Welcome Back!

Dr. Lihong Zhang
Professor and Acting Head

Dept. of Electrical and Computer Engineering

Agenda

- Introduction
- Labs and Lab Safety
- Professionalism and Academic Integrity
- CEAB - GA and CI

Departmental contacts

Acting Head: Lihong Zhang, lzhang@mun.ca
864-4638, CSF-1204

- Faculty, staff and students, inter-departmental management, outreach and external relations

Acting Head: Vlastimil Masek, masek@mun.ca
864-4638, CSF-1204

- Student advising, academic appeals and credit transfer, scholarships and awards, and room access administration

Secretaries: Martina Krskova and Lisa Rumsey
864-2707/8177, CSF-1204

https://www.mun.ca/engineering/ece/about-us/contact-us/

Courses

The purpose is that *you* learn.

Lectures are a main opportunity for you to get some value - you should attend.

Pay attention to deadlines and don't leave work to the last minute.

Stay on top of the material - review early so that you can clear up confusion before it is too late.

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Labs

Often attendance in labs is required.
Take them seriously.
Don’t copy.
Ask questions. You are here to learn, so be sure to get your $ worth.

Pay attention to lab safety

Safety glasses are required. You need to have your own.
Make sure it isn't live before you touch it.
Be careful about hot components - if incorrectly connected they can burn
Make sure it is connected correctly before you turn it on.
Think before you act. Double check.
Ask questions. Understand procedures.

Lab Safety (cont'd)

Familiarize yourself with

- Locations of emergency equipment (emergency shut off, first aid, fire extinguisher, phone)
- Emergency exit route and muster stations
- Lab procedures
- Emergency procedures

No food/drink when working on lab equipment/circuits

Jr. Design Lab (CSF-2103)

You are granted after hours access as a privilege - please don't abuse it.

Treat it as a workplace (not your rec room)

- Behave as you would in a workplace.
- Treat others with respect.
- Keep it tidy.

Keep safety in mind.

Don't work on equipment alone.

(You need to sign the sheet today to get access.)

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Professionalism

A profession is built on ethical behaviour and the utmost regard to the safety of the public.

As a professional engineer, your career success will depend on your level of professionalism. (see PEGNL code of ethics).

As students in a professional program, you are expected to behave in a professional manner.

University regulations give penalties and procedures for violations of academic rules.

Academic Integrity

There are lots of resources available to you, use them with integrity:

- Copying work from others is not acceptable, unless explicitly allowed.
- Allowing others to copy your work is not allowed.
- Discussing assignments/labs with your classmates is generally ok, but working in teams is not, unless stated.
- Violations of academic integrity are reported to the Dept. Head and tracked.

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Accreditation criteria

1. **Graduate Attributes**
   - Institution must demonstrate that graduates of a program possess the attributes at the time of graduation
2. **Continual Improvement**
   - must be processes in place that demonstrate that program outcomes are being assessed in the context of the graduate attributes, and that the results are validated, analyzed and applied to the further development of the program
3. **Students**
   - functional policies and procedures that deal with quality, admission, counselling, promotion and graduation of students
4. **Curriculum Content and Quality**
   - minimum accreditation units (AUs) in difference categories (natural science, math, engineering science, engineering design, complementary studies)
5. **Program Environment**
   - quality, morale, commitment of students, faculty, staff
   - quality, suitability, accessibility of labs, library, computing facilities, non-academic counselling and guidance other supporting facilities and services
   - faculty (expertise, competence, professional status, quantity)
   - leadership
   - financial resources (sufficient academic staff, support staff, infrastructure, equipment, etc.)
   - curriculum committee

Graduate Attributes (GA) – defined by CEAB (Canadian Engineering accreditation Board)

