Information Session

ECE 3rd Year Course Registration

2025-2026 Academic Year

SMITH ENGINEERING
Queen's University

Electrical and Computer Engineering

ECE Advisors

- ECE UG Assistants (WLH-416)
  - Irina Pavich (irina.pavich@queensu.ca)
- EE Undergraduate Chair:
  - Prof. Yan-Fei Liu (eeugradchair@queensu.ca)
- CE Undergraduate Chair:
  - Prof. Jianbing Ni (ceugradchair@queensu.ca)

Academic Calendar and Registration Dates

- June - 2025-2026 Academic Calendar is published
- 23 June – 2025-2026 Timetable is published
- mid July – course Pre-Load (students will be preloaded into 3rd year core courses, *if* the prerequisites are met)
- 23 July – course selection opens, self-enrollment begins (check your enrollment appointment day/time on Solus) - time to add optional core course/s and electives.

Useful Links:

Registration Guide

SOLUS Help

Student Wellness Services

Online Resources

- OUR - University Registrar and Student Awards
  - Academic Calendar, Academic Plans and course information; Policies and Regulations;
    - Tuition, Graduation, Sessional Dates etc.
    - SOLUS Help;
- Smith Engineering
  - FORMS: Substitution request, Incomplete Grade Request, Late Course Add/Drop requests, Waivers etc.;
  - Smith Engineering Student Services resources: academic considerations, accommodations, embedded counsellors, supplemental exam, awards etc.
- ECE
  - ECE Degree Planning Spreadsheets, Pre-requisite Charts, Course Information
  - ECE Faculty
  - Booking an appointment with the advisor

Electrical Engineering Graduation Requirements

- Satisfy the minimum Accreditation Units (AU) set by ECE in each CEAB category
- Have at least 5 courses from Electives List A
- Have at least 5 four-hundred level elective courses
- Counting required core courses and elective courses in all four years, result in a total of no fewer than 157.5 (160.5 for ECEi) credits for the complete program

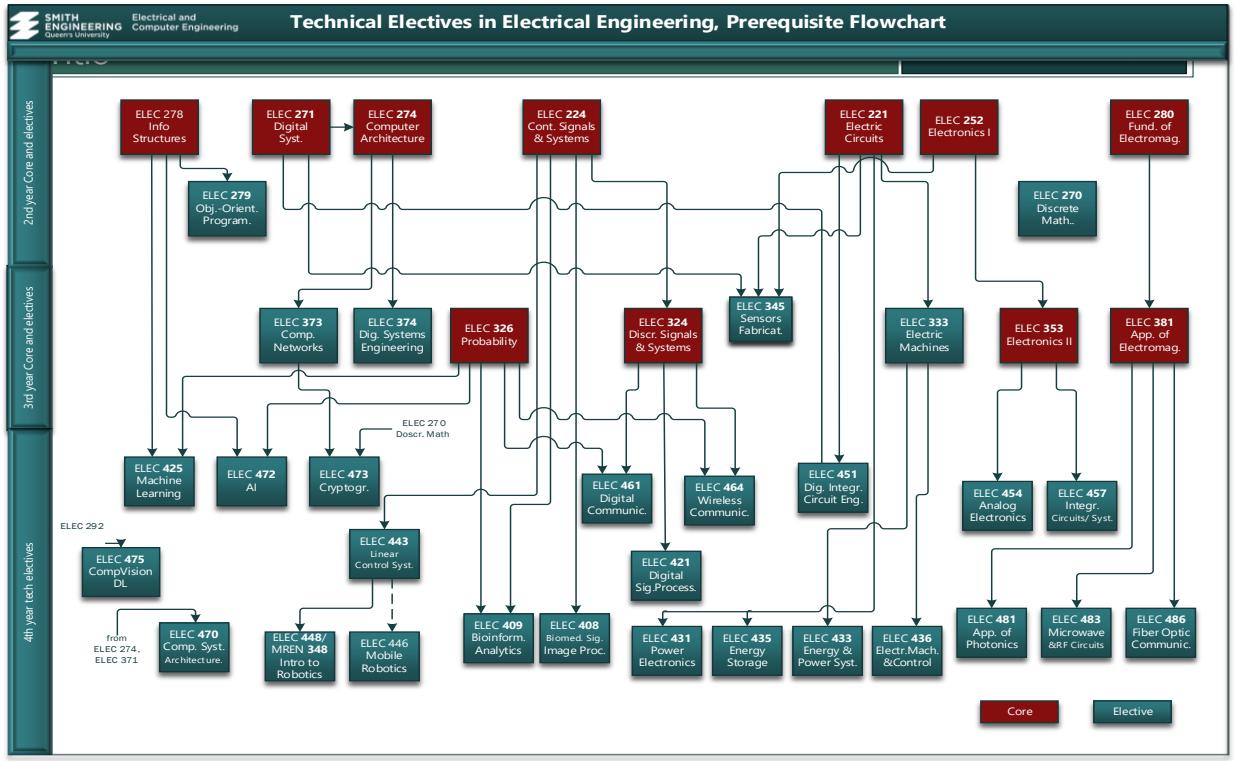
Electrical Engineering, 3rd Year Curriculum

