analysis of flexible and rigid pavements. Properties and characterization of paving materials. Design of flexible and rigid pavement using AASHTO and MTO methods. Design of overlays. The mechanistic-empirical approach of pavement design. Advances in pavement construction and rehabilitation. Pavement management systems. Review of highway and rehabilitation projects.

Lect: 3 hrs. / Lab: 1 hr.
Prerequisite: CVL 633, Antirequisite: CV8405
GPA Weight: 1.00
Billing Units: 1

CVL 901 Municipal Solid Waste Management

Introduction to legislation and authority; integrated solid waste management planning; solid waste generation, characterization, and collection; collection and processing; reduction, reuse, and recycle; landfilling of municipal waste, site selection, development, hydrological factors, leachate and gas collection and control, closure; solid waste incineration.

Lect.: 3 hrs / Lab: 1 hr.
GPA Weight: 1
Billing Unit: 1

CVL 902 Traffic Operations and Management

Introductory topics related to the management of traffic on urban and rural road networks, including bicycle and pedestrian facilities. Topics include: capacity analysis for interrupted and uninterrupted flow facilities; deterministic and stochastic models for traffic flow; traffic simulation principles; freeway traffic management; signal timing for isolated intersections, networks and arterials; adaptive traffic control; safety of traffic management and engineering principles and techniques.

Lect: 3 hrs. / Lab: 2 hrs.
Prerequisite: CVL 316, Anti-requisite: CV8401
GPA Weight: 1.00
Billing Units: 1

CVL 903 Water Resources Engineering

Development of water resources systems; statistical analysis of hydrologic data; drainage and runoff analysis; flood control and management; water pollution prevention and control planning; storage and conveyance system design and management; natural channel design and rehabilitation; comprehensive water resources development. (formerly CVL 845).

Lect.: 3 hrs / Lab: 1 hr.
Prerequisite: CVL425
GPA Weight: 1
Billing Unit: 1

CVL 904 Structural Concrete Design II

Mechanics of reinforced concrete; truss model and compression field theory for beams failing in shear and torsion; design of two-way slabs; shear friction and horizontal shear transfer; design of deep beams and corbels; prestressed concrete; design of beams for flexure, shear , losses in prestress; design for camber, deflection and crack control; design of footings; isolated, combined and wall footings; design of long columns.

Lect: 3 hrs. / Lab: 2 hrs.
Prerequisite: CVL 410, Antirequisite: CV8307
GPA Weight: 1.00
Billing Units: 1

CVL 905 Bridge Design and Construction

Types of bridges; material properties and design of timber, steel and concrete elements; bridge loads; load distribution in bridge superstructures; simplified methods of analysis, with reference to the Canadian Highway Bridge Design Code; design of slab bridges; design of slab-beam bridges; design of box-girder bridges; joints, bearings, bridge piers and abutments.

Lect: 3 hrs. / Lab: 1 hr.
Prerequisite: CVL 411
Anti-requisite: CV8308
GPA Weight: 1.00
Billing Units: 1

CVL 906 Renovation / Repair of Existing Structures

Rehabilitation of civil infrastructure systems including aspects of deterioration science, nondestructive assessment, maintenance, renovation, rehabilitation and preservation of infrastructure; mechanisms of mechanical, chemical and biological infrastructure degradation; corrosion of steel condition surveys and evaluation of buildings and bridges repair and preservation materials , techniques and strategies; renewal engineering, construction planning, management, public policy, codes and guidelines; case studies.

Lect: 3 hrs. / Lab: 1 hr.
Prerequisites: CVL 410 and CVL 533, Antirequisite: CV8303
GPA Weight: 1.00
Billing Units: 1

CVL 907 Behaviour and Design of FRP Structures

Mechanical properties of fiber reinforced polymer (FRP) materials, FRP composite structures, Design process for reinforcement versus strengthening, Design for flexure, Serviceability limit states, Shear design, Development and slicing of reinforcement, Constructability, Strengthening of beams/slabs and columns, Durability, Quality control and quality assurance, Case studies.

Lect: 3 hrs./Lab: 1 hr.
Prerequisite: CVL 410
GPA Weight: 1.00
Billing Units: 1

CVL 908 Structural Building Systems

Examination of building geometries, loads, serviceability, ultimate limit state, procedure of using the national building code for governing loads on structural members. Foundation systems design including footing and pile cap design. Design details of low-rise concrete and steel buildings. Design and optimization of long steel columns to accommodate buildings lateral drifts. Analysis of long concrete columns under lateral drift loads. Lateral load-resisting elements and bracing systems.

Tut: 2 hr. / Lect: 3 hrs.
Prerequisites: CVL 313, CVL 410, CVL 420
Co-requisite: CVL411
GPA Weight: 1.00

Billing Units: 1

CVL 909 Non-Highway Transportation Systems

Basic concepts in the planning, design, and operations of transportation systems other than highways. These systems include airports, ports, railways, public transit, and bicycles and pedestrians. Topic emphasis will vary by system, but general topics include physical characteristics, design considerations, capacity and level of service, and management strategies. Other tools applicable to all systems include systems analysis approach, analytical models, and economic analysis. Practical case studies are discussed.

Lect: 3 hrs./Lab: 1 hr.
Prerequisite: CVL 316
GPA Weight: 1.00
Billing Units:1

CVL 910 Transportation Planning

Treatment of the process and techniques of transportation planning, with emphasis on urban and regional applications. Topics include: historical development of transportation planning in North America; transportation planning framework; surveys and data collection; transportation-land use interaction; analysis and models of transportation demand; analysis and models of transportation performance; development and evaluation of transportation planning options.

Lect: 3 hrs. / Lab: 1 hr.
Prerequisite: CVL 316
GPA Weight: 1.00
Billing Units: 1

CVL 912 Environmental Impact Assessment

Concepts and methods of environmental impact assessment are introduced, examining the biological, economic, and social impacts that are commonly associated with development activities and the means used to predict, evaluate, and mitigate impacts in human and natural environments. A review of the history of environmental assessment and its relation to environmental planning principles. A review of current practice in impact assessment, particularly in the province of Ontario, and the major controversies in the field.

Lect: 3 hrs./Lab: 1 hr.
Prerequisite: CVL 553
GPA Weight: 1.00
Billing Units: 1

CVL 913 Water Supply Engineering

Water quality parameters; Drinking water sources, quantity and quality requirements; Water chemistry; Unit processes of water treatment: screening; solids separation; coagulation; flocculation; sedimentation; filtration; softening; disinfection. Treated water distribution: flow in looped pipe network systems; monitoring; applications of computer modelling. Experimental laboratory work involving water quality determination: solids, alkalinity, hardness, BOD, coliform and bacterial analyses.

Tut: 1 hr. / Lect.: 3 hrs / Lab: 1 hr.
GPA Weight: 1
Billing Units: 1

ECN 801 Principles of Engineering Economics

Engineering economics is concerned with the problem of investment decision making or capital expenditure analysis. An ‘investment' problem involves making a decision to allocate financial resources to acquire productive assets that will generate cash flows in future time periods. Engineering economics seeks to develop and apply a logically consistent methodology for evaluating investment projects. Discounted cash flow methods are used in analyzing such projects. In this course we will assume certain cash flows and ignore taxation implications. After developing the mathematics of cash flow equivalence, absolute and relative measures of project worth will be developed and applied to individual and multiple projects. The emphasis will be on private project decisions, but similar methods will be applied to public sector projects.

Lect: 3 hrs.

GPA Weight: 1.00

Billing Units: 1

EES 512 Electric Circuits

This one-semester lecture/lab course covers general electric circuit parameters and laws. Topics include: basic electric circuits, voltage and current sources, resistance, analysis of DC circuits, power considerations. Concepts of capacitance, inductance, and their transient behaviour. Introduction of AC sources, phasors, reactance and impedance, AC analysis of RC, RL, and RCL circuits, the effect of resonance, real and complex power in reactive loads.

Tut: 2 hrs./Lect: 3 hrs.
Prerequisites: MTH 140 and MTH 141
GPA Weight: 1.00
Billing Units: 1

MEC 516 Fluid Mechanics I

Dimensions and units, continuum fluid mechanics. Properties of fluids. Fluid statics, the standard atmosphere. Manometry and pressure measurement. Forces on submerged planes. Flow characteristics: laminar and turbulent flow, steady and unsteady flow, streamlines. Flow analysis: control volume/control system and differential approaches for mass, momentum and energy conservation. Applications of the conservation equation, Euler and Bernoulli equations. Dimensional analysis, similitude and model testing. (2 hr. Lab every other week)

Lect: 3 hrs./Lab 1 hr.
Prerequisites: CEN100, MTH 141, PCS 211, CPS 125, CVL 207 and MTL 200.
GPA Weight: 1.00
Billing Units: 1

MTH 140 Calculus I

Limits, continuity, differentiability, rules of differentiation. Absolute and relative extrema, inflection points, asymptotes, curve sketching. Applied max/min problems, related rates. Definite and indefinite integrals, Fundamental Theorem of Integral Calculus. Areas, volumes. Transcendental functions (trigonometric, logarithmic, hyperbolic and their inverses).

Lect: 4 hrs. / Lab 2 hrs.
GPA Weight: 1.00

Billing Units: 1

MTH 141 Linear Algebra

Systems of linear equations and matrices. Determinants. Vector spaces. Inner product spaces. Eigenvalues and eigenvectors.

Lect: 4 hrs. / Lab 1 hr.
GPA Weight: 1.00
Billing Units: 1

MTH 240 Calculus II

Integration techniques. L'Hôpital's Rule. Improper integrals. Partial derivatives. Infinite sequences and series, power series. First-order differential equations, with applications.

Lect: 4 hrs. / Lab 1 hr.
Prerequisite: MTH 140
GPA Weight: 1.00
Billing Units: 1

MTH 410 Statistics

Description of numerical data. Elements of probability theory. Discrete probability distributions (hypergeometric, binomial, geometric and Poisson distribution). Continuous probability distributions; uniform on an interval, Normal distribution, t-distribution, Exponential distribution, x^2 distribution. Confidence interval and hypothesis testing concerning mean, variance and proportion for one and two populations. F-distribution. Correlation. Simple linear regression (if time permits).

Lect: 3 hrs./Lab 1 hr.
Prerequisites: MTH 141 and MTH 240.
GPA Weight: 1.00
Billing Units: 1

MTH 425 Differential Equations and Vector Calculus

Review of first-order ordinary differential equations and applications; Higher-order linear differential equations; solution methods series solutions; Laplace Transforms and ODEs. Scalar and vector functions and fields, Chain rule, Directional Derivative, coordinate systems, divergence and curl of vector fields; line, surface and multiple integrals, Divergence theorem; Green's and Stokes' theorems; Applications. Introduction to a computer algebra system.

Lect: 4 hrs. / Lab 2 hrs.
Prerequisites: MTH 140 and MTH 141, MTH 240
GPA Weight: 1.00
Billing Units: 1

MTH 510 Numerical Analysis

Review of Taylor's formula, truncation error and roundoff error. Solutions of Non linear Equations in one variable. Linear Equations. LU-decompostion. Eigenvalues and eigenvectors. Jacobi, Gauss-Seidel methods. Interpolation and curve fitting. Numerical integration. Numerical solution of ordinary differential equations. (Initial value problems.)

Lect: 3 hrs. / Lab 1 hr
Prerequisites: MTH 141, MTH 240

GPA Weight: 1.00
Billing Units: 1

MTL 200 Materials Science Fundamentals

Atomic structure, atomic bonding in materials, crystallinity, lattice structure. Crystal systems, x- ray diffraction, amorphous materials. Imperfections and diffusion in solids. Phase diagrams and phase transformations. Structures of metals, polymers and ceramics. Corrosion and degradation. Thermal and electrical properties of materials. (2 hr. Lab every other week)

Lect: 3 hrs. / Lab 1 hr.
Prerequisite: CHY 102
GPA Weight: 1.00
Billing Units: 1

PCS 125 Physics: Waves and Fields

Simple harmonic motion; motion of mechanical waves, wave speed; sound, Doppler effect, interference, standing waves, beats and resonance; gravitational fields and potential energy; electric fields and potential energy; electric potential; magnetic fields.

Tut: 1 hr. / Lect: 3 hrs./ Lab 1 hr.
GPA Weight: 1.00
Billing Units: 1

PCS 211 Physics: Mechanics

Vector forces: forces along a line, coplanar force systems - essentials of vector algebra in two and three dimensions. Moment of a force; moment of a couple; principle of moments. Free body diagrams and equilibrium conditions. Centre of mass and centroids of bodies. Rectilinear and curvilinear motion kinematics. Newton's laws and equations of motion. Friction. Work and Energy; Linear momentum and angular momentum.

Tut: 1 hr. / Lect: 3 hrs. / Lab 1 hr.
GPA Weight: 1.00
Billing Units: 1

LIBERAL STUDIES COURSES

IMPORTANT NOTES:

Certain courses cannot be taken for Liberal Studies credit in the civil engineering program and the geomatics option. Students are responsible for ensuring they do not enroll in a restricted course. Please refer to the Lower Level and Upper Level Liberal Studies restrictions listed in this Student Handbook as well as the 2015/2016 Undergraduate Calendar. See the course description section for a complete listing of Liberal Studies courses online www.ryerson.ca/calendar/2015-2016 Courses **not identified** as either (LL) or (UL) **are NOT Liberal Studies** courses and will not be used towards the fulfillment of a Liberal Studies Requirement for graduation purposes. Not all courses will be offered every semester to all students. Please refer to RAMSS for the availability of these courses per semester.

TABLE A - LOWER LEVEL LIBERAL STUDIES

ANT 100 Introduction to Anthropology

CRB 100 Introduction to the Caribbean

CRM 101 Understanding Crime in Canadian Society

ECN 110 The Economics of Markets

ECN 205 European Economic History

ECN 210 Inflation, Unemployment in Canada

ECN 340 The Economics of Human Behaviour

ECN 440 Booms, Busts, Panics and Manias

ENG 101 Laughter and Tears: Comedy and Tragedy

ENG 104 The Short Story

ENG 112 Zap, Pow, Bang: Pop Lit

ENG 201 Myth and Literature

ENG 203 Literature of Native Peoples

ENG 204 Literatures of Immigration

ENG 212 Cultures in Crisis

FRS 102 Francophone Detective Fiction

GEO 106 Geographies of Everyday Life

GEO 108 Geography of the Global Village

GEO 110 The Physical Environment

GEO 206 Regions, Nations and the Global Community

GEO 208 Geography of the Global Economy

GEO 210 Geography of Danger

GEO 312 Viva Las Vegas!

HST 110 U.S. History: Colonial Era to 1877

HST 111 World Turned Upside Down: Europe 1350-1789

HST 112 East Meets West: Asia in the World

HST 119 Fact and Fiction: History Through Film

HST 210 U.S. History: 1877 to Present

HST 211 Century of Revolution Europe: 1789-1914

HST 219 Deconolization: History Through Film

HST 222 History of The Caribbean

HST 307 Canada to 1885: The Founding Societies

HST 325 History of Science and Technology I

HST 328 Multiple Ontarios: 1784 to the Present

HST 407 Canada from 1885: The Struggle for Identity

HST 425 History of Science and Technology II

HST 426 Major Themes in International Relations

HST 488 Britain since 1815

IRL 100 Intro to World Art I: Pictorial Arts

IRL 200 Introduction to World Textile History

LNG 111 Language and Identity

LNG 112 Language: Spoken and Written

LNG 113 Language and Public Life

LNG 121 Language and Society

MUS 101 Intro to World and Early European Music

MUS 105 Voices Without Borders: Global Chorus

MUS 106 The Architecture of Music

MUS 201 Introduction to Classical Music

NPF 188 Masterpieces of Literature on Film

PHL 101 Plato and the Roots of Western Philosophy

PHL 110 Philosophy of Religion I

PHL 187 Ancient Greek Philosophy

PHL 201 Problems in Philosophy

PHL 214 Critical Thinking I

PHL 306 Freedom, Equality, Limits of Authority

PHL 333 Philosophy of Human Nature

PHL 365 Philosophy of Beauty

PHL 366 Existentialism and Art and Culture

PHL 406 Issues of Life, Death, and Poverty

POL 106 The Politics of Human Needs

POL 128 Politics and Film

POL 129 Immigration and Settlement in Canada

POL 203 Politics of the Environment

POL 208 Globalization and World Politics

PSY 105 Perspectives in Psychology

PSY 304 Psychology of Gender

PSY 308 Psychology of Thinking

RTA 180 Music and Film

RTA 406 Chinese Instrumental Music

RTA 441 Music of India

RTA 474 Gospel Music: Songs for the Spirit

RTA 484 Music of West Africa

SEM 101 Sign, Sense, and Meaning

SOC 102 Human Origins

SOC 103 How Society Works

SOC 108 Indigenous Peoples and Decolonization

SOC 202 Popular Culture

SOC 203 Social Class and Inequality

SOC 305 Sociology of Deviance

THL 100 Theatre and the Canadian Identity

LNG: LANGUAGE AND WRITING COURSES

There are three Lower Level Liberal Studies courses designed for students whose first language is not English:

LNG 111 Language and Identity
LNG 112 Language: Spoken and Written
LNG 113 Language and Public Life

These courses require a placement test, which can be found at http://www.ryerson.ca/french/englishtest/html or by permission from Marju Toomsalu, EAL Programs Director (mtoomsal@ryerson.ca; ext. 4196).

