

ECE201H1 F

Magellan Info Session

The Edward S. Rogers Sr. Department of
Electrical & Computer Engineering (ECE)
at the University of Toronto.



UNIVERSITY OF
TORONTO

Outline

- Undergraduate Office
- Learning Strategies for Academic Success
- Flexible Curriculum
- Magellan Course Software
- CEAB Requirements
- How To Get Help?

Who Are We?



Leanne Dawkins
*Manager and
Student Advisor*



**Professor Antonio
Liscidini**
*Associate Chair, ECE
Undergraduate Studies*



Meera Puvitharan
*Undergraduate Program &
Payroll Officer*



Karen Irving
Student Advisor



Mary Miceli
Student Advisor



We are here to help!



- Questions/concerns about courses and timetables
- Academic advice
- Questions about the 600 Hours Practical Experience Requirement
- Questions about graduation

... and more!

Resources

Individual appointments with:

- [Academic Advisors](#)
- [Learning Strategist](#)
- [Health and Wellness Counsellor](#)
- [Accessibility Advisor](#)
- Librarian [Engineering & Comp Sci Library](#) / [Robarts Library](#)
- [U of T Telus Health Student Support](#)



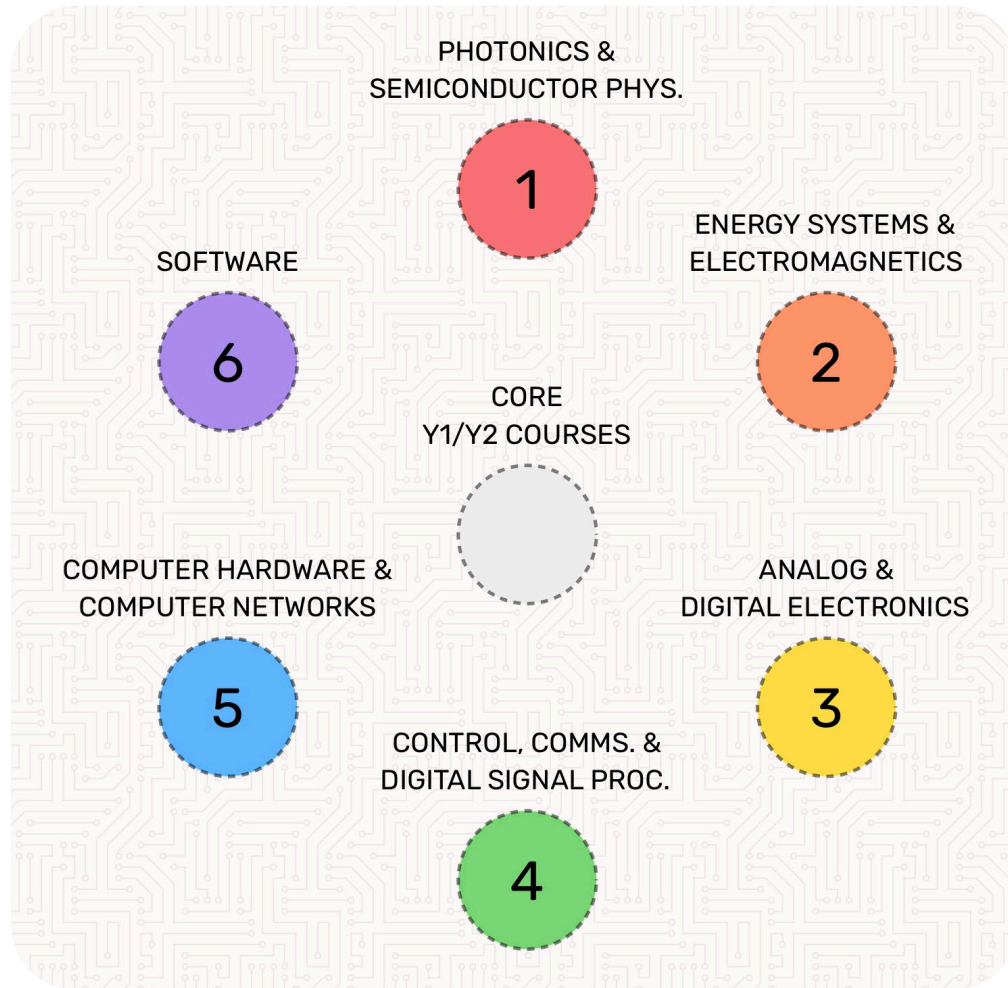
Know the Academic Calendar



The Academic Calendar is your contract with the university. Know your responsibilities and rights, and all rules governing your undergraduate studies:

<https://engineering.calendar.utoronto.ca/>

Course Selection



- All ECE courses are grouped by areas of study (Areas 1-6, Science/Math)
- Some courses may appear in more than one area, but when taken can only apply to ONE requirement.
- When you select a course, you can specify the year and the term in which you wish to take it (your 3rd and 4th year).
- Course selections must respect pre-requisite requirements

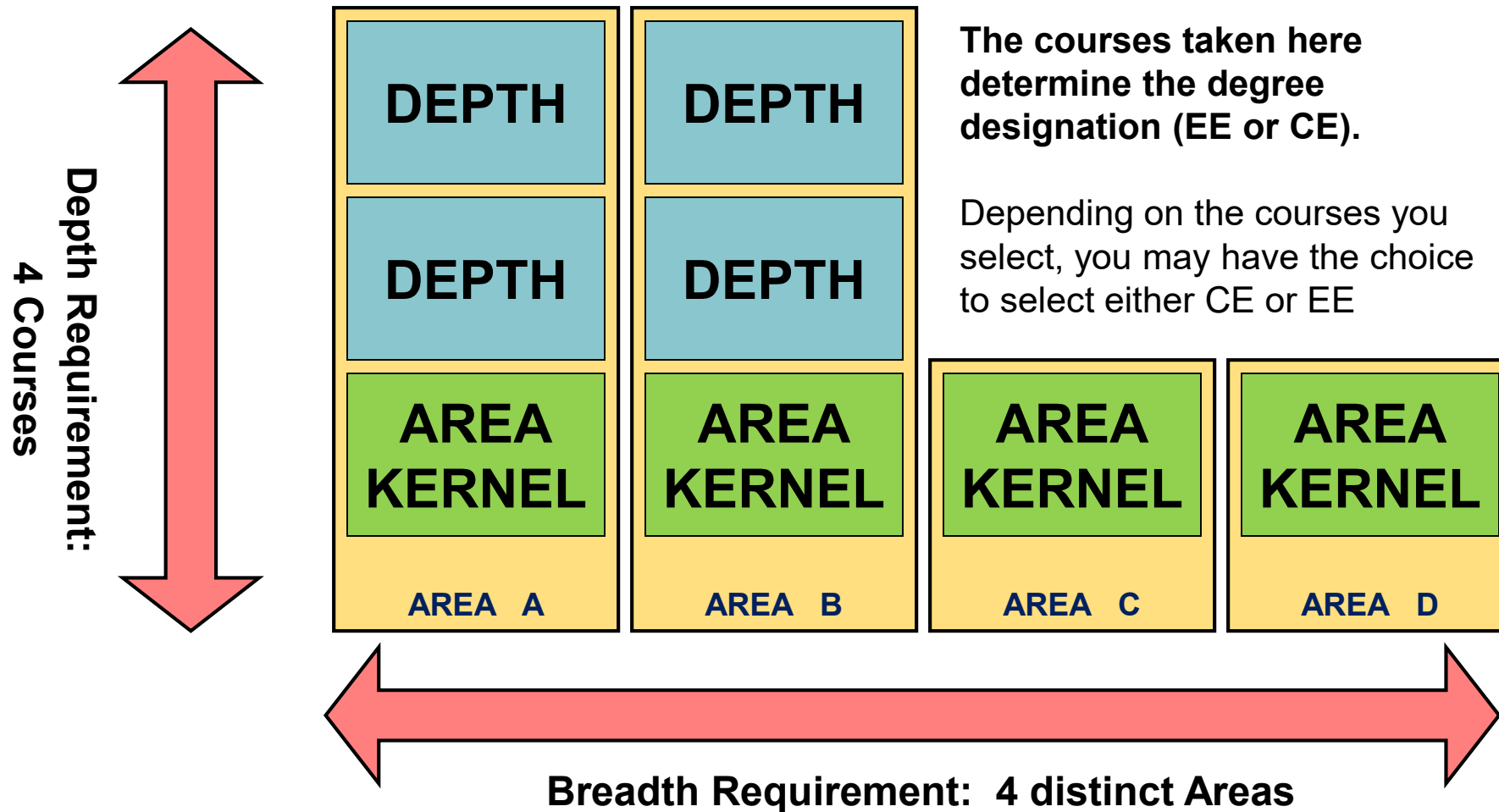
ECE Flexible Curriculum 3rd & 4th Year

Area Kernel Courses (4 required from 4 different areas)	AREA KERNEL	AREA KERNEL	AREA KERNEL	AREA KERNEL
Depth Courses (4 required - 2 courses from 2 areas chosen above)	DEPTH	DEPTH	DEPTH	DEPTH
Science/Math + Technical Electives (These TE do not need to be from the areas you selected for Kernel/Depth requirements)	TECHNICAL Elective	TECHNICAL Elective	TECHNICAL Elective	SCIENCE/MATH Elective
Complementary Studies Electives* <i>*two must be HSS</i>	CS Complementary Studies Elective	CS Complementary Studies Elective	HSS Humanities & Social Science Elective	HSS Humanities & Social Science Elective
<ul style="list-style-type: none"> - Capstone - Eng. Economics - Free Elective 	Capstone Design Project ECE496Y1 / APS490Y1 / BME498Y1		ECE472 Engineering Economic Analysis & Entrepreneurship	FREE Elective

What is not Flexible

- **ECE472H1- Engineering Economics**
(can be completed in any upper-year term)
- **ECE496Y1/APS490Y1/BME498Y- Capstone Design**
(must be completed in your final year)
- **Must meet Canadian Engineering Accreditation Board (CEAB) requirements**
 - Magellan can help you with this
- **Must complete pre-requisites for advanced level courses**
- **There may be**
 - enrolment limitations,
 - CEAB limitations,
 - pre-requisite requirements

Breadth and Depth Requirement



3rd and 4th Year Courses (Areas 1 – 4) - EE

Area 1 Photonics and Semiconductor Physics	ECE335 – Intro to Electronic Devices	ECE318 – Fundamentals of Optics
	ECE427 – Photonic Devices ECE437 – VLSI Technology	ECE330 – Quantum & Semiconductor Physics ECE469 – Optical Communications & Networks
Area 2 Electromagnetics and Energy Systems	ECE314 – Fund. Of Electrical Energy Systems ECE320 – Fields and Waves	ECE313 – Energy Systems & Distributed Generation