Fall 2025	Winter 2026
ELEC 324 Discrete-Time Signals and Systems	ELEC 372 Numerical Methods and Optimization
ELEC 326 Probability	ENPH 336 Solid State Devices
ELEC 353 Electronics II	ELEC 392 ECE 3rd Year Design
ELEC 371 Microprocessor Interfacing…	APSC 221 Eng. Economics (F/W/S) non-ECEI only
ELEC 381 Applications of Electromagnetics	
Complementary Studies Elective (any term, F or W)	
Technical Elective (any term, F or W)	
COMM 301 Launching New Ventures (ECEi only)	COMM 302 Funding New Ventures (ECEi only)

EE: Technical Electives offered in 2025-2026

Fall 2025				Winter 2026		
ELEC 425	Machine Learning and Deep Learning	F		ELEC 279	Object-orient. Programming	W
ELEC 433	Energy and Pwer Systems	F		ELEC 333	Electric Machines	W
ELEC 443	Linear Control Systems	F		ELEC 373	Computer Networks	W
ELEC 473	Cryptography and Network Security	F		ELEC 374	Digital Systems Engineering	W
ELEC 475	Computer Vision with Deep Learning	F		ELEC 408	Biomedical Signal & Image Proc	W
ELEC 457	Analog Integrated Circuits & Systems	F		ELEC 431	Power Electronics	W
MREN 318	Sensors and Electric Actuators	F		ELEC 451	Digital Integrated Circuit Engineering	W
				ELEC 461	Digital Communications	W
				ELEC 470	Computer System Architecture	W
				ELEC 472	AI	W
				MREN 348	Intro to Robotics	W

Technical Electives in Electrical Engineering – prerequisite flowchart



When selecting technical electives, students have the flexibility to tailor their program based on their interests. You can have a stronger concentration in a sub-discipline of electrical engineering following a particular stream or mix and match between streams.

Computer Engineering Graduation Requirements

- Satisfy the minimum Accreditation Units (AU) set by ECE in each CEAB category
- Have at least 5 four-hundred level elective courses
- Have at least 3 courses from the Elective List that satisfy the Department criteria for qualified accreditation units in the categories of engineering science and engineering design
- Counting required core courses and elective courses in all four years, result in a total of no fewer than 157.5 (160.5 for ECEi) credits for the complete program

Computer Engineering, 3rd Year Curriculum

Fall 2025	Winter 2026
ELEC 326 Probability	ELEC 373 Computer Networks
ELEC 371 Microprocessor Interfacing.	ELEC 374 Digital Systems Engineering
ELEC 377 Operating Systems	ELEC 392 ECE 3rd Year Design
ELEC 379 Algorithms with Engineering Application	APSC 221 Eng. Economics (F/W/S) non-ECEi only
Optional Core: ELEC 376 Soft. Dev. Methodology -OR-	Optional Core: CMPE 223 Software Specifications
Technical Elective (any term, F or W)	
One Complementary Studies Elective (any term, F or W)	
COMM 301 Launching New Ventures (ECEi only)	COMM 302 Funding New Ventures (ECEi only)