LNG 111, LNG 112 and LNG 113 are available to students who have been assessed as likely to benefit from intensive language and writing courses. Students for whom English is a second language and who are enrolled in programs that accept ESL courses for credit may take all three ESL courses, LNG 111, 112, and 113. However, a maximum of two credits only may be used towards their degree requirements.

There is one Lower Level Liberal Studies course designed for undergraduate students wishing to improve their writing skills: LNG 121, Language and Society. No Placement test is required for this course.

TABLE A – LOWER LEVEL LIBERAL STUDIES RESTRICTIONS

Civil Engineering	ARB, CHN, FRE, SPN and WLG courses are not available for credit. BLG 181, BMS 150, CHY 182, CHY 183, ITM 277, MEC 110, PCS 111, PCS 181 and PCS 182 are not available for credit.

TABLE B - UPPER LEVEL LIBERAL STUDIES

IMPORTANT NOTES: Students are responsible for ensuring they do not enroll in a restricted course. Please see Table B - Upper Level Restrictions for more information. Not all courses will be offered every semester to all students. Please check RAMSS for the availability of these courses each semester.

CLD 500 A Caring World for Children

CMN 601 Visual Communication: A Critical Approach

CRB 500 Families in the Caribbean

CRB 501 Racism and Caribbean Peoples in Canada

CRB 502 Cultural Traditions in the Caribbean

CRM 601 Violence in Society

DST 500 A History of Madness

ECN 503 Economic Development

ECN 505 Issues in Canadian Labour Markets

ECN 507 Economic Justice

ECN 509 Development of the Canadian Banking and Financial System

ECN 511 Economy and Environment

ECN 603 Canada and Global Economic Issues

ECN 607 Issues in the International Economy

ECN 722 The Economics of Sports

ECN 802 The Economies of East Asia

ENG 503 Science Fiction

ENG 504 The Modern in Literature 1900-1945

ENG 505 Creative Writing

ENG 507 Science and the Literary Imagination

ENG 510 Gothic Horror

ENG 511 The Art of Writing Life

ENG 602 Women's Writing

ENG 604 The Contemporary in Literature: Post 1945

ENG 610 The Language of Love, Sex and Gender
ENG 620 English Caribbean Literatures and Cultures
ENG 630 Asian Literatures and Cultures
FRE 503 Middle Ages to Classicism
FRE 505 Language and Culture I
FRE 508 Intro to 20th Century French Literature I
FRE 509 Franco-Canadian Literature I
FRE 510 Effective Writing I
FRE 516 Politics and Play in French Poetry
FRE 603 Enlightenment to La Belle Epoque
FRE 605 Language and Culture II
FRE 608 Intro to 20th C French Literature II
FRE 609 Franco-Canadian Literature II
FRE 610 Effective Writing II
FRE 701 French in the Media I
FRE 703 French Theatre: Classicism to Romanticism
FRE 704 Intro to Franco-Canadian Culture I
FRE 706 The Life and Times of the French Language
FRE 709 Children's Literature in French
FRE 801 French in the Media II
FRE 803 French Theatre: 20th C and Contemporary
FRE 804 Intro to Franco-Canadian Culture II
FRE 901 Francophone Women Writers
FRE 902 Gender and Decadence 1850-1920
FRE 903 The Francophone Short Story
FRS 501 Women and the Arts in 19th Century France
FRS 502 Feminisms and French Literature
FRS 602 French Caribbean Literature and Culture
GEO 505 Regional Analysis of Canada
GEO 507 Explorations of the Urban Environment
GEO 509 Food, Place and Identity
GEO 520 Global Political Geography
GEO 605 The Geography of the Canadian North
GEO 607 Cities and the Canadian Economic Landscape
GEO 609 cyberspace@geography.ca
GEO 620 Political Geog. of Nations and Localities
GEO 702 Technology and the Contemporary Environment

GEO 716 Geographies of Health
GEO 720 The Inner Landscape of Culture
GEO 793 The Geography of Toronto
GEO 802 The Geography of Recreation and Leisure
GEO 811 Global Environmental Issues
GEO 820 The Outer Landscape of Culture
HST 501 The American Civil War
HST 503 Crime and Punishment in Modern Canada
HST 504 War to War: World Conflict 1900-1945
HST 510 The United States after 1945
HST 511 Quebec in Canada: A History
HST 522 The Middle East: 1908 to the Present
HST 526 Women and Gender in U.S. History
HST 527 Toronto: Wilderness to Metropolis
HST 532 Elizabethan England
HST 533 Africa Before 1850
HST 540 Espionage: A Modern History
HST 541 Unknown Canada: Rebels, Rioters, Strikers
HST 551 Problems in 20th Century Western Europe
HST 555 Late Qing and Republican China,1839-1949
HST 580 Natives and Newcomers to 1763
HST 584 Mediaeval Europe: 400-1400
HST 585 Southeast Asia: War and Peace since 1945
HST 587 Britain: 1688-1815
HST 602 The History of Modern Propaganda
HST 603 The Third Reich
HST 604 The Uneasy Peace: The Cold War 1945-90
HST 610 The Rise of the American Empire
HST 632 England in the 17th Century
HST 633 Modern Africa
HST 641 Protest in Canada Since 1870
HST 651 Problems in 20th-Century Eastern Europe
HST 655 People's Republic of China: 1949-Present
HST 657 Culture/Politics of Difference in the U.S.
HST 658 Sex in the American City
HST 680 Natives and Newcomers from 1763
HST 701 Scientific Technology and Modern Society

HST 702 The First World War
HST 711 Canada and the United States
HST 712 The American City
HST 731 Renaissance and Reform: Europe 1350-1650
HST 777 Medicine from Antiquity to 1500 CE
HST 786 Science and Technology in Islamic History
HST 787 Astronomy vs Astrology
HST 788 Water Use in History
HST 789 British Society since 1939
HST 802 The Second World War
HST 807 The Canadian Revolution: Canada 1968-2000
HST 811 The Holocaust
INT 555 Special Topics In Interdisciplinary Studies
IRL 500 Modern and Contemporary Art, Design
MUS 501 Traditional Musics of the World
MUS 505 Popular Music and Culture
MUS 507 Architecture of Music II
PHL 500 Philosophy of the Natural Environment
PHL 501 Social Thought and the Critique of Power
PHL 503 Ancient and Modern Ethics
PHL 504 Philosophy of Art
PHL 505 Hegel and Marx
PHL 509 Bioethics
PHL 550 Knowledge, Truth and Belief
PHL 551 Metaphysics
PHL 552 Philosophy of Science
PHL 553 Contemporary Continental Philosophy
PHL 603 Modern and Contemporary Ethics
PHL 605 Existentialism
PHL 606 Philosophy of Love and Sex
PHL 611 Philosophy of Mind
PHL 612 Philosophy of Law
PHL 614 Philosophy of Human Rights
PHL 708 Introduction to Modern Philosophy
PHL 709 Religion, Science and Philosophy
PHL 710 Philosophy and Film
PHL 808 Language and Philosophy

PHL 922 Religious Belief, Diversity, and Truth
PHL 923 Philosophy of Religion II
PHL 924 Critical Thinking II
POL 501 Women, Power and Politics
POL 507 Power, Change and Technology
POL 510 The Politics of Sexual Diversity
POL 511 Well-being and Opportunity in Canada
POL 540 Issues in Third World Politics
POL 588 Neoliberalism and its Alternatives
POL 601 Social Movements and Politics
POL 607 Politics of Technology and Globalization
POL 688 Colonialism and Imperialism
POL 720 Canada in North America
PSY 504 Social Psychology
PSY 505 Personality Theory
PSY 604 Issues in Psychology
PSY 606 Abnormal Psychology
PSY 607 Drugs and Human Behaviour
PSY 614 Psychology of Sport
PSY 615 The Psychology of Belief and Skepticism
PSY 620 Psychology of Immigration
PSY 621 Psychology of Human Sexuality
PSY 706 Personal Growth and Positive Psychology
PSY 707 Models of Stress and Adaptation
PSY 713 Psychology of Perception
PSY 807 Psychology of Prejudice
PSY 813 Psychology of Art and Creativity
RTA 530 Chinese Music
SEM 102 Introduction to Visual Semiotics
SOC 501 Making a Living: Sociology of Work
SOC 503 Sociology of Education
SOC 505 Sociology of Sport
SOC 506 Health and Society
SOC 507 Race and Ethnicity in Canadian Society
SOC 601 Control and Resistance at Work
SOC 603 Sociology of Gender
SOC 633 Sex, Gender, Identities, and Sexualities

SOC 701 Social Change: Canadian Perspectives

SOC 702 Anatomy of Human Conflict

SOC 703 Women, Power and the Global South

SOC 704 Aging, Culture and Society

SOC 705 Law and Justice

SOC 707 Religion, Meaning, and Power

SOC 800 Theories of Society

SOC 801 Global Power Relations

SOC 802 Issues in War and Peace

SOC 808 Society of Food and Eating

SOC 880 Information Technology and Society

SOC 885 Women and Islam

SOC 902 Hollywood and Society

SPN 704 Introduction to Latin American Culture I

SPN 705 The Boom in Latin American Literature

SPN 708 Contemporary Spanish Fiction

SPN 710 Spanish of Spain and Latin America

SPN 803 Latin American Short Story

SPN 804 Introduction to Latin American Culture II

SPN 810 Cultural Context of Writing

SPS 502 Spanish Caribbean Literature and Culture

SPS 503 Sex in the Early Modern City

SSH 505 Making Your Future

DEPARTMENT OF LANGUAGES, LITERATURES, AND CULTURES

FRS 501, FRS 502, FRS 602 and SPS 502 are delivered in English. See Department of Languages, Literatures, and Cultures for details about the process or visit the department's website at www.ryerson.ca/llc

TABLE B - UPPER LEVEL LIBERAL STUDIES RESTRICTIONS

Civil Engineering	ARB and CHN courses are not available for credit. BLG 599, BLG 699, CHY 583, CHY 599, CPS 650, FRE 301, FRE 401, FRE 501, FRE 507, FRE 601, FRE 607, FRE 707, MTH 511, MTH 599, PCS 581, SPN 301, SPN 401, SPN 501, SPN 510, SPN 601, SPN 610 and SPN 707 are not available for credit.

GLOSSARY / ACADEMIC DEFINITIONS

Extensive information on all core, professional and liberal studies courses will be available to students in their course outline (course management) document. Please refer to these Academic Definitions to understand how to correctly interpret a course description:

Prerequisite - Student must successfully complete a specific course(s) prior to enrolling in an advanced course.

Antirequisite – Courses that contain similar content and therefore cannot both be used towards fulfilling degree requirements.

Billing Units – The measure used to calculate undergraduate tuition fees.

Co-requisite – A course that must be taken concurrently, with or prior to, another course(s).

Course Hours - The weekly course contact hours associated with a given course may include lecture, seminar, studio and laboratory hours and such activities as unsupervised studio and laboratory work, internship and independent study.

Course Numbers – All current Ryerson courses are identified by a unique alpha-numeric code. The first three letters identify the subject area. The digits indicate whether the course is a one- or two-term course; three digits signifies a one-term course and two digits plus the "A/B" qualifier signifies a two-term course.

Course Substitution - The assessment and approval of a curriculum exception where one course is used as a replacement for another course or is used to fulfill the requirements of an elective group.

GPA Weight - A numerical co-efficient (multiplier) used to express a course's relative importance in the calculation of your cumulative grade point average. Single-term courses normally have a GPA weight of 1.00. Multi-term courses normally have a GPA weight of 2.00. GPA weight variances will appear in the individual course descriptions.

Liberal Studies - Studies that develop the capacity to understand and appraise the social and cultural context in which the graduate will work as a professional and live as an educated citizen. Courses are indicated as follows, LL—Lower Level, UL—Upper Level. Some language courses can be both UL and LL. **If it does not say either "LL or UL" in the course description, it is not a Liberal Studies Course.**

Minor - A minor is a grouping of 6 or more courses, mainly outside the major, selected by a student from an established minor curriculum. Minors are noted on a student's Official Transcript.

Professional Studies - Studies that induce functional competence by presenting the knowledge and developing the skills characteristic of current practice in the career field.

UNDERGRADUATE GRADING SCALE

Below are the graded course performance designations for undergraduate studies:

Performance Description	Letter Grade	Conversion Range Percentage Scale to Letter Grades	Ryerson GPA
Excellent	A+	90-100	4.33
	A	85-89	4.00
	A-	80-84	3.67
	B+	77-79	3.33
Good	B	73-76	3.00
	B-	70-72	2.67
	C+	67-69	2.33
Satisfactory	C	63-66	2.00
	C-	60-62	1.67
	D+	57-59	1.33
Marginal	D	53-56	1.00
	D-	50-52	0.67
Unsatisfactory	F	00-49	0.00

Final academic performance in each course is recorded as one of the above letter grades or as one of the 'other' designations listed in the Ryerson Calendar under Other Course Performance Designations. At the discretion of the teaching department, performance on term work or specific assignments may be marked on a numeric scale. When a numeric scale is used, it will result in a traditional percentile scale with ranges of conversion to letter grades as shown in the Calendar. If any other numeric scale is to be used, its ranges of conversion to letter grades shall be defined for the students at the start of the course.

GRADUATE PROGRAM

Ryerson University, a leader in applied education and research, offers a cutting edge graduate program leading to a PhD, Master of Applied Science (MASc) or Master of Engineering (MEng) degree in Civil Engineering. The state-of-the-art program is designed to prepare high-qualified graduate students to play an active role in enhancing the nation's economic, environmental, and social development. Emphasis is placed on combining both traditional methods and the latest innovative technologies to generate an intellectual environment in which students can broaden their expertise with a variety of challenging problems. The program is a unique multi-disciplinary research program covering variety of civil engineering fields.

PROGRAM OVERVIEW

The **PhD program** requires the successful completion of four one-term graduate courses, completion of a PhD Seminar class, Candidacy Examination, and produce a Dissertation based on original research. The thesis supervisor must approve both the course selections and the thesis research proposal submitted in writing by the student. With the approval of the supervisor, one of the four courses may be the directed studies course (CV8100), normally conducted by the supervisor. The student's supervisor, after consultation with the student, will recommend to the Program Director the appointment of a Candidacy Examination Committee. PhD students are encouraged to complete all courses within their first year of registration. Within 20 months of initial registration, every student in the PhD program will undertake a candidacy examination. The core aspect of the program is the successful defense of the Doctoral Dissertation at both Program and Yeates School of Graduate Studies Oral Examinations.

The **MASc program** requires the successful completion of five one-term course credits, completion of the MASc Research Seminar and a research thesis. No undergraduate credits may be taken towards the degree. No less than three of the required five courses must be taken at Ryerson. The supervisor for each graduate student must approve the graduate course selection. The supervisor must also approve the proposed thesis plan, which will be presented in writing by the student. Course selections are normally confirmed through a Program of Study agreement between supervisor and student, with the approval of the Director. With the approval of the supervisor, one of the five courses may be the directed studies course (CV8100), normally conducted by the supervisor. MASc students are encouraged to complete all courses in their first year of registration. An oral presentation of the research thesis, and results, will be arranged in a seminar format. The examination committee will assess the candidate's research thesis.

The **MEng program** requires the successful completion of eight one-term courses and a major project. No undergraduate credits may be taken towards the degree. No less than four of the required eight courses must be taken at Ryerson. The faculty advisor for each graduate student must approve the graduate course selection. The faculty advisor must also approve the proposed project plan, which will be presented in writing by the student. Course selections are normally confirmed through a Program of Study agreement between faculty advisor and student, with the approval of the Director. With the approval of the faculty advisor, one of the eight courses may be the directed studies course (CV8100), normally conducted by the faculty advisor. An oral presentation of the project report, and results, will be arranged in a seminar format. The examination committee will assess the candidate's project report. The minimum and maximum times allowed for course-work and research in the programs are indicated in the table given below.

Award winning professors conduct research and teach courses in the major fields of Environmental Engineering, Geomatics Engineering, Structural Engineering, and Transportation Engineering, which are described below, as well as in Geotechnical Engineering, Materials Engineering, and Construction Management.

AREAS OF SPECIALIZATION

Environmental Engineering

The field of Environmental Engineering covers: urban facilities, infrastructure and environment, environmental informatics, urban water and waste systems, environmental geomatics technologies including environmental remote sensing and GIS-based environmental decision support systems, monitoring, modelling and optimization of innovative stormwater management techniques.

Geomatics Engineering

Geomatics Engineering research includes the areas of geospatial information and GIS, phogrammetry and digital mapping, remote sensing and image processing, satellite positioning and navigation, as well as in some new emerging directions such as mobile mapping, geospatial cloud computing, knowledge discovery, LiDAR, and innovative geomatics applications.

Structural Engineering and Materials

This field focuses directly on the various civil engineering means by which the country can deal with the matter of deteriorating built infrastructure. The main components of the field are structural engineering, construction materials and pavements, geotechnical engineering, and construction project management.

Transportation Engineering

Graduate study in transportation at Ryerson prepares students for a professional research career in road safety, highway design, urban transportation systems, planning, design and management of transportation systems with emphasis on the road and transit infrastructure.

