COMPUTER ENGINEERING, DIRECT ENTRY STREAM, B.A.SC. (CLASS OF 2029)

Elective courses in years three and four are to be chosen from the Electives List shown below (under Fourth Year), and by consulting suggested Streams and prerequisite paths. Your complete degree program must:

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

Available combinations of elective courses are subject to timetabling constraints.

First Year CORE 2025-2026

Code	Title	Units
APSC 101	Engineering Design & Practice	3.20
APSC 102	Experimentation	2.00
APSC 103	Engineering Client-based Design Project	3.50
APSC 111	Physics I	3.30
APSC 112	Physics II	3.30
APSC 131	Chemistry of Engineering Materials and Processes	3.30
APSC 132	Chemistry of Natural and Engineered Systems	3.30
APSC 143	Introduction to Computer Programming for Engineers	3.30
APSC 162	Engineering Graphics	2.50
APSC 171	Calculus I	3.30
APSC 172	Calculus II	3.30
APSC 174	Introduction To Linear Algebra	3.30
APSC 199	Engineering Communications 1	0.50
MREN 178	Data Structures and Algorithms	4.50
Total Units		**42.60**

Second Year CORE 2026-2027

Code	Title	Units
ELEC 221	Electric Circuits	4.25
ELEC 226	Probability & Random Processes (Probability & Random Processes)	3.50
ELEC 231	Mathematical Methods I for Electrical and Computer Engineering (Mathematical Methods I for Electrical and Computer Engineering)	3.50
ELEC 252	Electronics I	4.25
ELEC 270	Discrete Mathematics with Computer Engineering App	3.50
ELEC 271	Digital Systems	4.00
ELEC 274	Computer Architecture	4.00
ELEC 279	Introduction to Object Oriented Programming	4.00
ELEC 280	Fundamentals of Electromagnetics	3.75
ELEC 290	Electrical and Computer Engineering Design and Practice	5.00
ELEC 292	Introduction to Data Science	3.00
Complementary Studies List A - Fall		3.00
Total Units		**45.75**

Third Year CORE 2027-2028

Code	Title	Units
ELEC 371	Microprocessor Interfacing and Embedded Systems	4.00
ELEC 373	Computer Networks	3.50
ELEC 374	Digital Systems Engineering	4.25
ELEC 377	Operating Systems	4.00
ELEC 379	Algorithms with Engineering Applications	4.00
ELEC 385	Fundamentals of Quantum Computing (Fundamentals of Quantum Computing)	3.50
ELEC 392	Engineering Design and Development (Engineering Design and Development)	3.50
APSC 221	Economic and Business Practice	3.00
CMPE 223	Software Specifications	3.00-3.50
or ELEC 376	Software Development Methodology	
Technical Electives (choose 1)		3.00
Complementary Studies		3.00
Total Units		**38.75-39.25**

Fourth Year CORE 2028-2029

Code	Title	Units
ELEC 498	Computer Engineering Project [1]	7.00
Technical Electives		19.10-19.60

Complementary Studies	3.00
Total Units	**29.10-29.60**

[1] with Departmental and instructor support, students may request to substitute APSC 480 (https://www.queensu.ca/academic-calendar/search/?P=APSC%20480) Multi-disciplinary Industry for ELEC 498 (https://www.queensu.ca/academic-calendar/search/?P=ELEC%20498) Computer Engineering Project

Electives

Computer Engineering: Electives (https://www.queensu.ca/academic-calendar/engineering-applied-sciences/academic-plans/computer-engineering/computer-engineering-electives/)

Course Prerequisites

Normally, registration in a course offered by the Department is allowed provided a mark of at least D- has been achieved in each of the prerequisites for the course. Students having one course prerequisite (numbered 200 or higher) with a mark of FR may still be able to register in a course offered by the Department provided their Engineering Cumulative GPA is at least 2.0 at the end of the previous session. Prerequisites are listed under the calendar description for each course.

Complementary Studies

Refer to the Complementary Studies section of this calendar for details regarding the requirements for all Engineering plans. For the Computer Engineering Program, the Engineering Economics course is APSC 221 (https://www.queensu.ca/academic-calendar/search/?P=APSC%20221) Economic And Business Practice. Communications units are included within the design courses ELEC 290 (https://www.queensu.ca/academic-calendar/search/?P=ELEC%20290) Electrical and Computer Engineering Design and Practice, ELEC 392 Engineering Design and Development, and ELEC 498 (https://www.queensu.ca/academic-calendar/search/?P=ELEC%20498) Computer Engineering Project.