	BME595 – Medical Imaging ECE424 – Microwave Circuits ECE520 – Power Electronics	ECE422 – Radio and Microwave Wireless Systems ECE463 – Electric Drives ECE526 – Power System Protection & Automation
Area 3 Analog and Digital Electronics	ECE331 – Analog Electronics	ECE334 – Digital Electronics
	ECE424 – Microwave Circuits ECE430 – Analog Integrated Circuits ECE446 – Sensory Communication	ECE437 – VLSI Technology ECE412 – Analog Signal Processing Circuits ECE532 – Digital Systems Design
Area 4 Control, Communications and Signal Processing	ECE311 – Introduction to Control Systems	ECE316 – Communication Systems
	BME445 – Neural Bioelectricity BME595 – Medical Imaging ECE302 – Probability & Applications ECE410 – Linear Control Systems ECE417 – Digital Communication ECE431 – Digital Signal Processing ECE441 – Interfacing & Modulating the Nervous System ECE446 – Sensory Communication ECE537 – Random Processes	ECE411 – Adaptive Control & Reinforcement Learning ECE421 – Introduction to Machine Learning ECE422 – Radio and Microwave Wireless Systems ECE462 – Multimedia Systems ECE464 – Wireless Communication ECE469 – Optical Communications & Networks ECE470 – Robot Modeling and Control ECE516 – Intelligent Image Processing BME331 – Physiological Control Systems

3rd and 4th Year Courses (Areas 5 – 6) - CE

Area 5 Computer Hardware & Computer Networks	ECE361 – Computer Networks I	ECE342 – Computer Hardware
	ECE302 – Probability and Applications ECE461 – Internetworking ECE466 – Computer Networks II ECE469 – Optical Communications & Networks ECE537 – Random Processes	ECE462 – Multimedia Systems ECE464 – Wireless Communication ECE532 – Digital Systems Design ECE552 – Computer Architecture ECE568 – Computer Security
Area 6 Software	ECE344 – Operating Systems	ECE345 – Algorithms & Data Structures
	APS360 – Applied Fundamentals of Machine Learning ECE326 – Programming Languages ECE444 – Software Engineering I ECE467 – Compilers & Interpreters ECE454 – Computer Systems Programming	CSC343 – Introduction to Databases CSC317 – Computer Graphics ECE419 – Distributed Systems ECE448 – Biocomputation ECE461 – Internetworking ECE568 – Computer Security