CE: Technical Electives offered by the ECE Department in 2025-2026

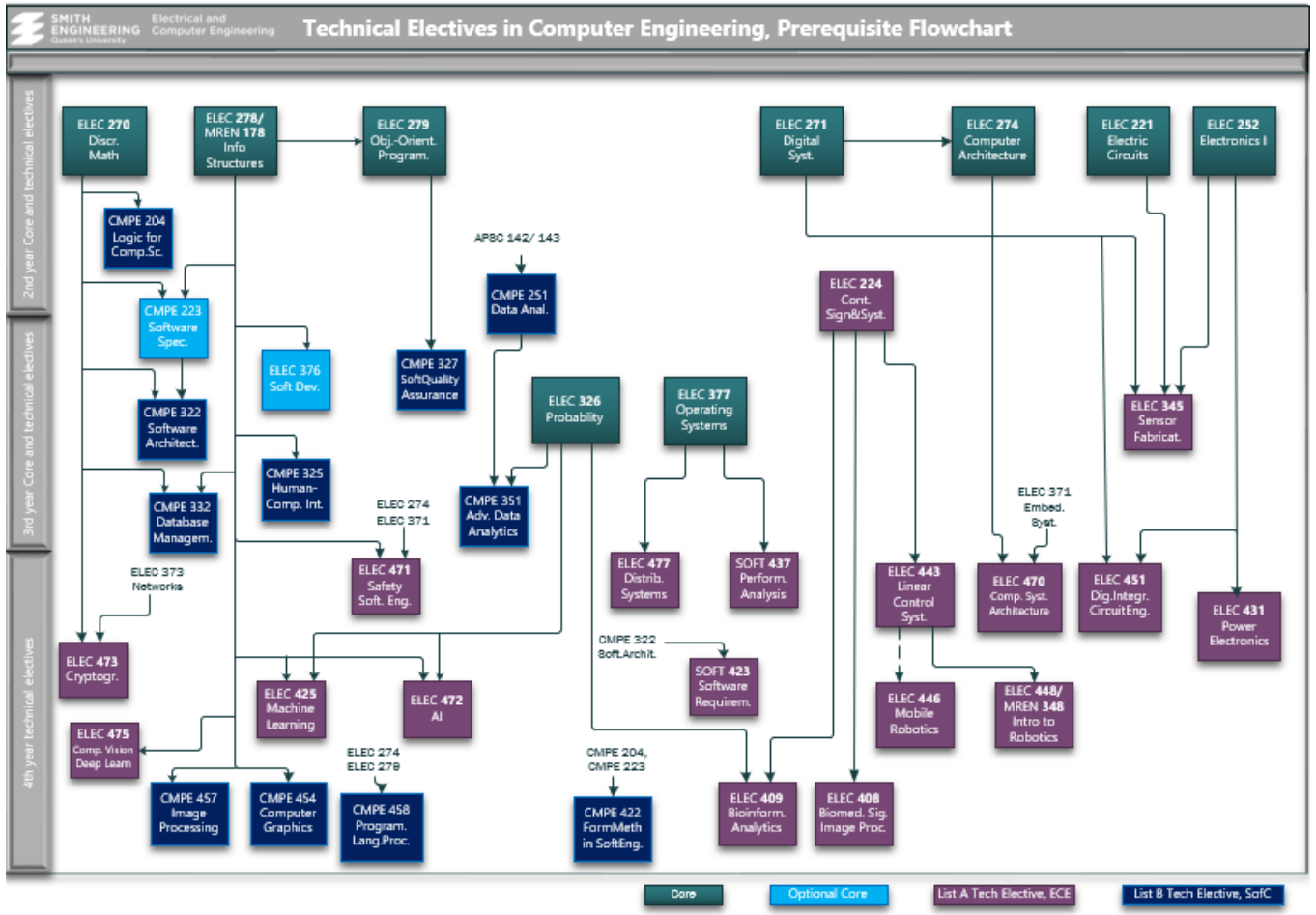
Fall 2025				Winter 2026			
ELEC 376	Software Development Methodology	F		ELEC 224	Cont.-Time Signals & Systems	W	P.Eng
ELEC 425	Machine Learning & Deep Learning	F	EIT	ELEC 372	Numerical Methods and Optimization for Electrical Engineers	W	P.Eng
ELEC 443	Linear Control Systems	F	P.Eng	ELEC 408	Biomedical Signal and Image Processing	W	
ELEC 471	Safety Critical Software Engineering	F		ELEC 431	Power Electronics	W	
ELEC 473	Cryptography and Network Security	F	EIT	ELEC 451	Digital Integrated Circuit Engineering	W	P.Eng
ELEC 475	Computer Vision with Deep Learning	F	P.Eng	ELEC 470	Computer System Architecture	W	P.Eng
MREN 318	Sensors and Electric Actuators	F		ELEC 472	AI	W	P.Eng
				ELEC 477	Distributed Systems	W	Eng. License
				SOFT 437	Performance Analysis	W	P.Eng
				MREN 348	Intro to Robotics	W	P.Eng