ADMISSION REQUIREMENTS

PhD: - Completion of Master's degree in a related Engineering or Applied Science field
- Minimum B+ (3.33/4.33) average
- 2 Letters of Recommendation

MASc - Completion of a 4 year Bachelor's degree in Civil Engineering or a related field
- Minimum B (3.00/4.33) average
- 2 Letters of Recommendation, one of which must be academic

MEng - Completion of a 4 year Bachelor's degree in Civil Engineering or a related field
- Minimum B (3.00/4.33) average
- 2 Letters of Recommendation, one of which must be academic

All applicants who have not completed their previous degrees in English will be required to complete an English Language test, such as TOEFL or IELTS, to be considered for admissions. **English Language Proficiency**. Applicants whose language of instruction during their undergraduate studies was a language other than English are required to submit a test of English language proficiency. Students may submit scores from either Test of English as a Foreign Language (TOEFL) or the Cambridge International English Language Testing System (IELTS).

More information and forms for admissions can be found at Yeates School of Graduate Studies Admissions located at 1 Dundas Street West on the 11th floor or please see www.ryerson.ca/graduate/admissions.

EXPENSES AND FINANCIAL SUPPORT

MASc and PhD students are eligible to compete for a number of scholarships offered by Ryerson, as well as academic and research assistantships. All candidates applying before the published first-consideration deadline on our website are automatically entered in the competition as part of the application process. Students are encouraged to apply for scholarship support to the Natural Sciences and Engineering Research Council (NSERC) and the Ontario Graduate Scholarship (OGS) program. These scholarships require separate application. More information on financial assistance is available on the program web site at www.ryerson.ca/graduate/funding.

RESEARCH AREAS

Four research areas exist in the Graduate Studies Program in the Department of Civil Engineering at Ryerson University.

Environmental Engineering

- Bioaccumulations of toxins in aquatic space
- Urban water and waste systems
- Drinking water quality control
- Innovative wastewater treatment technologies
- Modelling of watershed and landfill design
- Storm water management practices
- Waste-To-Energy
- Anaerobic Digestion of Municipal Solid Wastes
- Nutrient and Energy Recovery
- Microbial Electrochemical Cells

Geomatics Engineering

- Automated object extraction from satellite imagery
- Geodesy, hydrological surveying, estimation and data series analysis
- Geographic information systems (GIS) and applications for civil infrastructure management
- Geospatial data visualization and interaction in collaborative work environments
- GPS position and navigation
- Integrated navigation systems
- Satellite remote sending and urban environments
- Surface mapping and modelling in topographic, mining and biometrology applications.
- LiDAR data processing

Structural Engineering

- High performance concrete
- Offshore structures
- Bridge design, repair and rehabilitation
- Alkali-aggregate reaction and sulphate attack in concrete
- Behaviour of concrete liquid containing structures
- Behaviour of structures and properties of concrete materials
- Bridge design and construction
- Cold and hot recycling of asphalt pavements
- Deterioration and rehabilitation of infrastructures
- Fatigue and low-temperature-cracking in asphalt design

- High-strength/performance concrete and reactive powder concrete
- Response of structures subjected to earthquake loading
- Safety performance of transportation infrastructure
- Strength of steel and composite concrete-steel members
- Sustainable development of self-consolidating concrete
- Use of industrial byproducts in concrete and asphalt.

Transportation Engineering

- Transportation Planning
- Sustainable infrastructure management
- Traffic operations and control/management
- Travel demand and behaviour
- Urban operations research
- Intelligent transportation systems
- Highway design and Road safety
- Statistical Modeling and Geometic Design
- Human factors

FACILITIES

MONETARY TIMES BUILDING

The Monetary Times Building was purchased by Ryerson University in 1966 and underwent construction to become the Department of Civil Engineering. It was originally a printing house for the production of the **Canadian Monetary Times and Insurance Chronicle** founded in August 1867 by William A. Foster and Hugh Scott. This weekly newspaper in its early days included reports of stockholders' meetings, company reports, quotations of stocks and bonds, market and price reports, advertisements and editorials on business subjects. In 1870 its name changed to **The Monetary Times**. The Canadian financial newspaper **The Monetary Times** provided information on Canadian historical financial, political, social and biographical events in the late 19th and early 20th century.

COMPUTER LABS

General Information:

- Computer lab accounts are for labs located in EPH-230, MON-207, MON-314 and in the Graduate Studies Offices of the Monetary Times Building only.
- Valid until 30 days after graduation and then all account information and data WILL BE erased.
- Printing for undergraduate students is as follows:
  - 1st Year, 200 pages per semester
  - 2nd Year, 200 pages per semester
  - 3rd Year, 300 pages per semester
  - 4th Year, 400 pages per semester
- Printing for graduate students is 600 pages per semester.
- Balance will be carried over to the following semester.
- Passwords will be changed each semester.

Lab Rules:

The civil engineering staff monitors the activity on any workstation in the civil domain. No food/beverages are permitted in the labs. Violation of this rule will result in the student being asked to leave the lab.

The following actions may subject the student to the Student Code of Academic or Non-academic Conduct (see reference to the Codes in this Student Handbook):

1. Giving your account's name and password to someone else.
2. Attempting to hack into the server or the workstations.
3. Moving, tampering, or damaging the workstations.
4. Loading illegal software, data, or any other material onto the server or the workstations.
5. Taking data and software is theft. Anyone found downloading software, data, or any other material from the server or the workstations without proper authority.
6. Using the Civil Engineering Department computer facilities for tasks other than those assigned during a civil engineering program course.

7. Using the lab for word-processing, recreational computer games use, and web surfing except on assigned sites and topics, printing personal material, or executing non-civil engineering program work.
8. Failing to obey requests of faculty members, staff, or lab assistants on matters pertaining to lab operation.
9. Boisterous behavior, excessive noise, or using obscene/profane file names.
10. Using the WWW browsers for the purposes of surfing unauthorized sites, sending e-mail from the workstations, or attempting in any way to hack into sites on or off campus.

PHYSICAL LABS

The primary purpose of the physical labs is to offer educational and research activities; however, priority is given to instructional use. When the labs are not being used for instructional purposes, they are available for approved research use by students.

List of Physical Labs:

The following is a list of the physical labs and their locations in the Department of Civil Engineering:

Department of Civil Engineering Physical Labs	Location
Advanced Asphalt Concrete Testing Facility	ENG-LG23-B
Advanced Cement-Based Materials Lab	ENG-LG22-B
Advanced Sustainable Construction Materials Lab	ENG-LG-19
Civil Engineering National/International Student Competition Lab	MON-106A
Concrete Lab	ENG-LG-23
Digital Mapping Lab	MON-314
Enzyme-Linked Immunosorbent Assay (ELISA) Lab	MON-104
Environmental Engineering Lab	MON-412
Geo-Optical Research Lab	KHN-101B
Geotechnical Lab	KHN-101
GIS and Geo-Collaboration Lab	MON-304
Hydraulics Engineering Lab	MON-104 & MON-106
Road Safety Research Lab	MON-404
Satellite Navigation Lab	MON-314
Strength of Materials Lab	MON-414
Structures Lab	ENG-LG-26
Toronto and Area Road Builders Association Highway Materials Lab	ENG-LG-22
Urban Transportation Lab	CUE-110
Water Resources Engineering Lab	MON-106

Access to Labs, Lab Hours and Availability:

With signed approval from the Department of Civil Engineering and Ryerson University, students may use the labs during business hours (9:00 am - 5:00 pm) where the technicians will be available to assist them. Students conducting degree research projects in the labs must complete online WHMIS, an online introduction to Environmental Health and Safety training and fill out Risk Assessment forms with their faculty technical advisor. For the forms, please go to **www.ryerson.ca/cehsm** and click in appropriate Quick Links. The password for all online quizzes is "aa". After business hours, a buddy system takes effect where another individual who also has signed approval must accompany a student working in a lab. Students may have access to the labs on weekends with the approval of the Chair of the Department of Civil Engineering.

Access to the physical laboratories for research activities and during paid work periods is administered by your Faculty Advisor and the Civil Engineering Office in MON-221 and can ONLY be given when the proper forms have been completed, signed, and submitted. If you are working with a faculty member / supervisor on a research project that requires you to have access to any physical lab and/or you are receiving monetary compensation while working in the lab(s), you **MUST** follow these procedures:

1. Discuss with your Faculty Advisor / Supervisor the lab access that is required.

2. The faculty member will complete the 'Preliminary Risk Assessment' form (single page) electronically, print it and sign it. You may be required to collectively complete the form with your Faculty Advisor. www.ryerson.ca/cehsm/forms/index.html

3. If applicable, the faculty member will also complete the 'Risk Assessment' form (multiple pages) electronically, print it and authorize it. You may be required to collectively complete the form with your Faculty Advisor. www.ryerson.ca/cehsm/forms/index.html

4. Complete both the WHMIS and EHS Ryerson Orientation Quiz. The password to access the quizzes is **aa** and also, print your certificate. www.ryerson.ca/cehsm/training/index.html#whmis www.ryerson.ca/cehsm/training/index.html#ehsOrientation

5. Submit the above mentioned forms to your Faculty Advisor / Supervisor or Principal Investigator.

6. Upon approval from the Chair of the Department of Civil Engineering, access to the required physical lab(s) will be activated on your Ryerson One Card by the Department of Civil Engineering Administrative Assistant.

Health and Safety Rules:

In Ontario, we are governed by The Occupational Health and Safety Act of Ontario. Each individual within the Ryerson University community shares responsibility for the identification of environmental health and safety hazards and managing the related risks.

Along with the following rules, each of us are obliged to conduct ourselves in accordance to the Ryerson University's Department of Environmental Health and Safety Polices, Programs and Guidelines and these can be found at the Ryerson University website: www.ryerson.ca/cehsm/

Every lab user **MUST** observe the following rules:

(a) Eye Wear

Safety glasses with side shields must be worn at all times in designated areas. Contact lenses should never be worn in areas where chemicals or solvents are used.

(b) Protective Equipment

Some lab processes require students and researchers to dispense and/or manipulate a multiplicity of concentrated hazardous chemicals. Several of these chemicals display highly corrosive characteristics with the potential to destroy skin tissues. All needed equipment will be provided, except footwear which is to be purchased by the students due to its personal nature. Some labs require hard hats for head protection.

(c) Protective Clothing

All lab personnel and students involved with hazardous chemicals in a teaching or research lab must do at least the minimum of:

- Wear closed-toe shoes at all times in areas where hazardous chemicals are stored or used. Perforated shoes, sandals or flip-flops must not be worn.
- Wear splash goggles or face shields that have splash proof sides when protection from harmful chemical splash is required.
- Wear appropriate protective gloves whenever the potential for contact with corrosive or toxic materials or materials of unknown toxicity exists.
- Wear pants, full coverage lab coats, or aprons. Scanty (e.g. shorts, mini skirts, tank tops and/or halter tops) or torn clothing and unrestrained long hair is not allowed.

(d) Housekeeping

Work areas, aisles and passageways must be kept clean and free from obstructions that could create a hazard. Lab floors must be maintained, as much as practicable, in a dry condition. Where emergency wet processes may be required (e.g. emergency showers), drainage must be provided and maintained and false floors, platforms, mats and other dry standing places must be provided. Where practicable or appropriate, waterproof foot gear must be provided. All solid or liquid wastes, glass or metal chemical containers, and excessive combustible materials must be removed in such a manner as to avoid creating a menace to safety and health, and as often as necessary or appropriate to maintain the place of employment in a sanitary condition.

(e) Labeling

Be certain all chemicals are correctly and clearly labeled according to WHMIS. Post warning signs when unusual hazards, such as radiation, flammable materials, biological hazards, or other special problems exist. Note that MSDS (Material Safety Data Sheet) is available for each chemical in each lab.

(f) Spills

Spilled materials must be cleaned promptly and completely with paper towels, rags, or absorbent. Promptly dispose of oily or solvent-saturated clean-up materials in a safety container. If a chemical, radiological or biohazard spill threatens the safety and/or health of faculty, staff or student, call 911 to report an emergency involving hazardous materials.

(g) Sharp Objects

Safe lab practice requires that sharp objects be protected to avoid accidental injection into the skin. All sharp objects are collected in a labeled, rigid puncture proof container and disposed according to type and use. Chemical contaminated glassware must be triple rinsed and the label defaced prior to placement in the broken glass receptacle.

(h) Equipment Use

Use equipment only for its designed purpose. The use of makeshift tools and shortcut methods leads to equipment damage and injuries. If you are in doubt, seek the help of the Departmental Technician or your Faculty Supervisor. Report broken or unusable equipment to the designated Departmental Technician responsible for his respective lab. Lab personnel are prohibited from running equipment unless proper safety precautions have been taken.

(i) Prudent Lab Practices

It is prudent to avoid working in a laboratory alone. During business hours, and under normal working conditions, a student must make arrangements with another individual to cross check periodically. Experiments known to be hazardous must not be undertaken by a worker who is alone in a laboratory. After business hours, a student cannot work in a lab alone and a buddy system must be adopted.

(j) General Lab Safety

Be alert to unsafe conditions and actions and correct them immediately. If major maintenance or repairs are needed, call attention to them so corrections can be made as soon as possible. Someone else's accident can be as dangerous to you as though you had the accident. Avoid distracting or startling any other worker. Practical jokes or horseplay cannot be tolerated. Persons with medical alert bracelets should inform the lab technicians so that special arrangements can be made.

(k) Chemical Storage

All chemicals must be organized and stored on shelves or in cabinets where they will not be knocked over. Chemical storage cabinets are available in each lab.

(l) Food & Drink in Research and Lab Areas

Consumption or storage of food or beverages, application of cosmetics or smoking is not permitted in labs, research or workrooms where chemicals are used or stored. Contamination of food, drink, smoking materials and cosmetics is a potential route for exposure to toxic substances. No alcoholic beverages or illegal drugs will be tolerated.

(m) Lab Security Policy

- Report any suspicious activity to Campus Security, Ext. 80.
- All labs must be locked when not in use.
- Avoid providing building access to unauthorized individuals.
- Secure doors behind you.
- See Ryerson University Centre for Environmental Health, Safety and Security Management website www.ryerson.ca/cehsm

FACTS FROM A - Z

A ABBREVIATIONS

ACI: American Concrete Institute
AOLS: Association of Ontario Land Surveyors
CEAB: Canadian Engineering Accreditation Board
CESAR: Continuing Education Students' Association of Ryerson
CFI: Canada Foundation for Innovation
CGPA: Cumulative Grade Point Average
CSCE: Canadian Society for Civil Engineering
GPA: Grade Point Average
FEAS: Faculty of Engineering and Architectural Science
ISS: International Services for Students
ITE: Institute of Transportation Engineers
LL: Lower Level Liberal Studies
LSS: Learning Success Seminars
MON: Monetary Times Building
MSDS: Material Safety Data Sheet
OLS: Ontario Land Surveyor
OSAP: Ontario Student Assistance Program
PEng: Professional Engineer
PEO: Professional Engineers Ontario
PR: Professionally-related Courses
RAC: Recreation and Athletics
RAMSS: Ryerson's Administrative Management Self Service
RCES: Ryerson Civil Engineering Society
RESS: Ryerson Engineering Student Society
RSU: Ryerson Students' Union
UL: Upper Level Liberal Studies

ACADEMIC ACCOMODATION OF STUDENTS WITH DISABILITIES

The University provides academic accommodations for students with disabilities in accordance with the terms of the Ontario Human Rights Code. This occurs through a collaborative process that acknowledges a collective obligation to develop an accessible learning environment that both meets the needs of students and preserves the essential academic requirements of the University's courses and programs. Senate Policy 159 reflects the *shared* responsibility of students with disabilities, instructors, Departments/Schools, Faculties, the Access Centre and administrative staff to exercise flexibility and creativity in the provision of academic accommodations.

The University is committed to the fostering of an inclusive climate of equitable access, understanding and mutual respect which recognizes the dignity and worth of all persons, provides equal rights and opportunities without discrimination, and protects the privacy, confidentiality, comfort, autonomy and self-esteem of students with disabilities.

This policy applies to academic accommodations involving undergraduate and graduate students in full-time and part-time programs, certificates, and continuing education courses.

For further information please see Senate Policy 159 – Academic Accommodation of Students With Disabilities at website: www.ryerson.ca/senate/policies/pol159.pdf

ACADEMIC ACCOMMODATION SUPPORT

Accommodation support staff - facilitators, specialists, and administrators – will offer support with academic accommodation and related academic supports and the processes involved with these. Students eligible for Academic Accommodation Support have singular and multiple disabilities, such as learning disabilities, sensory impairments, acquired brain injuries, ADHD, and mental health, medical, and mobility issues. Students seeking accommodation can contact the Academic Accommodation Support main office to register and submit medical documentation. Active students can view their accommodation letters and send electronically to professors, and submit test or exam booking requests online.

Academic Accommodation Support is located on the 4th floor of the new Student Learning Centre, 341 Yonge Street. Tel: 416.979.5290 Fax: 416.979.5094 Email: accessfrontdesk@ryerson.ca

ACADEMIC CONSIDERATION REQUESTS

Requests for academic consideration not related to medical or religious observation must be submitted in writing along with the Academic Consideration form http://www.ryerson.ca/content/dam/senate/forms/academic_consideration_document_submission.pdf to the civil engineering office room in MON-221. The letter must clearly state the reasons for the request and describe the events or circumstances that seriously impair the student's ability to meet their academic obligations, and that were beyond the student's control. When possible, supporting documentation must be attached to the letter. The office will notify the instructor when they have received the request.

ACADEMIC INTEGRITY

Intellectual freedom and honesty are essential to the sharing and development of knowledge. In order to demonstrate Ryerson's adherence to these fundamental values, all members of the Ryerson community must exhibit integrity in their teaching, learning, research, evaluation and personal behaviour. As a member of the Ryerson community and as a future engineer, it is your responsibility to understand and adhere to Ryerson's Academic Integrity policy.