3rd and 4th Year Courses (Science/Math)

Science/Math Electives	ESC384 – Partial Differential Equations BME455 – Cellular & Molecular Bioengineering II CHE353 – Engineering Biology CIV220 – Urban Engineering Ecology CIV300 – Terrestrial Energy Systems ECE302 – Probability and Applications ECE367 – Matrix Algebra and Optimization	BME440 – Biomedical Engineering Tech and Investigation CHE354 – Cellular and Molecular Biology BME331 – Physiological Control Systems ECE368 – Probabilistic Reasoning ECE448 – Biocomputation ECE537 – Random Processes
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Example of 3rd & 4th Year Course Selection

3F	AREA KERNEL	AREA KERNEL	SCI/MATH	TECH Elective	CS Complementary Studies Elective
3W	AREA KERNEL	AREA KERNEL	DEPTH	ECE472 Engineering Economics	CS Complementary Studies Elective
4F	DEPTH	DEPTH	TECH Elective	Capstone	HSS Humanities & Social Science Elective
4W	FREE Elective	DEPTH	TECH Elective		HSS Humanities & Social Science Elective

Degree Designation Depends on Kernel/Depth Courses

Kernel A	Depth A1	Depth A2	Kernel B	Depth B1	Depth B2	Kernel C	Kernel D	CE
Kernel A	Depth A1	Depth A2	Kernel B	Depth B1	Depth B2	Kernel C	Kernel D	CE
Kernel A	Depth A1	Depth A2	Kernel B	Depth B1	Depth B2	Kernel C	Kernel D	EE
Kernel A	Depth A1	Depth A2	Kernel B	Depth B1	Depth B2	Kernel C	Kernel D	EE
Kernel A	Depth A1	Depth A2	Kernel B	Depth B1	Depth B2	Kernel C	Kernel D	EE
Kernel A	Depth A1	Depth A2	Kernel B	Depth B1	Depth B2	Kernel C	Kernel D	EE

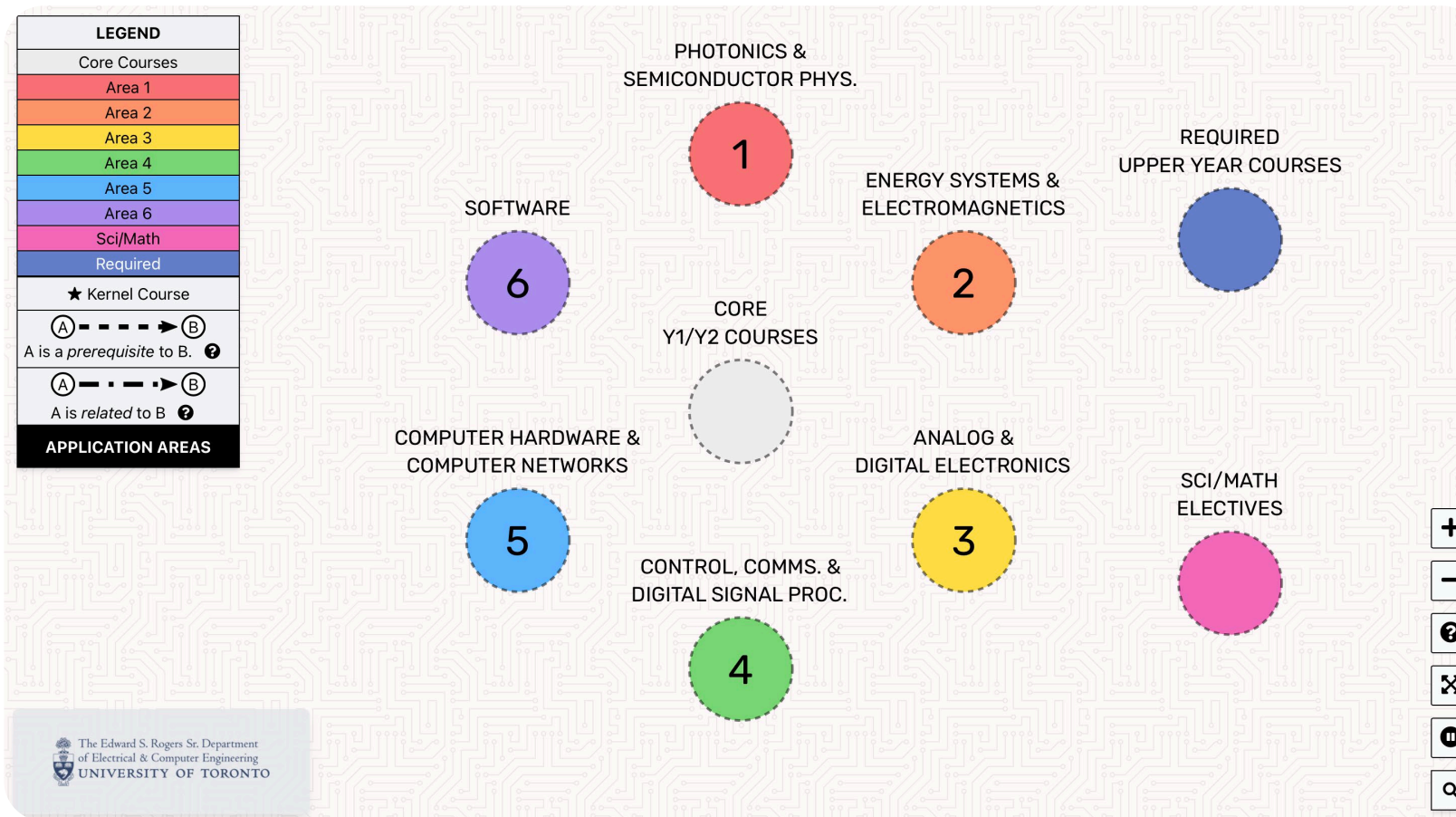
Key:

**Areas
1 – 4
(EE)**

**Areas
5 or 6
(CE)**

6 combinations are possible.

IRIS (Course map)

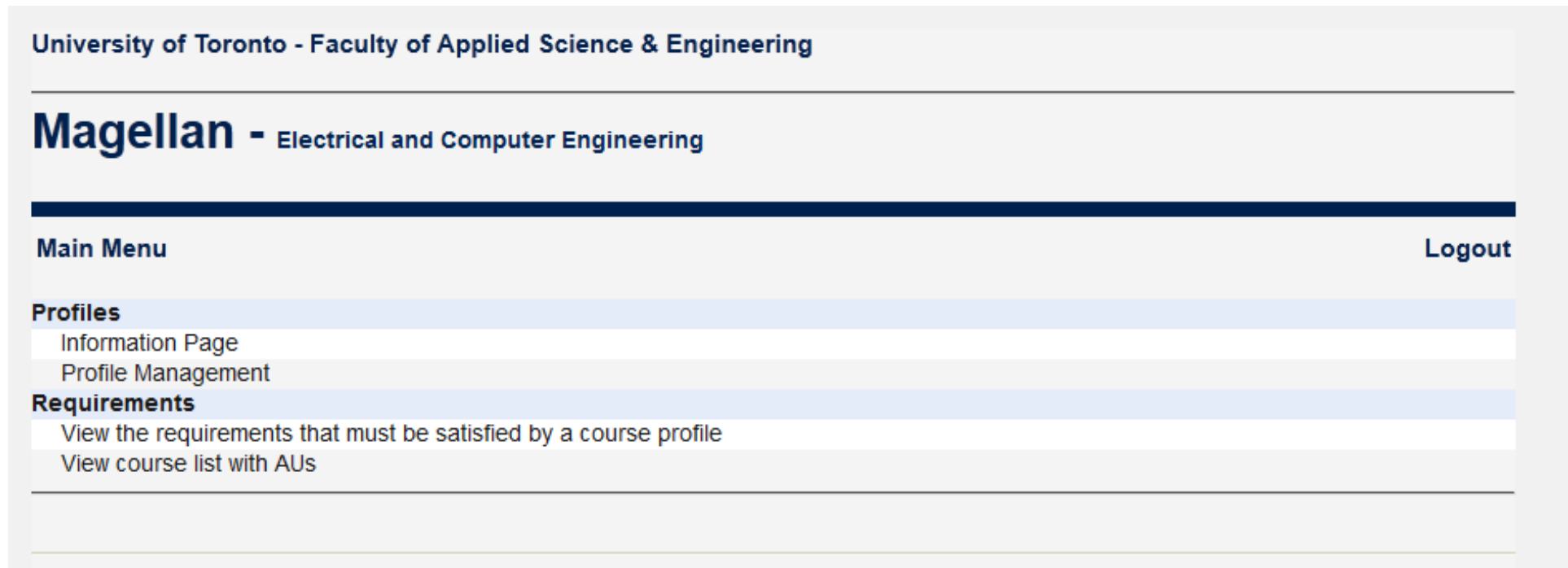


- Mapping tool for ECE students, used to visualize connections between courses and highlight application areas, to aid in course selection.
- IRIS is not used to select courses