1. Knowledge Base for Engineering	Demonstrated competence in university level mathematics, natural sciences, engineering fundamentals, and specialized engineering knowledge appropriate to the program.
2. Problem Analysis	An ability to use appropriate knowledge and skills to identify, formulate, analyze, and solve complex engineering problems in order to reach substantiated conclusions.
3. Investigation	An ability to conduct investigations of complex problems by methods that include appropriate experiments, analysis and interpretation of data, and synthesis of information in order to reach valid conclusions
4. Design	An ability to design solutions for complex, open-ended engineering problems and to design systems, components or processes that meet specified needs with appropriate attention to health and safety risks, applicable standards, and economic, environmental, cultural and societal considerations.
5. Use of Engineering Tools	An ability to create, select, apply, adapt, and extend appropriate techniques, resources, and modern engineering tools to a range of engineering activities, from simple to complex, with an understanding of the associated limitations.
6. Individual and Team Work	An ability to work effectively as a member and leader in teams, preferably in a multi-disciplinary setting.
7. Communication	An ability to communicate complex engineering concepts within the profession and with society at large. Such ability includes reading, writing, speaking and listening, and the ability to comprehend and write effective reports and design documentation, and to give and effectively respond to clear instructions.
8. Professionalism	An understanding of the roles and responsibilities of the professional engineer in society, especially the primary role of protection of the public and the public interest.
9. Impacts of Engineering on Society and the Environment	An ability to analyze social and environmental aspects of engineering activities. Such ability includes an understanding of the interactions that engineering has with the economic, social, health, safety, legal, and cultural aspects of society, the uncertainties in the prediction of such interactions; and the concepts of sustainable design and development and environmental stewardship.
10. Ethics and Equity	An ability to apply professional ethics, accountability, and equity.
11. Economics and Project Management	An ability to appropriately incorporate economics and business practices including project, risk, and change management into the practice of engineering and to understand their limitations.
12. Lifelong Learning	An ability to identify and to address their own educational needs in a changing world in ways sufficient to maintain their competence and to allow them to contribute to the advancement of knowledge

Graduate Attributes

To assess the suitability of a program for developing the aforementioned list of attributes, the Accreditation Board will rely on the following criteria:

1. **Indicators:** For each attribute, there must be a set of measurable, documented indicators that describe what students must achieve in order to be considered competent in the corresponding attribute.

Example: Problem Analysis

Graduate Attribute	CEAB description	Indicator	Indicator description
Problem Analysis	An ability to use appropriate knowledge and skills to identify, formulate, analyze, and solve complex engineering problems in order to reach substantiated conclusions.	PA.1	Identify engineering problems and use mathematics to model them
		PA.2	Methodically analyze engineering problems and identify appropriate information
		PA.3	Apply problem solving approaches to solve engineering problems and appraise the results

Graduate Attributes

To assess the suitability of a program for developing the aforementioned list of attributes, the Accreditation Board will rely on the following criteria:

1. **Indicators:** For each attribute, there must be a set of measurable, documented indicators that describe what students must achieve in order to be considered competent in the corresponding attribute.

2. **Assessment tools:** There must be documented assessment tools that are appropriate to the attribute and used as the basis for obtaining data on student learning with respect to all twelve attributes over a cycle of six years or less.

   - each indicator (for each GA) is assessed at three levels: Introduced, Developed, Applied (e.g., PA.1-I, PA.1-D, PA.1-A, etc.)
   - an appropriate assessment tool is assigned to each indicator/level
   - data is collected for each assessment tool and the ECE curriculum Committee reviews this data regularly

GA	Indicator #	Indicator Description	Level	Course #	Course Title	Method of Assessment
2	PA.1	Identify engineering problems and use mathematics to model them	Introduced	ENGI 1040	Mechanisms and Electric Circuits	Case Studies Average
2	PA.1	Identify engineering problems and use mathematics to model them	Developed	ECE 5010	Software Design	Design Report
2	PA.1	Identify engineering problems and use mathematics to model them	Applied	ECE 6500	Computer Architecture	Final Exam