Academic misconduct can take many forms, including copying assignments and lab reports from published sources, websites, or peers; cheating on tests and exams; and handing in the same assignment more than once. Ryerson has developed an **academic integrity website** for students and it contains valuable information along with tutorials and quizzes to help you learn about various types of misconduct, how to avoid misconduct and resources available to assist you. The website address is: www.ryerson.ca/academicintegrity. Please visit it early and regularly in your academic career and make sure you understand what academic misconduct means and how to avoid it. Also, please see Student Code of Academic Conduct and The Student Guide to Avoiding Academic Misconduct included in this Handbook.

ACADEMIC STANDINGS

In undergraduate degree programs, each student's Academic Standing will be established from the student's formal course grades at the end of each academic term on the basis of the following categories and criteria for overall academic performance:

CLEAR - a cumulative grade point average (CGPA) of at least 1.67 (except where the student has violated the terms of their Probationary Contract). Students with CLEAR Standing may continue their program studies with no restrictions except for the obligation to satisfy prerequisite requirements.

PROBATIONARY - a cumulative grade point average (CGPA) of 1.00 to 1.66. Students with Probationary standing are required to have a developmental Probationary Contract outlining a specific plan for studies and academic supports authorized by their program Department, and signed by the student. Students who fail to have such a Probationary Contract within five (5) working days of the first day of the semester will have their course registrations and course intention requests cancelled for the term in question.

Students with a Probationary standing at the start of any semester will be eligible to continue their studies in a subsequent semester as long as they achieve a term grade point average (TGPA) of 1.67 or higher and provided they meet the terms of their Probationary Contract and do not violate approved Department/School standing variations. Failure to meet the terms of the Probationary Contract as set out by the School or Department will result in the student being RTW from their Ryerson program.

Except for students who follow the Student Success Program outlined below, who may attain a Clear standing, students who are reinstated to their program after an RTW standing return on Probation. Some programs may reinstate students with a probationary contract which may significantly restrict course load and require successful completion of specific program course. Programs may also specify grades which must be achieved.

REQUIRED TO WITHDRAW - Students will be REQUIRED TO WITHDRAW from their program for one of the following reasons:

i. A CGPA of less than 1.00 (except students enrolled in their first semester); **or**

ii. A term GPA below 1.67 while on probation; **or**

iii. Violation of any approved Department/School Standing variation; **or**

iv. Violation of a PROBATIONARY Contract (including unauthorized changes to the contract or failure to negotiate a Probationary Contract).

No student in their first semester at Ryerson will be REQUIRED TO WITHDRAW (RTW) in December. Students with a GPA of less than 1.00 in their first semester will be advised about their prospects for success. Such students who continue in their program for the subsequent Winter semester will do so on PROBATION.

Schools/Departments, at their discretion, may issue a special contract in cases where the program judges the student to have a realistic chance of achieving a CLEAR Standing in the semester following assignment of RTW by taking up to two (2) courses. Students remain RTW during this semester. If the student fails to achieve a CGPA of 1.67 at the end of that semester, s/he will remain RTW. If the student is successful, s/he will return as CLEAR.

Procedures for RTW students who wish to be considered for reinstatement to their program.

In the semester immediately following the assignment of RTW Standing (for this purpose Spring/Summer is included): Students may not enroll in any Ryerson credit course(s) and no course(s) taken at another institution will be counted towards graduation requirements for a Ryerson degree program.

In the second semester following assignment of RTW Standing -
Student Success Program

i) Students may request to participate in a defined Student Success Program (SSP) under an SSP participation contract, this is also known as the Fresh Start Program. Students will be allowed to take up to two (2) credit courses, and may be required to participate in other activities or workshops designed to address their needs. Courses taken as part of the SSP will be included in the student's CGPA. Criteria for participation, terms of the contract and the required outcomes will be established by the program. Programs, including part-time programs, will provide information each year on the usual criteria used for participation in the SSP. Students may participate in an SSP only once during their academic careers at Ryerson. Normally withdrawal from, or unsuccessful completion of, an SSP will constitute one attempt.

ii) Students approved by a program to participate in the SSP will be designated as having an EXTENDED ACADEMIC PROBATION (EAP) Standing. See EXTENDED ACADEMIC PROBATION Standing below.

iii) Students who do not successfully complete their second semester contract return to RTW Standing, and may apply to be reinstated to their program for the semester following the third semester. Prior to reinstatement, these students may not enroll in any Ryerson credit course and no courses taken at another institution will be counted towards graduation requirements for a Ryerson degree program.

Students who are not eligible for the SSP,or who do not wish to participate in the SSP, may apply to be reinstated to their program after the third semester following assignment of RTW. Prior to reinstatement, these students may not enroll in any Ryerson credit course(s) and no courses taken at another institution will be counted towards graduation requirements for a Ryerson degree program.

In the third semester following assignment of RTW Standing.

Students who successfully complete the requirements of their second semester SSP contract, will be given a further SSP contract, which may allow them to take up to four (4) credit courses. Courses taken as part of the SSP will be included in the student's CGPA. The terms of the contract and the required outcomes will be established by the program, including part-time programs. Programs, including part-time programs, will provide information each year on the usual criteria used for evaluating acceptable performance in the SSP. Students approved by a program to participate in the SSP will be designated as having an EXTENDED ACADEMIC PROBATION Standing.

Students who do not successfully complete their third semester contract return to RTW Standing, and may apply to be reinstated to their program for the semester following the third semester. Prior to reinstatement, these students may not enroll in any Ryerson credit course(s) and no courses taken at another institution will be counted towards graduation requirements for a Ryerson degree program.

Procedures for students who are assigned an RTW Standing and wish to be considered for transfer to another program:

Students must consult with the University Undergraduate Admissions Office and the program to which they wish to transfer. At the program's discretion, a student may follow an SSP sequence as outlined above. Such students will be placed on EAP Standing. If approved for such a transfer SSP, there is an understanding that the transfer program commits to admitting the student pending successful completion of the SSP. Students may apply for transfer for the semester following the third semester as defined above. Applications for transfer will be considered as outlined below.

Procedures for reinstatement or transfer after the period of RTW or Extended Academic Probation:

Students who successfully complete their third semester SSP contract are automatically reinstated to their program, and do not need to apply. They may return as CLEAR or on PROBATION.

Students who did not successfully complete their second or third semester SSP contract, or who did not participate in the SPP, may apply for reinstatement for the semester following the third semester.

Applications for reinstatement will be considered by Faculty and/or program committees based on criteria, assessments and/or procedures developed by the Faculty or program in consultation with the Registrar's Office. Past academic performance and space availability will normally be considerations. Programs, including part-time programs, will provide information each year on the usual criteria used for evaluation of reinstatement applications.

Applications for transfer will be considered by the University Undergraduate Admissions Office in consultation with Faculty and/or program admission committees. Past academic performance and space availability will normally be considerations.

Students who are reinstated to their program or are approved for transfer upon successful application or successful completion of an SSP, will be reinstated or transferred with PROBATION or CLEAR Standing based on their past academic performance. If they proceed as PROBATIONARY students, they will be required to have a Probationary Contract as outlined above.

Extended Academic Probation for First- Time RTW Students-EXTENDED ACADEMIC PROBATION (EAP) is a special, provisional Academic Standing available only to first-time RTW students who participate in a defined Student Success Program as described above.

To remain EAP, students must fulfill all required components in each of the two semesters of the SSP. Students deemed not to be meeting the program-specified requirements at any time will be withdrawn from the SSP, and will return to RTW Standing.

PERMANENT PROGRAM WITHDRAWAL - Students will be permanently withdrawn from their program for the following reasons:

i. Any academic performance that would result in 'REQUIRED TO WITHDRAW' Standing for a second time; **or**

ii. Failure of a course required by their program for a third time; **or**

iii.Failure to meet the terms of a Probationary Contract following return after a REQUIRED TO WITHDRAW Standing

Students who are permanently withdrawn from a program may not apply for reinstatement into that program. Students who are Permanently Withdrawn from a program may apply to a different program for the Fall semester of the following calendar year.

DISCIPLINARY SUSPENSION - Students who have been placed on DISCIPLINARY SUSPENSION (DS) for Student Code of Conduct violations will not be permitted to enroll in any course at the University during their period of DISCIPLINARY SUSPENSION. Students who have served their period of DISCIPLINARY SUSPENSION must contact their program department to make arrangements for reinstatement.

ADDRESS CHANGES

Please update your information online on RAMSS www.my.ryerson.ca when there are any changes to your address and/or phone number.

ADVISEMENT REPORT

Ryerson offers via RAMSS an Academic Advisement Report tool for Undergraduate degree students which provides a progress-to-date audit for meeting degree graduation requirements.

Students are advised to regularly run an Academic Advisement Report from the RAMSS Student Centre, 'My Academics' link to:

- Check the accuracy of their record, including approved transfer and challenge credits and course substitutions or directives granted
- Assist with the Course Intention process to determine remaining requirements
- Ensure course selections fulfill program requirements

The Advisement Report should be run each semester when grades are finalized and when students make a change to an academic record i.e., add, drop or swap courses.

The RAMSS self-service Academic Advisement Report shows:

- all graded courses
- all currently enrolled courses
- all transfer and challenge credit courses granted
- program course (curriculum) requirements
- how completed, current, transfer and challenge credit courses fulfill degree requirements; and
- extra courses complete that are not being applied to meeting degree requirements.

The Academic Advisement Report, in conjunction with the appropriate undergraduate calendar, should be used as a guide when selecting courses for enrolment. This report does not represent an irrevocable contract between the student and the University.

The official status of degree requirements will be assessed in a students' final year by the Curriculum Advising Office as soon as an application to graduate is received.

It is the responsibility of the student to understand and to meet the requirements for graduation. If inaccuracies are found, students should identify the problem(s) and contact their program department immediately.

APPEALS

The Appeals policy (Senate Policy #134) is available in its entirety at www.ryerson.ca/senate and at www.ryerson.ca/essr/appeals and information is also available in the Ryerson University Student Guide for Undergraduate Programs www.ryerson.ca/studentguide

Ryerson University is committed to promoting academic success and to ensuring that students' academic records ultimately reflect their academic abilities and accomplishments. The University expects that academic judgments by its faculty will be fair, consistent and objective, and recognizes the need to grant academic consideration, where appropriate, in order to support students who face personal difficulties or events. **It is also expected that students will deal with issues which may affect academic performance as soon as they arise. It should be understood that students can only receive grades which reflect their knowledge of the course material.**

Students should refer to the Student Guide, the Senate and the Enrollment Services and Student Records websites for detailed information on the various academic considerations that may be requested; as well as necessary documents such as appeal forms, medical certificates and forms for religious accommodation; and procedural instructions. Information is also available from the Departments and Schools, Dean's Offices and the Senate.

It is the student's responsibility to notify and consult with either the instructor, or the Chair/Director of the teaching or program department/school, depending on the situation, as soon as circumstances arise that are likely to affect academic performance. It is also the student's responsibility to attempt to resolve all course-related issues with the instructor as soon as they arise, and then, if necessary, with the Chair/Director of the teaching Department/School. Failure to do so may jeopardize the success of an appeal made at a later date. It is the instructor's responsibility to respond in a timely fashion when students raise grading or management issues.

Students who believe that an assignment, test or exam, either in whole or part, has not been appropriately graded, or that there has been a miscalculation of a grade due to an omission, improper addition, etc., must contact the instructor to resolve the issue within ten working days of the date when the graded work is returned to the class. Grades not questioned within this period will not be recalculated at a later date.

Students may be required to submit a written request for regrading, stating why the work warrants a higher grade. The instructor must respond within five working days. A reassessment may result in the grade remaining the same, being raised or being lowered. Students must receive feedback that addresses their rationale for requesting a regrading of the work. Students may request a formal regarding of their work if: i) they do not accept an instructor's regrading of the work; or ii.) the instructor has not responded to the student; or iii) the instructor has not regraded the work within five working days or iv.) they do not feel they can discuss the matter with the instructor. Please see the Appeals Policy Section IC for more information about requesting formal regrading of work.

Students are responsible for reviewing all pertinent information prior to the submission of a formal academic appeal. Incomplete appeals will not be accepted. Students are responsible

for ensuring that a formal appeal is submitted by the deadline dates published in the Undergraduate Calendar, and must adhere to the timelines established in the policy. The deadline for appealing a grade or academic standing after the term has ended is clearly noted in the Ryerson Calendar. The ryerson.ca website also contains the appropriate forms and instructions. All Departmental appeals must normally be submitted in person to the Department of Civil Engineering, Room MON-221 by the deadline stated in the Ryerson Calendar. The Undergraduate Studies Associate Chair of the Department of Civil Engineering will adjudicate the appeal and respond to the student by e-mail within five working days of the receipt of the appeal whether the appeal was granted or denied. Students are responsible for contacting the Department/School if they have not received a response in the specified time period.

There are *two types of Departmental Level appeals* that may be filed:

(1) Grade Appeal - must be submitted to the Department/School in which course is taught

(2) Standing Appeal - must be submitted to the student's program department (first year students must submit standing appeals to the First Year & Common Engineering Office).
NOTE: Since the appeal of a grade may have an effect upon your standing, you must attach a copy of any grade appeal to the standing appeal.

Grounds For Appeal

There are five grounds that may be considered for a grade appeal: Compassionate; Course Management; Medical; Prejudice; or Procedural Error. Before filing an appeal, a student must determine if one or more of the grounds apply.

Students who have attempted to have work reassessed or grades recalculated and have not had the matter resolved prior to the appeal deadline, or who have not yet received a response from an instructor or a Chair/Director, and who wish to appeal, may submit a formal appeal by the deadline. This appeal may be withdrawn at a later date if the issue is resolved.

Students who wish to appeal a final course grade must first consult with the instructor and/or Chair/Director. Students appealing an academic standing must first consult the Associate Chair. This consultation must occur as soon as possible after their grades and/or notice of academic standing are posted, allowing enough time to meet the deadline for the last date to appeal.

Your academic standing is connected to your grade point average. In order to appeal a standing, you must provide substantial reasons why your standing should be changed.

Required Documentation

In addition to the Grade and/or Standing Appeal Form (which is available online, see www.ryerson.ca/senate/forms/index.html) the following are also required:

(1) A signed typed statement indicating your justification for the appeal and the remedy you are seeking.

(2) You must include original copies of documentation i.e. medical certificates, course management documents, etc. to support your claim.

The letter, forms and supporting documentation for your appeals MUST be the original copies. Students must retain a copy of all appeals documents as it is not the responsibility of the Department/School to provide these documents should the student wish to file a further

appeal at the faculty level.

Appeal Forms

Department Level Grade Appeal (First Level Grade Appeal)	www.ryerson.ca/senate/forms
Department Level Standing Appeal (First Level Standing Appeal)	www.ryerson.ca/senate/forms
Faculty Level Grade Appeal (Second Level Grade Appeal)	www.ryerson.ca/senate/forms
Faculty Level Standing Appeal (Second Level Standing Appeal)	www.ryerson.ca/senate/forms
Senate Level Appeal (Third Level Appeal)	www.ryerson.ca/senate/forms

Student Guide to Avoiding Academic Appeals

Students sometimes find themselves in circumstances which affect their academic performance and they sometimes believe that they should continue to the end of the semester, see how they do, and then appeal their grade or academic standing if they do not succeed.

Basic Principles:

- You should be aware that failure to deal with unforeseen circumstance when they arise will jeopardize your ability to appeal a grade or academic standing. You must consult with your professors, or with your Chair/Director, on accommodations and considerations as soon as they are needed.
- Students sometimes claim that they are "too shy" to discuss their personal situation with their instructors in order to ask for considerations.
    - You should be aware that you do not have to discuss the details of your situation, but you do need to inform instructors that you have a problem. If you wish, you may discuss your situation with your Chair/Director (or other student affairs person in your school or department) so that you do not have to discuss it with each professor individually.
    - You should also be aware that if you do not bring the situation to the attention of your professors, and you decide to appeal, you will have to tell your circumstances to many people, and put them in writing.
- Grades are a measure of your knowledge. Ryerson is committed to giving students a fair opportunity to learn, but ultimately, if you do not have the knowledge you do not qualify for a Ryerson degree. Grades will not be increased because you want them to be – you must be able to demonstrate that you have the knowledge that everyone else with that grade (or academic standing) has. Grades are not given – they are earned.

Responsibilities:

- **Religious Obligations:** If there is a test, exam or assignment due date that conflicts with a religious obligation, you must notify your instructor within the first 2 weeks of class (or for a final exam, within 5 days of the posting of the schedule). You should use the form available at www.ryerson.ca/senate/other/relobservforminstr.pdf. The policy is found at www.ryerson.ca/senate/policies/pol150.pdf .
- **Accommodation for Disability –** If you require an accommodation for a disability you should contact the Academic Accommodation Support. Any accommodation must be

presented to the professor as soon as possible, and may not be presented after-the-fact. The professor may wish to discuss accommodations with you and the Academic Accommodation Support to ensure that they are appropriate.