<https://eecourses.ece.utoronto.ca/>

Magellan (Course Selection Software)

- An in-house software developed to help students choose 3rd and 4th year courses
- Online tool, highly intuitive. Just choose and click.



<https://magellan.ece.toronto.edu/>

Core Requirements (1st & 2nd Years)

Course List ? 20241						
Session						
20229	APS100H1 F Orientation to Engineering	APS110H1 F Engineering Chemistry and Materials Science	APS111H1 F Engineering Strategies & Practice I	CIV100H1 F Mechanics	MAT186H1 F Calculus I	MAT188H1 F Linear Algebra
20231	APS105H1 S Computer Fundamentals	APS112H1 S Engineering Strategies & Practice II	ECE110H1 S Electrical Fundamentals	ECE191H1 S Introduction to Electrical and Computer Engineering	MAT187H1 S Calculus II	MIE100H1 S Dynamics
20239	ECE201H1 F Seminar Course: Electrical and Computer Engineering	ECE212H1 F Circuit Analysis	ECE241H1 F Digital Systems	ECE244H1 F Programming Fundamentals	MAT290H1 F Advanced Engineering Mathematics	MAT291H1 F Calculus III
20241	ECE216H1 S Signals and Systems	ECE221H1 S Electric and Magnetic Fields	ECE231H1 S Introductory Electronics	ECE243H1 S Computer Organization	ECE297H1 S Communication and Design	

Choosing Courses on Magellan

Kernel Courses

Area 1: Photonics & Semiconductor Physics

Select
ECE335H1F: Introduction to Electronic Devices

Select
ECE427H1F: Photonic Devices

Select
ECE318H1S: Fundamentals of Optics

Select
ECE330H1S: Quantum and Semiconductor Physics

Select
ECE437H1S: VLSI Technology

Select
ECE469H1S: Optical Communications and Networks

Kernel Courses

Area 2: Electromagnetics & Energy Systems

Select
ECE314H1F: Fundamentals of Electrical Energy Systems

Select
ECE320H1F: Fields and Waves

Select
BME595H1F: Medical Imaging

Select
ECE424H1F: Microwave Circuits (formerly ECE524H1)

Select
ECE520H1F: Power Electronics

Select
ECE526H1F: Power System Protection and Automation

Select
ECE313H1S: Energy Systems and Distributed Generation (formerly ECE413H1)

Select
ECE422H1S: Radio and Microwave Wireless Systems

Select
ECE463H1S: Electric Drives

Kernel Courses

Area 3: Analog & Digital Electronics

Select
ECE331H1F: Analog Electronics

Select
ECE334H1F: Digital Electronics

Select
ECE424H1F: Microwave Circuits (formerly ECE524H1)

Select
ECE430H1F: Analog Integrated Circuits (formerly ECE530H1)

Select
ECE446H1F: Sensory Communication

Select
ECE334H1S: Digital Electronics

Select
ECE412H1S: Analog Signal Processing Circuits (formerly ECE512H1)

Select
ECE437H1S: VLSI Technology

Select
ECE532H1S: Digital Systems Design

Kernel Courses

Area 4: Control, Communications & Signal Processing

Select
ECE311H1F: Introduction to Control Systems

Select
ECE316H1F: Communication Systems

Select
BME445H1F: Neural Bioelectricity (formerly ECE445H1)

Select
BME595H1F: Medical Imaging

Select
ECE302H1F: Probability and Applications

Select
ECE410H1F: Linear Control Systems

Select
ECE311H1S: Introduction to Control Systems

Select
ECE316H1S: Communication Systems

Select
BME331H1S: Physiological Control Systems

Select
ECE302H1S: Probability and Applications

Select
ECE368H1S: Probabilistic Reasoning

Select
ECE411H1S: Adaptive Control and Reinforcement

Saving a Profile

- After evaluating a profile, if you are satisfied with it, click the “**Save profile**” button
- If you wish to continue editing the profile, click on “**Edit profile**” button and continue editing
- Always remember that you have to “**Save**” the profile

Evaluating a Profile

- Once your profile has been created, click the “Evaluate” button and **review the profile**
- The system automatically computes all possible alternatives to check if your profile meets both the ECE program and CEAB requirements*
 - The software will identify potential problems
 - The software will also determine whether you qualify for the CE or EE degree

*CEAB AU's are reviewed and updated (where necessary) on an annual basis.

