Information Session
to Prepare for
2nd-Year Studies in ECE

September 14, 2016
• Prof. Michael Greenspan
  Department Head

• Prof. Ahmad Afsahi
  Chair of Undergraduate Studies

• Irina Pavich
  Interim UG Program Assistant

• Prof. Evelyn Morin
  Associate Head

• Prof. Geoffrey Chan
  Chair of Graduate Studies

• Debra Fraser
  Graduate Program Assistant

• 22 Faculty Members; 9 Staff (6 admin / 3 technical)

• 500 Undergraduate Students; 161 Graduate Students
  – 68 PhD
  – 45 MASc
  – 48 MEng

• 4 Visiting Researchers

Disclaimer: when discrepancies exist, the information in the official calendar is correct.
• **Debra Fraser**: Graduate Program Assistant
• **Mary Gillespie**: Departmental Assistant
• **John McKay**: Department Manager
• **Grier Owen**: Research Administrator
• **Irina Pavich**: Interim Undergraduate Program Assistant
• **Cheryl Wright**: Office Assistant

• **Steve Babcock**: Computing Engineering Technologist
• **Steve Humphrey**: Computing Engineering Technologist
• **Greg MacLeod**: Computing Systems Specialist
People in WLH

• Year Advisors
  – 2\textsuperscript{nd}-year: Prof. Saeed Gazor
  – 3\textsuperscript{rd}-year: Prof. Steven Blostein
  – 4\textsuperscript{th}-year: Prof. Alireza Bakhshai

• Act as the first point of contact

• Able to provide advice on selection of elective courses, program requirements, streams, student illness, what constitutes academic dishonesty, applying for add/drop, supplemental exams, rereads, etc.
Online Resources

• Faculty of Engineering and Applied Science Calendar
  – Sessional Dates, Important Dates
  – Academic Plans
    • Computer Engineering
    • Electrical Engineering
  – Courses of Instruction
  – Complementary Studies
  – Faculty Policies and Regulations
• Requests, Waivers and Appeals
• Academic Guide
• ExamBank
Online Resources

- Computer Engineering Program: Innovation Stream
- Electrical Engineering Program: Innovation Stream
- ECE Undergraduate Courses
- Prerequisite Charts
  - Computer Engineering
  - Electrical Engineering
- ECE Planning Spreadsheets
  - Computer Engineering (class of 2019)
  - Electrical Engineering (class of 2019)
- Student Wellness Services
- Student Success Services
Welcome current ECE Students!

If you can imagine working with robots or solar-powered vehicles, or envision a career in the field of power engineering or high-tech communications - you are in the right place!

At Queen’s University, you will be taught by professors who know the industry and help to shape it. Beyond academic pursuits, there are also a variety of clubs to join within ECE which will allow you to interact with like-minded, dedicated students who want to play a role in shaping the future.

Follow the side tabs on this page for more information on everything from program streams, to PRE-REGISTRATION, to detailed course summaries, to learning more about the excellent jobs that await you in this field.
Welcome to the ECE Engineering Undergraduate Wiki.

This wiki will provide students with information that will help them manage their undergraduate program.

It includes information specific to Electrical and Computer Engineering as well as general academic information.

Please use the links in the left hand sidebar to navigate the wiki.

If you have any questions or concerns regarding the content of this wiki please contact Irina Pavich, ECE Office Assistant

E-mail: irina.pavich@queensu.ca

Phone: (613) 533 6000  ext 75346

In Person: Walter Light Hall, room 425

Accessible Documents

The ECE Department is committed to building an inclusive campus community with accessible services that respect the dignity and independence of persons with disabilities.

Academic information on program requirements, course selection, regulations and registration is available in an accessible format on request. Please contact Irina Pavich.