- **Regrading or Recalculation**: Requests for the regrading or recalculation of your work must be made within 10 working days of the date the graded work is returned to the class.
  Grades not questioned within this period will not be recalculated at a later date.
  It is your responsibility to discuss your work with your professor, and he or she may ask you to put your request in writing detailing where you believe the grading is incorrect.
  If your professor does not regrade your work, or if you still believe that there is merit to your concern, you may request a formal regrading from your Chair/Director. You must submit a detailed outline of where you believe the grading is incorrect to your Chair/Director.
  To request formal regrading, students must submit reasons, in writing to the Chair/Director, as to why the original grade, and if applicable, the instructor's revised grade, was inappropriate, based on evidence from the course outline, course notes, textbooks, etc. Asserting that the work deserves more marks or that the student disagrees with the mark is not sufficient support for the reassessment. The Chair/Director may deny the request for a regrading if the rationale is not based upon the merit of the work.
  Be aware that your grade could go down (or up or remain the same). The result of the regrading is the grade that is recorded.
- **Medical or Compassionate**: Documents for the missing of a test, exam or assignment due date must be submitted within 3 working days to the Civil Engineering Office in Room MON-221. This should normally be done on a Ryerson Medical Certificate, but if you get a note from a physician it must contain all of the information required on the Ryerson Medical Certificate form, and you must submit the affidavit (the top part of the form) with the note. Your certificate must be for the period of time in question.
  Your Department/School has the right to verify the validity of the certificate. You are responsible for notifying the instructor, as soon as possible, if you will be missing a test or exam
- **Consideration in more than one course**: If you have an illness or other situation, which affects your overall academic performance, you must consult with your Chair/ Director who will make recommendations on a plan for your studies and will inform your instructors. (You must still contact your instructors to verify the details.)
  Academic Appeals – The policy and forms can be found at www.ryerson.ca/senate.

ASSIGNMENTS

An assignment dropbox is located just outside the door of the Civil Engineering Office, Room MON-221. You may submit your assignments by dropping it into this box if it has been specified for you to do so in the course management document provided to you by your professor. Please follow your professors' instructions about the date and location for submitting your labs and assignments, i.e. lecture room, lab, etc. Please be sure to use the required cover pages for submitting all of your labs and assignments which can be downloaded from the website: www.ryerson.ca/civil/undergrad/

AWARDS & SCHOLARSHIPS

Awards and scholarships are given annually to students. The majority of awards and scholarships are designated by the Departmental Awards Committee and determined according to academic excellence and other criteria. Details about awards and scholarships can be found at the following websites: www.ryerson.ca/currentstudents/financialaid and Civil Engineering website www.ryerson.ca/civil and www.ryerson.ca/currentstudents/awards

C CALENDAR AND STUDENT GUIDE

The Undergraduate Calendar (ryerson.ca/calendar) is your official source for curriculum and course information at Ryerson. The Calendar is updated each spring for the next academic year. The Student Guide (ryerson.ca/studentguide) is a companion to the Calendar that lists the policies, fees, services and administrative procedures that you'll need to know as a Ryerson student.

CANADIAN SOCIETY FOR CIVIL ENGINEERING – (CSCE)

"The Canadian Society for Civil Engineering is a learned society intended to develop and maintain high standards of civil engineering practice in Canada and to enhance the public image of the civil engineering profession. The Society has local sections across Canada and its mission is to promote the development, acquisition and exchange of professional knowledge in the field of Civil Engineering. Supportive of the work of academics and private institutions and different organizations that deal with Civil Engineering since 1887 and working with sister organizations, the CSCE also promotes Civil Engineering among the general public and governmental institutions in Canada and abroad. Student Chapters offer undergraduate technical programs, often in conjunction with local CSCE Sections, opportunities to meet with practicing Civil Engineers in the community. (www.csce.ca) The CSCE Directors of Ryerson's Student Chapter for 2014/2015 are Salih Judieh and Peter Borgacci. You may contact the CSCE Directors at ryecivil@ryerson.ca. To obtain your CSCE Student Membership, please visit www.csce.ca and follow the Student Membership link to fill in the Student Membership application form. CSCE Student Membership comes with many perks such as job opportunities listed online by members and their employers, discounts in insurance, travel costs, publications, other society memberships, networking opportunities, and updates regarding current news and civil engineering conferences.

CAREER DEVELOPMENT AND EMPLOYMENT CENTRE

The Career Development and Employment Centre at Ryerson offers employment and career-related services including job-search skills workshops, job postings, a career resource Library, computer access to campus WorkLink, and individual counselling. The Career Centre is open year-round to Ryerson students and they are located at Lower Ground Podium (POD 60A), please visit www.ryerson.ca/career

CODES OF CONDUCT

Information on Academic Integrity can be found at the following website:
www.ryerson.ca/academicintegrity

Please refer to the complete Ryerson Student Code of Academic Conduct and the Student Code of Non-Academic Conduct at www.ryerson.ca/senate

Student Code of Academic Conduct

Intellectual freedom and honesty are essential to the sharing and development of knowledge. In order to demonstrate Ryerson's adherence to these fundamental values, all members of the community must exhibit integrity in their teaching, learning, research, evaluation, and personal behaviour. Ryerson University is committed to the principles of Academic Integrity. It is assumed that all who are engaged in the learning and teaching

community at Ryerson subscribe to the fundamental values upon which academic integrity is based.

The Ryerson University Code of Academic Conduct applies to the academic activities, both on and off campus, of all students enrolled in courses at the University. Ryerson students are responsible for familiarizing themselves with this policy which can be found at www.ryerson.ca/senate/policies/pol60new .pdf or in the Ryerson University Calendar.

The Ryerson Student Code of Academic Conduct clearly defines academic misconduct, the processes the University will follow when academic misconduct is suspected, and the consequences that can be imposed if students are found to be guilty of misconduct. It is every student's responsibility to know about Academic Integrity and to always do the right thing.

It is imperative that all members of the community abide by the Code in order to maintain an environment that is consistent with the values and behaviour we espouse. Instructors, graduate and teaching assistants, and staff members have a responsibility to take action if they suspect the Code has been violated. Students who have any concerns about academic integrity should discuss them with the Academic Integrity Officer (AIO) or the appropriate instructor if applicable.

The University recognizes the gravity of a charge of academic misconduct and is committed to handing the disposition of such charges in a respectful, timely and thoughtful manner. The University will apply this policy in a manner that is consistent with the principles of natural justice and the rights of students to a timely and fair assessment of their academic performance.

Student Code of Non-Academic Conduct

The Ryerson Student Code of Non-Academic Conduct reflects an expectation that students conduct themselves in a manner consistent with the educational objectives of the University, in accordance with generally accepted standards of behaviour, and in accordance with published University regulations and policies. The Code in its entirety is intended to identify behaviour which the University considers to be inappropriate, to outline the procedures the University will use to respond to such behaviour and to indicate the possible consequences of such behaviour. Ryerson students are responsible for familiarizing themselves with this policy which can be found in the Ryerson Calendar or at the following website: www.ryerson.ca/senate/policies/pol61.pdf

Student Guide to Avoiding Academic Misconduct

Basic Principles:

- Intellectual freedom and honesty are essential to the sharing and development of knowledge. All members of the Ryerson community must exhibit integrity in their teaching, learning, research, evaluation, and personal behaviour. As a Ryerson student, you are responsible for familiarizing yourself with the Student Code of Academic Conduct which can be found at www.ryerson.ca/senate/policies/pol60.pdf

- Ryerson has an **academic integrity website** for students and it contains valuable information along with tutorials and quizzes to help you learn about various types of misconduct, how to avoid misconduct and resources available to assist you.
  See www.ryerson.ca/academicintegrity.

- Ryerson has established an **Academic Integrity Office**. If you have any questions about academic integrity, are concerned with the academic integrity of a particular situation, or

would like to consult about a charge of academic misconduct, either e-mail aio@ryerson.ca or call 416-979-5000 ext. 7800.

Academic misconduct includes:

- plagiarism (note: plagiarism is the claiming of words, ideas, artistry, drawings or data of another person – this also includes submitting your own work in whole or in part for credit in two or more courses)
- cheating
- misrepresentation of personal identity or performance
- submission of false information
- contributing to academic misconduct
- damaging, tampering, or interfering with the scholarly environment
- unauthorized copying or use of copyrighted materials
- violations of departmental policies or professional behaviour
- violations of specific departmental or course requirements

If suspected of academic misconduct:

- You will be notified through Ryerson e-mail by the instructor or the Academic Integrity Officer (AIO) to attend a discussion.
- You will have the opportunity to explain your perspective.
- A decision will be made by the instructor and communicated to your Ryerson e-mail within 5 business days or sooner.
- You have the right to request that the discussion happen with the AIO in attendance.

If you are charged with misconduct:

- The instructor may **assign**: the **minimum** penalty of a "0" for the work. The instructor may also assign you an F in the course.
- The instructor may also **recommend**: Disciplinary Suspension (*DS*) – (*this is not applicable to graduate students)*, Disciplinary Withdrawal (DW) or Expulsion.
- As a consequence, a ***Disciplinary Notice (DN)*** will be placed on your academic record (See the policy for details on when the DN is removed).

Appeals process:

Please see the policy for details on the Appeal process.

Helpful tips:

Important Resources available on campus

Use the services of the University when you are having problems writing, editing or researching papers, or when you need help with course material:

- **The Library** (LIB 2nd floor) provides research workshops and individual assistance. Enquire at the Reference Desk or at www.ryerson.ca/library/info/workshops.html
- **The Writing Centre** (SLC 453) offers one-on-one tutorial help with writing and workshops www.ryerson.ca/writingcentre/workshops.htm
- **Learning Success** offers individual sessions and workshops covering various aspects of researching, writing, and studying. You must book these directly through their website http://www.ryerson.ca/studentservices/learningsuccess/
- **English Language Support** offers workshops to improve overall communication skills www.ryerson.ca/studentservices/els/

There is one general site where you may see and register for all of the available workshops offered by all of these areas:
http://www.ryerson.ca/academicintegrity/workshops.html

COMPLAINTS

When you have questions or encounter difficulties or problems at Ryerson University, please bring it to the attention of the faculty or staff member involved at Ryerson University. It is essential that you deal with situations that affect your academic performance as early as possible. Unresolved problems can generally get worse over time.

Specific information concerning complaints can be obtained from the Department of Civil Engineering Office in Room MON-221 or this Handbook. When you have questions or encounter difficulties, it is best to talk it over with the Chair of the Department or faculty or staff member involved. If questions or issues remain, you have the option to consult with the Chair of the Department, faculty members or other departments at Ryerson. You have the right to complain without fear of jeopardizing your academic evaluation. If you are not sure how to deal with a complaint of a non-academic nature, you may also seek help from: RSU Student Issues and Advocacy Coordinator: Student Campus Centre SCC 311-(416) 979-5255, ext. 2322, email: advocacy@rsuonline.ca Ombudsperson: Oakham House, 2nd Floors, Rooms 214, 215, and 216 , Ph: 416-979-5000, ext. 7450, email: ombuds@ryerson.ca or Student Services 416-979-5187. For more information, please refer to the Ryerson University Student Guide: www.ryerson.ca/studentguide

COUNSELLING CENTRE

The CSDC offers free and confidential counselling services in a professional and friendly environment. While their services are predominantly short term in nature, the duration of counselling is determined on a case by case basis depending on need and resources availability. Services are provided by a team of psychologists, counsellors, and master's and doctoral interns.

The Counselling Centre services, programs and resources are intended to assist students not only to solve immediate problems, but also to define their personal, educational and career goals, and to acquire the self-confidence and transferable skills necessary for professional success and individual growth. We provide these services on a one-to-one basis or in a group format.

Please note: Present your RYERSON ONE CARD every time you schedule an appointment in person or provide your Ryerson student number when requesting an appointment over the phone.

For information on our location, hours, team, and policies follow the links to the left on website http://www.ryerson.ca/counselling/ABOUT_THE_CENTRE.html.

The Faculty of Engineering and Architectural Science employs its own counselors who are seconded from the Centre for Student Development and Counselling but housed within Engineering and Science. For professional counselling of personal matters, engineering students may contact Jasteg Gill, Counsellor, in ENG 352 or reach her by phone at (416) 979-5000 ext. 4262 or by email jasgill@ryerson.ca or Colleen Conroy-Amato cconroy@ryerson.ca or by phone at (416) 979-5000 ext. 4926 office is ENG-351. Students may also seek advice from the Centre for Student Development and Counselling in Lower Ground Jorgenson, Room JOR-07C which provides a wide range of free services to students relating to developmental, personal, and transition issues. Professional counsellors provide individual counseling and/or group sessions to help you make satisfying career and educational choices (416) 979-5195, www.ryerson.ca/counselling and their email address is csdc@ryerson.ca

COURSE INTENTIONS

Returning students enrolled in degree programs will participate in a course intention process on RAMSS www.my.ryerson.ca in early March of each year for the following Fall and Winter academic terms. This is the first step in the enrolment process where students pre-select the courses they expect to take in the upcoming academic year.

Students will not be allowed to enroll in courses unless they have passed the immediate prerequisite or other prior level courses. Students with outstanding financial accounts from previous years will be prohibited from further enrollment, until satisfactory payment arrangements have been made. Please contact the Student Fees Office in located in POD-64 or phone (416) 979-5136.

COURSE MANAGEMENT OVERVIEW

Students will be provided at the beginning of every course with an outline or syllabus that includes, as a minimum, information on the following items:

- Name and number of course; semester and year, prerequisites, and exclusions, if any.
- Faculty member's name; office location and scheduled student consultation hours; office telephone number; e-mail address; faculty/course web site(s) if available.
- A synopsis that informs students of the course's academic focus and scope, course objectives and/or intended learning outcomes, and topics with their tentative sequence and schedule.
- Texts, reading lists, and other course materials or equipment.
- A description of the teaching method(s) that will be used (e.g., lecture, lab, studio, cases, problem-based learning, seminar, fieldwork, in-class debates, oral presentations or combinations of these) and schedule of any field trips or required activities outside of class time.
- Assignment due dates, to whom the assignments should be delivered, mid-term exam dates and paper return dates.

Evaluation – A list and tentative schedule of all assignments, tests, exams, and other work to be graded, and general descriptions of these. (More specific information on each assessment will be provided by the course instructor as early in the course as possible.) The weighting of each assignment, test, and/or other unit of evaluation. The inclusion of snap tests or other unscheduled evaluations as part of the grading scheme, if applicable. An indication of approximately when the first test results/term work will be returned to students. Policies on deadlines for the acceptance of assignments and/or take-home examinations, and on any penalties that will be assessed when such deadlines are not met.

Other items that may also be included in course outlines are:

- Group Work – The total amount of group work to be allowed in a course and procedures to ensure that students are afforded sufficient individual assessment should be established. (Group work for which a student does not receive an individual assessment should not constitute more than 30 % of a course grade.) Fair, appropriate and timely procedures must be developed for students who encounter difficulty with their working group.

- Academic Integrity – Intellectual freedom and honesty are essential to the sharing and development of knowledge. All members of the Ryerson community must exhibit integrity in their teaching, learning, research, evaluation, and personal behaviour.

  Ryerson has developed an **academic integrity website** for students that contains valuable information along with tutorials and quizzes to help you learn about various types of misconduct, how to avoid misconduct and resources available to assist you. See www.ryerson.ca/academicintegrity. As a Ryerson student, you are responsible for familiarizing yourself with the Student Code of Academic Conduct found at www.ryerson.ca/senate/policies/pol60.pdf In courses taken by students outside the department/school, it is recommended that pertinent policies be stated on the course outline. Please see Student Guide to Avoiding Academic Misconduct section in this Student Handbook.

- Course Variation – The amount and types of variation that are appropriate amount different sections of the same course should be determined. Course descriptions and overall objectives must be consistent and there should be comparable assignment structures and grading schemes in all sections of the same course.

- Attendance – It should be determined what policies, if any, are appropriate regarding the use of class attendance as a basis for grades. If attendance grades are permitted, criteria must be established and included in the course outline.

- Class Participation – It should be determined what policies, if any, are appropriate regarding the use of class participation as a basis for grades. If participation grades are permitted, criteria must be established and included in the course outline.

- Accommodation of Students with Disabilities – The Academic Accommodation Support centre supports students by arranging accommodations for academic study. All members of the Ryerson community play an important role in providing accommodations that maximize the participation and independence of students with disabilities. (Senate Policy 159) To register for please contact the Civil Engineering Department and/or the Academic Accommodation Support located on the 4th floor of the new Student Learning Centre, 341 Yonge Street. Tel: 416.979.5290 Fax: 416.979.5094 Email: accessfrontdesk@ryerson.ca

- Student Email Policy - Students are required to activate and maintain their Ryerson email address as their official communication with Ryerson University. (Senate Policy 157).

- Non-Academic Conduct **-** The Ryerson Student Code of Non-Academic Conduct reflects an expectation that students conduct themselves in a manner consistent with the educational objectives of the University, in accordance with generally accepted standards of behaviour, and in accordance with published university regulations and policies. (Senate Policy 61)

- Other - It should be determined what other areas relevant to the Department should be included in the course outline, ensuring that these are in conformity with overall University policy.

  For complete information about Course Management Policy, please see Senate Policy 145 online at www.ryerson.ca/senate/policies

COURSE REPEATS

The grade earned for a repeated course is substituted for the previous grade in calculating subsequent cumulative grade point average even if the later grade is lower, but both attempts are recorded on your transcript.

No course can be repeated more than twice (three completions in total when the original attempt is included). If at least one of the course attempts results in a passing grade, the course will count towards graduation requirements irrespective of the sequence of grades earned. A student will receive a PERMANENT PROGRAM WITHDRAWAL Standing after three failures in the same required course. Equivalent courses taken elsewhere under Letter of Permission and where a 'Failed' grade has been received will also be included in the three failure count.