Make sure that you review your Main Profile to verify that these changes have not affected your requirements.

Your Course Profiles

- Your course selection profiles include:
 - A Main Profile that will be used for your pre-registration
 - Several supplementary profiles that you can experiment with (up to 30+ profiles)
 - Ultimately, you must identify one of your profiles as your “main **profile**”
 - **PRE-REGISTRATION DEADLINE:**
January 30, 2024 at 11:59pm EST.
After that, the Main Profile is LOCKED until June.

Course List ? 20235

Session

20219	APS100H1 F Orientation to Engineering	APS110H1 F Engineering Chemistry and Materials Science	APS111H1 F Engineering Strategies & Practice I	CIV100H1 F Mechanics	MAT186H1 F Calculus I	MAT188H1 F Linear Algebra
20221	APS105H1 S Computer Fundamentals	APS112H1 S Engineering Strategies & Practice II	ECE110H1 S Electrical Fundamentals	ECE191H1 S Introduction to Electrical and Computer Engineering	MAT187H1 S Calculus II	MIE100H1 S Dynamics
20229	ECE201H1 F Seminar Course: Electrical and Computer Engineering	ECE212H1 F Circuit Analysis	ECE241H1 F Digital Systems	ECE244H1 F Programming Fundamentals	MAT290H1 F Advanced Engineering Mathematics	MAT291H1 F Calculus III
20231	ECE216H1 S Signals and Systems	ECE221H1 S Electric and Magnetic Fields	ECE231H1 S Introductory Electronics	ECE243H1 S Computer Organization	ECE297H1 S Communication and Design	
20249	ECE302H1 F Probability and Applications	ECE314H1 F Fundamentals of Electrical Energy Systems	ECE320H1 F Fields and Waves	ECE335H1 F Introduction to Electronic Devices	JRE300H1 F Fundamentals of Accounting and Finance	
20251	BME331H1 S Physiological Control Systems	ECE361H1 S Computer Networks I	ECE368H1 S Probabilistic Reasoning	ECE462H1 S Multimedia Systems	JRE420H1 S People Management and Organizational Behaviour	
20259	ECE344H1 F Operating Systems	ECE461H1 F Internetworking	ECE472H1 F Engineering Economic Analysis & Entrepreneurship	ECE496Y1 Y Design Project	ITA240Y1 Y Italian Cinema	
20261	ECE496Y1 Y Design Project	ITA240Y1 Y Italian Cinema	ECE330H1 S Quantum and Semiconductor Physics	ECE422H1 S Radio and Microwave Wireless Systems	ECE568H1 S Computer Security	

ECE Requirements

Upper Year Courses

Kernel/Depth

Area 1	ECE335H1		
Area 2	ECE314H1	ECE320H1	ECE422H1
Area 5	ECE361H1	ECE462H1	ECE461H1
Area 6	ECE344H1		

You are eligible for either **EE** or **CE** designation.

Please select one ☒ **EE** ☐ **CE**

Engineering Economics ECE472H1

Capstone ECE496Y1

Science/Math ECE302H1

Technical Electives BME331H1 ECE330H1 ECE368H1

HSS and CS ITA240Y1(HSS) ITA240Y1(HSS) JRE420H1(HSS) JRE300H1(CS)

Free Elective ECE568H1

3. Practical Experience Requirement

600 Hours Completed

CEAB Requirements

- Canadian Engineering Accreditation Board
 - Established by the Canadian Council of Professional Engineers (CCPE) in 1965 to accredit undergraduate engineering programs
 - Ensures that academic requirements are met
 - Important for your eventual registration as a [professional engineer](#)
- CEAB Curriculum Content Requirements
 - Engineering Science (ES)
 - Engineering Design (ED)
 - Natural Science (NS)
 - Mathematics (MATH)
 - Complementary Studies (CS)