ELEC 376 and CMPE 223 are Optional Core; if both are completed – CMPE 223 counts toward a technical elective

CE: Technical Electives offered by the School of Computing in 2025-2026

Fall 2025				Winter 2026		
CMPE 204	Logic for Computing Science	F		CMPE 204	Logic for Computing Science	W
CMPE 223	Software Specifications	F		CMPE 223	Software Specifications	W
CMPE 251	Data Analytics	F		CMPE 322	Software Architecture	W
CMPE 327	Software Quality Assurance	F		CMPE 325	Human-Computer Interaction	W
CMPE 422	Formal Methods in Soft. Eng.	F		CMPE 332	Database Management Systems	W
CMPE 457	Image Processing & Comp. Vision	F		CMPE 351	Advanced Data Analytics	W
				CMPE 454	Comp. Graphics	W
				SOFT 423	S/W Requirements	W

Technical Electives in Computer Engineering – prerequisite flowchart



When selecting technical electives, students have the flexibility to tailor their program based on their interests. You can have a stronger concentration in a sub-discipline of computer engineering following a particular stream or mix and match between streams.

STREAMS– Flexibility

- ECE with streams instead of options
  - Suggested streams give a coherent set of courses in a particular area, e.g., mechatronics. Use interest and passion as your guide;
  - Streams provide primary and secondary course suggestions; primary courses are essential for a given concentration;
  - Streams allow you to mix and match as you wish and provide larger number of courses to choose from

CE Streams

Streams of Specialization for Elective Courses in Computer Engineering

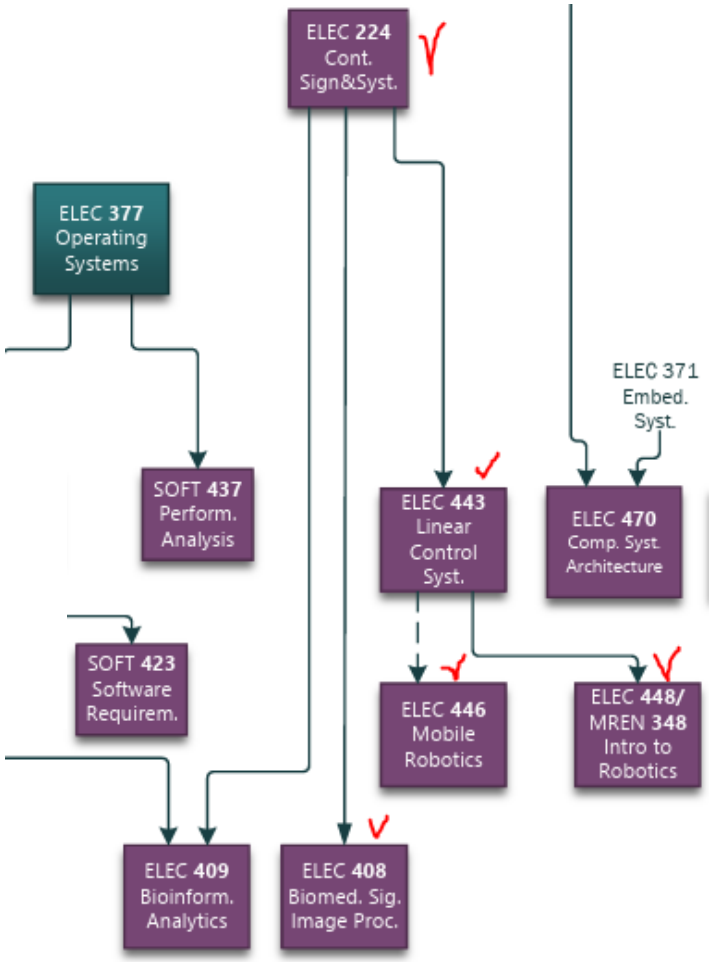
- Computer Hardware
- Computer Systems
- Software Engineering
- Mechatronics
- Artificial Intelligence