CRISIS TEAM

The Ryerson Crisis Team works with groups of people affected by a traumatic event and is designed to reduce its impact. The Team provides a range of emergency services to Students and they can be contacted at Student Services Department, Phone # (416) 979-5195.

If you are in crisis and in need of immediate attention, please drop by the Centre (JOR 07) or call the receptionist at 416-979-5195 and indicate the urgent nature of your concern. Their "on call" appointments available daily to respond to emergency situations. An emergency may involve your safety and well-being or that of another person being at risk including thoughts and plans about harming yourself or someone else.

If you are in distress and in need of help, don't wait. If you are uncomfortable conveying the exact nature of your concern to the receptionist when you call or come in, you can simply indicate where you are on a ten-point scale with 0 being not at all at risk to 10 being at immediate risk.

If you require assistance for an urgent concern outside of our regular operating hours you should, if necessary, go to the emergency department of your closest hospital. If you are on or nearby campus St. Michael's Hospital is located at 30 Bond Street (the emergency department is at the intersection of Victoria Street and Shuter Streets). The phone number for St. Michael's Hospital emergency department is: 416-864-5094.

Alternatively, you may wish to call one of the following local crisis lines:

Ryerson Security & Emergency Services: 416-979-5040; Distress Centre of Toronto: 416-408-HELP (4357); The Gerstein Centre 416-929-5200; Good2Talk: 1-866-925-5454; 911 or the nearest emergency room of your local hospital.

CURRICULUM SUBSTITUTION

A curriculum (course) substitution assesses the suitability of substituting a Ryerson course that is not part of the normal curriculum for a course within a student's program. In some cases, the required course is not being offered in the term requested by the student, or it may be as a result of changes to a program's curriculum. Course Substitution forms are available from Curriculum Advising at the Student Information Centre, the Civil Engineering Office or the website www.ryerson.ca/currentstudents/forms/course_sub_ugrd.pdf Approval from both the teaching and program departments are required before students can submit the form to Curriculum Advising who will then assess the suitability of the substitution to authorize it.

Approved substitutions will be reflected on the student's Advisement Report through RAMSS. Students whose applications are denied will be notified via their Ryerson email address.

D DEAN'S LIST CRITERIA

Undegraduate students in the Faculty of Engineering and Architectural Science who have achieved the highest level of academic excellence in a given academic year will be placed on the Dean's List. The Dean's List recognition is noted only on a student's transcript, not on a graduation document. Dean's lists will be published annually on the Faculty website. To be eligible for consideration for the Dean's List in the Faculty of Engineering and Architectural Science, undergraduate students must:

1. Carry an average unit load of 4.0 billing units or higher for the two terms of the academic year under consideration (Fall and Winter).
2. Obtain a minimum GPA of 3.5 for the academic year under consideration. The minimum GPA applies for both the Fall and Winter terms exclusively, in addition to the student's overall GPA for the year.
3. Obtain passing grades in all courses and a clear academic standing for both terms.
4. Not have received any Disciplinary Notation(s) (DNs) while at Ryerson

DEGREE PROJECTS DATABASE

The Department of Civil Engineering maintains a database of undergraduate degree projects completed by civil engineering and geomatics option undergraduate students.

In order for you to access the database of all civil engineering and geomatics engineering undergraduate degree projects you will need a Civil Engineeering computer account and a user ID. You may access the database at the following link:
http://www.civil.ryerson.ca/Degree Projects At this site, please search for the project that you would like to see and then request to borrow the specific degree project at the Civil Engineering Office, Room MON-221. When you come to the Civil Engineering Office, you will need to complete a form that requires the name of the author, the title and year of the project.

Priority of project loans will be given to fourth year students who are registered in CVL755 or CVL855. Capstone and degree projects can be borrowed for a maximum of one month's time and usually not more than two projects can be borrowed at one time.

DEPARTMENTAL COUNCIL AND BY-LAWS

The Department of Civil Engineering Departmental Council is made up of the Chair, faculty, staff and student representatives from the Department of Civil Engineering. The purpose and objective of Council is to recommend academic policies relevant to the Department. Objectives of the Council include promoting effective teaching, learning and research in a collegial environment within the Department. The Departmental Council also works with the administration and other groups within the University around areas of common concern. The By-Laws of Departmental Council are available for viewing in the Department of Civil Engineering Office, Room MON-221. The student membership is subject to the requirement that the number of student members be not less than one-third, and not more than one half, of the total faculty members on the Council. The Council may amend the student member composition as appropriate to ensure that this requirement is met. Students who are interested

in becoming members of the Departmental Council should contact the Civil Engineering Administrative Office in MON-221 for further information.

E E-MAIL ACCOUNT POLICY

All students in full and part-time graduate and undergraduate degree programs and all continuing education students are required to activate and maintain their Ryerson online identity in order to regularly access Ryerson's Email (Rmail), RAMSS, my.ryerson.ca portal and learning system, and other systems by which they will receive official University communications.

Students are required to monitor and retrieve messages and information issued to them by the University via Ryerson online systems on a frequent and consistent basis. Students have the responsibility to recognize that certain communications may be time-critical. Students may forward their Ryerson E-mail account to another electronic mail service provider address but remain responsible for ensuring that all University electronic message communication sent to their official Ryerson E-mail account is received and read.

Procedures for student activation and use, as well as the Ryerson Student Computing Guidelines, shall be available on the Ryerson University website. Students may communicate with Ryerson and Ryerson faculty, instructors, teaching and graduate assistants and staff in a variety of ways: in-person; telephone; letters (either hand-delivered, by regular Canada Post, courier or registered mail) or electronically. Ryerson requires that any electronic communications by students to Ryerson faculty or staff be sent from their official Ryerson E-mail account. This is Senate Policy 157 and it can be found in its entirety at www.ryerson.ca/senate/policies.

EXAM POLICY & SCHEDULE

You are responsible for making sure you are in the right place at the right time to write your exam. You must be prepared to identify yourself with your Ryerson Photo ID card at anytime during the examination. If you do not have your Photo ID for whatever reason, the One Card Office can give you a temporary ID. You WILL need identification with your picture.

See Ryerson University Student Guide for rules and proper conduct in exams and penalties for misconduct. Refer to Ryerson website www.ryerson.ca or www.ryerson.ca/senate for Academic code of conduct and non-Academic code of conduct as well as the Exam Policy # 135 at www.ryerson.ca/senate/policies/pol135.pdf. Please see the Ryerson Calendar for Fall and Winter exam period dates and further information regarding the Exam Policy.

F FACULTY ADVISORS

The following Department of Civil Engineering Professors are your Faculty Advisors for Fall 2015 / Winter 2016 and their contact information can be found in the Departmental Directory of this Student Handbook:

ACI American Concrete Institute - Construction Competition – Dr. M. Shehata
ACI American Concrete Institute - Design Competition – Dr. Reza Kianoush
AOLS Association of Ontario Land Surveyors – Dr. Mike Chapman

Canadian Institute of Geomatics – Dr. Songnian Li
CSCE Student Chapter - Dr. Anwar Hossain
Concrete Canoe Competition – Dr. Medhat Shehata
Concrete Toboggan Competition - Dr. Medhat Shehata
ITE Institute of Transportation Engineers – Dr. B. Persaud
National Popsicle Bridge Competition – Dr. Anwar Hossain
RCES Student Chapter – Dr. Khaled Sennah
Steel Bridge Competition – Dr. Khaled Sennah
Student Faculty Mentor – Dr. Darko Joksimovic
Women In Engineering – TBA

FAILURE-SUPPLEMENTARY

Marginally failing performance that may be raised to a minimum pass through a supplemental examination. Students with an F-S designation must apply to write such an examination that will be scheduled prior to the end of the second week of classes during the next academic term. The F-S grade will be converted only to a 'D-' or to an 'F', depending on performance. Meanwhile, the F-S grade is treated as an interim failed grade and is calculated in the grade point average at zero grade points. The resulting grade point average is normally considered *provisional* until the end of the period during which the redeemable failure would be written. If an Academic Standing cannot change because an F-S grade has cleared, the provisional standing will automatically becomes the formal standing.

If you have F-S grade for any of your course(s) on your transcript, please be sure to fill out and submit Redeemable Failure form to Enrolment Services and Student Records and contact your Professors (s) regarding dates of your supplementary exams.
Here is the link for the Redeemable Failure form:
http://www.ryerson.ca/content/dam/currentstudents/forms/RedeemableFailure.pdf

FORMS

Forms that you may require throughout the year can be found at the following website: www.ryerson.ca/currentstudents/forms/ and at these other links, as well:

Department Grade Appeal (First Level Appeal)	www.ryerson.ca/senate/forms
Department Standing Appeal (First Level Appeal)	www.ryerson.ca/senate/forms
Faculty Level Grade Appeal (Second Level Appeal)	www.ryerson.ca/senate/forms
Faculty Level Standing Appeal (Second Level Appeal)	www.ryerson.ca/senate/forms
Senate Appeal (Third Level Appeal)	www.ryerson.ca/senate/forms
Application to Withdraw-Permanent	www.ryerson.ca/content/dam/currentstudents/forms/withdraw_long.pdf
Application to Withdraw-Short-Term	www.ryerson.ca/content/dam/currentstudents/forms/withdraw_short.pdf

Declaration of Religious Observation	www.ryerson.ca/senate/forms/relobservforminstr.pdf
Medical Certificate	www.ryerson.ca/senate/forms/medical.pdf
Academic Consideration Document Submission	http://www.ryerson.ca/content/dam/senate/forms/academic_consideration_document_submission.pdf
Letter of Permission Application	www.ryerson.ca/content/dam/currentstudents/forms/lop.pdf
Degree/Course Substitution/Directive	www.ryerson.ca/content/dam/currentstudents/forms/course_sub_ugrd.pdf

G GRADE POINT AVERAGE

A cumulative grade point average (CGPA) is calculated as an indicator of overall academic performance and is used as a criterion for graduation requirements, honours graduation, other academic distinctions and for determining academic standing during study in a program.

The grade point average is calculated as the sum of the products of course weights and earned grade points, divided by the sum of the course weights, and rounded up to the next higher second decimal place.

GRADE POINT AVERAGE ADJUSTMENT

Only students who are active in a program for which a CGPA is calculated, may submit a GPA Adjustment request. Forms are available online at www.ryerson.ca/essr/forms and must be submitted no later than the final date to add a course for the term in which the GPA Adjustment will apply. Only the CGPA for the current term will be adjusted. Academic Standings and CGPAs from previous terms will not be adjusted.

A GPA Adjustment can occur under one of the following conditions:

1) **Course Replacement**: Permits a student to use a new course to replace, for GPA purposes only, a previously graded Professional, or Liberal Studies course, both of which belong to the same group or table.

2) **Course Exclusion**: Permits a student to request that certain courses be excluded from his/her CGPA calculation, if the course is a course that is not applicable to the student's program of study; **OR** there is an extra course that was taken in addition to the student's program requirements.

The GPA Adjustment Request Form can be found at this link:http://www.ryerson.ca/content/dam/currentstudents/forms/gpaadjust.pdf

I INC (INCOMPLETE GRADE)

Incomplete coursework or a missed final examination due to documented medical or compassionate grounds is recorded as Incomplete (INC) on transcript at the end of a term. An INC can be awarded only when some work remains to be completed and when the completion of the outstanding work or an alternate final examination may result in a passing

grade. An INC will be assigned to students who have not completed a required Academic Integrity Tutorial for educational purposes as defined in Policy 60, the Student Code of Academic Conduct. The outstanding work or alternate examination must be completed by a specified date within **three months** of the submission of the INC unless alternative arrangements have been made with the program's Chair/Director.
The INC will be replaced by an official course grade when the work is completed. If the work is not completed by the deadline, the INC will become a grade of F. The designation INC is not included in calculating the grade point average nor is it counted as a transfer credit or failed course. An INC can be changed to an AEG (see below) by a Dean under exceptional circumstances.

INDUSTRIAL INTERNSHIP PROGRAM

Internship is a program offered to civil engineering students who have completed three years of the program and gives them the opportunity to work in an industrial setting for 12 to 16 months before returning to complete their fourth year. Students must be in a clear academic standing with a CGPA of 1.67 or higher to participate.

This option adds one additional year to a student's academic program. The employer pays internship students. At the end of the placement term, a performance evaluation is requested from the employer. At the conclusion of the internship, the student is required to submit a report for evaluation by the Department of Civil Engineering.

The Industrial Internship Program is a three-way partnership of employers, students, and educational institutions that has benefits for all participants. Students gain valuable work experience. Employers benefit from highly motivated students who are available for special projects and peak work-load periods. Ryerson University enhances its reputation for providing career-oriented applied education. For further information and forms regarding the internship program, please visit www.ryerson.ca/civil and see the Industrial Internship Program information in the Undergraduate Program section.

INTERNATIONAL SERVICES FOR STUDENTS

International Services for Students (ISS) provides many support services for registered international students, facilitating their transition to Canadian university life and promoting cultural awareness to the Ryerson Community. ISS strives to provide helpful and comprehensive support to all international students throughout their time at Ryerson. Some of the essential services that ISS provides include international student orientation, immigration advising and support, health insurance, status letters, work opportunities, events, workshops, peer support and much more. For further information please visit the following website www.ryerson.ca/internationalservices The ISS Office is located in POD-50A, Phone Number is (416) 979-5000 ext. 6655, email address is issask@ryerson.ca

L LETTER OF PERMISSION APPLICATION

Students who wish to take courses at another accredited university for credits towards their Bachelor of Engineering degree must apply with a Letter of Permission application form in advance of registering in the course to ensure that the course if completed successfully will count towards their degree. Application forms are available online www.ryerson.ca/currentstudents/forms/lop.pdf Requests must be submitted prior to taking the courses at the other institution.

LOCKERS

The Department of Civil Engineering does not assign lockers to students. However, after the 3rd Friday in September, any lockers that are unassigned and/or are not already claimed by a student are available to all Ryerson students, first come, first served. You do not need to sign-up.

You can use the locker until the end of the winter 2016 term. You must clean out your locker before May 1. If you want a locker from May to the end of July, please contact the front desk of the Ryerson Athletic Centre (RAC). You must show proof of Spring/Summer enrolment.

You may only use the locker assigned to you and must provide your own lock. All locks will be removed on any unassigned lockers over the Spring/Summer period by Ryerson University staff.

You must empty your Spring/Summer locker by August 1. After this date, Ryerson University staff will remove the contents and keep it at the RAC for a short time for pick up. To claim your items, you must provide proof of ownership and identification.

You are responsible for the contents of your locker. Never leave valuables (for example, laptop computers, wallets, jewelry) in your locker. The university will not take any responsibility for any lost, stolen or damaged items in the lockers.

For futher information about lockers, please refer to the Ryerson University Student Guide online http://www.ryerson.ca/studentguide/directories/services.html

M MATH SUPPORT

The Math Centre supports students in all programs with their math skills and math-related courses or to develop their math skills. The Math Centre is located on the fourth floor of the new Student Learning Centre, 341 Yonge Street.

MEDICAL CENTRE

The Ryerson University Health Center is a medical clinic staffed by physicians, a lab technician and receptionist. Appointments can be made by calling 416-979-5070, email medicalct@ryerson.ca or dropping by the centre located in West Kerr Hall, Room KHW 181, 350 Victoria Street. Services are similar to those you receive from your family doctor. The clinic also provides services such as form completion, HIV/STD testing, sexual education, counseling and treatment, psychosocial counseling and referrals and prescription refills. Please bring your health card to every visit or you will be charged for services. Hours of operation vary over the year. Please see www.ryerson.ca/healthservices for details.

MEDICAL CERTIFICATE

Students who are unable to write their mid-terms or final exams or who have missed assignment deadlines or other course work due to illness **must complete the following three items for academic consideration:**

1. You **MUST** inform your instructor of your medical absence as soon as possible, preferably by email **AND**

2. Please submit a completed Ryerson University Medical Certificate, available online at **http://www.ryerson.ca/senate/forms/medical.pdf, OR a medical certificate document that provides the same required information** to the Department of Civil Engineering Office, MON-221. This procedure also applies to all of your non-civil engineering courses. **ALL medical certificates are to be submitted to your Program Department in the Civil Engineering Office, Room MON-221.**

3. Please complete and submit the Academic Consideration Document Submission Required Information form to the Civil Engineering office along with your medical certificate document. This form can be found at this link: http://www.ryerson.ca/content/dam/senate/forms/academic_consideration_document_submission.pdf

The **TWO DOCUMENTS LISTED IN #2 AND #3 ABOVE MUST BE SUBMITTED TO THE CIVIL Engineering Office (Room MON-221) within three working days of the missed exam, test or other missed course work** for academic consideration based on medical grounds. The physician's name and contact information **MUST** be stamped on the form by the doctor's office.

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MENTORING PROGRAM (DEPARTMENTAL)

The Department of Civil Engineering has established a student mentoring program. In this program, students are encouraged to meet with a designated faculty member to discuss general issues related to their studies, including personal issues that may arise, progress and achievements made, and any other topic that the student wishes to discuss. The faculty mentor would not provide advice on specific academic matters, such as curriculum advising, course addition/deletion, probationary contracts, etc. as such matters are handled by the Associate Chair of the Undergraduate Program, Dr. M. Shehata. The Department hopes that this program will give our students an opportunity for positive growth both personally and professionally. The students' Faculty Mentor for Fall 2015 / Winter 2016 is Dr. Darko Joksimovic and his office is MON-303 and contact information is darkoj@ryerson.ca or ph. (416) 979-5000 ext. 6462.