CEAB Requirements: Magellan Checks

2. CEAB Requirements

Categories	Minimum Requirement	Obtained	Projected	Outstanding Based on Projected
Total Accreditation Units	1870	1089.3	2053.8	OK
Mathematics	214.5	255.7	340.5	OK
Natural Science	200	181.1	294.5	OK
Mathematics and Natural Science Combined	462	436.8	635	OK
Engineering Science	247.5	422.4	795.3	OK
Engineering Design	247.5	140	336.6	OK
Engineering Science and Engineering Design Combined	990	562.4	1131.9	OK
Complementary Studies	240	90.1	286.9	OK
You have fulfilled all CEAB requirements				

Links for CS/HSS courses

- Complementary Studies (CS) Electives

<http://undergrad.engineering.utoronto.ca/academics-registration/electives/complementary-studies-cs-electives/>

- Humanities & Social Science (HSS) Electives

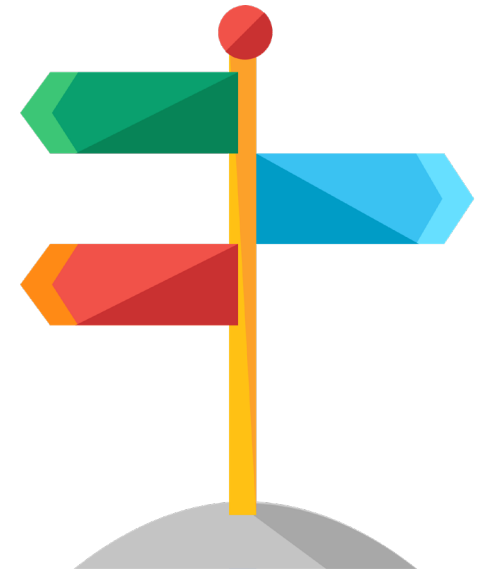
<http://undergrad.engineering.utoronto.ca/academics-registration/electives/humanities-social-science-hss-electives/>

Fulfilling Requirements

- Breadth/depth requirements (8)
- Science/Math requirement (1)
- Technical Electives (3)
- Free Elective (1)
- Engineering Economics: ECE472H1 (1)
- Capstone (ECE496Y1 or APS490Y1 or BME498Y1) (1)
- Complementary/Humanities & Social Sciences (4)
- 600 Hours Practical Experience
- CEAB requirements
- Pre-requisite and co-requisite requirements

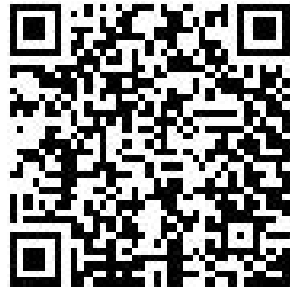
How to get help/more info?

- **ECE Undergraduate Office: SFB600**
Drop-In Hours: Monday to Friday (8:45 am – 4:30 pm)
Email: askece@ecf.utoronto.ca (please include your name; student #; CE or EE program)
- **Academic Calendar (FASE):** <https://engineering.calendar.utoronto.ca/>
- **ECE Undergraduate News / Announcements:** *Emailed to students at critical points in the term or posted on the ECE Undergraduate Quercus page*
- **Health & Wellness Supports in Engineering:**
<https://undergrad.engineering.utoronto.ca/advising-and-wellness/health-wellness/>
- **Learning Strategist:** <https://undergrad.engineering.utoronto.ca/advising-and-wellness/learning-skills-strategist/>
- **Magellan Course Selection Software:** <https://magellan.ece.toronto.edu/>
- **Minors & Certificates (Engineering):**
<http://undergrad.engineering.utoronto.ca/academics-registration/minors-certificates/>
- **NAVI Your UofT Resource Finder:** <https://prod.virtualagent.utoronto.ca/>
- **NSERC-UTEA and Faculty Summer Research Awards:**
(updated in January for the upcoming summer)
<https://www.ece.utoronto.ca/undergraduate-students/undergraduate-research-awards/>
- **Scholarship Profile – Fill it out!:**
<https://portal.engineering.utoronto.ca/welcome.asp>



Reminder: If you do not have a design course on your schedule for next term, **OR** if you would like to change your existing ECE295/297 design course option, complete the [Google form](#) by **December 4, 2023.**

IMPORTANT: Do not complete the form if you are satisfied with your current design course option.



<https://docs.google.com/forms/d/e/1FAIpQLSeieGfXOYmAJVj3AgUJcQzGwBhyMYsc1aGWOqgGz2XHYYHOM-A/viewform>