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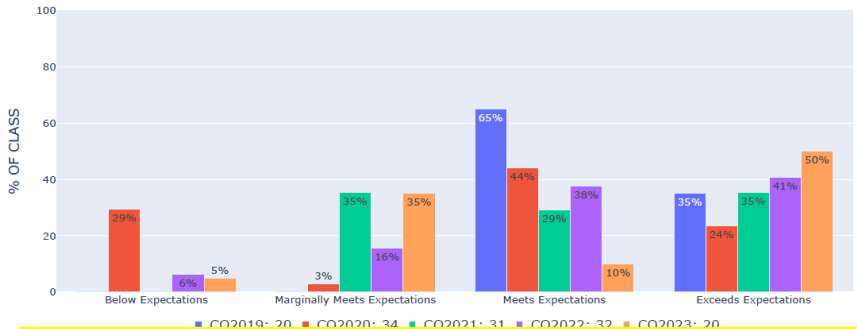
1. **Indicators:** For each attribute, there must be a set of measurable, documented indicators that describe what students must achieve in order to be considered competent in the corresponding attribute.

2. **Assessment tools:** There must be documented assessment tools (ATs) that are appropriate to the attribute and used as the basis for obtaining data on student learning with respect to all twelve attributes over a cycle of six years or less.

3. **Assessment results:** At least one set of assessment results must be obtained for all twelve attributes over a period of six years or less. The results should provide clear evidence that graduates of a program possess the above list of attributes.

Example assessment results for Comm.1-A

Graduate Attribute:	Communication Skills
Indicator:	Comm.1 - Create and interpret technical reports and design documention
Level:	Applied
Program:	ENEL
Course:	ECE 8000 - Electrical Engineering Design Project II
Assessment:	Final Report - Communications



Bin ranges: marks out of 100
<70: Below Expectations 70-79: Marginally Meets Expectations 80-89: Meets Expectations 90-100: Exceeds Expectations

performance levels → established by ECE CC in consultation with instructor
assessment tool-specific

Graduate Attribute (GA) /Continual Improvement (CI) Process

Key groups/individuals:

ECE Department Head (and CI Champions)

- responsible for each program and is accountable for managing the review process and ensuring that continuous improvement occurs where appropriate

ECE Curriculum Committee

- main body that oversees the GA/CI process for the EE and CE programs
  - collection of assessment data for all ECE courses
  - review and interpretation of all assessment data (including from Core courses and Co-op work terms)
  - consideration/initiation of program or CI process improvements based on GA data (or other mechanisms)
  - meets at least twice per semester

FEAS Continuous Improvement Committee (FEAS CIC)

- Faculty-wide committee chaired by Associate Dean (UGS), comprising the “CI Champions” for each program and Coop, and the Director of First Year Engineering
  - coordinates GA data collection for common elements of the curriculum (Core courses and Coop)
  - coordinates faculty-wide program or CI process improvements (e.g., the current review of indicator list)
  - meets at least twice per semester

ECE Instructors

- Provide GA assessment data as well as feedback on data, suitability of assessment tools, etc.

Graduate Attribute/Continual Improvement Process

- Objective is to identify opportunities for improvement based on the regular review of GA data
- Two types of improvements:
  - Process improvements (improvements to the CI process itself)
  - Program/curriculum improvements (not course-level)
- In ECE we have a long history of CI driven by other regular mechanisms as well
- Potential issues and opportunities for program improvements also may come out of:
  - Pre-term Meetings (once per semester)
  - Department meetings (monthly)
  - Department Head meetings with students (twice per semester)
  - Regular ECE Curriculum Committee meetings (twice per semester)
  - Marks and Promotion Meetings (once per semester)
  - General discussion amongst colleagues (ad hoc)
  - Feedback from instructors to Department Head or Curriculum Committee (ad hoc)
  - EASAC and IAB meetings (each twice per year)

Graduate Attribute (GA) /Continual Improvement (CI) Process

Stakeholder engagement is important!

- Students (the most important stakeholders!)
- Faculty
- ECE Curriculum Committee
- Engineering leadership
- Other departments
- Core and Engineering One
- Coop
- Employers
- EASAC and IAB
- CUGS
- PEGNL