MISSING CLASSES

You are encouraged to maintain regular attendance in all of your classes to make the best of your academic performance. However, if unavoidable circumstances cause you to miss classes, here are the questions you need to ask yourself if you will be missing just a few days. The Undergraduate Academic Consideration and Appeals Policy requires that you inform your instructor(s) and ask for consideration as soon as a situation arises which may affect your work. Be sure to read the Course Management Policy (Policy 145) and the outlines of your courses. Attendance may be a part of the course evaluation.

O OFFICE OF THE OMBUDSPERSON

The Office of the Ombudsperson at Ryerson University is a safe place to get advice and assistance with resolving a problem, concern or conflict fairly, or to obtain information that you were not able to obtain elsewhere.

The Ombudsperson and Assistant Ombudsperson will work with students, faculty and staff to seek an expeditious and just resolution to problems and conflicts at the University that

they have not been able to resolve themselves. All matters dealt with by the Office are handled in strict confidence unless the student involved gives permission for his or her name to be released. The Ombudsperson and Assistant Ombudsperson are impartial and operate independently of the University, including all administrative structures and student government.

Students should keep in mind that it is their responsibility to be aware of Ryerson's official policies, procedures, deadlines and other information or documentation as set out in **Ryerson's Statement of Student Rights and Responsibilities.** You can reach the Office of Ombudsperson at Tel: 416-979-5000, ext. 1-7450, or email ombuds@ryerson.ca Their office is located at Oakham House, 2nd Floor, Rooms OAK 214/215/216, 63 Gould St. (at the corner of Church St.) The Ombudsperson's Office Website address is www.ryerson.ca/ombuds/

P POLICIES

For a complete list of Ryerson University's Senate Policies please see:

www.ryerson.ca/senate/policies

Policy Name	No.
Accommodation of Student Religious Observance Obligations	150
Appeals Policy	134
Course Management Policy	145
Examination Policy	135
GPA Policy	46
Ryerson University Email Accounts	157
Student Code of Academic Conduct	60
Student Code of Non-Academic Conduct	61

PRIVACY STATEMENT/INFORMATION PROTECTION AND ACCESS POLICY

The University has a policy on access to information and protection of personal information. The policy can be found at www.ryerson.ca/privacy The University's Information and Privacy Coordinator has been appointed as the administrator responsible for such issues. Please direct any questions to fippa@ryerson.ca or call 416.979.5000 ext 4676.

PROBATIONARY CONTRACT

PROBATIONARY - a cumulative grade point average (CGPA) of 1.00 to 1.66. Students with Probationary standing are required to have a developmental Probationary Contract outlining a specific plan for studies and academic supports authorized by their program Department, and signed by the student. Students who fail to have such a Probationary Contract within five (5) working days of the first day of the semester will have their course registrations and course intention requests cancelled for the term in question.

Students with a Probationary standing at the start of any semester will be eligible to continue their studies in a subsequent semester as long as they achieve a term grade point average

(TGPA) of 1.67 or higher and provided they meet the terms of their Probationary Contract and do not violate approved Department/School standing variations. Failure to meet the terms of the Probationary Contract as set out by the Department of Civil Engineering will result in the student being RTW from their Ryerson program.

R RAMSS – RYERSON'S ADMINISTRATIVE MANAGEMENT SELF SERVICE

RAMSS is a web-based support tool for students and is accessible through the my.ryerson.ca web portal with your Ryerson Email Account and Password. RAMSS offers enhanced levels of services that are provided by Enrolment Services (formerly known as Records & Registration).

You may access RAMSS via www.my.ryerson.ca to:

- View and print your class schedule
- Check for course schedule, availability and location
- Add, drop, and swap classes
- Update your address and other contact information including your email address
- View your financial student account
- View your grades and academic standing
- View your academic advising report

RCES – RYERSON CIVIL ENGINEERING SOCIETY

The Ryerson Civil Engineering Society (RCES) is the representative student chapter for Civil Engineering and Geomatics Option students at Ryerson University. It is a student-run organization that provides peer support, builds connections to industry, plans social and extra-curricular engineering competition events and other special projects. The Society also offers many academic and extra-curricular activities throughout the year. The RCES Office is located in MON-101.The President of Ryerson Civil Engineering Society for Fall 2015/ Winter 2016 is Joseph Gallen and he can be reached at ryecivil@ryerson.ca, telephone (416) 979-5000, ext. 6454.

RELIGIOUS OBSERVANCE OBLIGATIONS

It is the policy of Ryerson University to accommodate the sincerely held religious beliefs of all students. Ryerson is a community which celebrates diversity and places a high value on inclusion and respect for differences. Ryerson recognizes that the religious, Aboriginal or spiritual observances of students may conflict with their academic obligations and could potentially lead to a disadvantage if an accommodation is not arranged. Ryerson also accepts that sincerely held beliefs by members of the same religious group or Aboriginal peoples (from different nations) often engender different types of commitments for observance practices. In accordance with the principles of the Ontario Human Rights Code, which requires accommodations based on creed, this policy outlines how accommodations for the religious, Aboriginal or spiritual observances of the Senate policy outlines how accommodations for the religious, Aboriginal or spiritual observances of Ryerson students will be determined.

If you have religious observance commitments which preclude you from participating in required course activities, please seek accommodation from your professors as soon as possible. Requests for accommodation of specific religious or spiritual observances must be

presented to the instructor no later than two weeks prior to the conflict in question (in the case of final exams within five days of the posting of the exam schedule). In extenuating circumstances this deadline may be extended. If the dates are not known well in advance because they are linked to other conditions, then requests should be submitted as soon as possible in advance of the required observance. You must also complete the Student Declaration of Observances Form available online at www.ryerson.ca/senate/other/relobservforminstr.pdf. Please refer to www.ryerson.ca/forms; www.ryerson.ca/equity; www.ryerson.ca/senate/policies/pol150.pdf for the complete policy on Religious Observance Obligations.

The Student Declaration of Religious Observance form is available at the above mentioned websites, which are linked to Religious Observance calendars through the Discrimination and Harassment Prevention Services website, providing students and faculty with a comprehensive description of some observance obligations.

RESEARCH ASSISTANTSHIPS

Ryerson University offers a Research Assistant Program for undergraduate students. In this program, research assistantships are awarded to faculty members to hire students during the Fall/Winter semesters and the summer to conduct research on specific proposed topics. If you are interested, please contact the faculty member (faculty contact information is listed in the Departmental Directory of this Handbook) related to your area of research interest.

RESS – RYERSON ENGINEERING STUDENT SOCIETY

Ryerson Engineering Student Society (RESS) represents and acts as an advocate for all engineering students at Ryerson. It is an association of members who are full time undergraduate students enrolled in engineering programs at Ryerson. RESS is a member of the Engineering Student Society Council of Ontario as well as the Canadian Federation of Engineering Students. Please see the website www.ress.ca for upcoming events, news and announcements.

RITE – RYERSON INSTITUTE OF TRANSPORTATION ENGINEERS

The purpose of the Canadian Institute of Transportation Engineers (CITE) student chapter is to enhance the access of Ryerson University students who are studying transportation to the transportation industry through various RITE activities and resources. RITE offers technical programs and opportunities to meet practicing transportation professionals in the local area. The Ryerson Institute of Transportation Engineers in conjunction with the Department of Civil Engineering established the website www.civil.ryeson.ca/RITE/ to increase students' access to the transportation industry.

RSU – RYERSON'S STUDENT UNION

Representing all full-time undergraduate students, as well as full and part-time graduate students, the RSU builds campus community by organizing events and supporting student groups, course unions, equity groups and graduate students' associations. The Executive and staff advocate on behalf of students to meet their needs with an aim to improve access to and the quality of post-secondary education. The RSU also provides cost-saving services to benefit Ryerson students.

The Ryerson Students' Union main office is located at SCC311, Student Campus Centre, third floor, 55 Gould Street, Phone (416) 979-5255, Email info@rsuonline.ca, Website www.rsuonline.ca

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SCHEDULES

Student schedules are available on the RAMSS website (www.my.ryerson.ca) in mid August for Fall term and in mid-December for the Winter term.

SCHOLARSHIPS & AWARDS

Ryerson University offers many scholarships and awards to new and returning students. Details can be found on the Ryerson University website at this web address: www.ryerson.ca/currentstudents/awards as well as on the Civil Engineering website: www.ryerson.ca/civil and the Faculty of Engineering and Architectural Science website www.feas.ryerson.ca. Information on awards and scholarships is also available from the Financial Aid and Awards Office located in POD-59.

SENATE

The Senate is the academic policy-making body of Ryerson University. It is responsible for determining the curricula for all programs, admission and graduation requirements, conducting examinations, awarding certificates, diplomas, and all degrees. All of the Senate policies and by-laws can be found in their entirety at the Ryerson University Senate website: www.ryerson.ca/senate/policies

Senate represents a wide range of groups, including faculty, students, senior administration, alumni and others. Senate relies on members who are committed to ensuring that the interests of the group they represent are reflected in academic policy and curriculum decisions.

The Senate consists of 51 elected representatives of the faculty, librarians, students and alumni, and 18 *ex-officio* members of the administration, including the Chancellor. Senate is chaired by the President. Much of Senate's work is carried out through its committee structure, and students are especially encouraged to serve on one or more committees to get first-hand knowledge of how the University sets policies and makes decisions. Membership and active involvement on Senate and/or its committees can be an impressive addition to a student's resume.

The Office of the Secretary of Senate is responsible for the meetings of Senate, the election of its members, the coordination of Senate committees and for providing the University with assistance on academic policy and governance. The Secretary oversees the *Undergraduate Academic Consideration and Appeals Policy* and the *Student Code of Academic Conduct*, and is responsible for student academic and code of conduct appeals to Senate.

Information on Senate, its membership, committees, policies, elections, etc., can be found at www.ryerson.ca/senate. If you require further information, please contact John Turtle, Secretary of Senate, at jturtle@ryerson.ca or Lucia Stewart, Assistant to the Secretary of the Senate at lstewart@ryerson.ca or call ext. 5011.

STUDENT LEARNING SUPPORT

Student Learning Support (SLS) is a group of services and programs aimed at helping students engage more effectively in their academic studies. We teach essential academic

skills and study techniques that help students to more effectively express their intelligence, apply their knowledge and communicate their ideas.

Support areas include the following: Academic Accommodation, English Language, Graduate Student, Math, Study Skills and Transition, Writing, and Test Centre.

The Student Learning Support is located on the 4th floor of the new Student Learning Centre at the corner of Yonge and Gould Streets. Contact their main office at 416.598.5978 or by email sls@ryerson.ca.

Website address is http://www.ryerson.ca/studentlearningsupport/about/index.html

T TRANSFER CREDITS

Transfer Credits refer to the number of course equivalencies that are granted towards a program of study based on previous academic course work from an accredited university or college.

Students who are eligible or are planning to apply for transfer credits for courses that they completed at other accredited post-secondary institutions must collect officially certified transcripts, course description and course outlines as early as possible. These documents along with your application for transfer credits must be submitted to the Office of Curriculum Advising.

Applicants approved into an Engineering program cannot expect to receive any transfer credits in Engineering discipline or Engineering related discipline courses if their applicable post secondary education was not completed at a program accredited by the Canadian Engineering Accreditation Board (CEAB). Refer to www.ccpe.ca/e/index.cfm for a listing of CEAB accredited institutions. Core and Professional Engineering course transfer credits will ONLY be granted at the time of admission. An Offer of Admission will notify the applicant of transfer credit decision(s) subject to acceptance of their Offer.

Liberal Studies discipline courses taken at CEAB accredited or non-accredited schools will be considered for either lower- or upper-level liberal studies transfer credit. College courses, in general, are not eligible for transfer credit except in the case of lower-level liberal studies courses.

For further information about transfer credits, please see the following website:
www.ryerson.ca/currentstudents/transfercredits/

TRI-MENTORING PROGRAM

The mission of the Tri-Mentoring Program is to facilitate students' learning, leadership, and employment through mentoring, learning support and leadership training. The Tri-Mentoring Program aims to assist students at all levels of study in successful achievement of goals. The Program allows you to share or gain wisdom, build leadership skills and grow both personally and professionally by becoming a student mentor. Through meaningful relationships with fellow students, industry professionals and the community at large, Tri-Mentoring supports the unique needs of Ryerson’s culturally diverse student body.

All participants will benefit from the opportunities to grow as a student and a person through guidance, communication, leadership and a supportive community. Participating first year students are paired with senior (second to fourth) year students to help facilitate their

orientation and transition into university life. Second year students enrol in a Student Leadership and Education program which will develop their skills/training in peer support, teamwork, etc. Fourth year or graduating students are matched with an industry professional to develop networks, gain job opportunities and employability skills and also gain insight into their field of study. For more information or to apply please see www.ryerson.ca/studentservices/trimentoring or email tmentor@ryerson.ca

TUITION FEES

Fees charged by Ryerson are approved annually by the Board of Governors for an academic year. Ryerson reserves the right to make changes in both the fees and the procedures given in this section of the Calendar without prior notice.

Details of Tuition Fees information for the Fall 2015 / Winter 2016 academic year are available on RAMSS at www.my.ryerson.ca

TUTOR REGISTRY

The Tutor Registry is a tutor database that matches a student who needs assistance with the material in a Ryerson course with a student who successfully completed the course.

Student Learning Support verifies that the potential tutor is a current Ryerson student, that he/she has achieved at least a B+ in the course for which they are offering tutoring services, and that the potential tutor's CGPA (Cumulative Grade Point Average) is above 2.33. For more information regarding the Tutor Registry, please refer to the following Ryerson link: http://www.ryerson.ca/studentlearningsupport/opportunities/become-tutor.html

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WOMEN IN ENGINEERING

Women in Engineering (WIE) is dedicated to providing education for female students considering engineering as a career, and to promoting a friendly and supportive environment in which women can pursue their engineering studies.

Their outreach activities have allowed them to study the attitudes of high school students towards engineering, and to work on eliminating the barriers that may exist for young women in terms of studying engineering and launching exciting engineering careers. For further information, please see http://www.ryerson.ca/feas/programs/wie/ The contact information for Women in Engineering is email address womeng@ryerson.ca and phone number (416) 979-5000 Ext. 7220.

WRITING SUPPORT PROGRAM

The Writing Support Program offers free one-on-one peer tutoring to assist students improve their writing to meet university standards. They provide one-to-one tutorials with students, in-class presentations, and workshops. Trained tutors assist all undergraduate and graduate students (including multilingual students, mature students, and distance education students) in all disciplines, with any writing project, and at any stage of the writing process.

The Program is located on the fourth floor of the Student Learning Centre at 341 Yonge Street. Writing group sessions are held in SLC 453, on the fourth floor of the Centre.

DIRECTORY OF STUDENT RESOURCES

INQUIRY	CONTACT NAME	CONTACT INFO	AREA/LOCATION
General Information for Prospective Students:			
Application and Inquiry	Client Services Rep	416-979-5036 ask.ryerson.ca	Undergraduate Admissions and Recruitment POD-144
Graduate School Application and Inquiry	Client Services Rep	416-979-5150 grdadmit@ryerson.ca	Graduate Admissions Office YDI-1102
Campus Tours	Client Services Rep	416-979-5036 ask.ryerson.ca	Undergraduate Admissions and Recruitment POD-144
G. Raymond Chang School of Continuing Education Calendars	Client Services Rep	416-979-5035 ce@ryerson.ca	Heaslip House 297 Victoria
Transfer Credits	Client Services Rep	416-598-5959 tcredits@ryerson.ca	Curriculum Management - Transfer Credit, POD-363
Money Matters:			
OSAP	Client Services Rep	416-979-5113 finaid@ryerson.ca	Student Financial Assistance POD-59
Scholarships, Bursaries	Client Services Rep	416-979-5113 awards@ryerson.ca	Student Financial Assistance POD-59
Student Access Guarantee	Client Services Rep	416-979-5113 funding@ryerson.ca	Student Financial Assistance POD-59
Work Study	Client Services Rep	416-979-5113 jobs@ryerson.ca	Student Financial Assistance POD-59
Student Fees Office	Client Services Rep	416-979-5136	Enrolment Services

		ask.ryerson.ca	and Student Fees, POD-70
Student Project's Funding	Client Services Rep	416-979-5000 x7352 pfacs@ryerson.ca	P-FACS Student Projects Fund POD-61
RSU Bursary	Client Services Rep	416-979-5255 info@rsuonline.ca	RSU SCC-311
Continuing Education Students' Association of Ryerson	Administrative Assistant	416-979-5193 info@mycesar.org	CESAR SCC-301

Learning Assistance:

Study Skills and Transition Support	Andrea Moon, Learning Strategist	416-979-5000 x7933 andrea.moon@ryerson.ca	Student Learning Support SLC 4th floor
English Language Support	Chris Brierley, Senior English Language Support Specialist	416-979-5000 x4064 els@ryerson.ca	Student Learning Support SLC 4th floor
Tutor Registry	Client Service Rep	416-979-5000 x7350 lss@ryerson.ca	Student Learning Support SLC 4th floor
Math Centre	Deidra Lam, Math Centre Coordinator	416-979-5000 x2993	Student Learning Support SLC 4th floor
Graduate Student Support	Dr. Robert Roseberry	416-979-5000 x4992 rroseber@ryerson.ca	Student Learning Support SLC 4th floor
Writing Support	Estefania Toledo, Administrative Coordinator	416-979-5000 x7192 writingcentre@ryerson.ca	Student Learning Support SLC 4th floor
Reference Material and Research Assistance	Circulation and Reference	416-979-5055 Online form	Library LIB 2nd floor
Books and Supplies	Kelly Abraham, Associate Director Campus Retail, Printing & Duplicating Services	416-979-5116 bookstor@ryerson.ca	17 Gould St.