EE Streams

Streams of Specialization for Elective Courses in Electrical Engineering

- Biomedical Engineering
- Communications and Signal Processing
- Communication Systems and Networks
- Nanoelectronics and Photonics
- Mechatronics
- Power Electronics and Systems
- Robotics and Control

Computer Engineering – Mechatronics Stream



ELEC 224 – Continuous Signals and Systems (W) is a required prerequisite for registering in Mechatronics Stream electives – ELEC 443, ELEC 446, ELEC 448 or MREN 348, ELEC 408.

Interested in Robotics courses? Then consider enrolling in ELEC 224 during the Winter term of your 3rd year.

Refer to the CE Prerequisites Chart and the Academic Calendar for details.

Design and Research Project Courses

- **ELEC 392** Engineering Design and Development
  - A component of the four-year "design spine" which includes APSC 101, ELEC 290 and ELEC 490/8. Focuses on taking the technical expertise and learning skills you have gained thus far, and applying it to an engineering design project;
  - topics in design, teams and project management, engineering documentation, social and ethical impacts.

- **ELEC 490/498** Capstone Design Project course
  - prerequisites: 3rd year core courses incl. ELEC 392
  - instructors and project supervisors
  - group of 3-4 to design/build/document

- ELEC 497 Research project (available to 4th year students):
  - For those with an interest in exploring in depth some technical area in a more independently-driven research study

Complementary Studies Program Requirement

- Complementary Studies (CS) – *not Innovation Stream*
  - Must have a total of 3 courses or 9 credits (108 units) of CS:
    - 1 course (3 credits) must be from List A Humanities and Social Sciences group;
    - Remaining 2 courses (or 6 credits) can be from List A or List B
  - Typically take one CS course in each of 2nd, 3rd, and 4th year, but whenever it can fit into schedule is fine (e.g., PSYC100 is 6 credits and is a F/W)
  - Some CS courses are available online (see Arts and Science Online, SSB online, LAW online).

Innovation Stream: Business & Complementary Studies

2nd Year	COMM 201 – Introduction to Business for Entrepreneurs | F
3rd Year	COMM 301 – Funding New Ventures | F COMM 302 – Launching New Ventures | W List "A" Complementary Studies Course | F/W/S
4th Year	COMM 405 – New Business Development | F

ECEi: No reduction in technical content

Course Preload in 3rd Year

- Student are enrolled in 3rd year core courses by the department in July.
- Please note the following:
  - 3rd year Students **can self-enroll** in both core and elective courses;
  - Students **can swap** course sections from their Solus account or drop courses before the drop deadline;
  - Students need to self-register in **Optional Core** courses (*not preloaded*), complementary studies electives, technical electives;
  - APSC 221 will be auto-loaded into 3rd year *Winter* semester, however Students can choose to register in APSC 221 in any term – Fall or Winter;
  - Students are unable to register in a course with a missing prerequisite.
  - Students are unable to self-register in first year APSC courses, 2nd year core courses.

SOLUS tutorials

QUIP - Internship

- 12-16 month accredited paid work experience, students go after completing 2nd or 3rd year (after 3rd year is preferred). Your diploma will read: Bachelor of Applied Science, with Professional Internship.