Recent space activity

Space contributors
## Grading System

<table>
<thead>
<tr>
<th>Mark</th>
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<td>80-84</td>
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<td>A-</td>
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Faculty Regulations

- **Faculty policies and regulations**
  - Reg. 2(e): course substitutions
    - need *prior approval* to verify equivalence
  - Reg. 7: requirements for graduation
    - English Proficiency Test (EPT), 6 years, and a cumulative GPA of 1.6
  - Reg. 9: honours standing at graduation
    - first class: GPA 3.5+
    - second class: GPA 2.2+
  - Reg. 10: Academic Probation and Requirement to Withdraw
• Responsibilities of Students
• Queen’s University Code of Conduct
• Academic Integrity at Queen’s
• Departure from Academic Integrity
## Electrical Engineering (Innovation Stream) Program Core in Second Year

<table>
<thead>
<tr>
<th>FALL</th>
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<tbody>
<tr>
<td>APSC 200 Engineering Design and Practice II</td>
<td>ELEC 252 Electronics I</td>
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<tr>
<td>APSC 293 Engineering Communications</td>
<td>ELEC 273 Numerical Methods and Optimization</td>
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<td>ELEC 221 Electric Circuits</td>
<td>ELEC 274 Computer Architecture</td>
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<tr>
<td>ELEC 271 Digital Systems</td>
<td>ELEC 280 Fundamentals of Electromagnetics</td>
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<tr>
<td>ELEC 278 Fundamentals of Info Structures</td>
<td>ELEC 299 Mechatronics Project</td>
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<td>MTHE 235 Differential Equations for ECE</td>
<td>MTHE 228 Complex Analysis</td>
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<tr>
<td>Complementary Studies, List A</td>
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## Computer Engineering (Innovation Stream) Program Core in Second Year

### FALL
- APSC 200 Engineering Design and Practice II
- APSC 293 Engineering Communications
- ELEC 221 Electric Circuits
- ELEC 271 Digital Systems
- ELEC 278 Fundamentals of Info Structures
- MTHE 235 Differential Equations for ECE
- Complementary Studies, List A

### WINTER
- ELEC 252 Electronics I
- ELEC 274 Computer Architecture
- ELEC 280 Fundamentals of Electromagnetics
- ELEC 299 Mechatronics Project
- CMPE 212 Introduction to Computing Science II
Add/Drop Deadlines

- Add courses, or drop courses without financial penalty, by Sept 23, 2016 and Jan 20, 2017

- Can drop a course without academic penalty by Nov 4, 2016 and Mar 3, 2017

- Please respect add/drop deadlines!

- Late requests:
  - Need a valid reason and documentation (e.g., medical)
  - Need to be further approved by the Academic Progress Committee at the Faculty level
  - There is a fee of $60
ECE Graduation Requirements

• Electrical Engineering
  • Have at least 5 four-hundred level Technical Elective Courses
  • Have at least 5 courses from Technical Elective List A
  • A total of no less than 162.5 credits counting all courses for first, second, third and fourth years
  • Exceed the minimum accreditation units set by ECE in each CEAB category
• **Computer Engineering**
  • Have at least 5 four-hundred level Technical Elective Courses
  • Have at least 4 courses from Technical Electives List B and List C, but no more than 5 courses from List C
  • A total of no less than 162.5 credits counting all courses for first, second, third and fourth years
  • Exceed the minimum accreditation units set by ECE in each CEAB category
Flexibility

• EE and CE with **streams** instead of options
  – Options are limiting
  – Streams allow you to mix and match as you wish
  – Large number of courses to choose from

• Streams provide primary and secondary course suggestions
Selecting Electives

• You have much flexibility in EE and CE
  - but that comes with greater responsibility

• Technical Electives:
  - suggested streams give a coherent set of courses in a particular area, e.g., mechatronics
  - use interest and passion as your guide

• Complementary Studies
  - you must have a total of 108 units, with minimum 72 units in H&SS ("List A" Comp Studies courses)
    – Two courses from List A, one course from List A, B, C, or D
EE Streams

- Streams of Specialization for Elective Courses in Electrical Engineering
  - Biomedical Engineering
  - Communications & Signal Processing
  - Communications Systems & Networks
  - Electronics & Photonics
  - Mechatronics
  - Power Electronics & Systems
  - Robotics and Control
• Streams of Specialization for Elective Courses in Computer Engineering

  – Computer hardware
  – Computer systems
  – Software Engineering
  – Mechatronics
Timetabling

- Timetabling of *all* courses is done by University Registrar centrally each year.