Academic Services:

Enrolment	Client Services Rep	416-979-5136 ask@ryerson.ca	Enrolment Services and Student Fees, POD-70
Transcripts	Client Services Rep	416-979-5136 transcripts@ryerson.ca	Enrolment Services and Student Fees, POD-70
Student Fees	Client Services Rep	416-979-5136 ask@ryerson.ca	Enrolment Services and Student Fees, POD-70
Enrolment Services & Student Fees	Client Services Rep	416-979-5136 ask@ryerson.ca	Enrolment Services and Student Fees, POD-70
Add/Drop/Swap Courses	Client Services Rep	416-979-5136 ask@ryerson.ca	Enrolment Services and Student Fees, POD-70
RAMMS Support	Client Services Rep	416-979-5000 x5136 sservice@ryerson.ca	Help Desk KHW-71 or Library
Curriculum Advising	Client Services Rep	416-979-5000 x5151 gradinfo@ryerson.ca	Curriculum Management - Curriculum Advising, POD-355
Academic Counselling related to Educational decision-making	Counselling Centre Assistant	416-979-5195 csdc@ryerson.ca	Centre for Student Development and Counselling JOR-07
Advocacy	Student Issues & Advocacy Co-ordinator	416-979-5255 x2322 advocacy@rsuonline.ca	RSU SCC-311
Advocacy	CESAR Student Rights Coordinator	416-979-5000 x5193 info@mycesar.org	SCC-301
Academic Difficulties	Client Services Rep	416-5255 x2322	SCC-311 Refer to Undergraduate Student Guide
Suspension/Required	Department Specific	Department Specific	Department Specific

to Withdraw			
Transfer Credits	Client Services Rep	416-598-5959 tcredits@ryerson.ca	Curriculum Management - Transfer Credit, POD-363
Policies, Procedures, Appeals & Complaints	Assistant Ombudsperson	416-979-5000 x7450 ombuds@ryerson.ca	Ombudsperson OAK-214/215/216
Graduation Eligibility	Client Services Rep	416-979-5151 gradinfo@ryerson.ca	Curriculum Management - Curriculum Advising, POD-355
Registrar's Office:			
The Office of the Registrar	Charmaine Hack, University Registrar	416-979-5100 registrar@ryerson.ca	Enrolment Services and Student Fees, POD-70
Curriculum Management – Curriculum Advising	Client Services Rep	416-979-5151 or x7308 gradinfo@ryerson.ca	Enrolment Services and Student Fees, POD-70
Enrolment Services & Student Fees	Client Services Rep	416-979-5136 ask@ryerson.ca	Enrolment Services and Student Fees, POD-70
Student Fees	Client Services Rep	416-979-5136 ask@ryerson.ca	Enrolment Services and Student Fees, POD-70
Student Records & Operations Support	Client Services Rep	416-979-5136 sr.support@ryerson.ca	Enrolment Services and Student Fees, POD-70
Transfer Credits	Client Services Rep	416-598-5959 tcredits@ryerson.ca	Curriculum Management – Transfer Credits, POD-363
Undergraduate Admissions & Recruitment	Client Services Rep	416-979-5036 ask.ryerson.ca	Undergraduate Admissions and Recruitment, POD-144

Accommodations for a Disability:

Academic Accomodation Support	Front Desk/Administrative Assistant	416-979-5290 accessfrontdesk@ryerson.ca	Student Learning Support, SLC 4th floor
Test Centre	Test Centre Coordinator	416-979-5000 x7932 testcentre@ryerson.ca	Test Centre VIC-B-16
Advocacy	Co-ordinator	416-979-5255 x4504 access@rsuonline.ca	RyeAccess SCC-213
Computer Services			
Computer Support	Lab Advisors	416-979-5000 x6840 help@ryerson.ca	Student Help Desk KHW-71 or Library

Career Services:

Career Centre	Ian Ingles, Operations Manager	416-979-5177 career@ryerson.ca	Career Centre POD-61
On Campus Jobs	Christina Liang, Work Student Program Coordinator	416-979-5177 ccswp@ryerson.ca	Career Centre POD-61
Off-Campus Work Permits for International Students	Inquiry Assistant	416-979-5000 x4189 issask@ryerson.ca	International Services for Students POD-61
Career and Educational Decision-Making	Counselling Centre Assistant	416-979-5195 csdc@ryerson.ca	Centre for Student Development and Counselling JOR-07
Advocacy & Workers Rights	Co-ordinator	416-979-5255 x4503 workingstudents@rsuonline.ca livingwagenow@ryesac.ca	RSU Working Students' Centre SCC-213

Personal Safety/Crisis Intervention:

Discrimination, Harassment	Katie Scarcello Intake and Admin Assistant	416-979-5000 x7494 kscarcel@ryerson.ca	Discrimination and Harassment Prevention Services POD-254A
Safe House	Counselling Centre Assistant	416-979-5195 cscd@ryerson.ca	Centre for Student Development and

			Counselling JOR-07
Security	Security Officer	For emergency x80 or 416-979-5001 security@ryerson.ca	Security CPF-100
Non-Academic Code of Conduct	Mark Atia Student Conduct Officer	416-979-5000 x2741 matia@ryerson.ca	POD-62
Ryerson Crisis Team	Crisis Team Clinical Coordinator	416-979-5195 dbrecher@ryerson.ca	Centre for Student Development and Counselling JOR-07

Health and Wellness:

Recreation and Athletics Centre (RAC)	Renee De Laire	416-979-5096 rac@ryerson.ca varsity@ryerson.ca	Recreation and Athletics Centre (RAC)
Intramurals	Randy Pipher, Intramural and Camps Co-ordinator	416-979-5000 x7360 intramur@ryerson.ca	Recreation and Athletics Centre (RAC)
Aids Education, Nutrition, Physical Health, Stress Mgmt.	Health Promotion Nurse	416-979-5000 x4295 healthy@ryerson.ca	Health Promotion POD-448A
Physicians, flu shots, medical notes	Customer Service Liaison	416-979-5070 healthct@ryerson.ca	Medical Centre KHW-181
Health & Dental Plan	Dawn Murray, Administrator	416-979-5255 x2311 health@rsuonline.ca	RSU SCC-311
UHIP	Inquiry Assistant	416-979-5000 x4189 issask@ryerson.ca	International Services for Students POD-61
Student Medical Certificate	Submit medical certificate within 3 working days of missed exam to the appropriate department to receive consideration for that exam.		Enrollment Services and Student Fees or The Senate
Massage Therapy	Client Services Rep	416-979-5096 rac@ryerson.ca	Recreation and Athletics Centre (RAC) RAC-12B

Counselling:

Personal, Career, and Educational Counselling	Counselling Centre Assistant	416-979-5195 csdc@ryerson.ca	Centre for Student Development and Counselling JOR-07

Legal Advice:

Free legal advice	Bill Reid	416-979- 5255 x2315 legal@rsuonline.ca	RSU Legal Advocacy Services SCC-311
Immigration and Legal Advising for International Students	Inquiry Assistant	416-979-5000 x4189 issask@ryerson.ca	International Services for Students POD-61

Connecting with Other Students:

Become a Mentor	Mentoring Program Assistant	416-979-5000 x6634 tmentor@ryerson.ca	Tri-Mentoring POD-54
Cultural Groups and Course Unions	Campus Groups Administrator	416-979-5255 x2323 campusgroups@rsuonline.ca	RSU Campus Groups SCC-311
Women's Advocacy and Support	Co-ordinator	416-979-5255 x2350 womenscentre@rsuonline.com	Women's Centre, RSU SCC-210
LGBTTIQQ2S Advocacy and Support	Outreach Co-ordinator	416-979-5255 x7527 ryepride@rsuonline.ca	RyePride, RSU SCC-209
Office of International Affairs	Inquiries Assistant	416-979-5000 x6655 issask@ryerson.ca	International Services for Students POD-61
Metis, Inuit, status and non-status, Aboriginal	Sheila Saikkon, Co-ordinator	416-979-5000 x7699 ssaikkon@ryerson.ca	Aboriginal Student Services KHW-389

Student Events

First Year Orientation	Akeisha Lari	416-979-5000 x7352 orientation@ryerson.ca	Student Community Life POD-61
Booking a Room	Facilities Rentals	416-979-5000 x5009 s1chong@ryerson.ca	Theatre & Facilities KHW-185

Risk Assessment Forms	Akeisha Lari	416-979-5000 x7352 event@ryerson.ca	Student Community Life POD-61
P-FACS Student Projects Fund	Akeisha Lari	416-979-5000 x7352 pfacs@ryerson.ca	Student Community Life POD-61
Advertising on Campus	Akeisha Lari	416-979-5000 x7352	Student Community Life POD-61
Convocation Ceremonies	Administrative Assistant	416-979-5234 convocation@ryerson.ca	Convocation and Awards Office KHW-47

Leadership Experience:

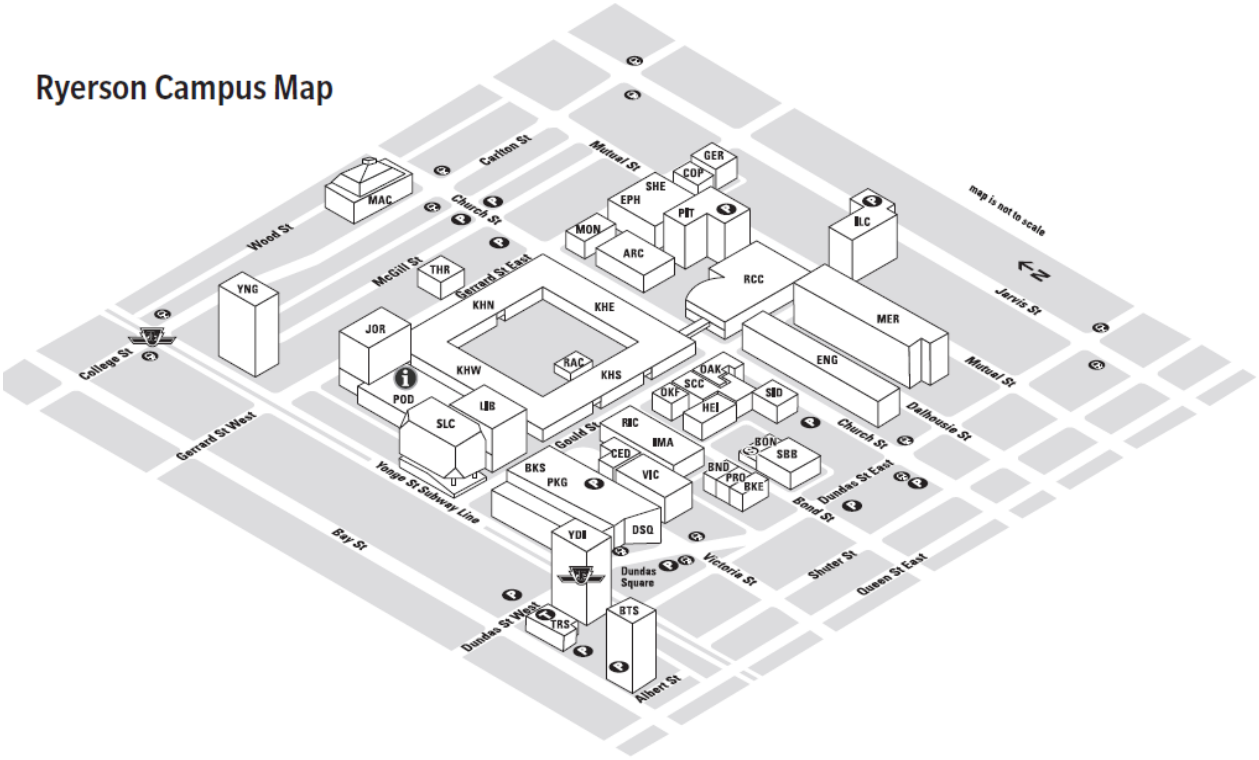
Become a Mentor	Mentoring Program Assistant	416-979-5000 x6634 tmentor@ryerson.ca	Tri-Mentoring Program POD-54
RU Leadership	Kait Taylor-Asquini, Leadership Development Facilitator	416-979-5000 x2128 k8taylor@ryerson.ca	L.E.A.D. Certificate Program JOR-04
Food at Ryerson			
Community Food Room	Co-ordinator	416-979-5255 x2334 foodroom@rsuonline.ca	RSU SCC-212
Cafeteria's on Campus			HUB (1st floor Podium Building), ILLC (133 Mutual St), Pitman (Pitman Hall)
Catering/Ordering Food	Co-ordinator	416-979-5000 x6956 silvana_babikian@aramark.ca	Ryerson Food Services POD-250B
Student Identification			
Student ID Card	Client Services Rep	416-979-5000 x7565 onecard@ryerson.ca	OneCard Office JOR-02
Go Transit Student ID Discount Card	Client Services Rep	416-979-5000 x7565 onecard@ryerson.ca	OneCard Office JOR-02

Proof of Enrolment	Client Services Rep	416-979-5136 ask@ryerson.ca	Enrolment Services and Student Fees POD-70

Housing:

Off-campus Housing	Housing Services Assistant	416-979-5284 offcamp@ryerson.ca	Student Housing Services PIT-100
On-campus Housing	Housing Services Assistant	416-979-5284 housing@ryerson.ca	Student Housing Services PIT-100
Parking: Student Permits Daily Parking	Susan Hum-Poon	416-979-5000 ext. 5008 shumpoon@ryerson.ca	University Business Services YDI-970

Ryerson Campus Map



BUILDING CODE, NAME, STREET ADDRESS

ARC Architecture Building, 325 Church Street
BKE 110 Bond Street
BKS Campus Store, 17 Gould Street
BND 114 Bond Street
BON Capital Projects & Real Estate, Security, 111 Bond Street
BTS Bell Trinity Square, 483 Bay Street
CED Heaslip House, The G. Raymond Chang School of Continuing Education, 297 Victoria Street
COP Co-operative Education, 101 Gerrard Street East
DSQ 10 Dundas Street East – Yonge-Dundas Square
ENG George Vari Engineering and Computing Centre, 245 Church Street
EPH Eric Palin Hall, 87 Gerrard Street East
GER Research/Graduate Studies, 111 Gerrard Street East
HEI HEIDELBERG Centre – School of Graphic Communications Management, 125 Bond Street
ILC International Living/Learning Centre, entrances at 133 Mutual Street and 240 Jarvis Street
IMA School of Image Arts, 122 Bond Street
JOR Jorgenson Hall, 380 Victoria Street
KHE Kerr Hall East, 340 Church Street/60 Gould Street
KHN Kerr Hall North, 31/43 Gerrard Street East
KHS Kerr Hall South, 40/50 Gould Street
KHW Kerr Hall West, 379 Victoria Street
LIB Library Building, 350 Victoria Street
MAC Mattamy Athletic Centre at the Gardens, 50 Carlton Street
MER Merchandise Building, 147/159 Dalhousie Street
MON Civil Engineering Building, 341 Church Street
OAK Oakham House, 63 Gould Street
OKF O'Keefe House, 137 Bond Street
PIT Pitman Hall, 160 Mutual Street
PKG Parking Garage, 300 Victoria Street
POD Podium, 350 Victoria Street (area connecting Jorgenson Hall to the Library Building)
PRO Projects Office, 112 Bond Street
RAC Recreation and Athletics Centre, entrance through archway at 40 and 50 Gould Street
RCC Rogers Communications Centre, 80 Gould Street
RIC Ryerson Image Centre, 33 Gould Street
SBB South Bond Building, 105 Bond Street
SCC Student Campus Centre, 55 Gould Street
SLC Student Learning Centre, 341 Yonge Street
SHE Sally Horsfall Eaton Centre for Studies in Community Health, 99 Gerrard Street East
SID School of Interior Design, 302 Church Street
THR Theatre School, 44/46 Gerrard Street East
TRS Ted Rogers School of Management – 575 Bay Street (entrance at 55 Dundas Street West)
VIC Victoria Building, 285 Victoria Street
YDI Yonge-Dundas I, 1 Dundas Street West
YNG 415 Yonge Street

Undergraduate Admissions and Recruitment
Direct underground access from the Ted Rogers School of Management to the Dundas Subway
Security
Parking
TTC Subway stop
TTC Streetcar stop

May 2015

RYERSON UNIVERSITY

DEPARTMENTAL DIRECTORY

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Dr. M. Shehata	**Associate Chair Undergraduate Program**
Dr. A. El-Rabbany	**Associate Chair Graduate Studies Program Director**
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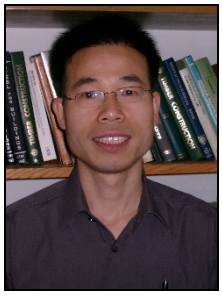

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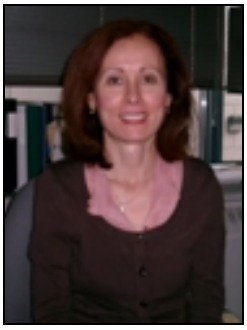

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