- QUIP Requirements, Fees, and Policies

- You will be enrolled in courses APSC 301, 302, 303 and 304 - Professional Internship. QUIP is academically linked: APSC 303 will count toward your program requirements as a technical elective at 3.5 credits.
- Students can register in one academic course per term while on internship.
- For more information about QUIP, please visit the Career Services QUIP page or contact the QUIP team: quip@queensu.ca
- For Engineering-specific advising and support, contact Corporate Relations: Corporate Relations Career Education Team

Substitutions

- Courses in each curriculum (CORE, TECH, COMP) meet CEAB requirements and Faculty Regulations and have been approved by the Smith Engineering Operations Committee and listed on your Academic Plan.
- If a student takes a course that is not on the approved curriculum for their program, the course will not count towards their program

  ……..except……..

- Sometimes a student can *substitute* a course with:
  - Courses taken during the summer at another university
  - Courses taken while on exchange at another university
  - Courses that are not on the approved TECH lists
  - A course to replace a CORE course (NOTE: This form of substitution is rare and requires detailed information as to why the student is not taking the CORE course at their home university)

Substitution Process

1.Send an email with the substitution request form to the Undergraduate Program Assistant (UPA) indicating the course you would like to take and what course you would like to substitute it for. Also include a web link to the following information:

a) Course syllabus

b) Total # of lecture/lab/tutorial hours

c) Course grading scheme

d) Reason why you would like to substitute one course with another

2.Instructor Signature:

a) CORE/TECH Courses: The instructor of the course to be substituted will also need to sign the form as an indication that the course is a good substitute

b) Complementary Studies Courses: No instructor signature required

3.UPA will submit the course substitution material(s) to the Undergraduate Program Chair for review. The UG Chair will sign the form if they support the request.

4.UPA then submit the completed paperwork to the Faculty Office for review by the Operations Committee. For courses taken outside of Queen's, the $63.00 administration fee needs to be paid via online system at https://store.engineering.queensu.ca/index.php?main_page=index&cPath=8

5.You will receive an email from the Faculty Office with the Operations Committee's decision. This email can be used as a letter of permission to register for courses at another institution.

Prerequisites

- Prerequisites: capture material necessary to do the course
  - If the professor thought you could do the course without knowing that material, it would not have been made a prerequisite
- Prerequisites are only waived in exceptional circumstances
  - Submit a Prerequisite Waiver form to the Program Assistant, which asks the UG Chair to waive the prerequisite
- Before submitting the form, the instructor of the course for which the waiver is required must approve the waiver justification in writing (sign the form or provide the approval over email)

Timetabling

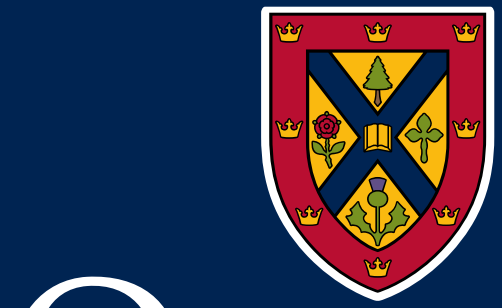
- Timetabling of *all* courses is done by University Registrar centrally each year
- No guarantee that desired combinations of electives are completely conflict-free
- You must be *flexible* in 3rd and 4th year, as needed

Course Planning

- Use your **degree planning spreadsheet** to verify that all program requirements will be met
- Follow the Calendar & all preregistration instructions
  - Confirm core courses are preloaded
  - Select electives (technical and/or complementary)
  - Check course prerequisites and exclusions
  - Submit substitution requests for courses outside of ECE that are not listed as official technical electives (CISC, MECH, MTHE)
- Avoid **Negative Service Indicators** (SOLUS account, unpaid tuition). Log on to SOLUS to view your financial account to see if you have any outstanding debts. The University Registrar's Office can be reached at solus@queensu.ca about registration or payment.
- Respect deadlines to avoid difficulties (Add/Drop courses)

Course Planning

- Not all electives are offered every year. Plan both 3rd and 4th years together!
- You are not limited to '300' level technical elective courses.
- If you have prerequisites for a '400' level elective & it fits in your timetable, you can take it in your 3rd year
- Use the Calendar Information and the ECE Planning Spreadsheets to ensure you are on track to complete all requirements by the end of the fourth year. This is one of the most important responsibilities for all ECE students.



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