- No guarantee that desired combinations of electives are completely conflict-free.
  - ECE Dept. makes requests to Registrar to help avoid conflicts, but no guarantee.

- You must be *flexible* in 3\textsuperscript{rd}-year *and* 4\textsuperscript{th}-year, as needed.
Project Courses and Research

ELEC 390/490/498 design project courses
✓ Instructors and project supervisors - ELEC 390
✓ Groups of 3 to design/build/document
✓ Course information on ECE Website

ELEC 497: research project course
✓ Must get faculty advisor first
✓ Learn research methods
✓ Get a feel for graduate studies

NSERC USRA
✓ Get a feel for research
Exams & Progress

- You must write all final exams on the dates/times set by the Registrar’s Office; *travel preferences cannot be considered*

- Use your planning spreadsheet to verify that all program requirements will be met

- Follow Calendar & all preregistration instructions

- Respect deadlines to avoid difficulties
Advice

• How to succeed in your program:
  – Attend your classes
  – Do not procrastinate
  – Have a good time management plan in place
  – Balance your extracurricular activities with school work
  – With any questions or difficulties, approach your instructor, TA, classmates, and (upper-year) friends
  – Contact the department; ask for a tutor
  – Use Queen’s Student Academic Success Services
  – Use Queen’s Wellness Services
• The **Career Services** office is always available to help
  – Career fair, Engineering & technology fair, summer job fair

• **Queen’s University Internship Program (QUIP):**
  12-16 months
  – Do if you can! A big plus!

• **Exchange Opportunities**
• **Why Graduate Studies and Research?**
  
• Enjoy the challenge of learning advanced material

• Acquire skills sought by industry – knowledge is power

• Contribute to global knowledge base (write paper, file patents, technology transfer to industry)

• Start at a higher level of responsibility in a company

• Higher starting salary: ~25% more for an M.A.Sc. Than a B.Sc.

• Statistics Canada survey: higher income people tend to have an advanced degree
4+1 ECE Graduate Program

• Start the 4+1 program in the summer following 3rd year

• You will need a thesis research supervisor

• After 5 years, you have the BASc and MASc degrees

Minimum GPA to apply for 4+1 program: ~3.5
Extracurricular Activities

- ECE Club
  - BBQ
  - Lunch with Profs
  - Banquet
Extracurricular Activities

• Clubs
  – Engineering Society Design Teams
  – IEEE Club
  – Queen’s Solar Design team
  – MAST
ECE Facilities

• Services – Bain Lab and ILC Labs
  – Food/Drinks = NO
  – Please ensure the areas are kept clean
  – Keep aisles clear of bags (and long boards)
  – Loud conversations, phone calls, watching videos outside the labs
  – The Bain family supports the Bain Lab with annual donations
    • WiFi, Thin Clients (w/remote access), Desktops, Mac’s, printers.
    • Etiquette – be respectful of other students, move to the window area for group discussions, be as quiet as is practical.
Bain Lab for Undergraduate Students
<table>
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<tr>
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<th>Description</th>
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<td>Power Electronics Labs</td>
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<tr>
<td>2</td>
<td>Bain Lab - Undergraduate</td>
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<tr>
<td>3</td>
<td>Computer &amp; Software Engineering</td>
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<tr>
<td>4</td>
<td>Admin and Faculty Offices</td>
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<tr>
<td>5</td>
<td>Microelectronics &amp; Photonics</td>
</tr>
<tr>
<td>6</td>
<td>Communications</td>
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<td>7</td>
<td>Biomedical &amp; Intelligent Systems</td>
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