MATHEMATICS AND ENGINEERING, B.A.SC. (CLASS OF 2028)

General First Year 2024-2025 (https://www.queensu.ca/academic-calendar/engineering-applied-sciences/first-year-studies/)

Second Year CORE 2025-2026

Code	Title	Units
APSC 200	Engineering Design & Practice II	4.00
APSC 293	Engineering Communications 2	1.00
MTHE 212	Linear Algebra	3.50
MTHE 217	Algebraic Structures with Applications	3.50
MTHE 237	Differential Equations for Engineering Science	3.50
MTHE 280	Advanced Calculus	3.50
MTHE 281	Introduction To Real Analysis	3.50
Total Units		**22.50**

Applied Mechanics Sub-Plan (M6)

Code	Title	Units
Second Year Core		22.50
MECH 221	Solid Mechanics I	3.50
MECH 210	Electronic Circuits and Motors for Mechatronics	4.50
MREN 230	Thermodynamics and Heat Transfer	3.75
MREN 241	Fluid Mechanics and Fluid Power	3.75
ENPH 225	Mechanics	3.50
Total Units		**41.50**

Computing and Communications Sub-Plan (M9)

Code	Title	Units
Second Year Core		22.50
CMPE 212	Introduction to Computing Science II	4.00
ELEC 271	Digital Systems	4.00
ELEC 274	Computer Architecture	4.00
ELEC 278	Fundamentals Of Information Structures	4.00
ENPH 239	Eng. Electricity & Magnetism	3.50
Total Units		**42.00**

Systems and Robotics Sub-Plan (M11)

Code	Title	Units
Second Year Core		22.50
ELEC 221	Electric Circuits	4.25
ELEC 271	Digital Systems	4.00
ELEC 274	Computer Architecture	4.00
ELEC 278	Fundamentals Of Information Structures	4.00
ENPH 225	Mechanics	3.50
ENPH 239	Eng. Electricity & Magnetism	3.50
Total Units		**45.75**

Third Year CORE 2026-2027

Code	Title	Units
APSC 221	Economic and Business Practice	3.00
MTHE 326	Functions of a Complex Variable	3.50
MTHE 328	Real Analysis	3.00
MTHE 335	Mathematics of Engineering Systems	3.50
MTHE 351	Probability I	3.50
MTHE 393	Engineering Design and Practice for Mathematics and Engineering	4.00
Total Units		**20.50**

Applied Mechanics Sub-Plan (M6)

Code	Title	Units
Third Year Core		20.50
MECH 321	Solid Mechanics II	3.50
MECH 328	Dynamics And Vibration	3.50
MECH 330	Applied Thermo II	3.50
MECH 398	Mechanical Engineering Laboratory I	2.00
MECH 323	Machine Design I	4.50
MECH 341	Fluid Mechanics II	3.50
MECH 399	Mechanical Eng Lab II	2.00
Total Units		**43.00**

Computing and Communications Sub-Plan (M9)

Code	Title	Units
Third Year Core		20.50
ELEC 371	Microprocessor Interfacing and Embedded Systems	4.00
MTHE 353	Probability II	3.00
CMPE 320	Fndmnts Software Development	4.00
CMPE 332	Database Management Systems	3.00
CMPE 365	Algorithms I	4.00
ENPH 334	Electronics For Applied Scientists	5.00
Complementary Studies, List A, F/W		3.00
Total Units		**46.50**

Systems and Robotics Sub-Plan (M11)

Code	Title	Units
Third Year Core		20.50
MTHE 353	Probability II	3.00
ENPH 334	Electronics For Applied Scientists	5.00
ELEC 371	Microprocessor Interfacing and Embedded Systems	4.00
MTHE 337	Intro. To Operations Research	3.00
Complementary Studies, List A, F/W		3.00
Total Units		**38.50**

Fourth Year CORE 2027-2028

Code	Title	Units
MTHE 493	Engineering Math Project	7.50
MTHE 494	Professional Development and Responsible Engineering	3.00
Total Units		**10.50**

Applied Mechanics Sub-Plan (M6)

Code	Title	Units
Fourth Year Core		10.50
MTHE 430	Control Theory	4.00
MTHE 433	Continuum Mechanics with Applications	3.50
Complementary Studies, List A, F or W		3.00
Complementary Studies, List A or B, F or W		6.00
Total Units		**27.00**

Electives

M6 students must choose four technical electives: a minimum of one must be taken from MTHE 472/474/477, at least one must be taken from List II, and the remaining from List I or II, subject to the requirement that the elective selection satisfies the following two criteria:

1. the selection exceeds the minimum of 40 Accreditation Units (AUs) in Engineering Design (ED) and
2. the selection exceeds the minimum of 120 AUs in Engineering Design + Engineering Science (ES+ED).

Please Note: *the term in which a course is offered can change from one academic year to the next. This can occur due to instructor availability or a change to departmental resources. Please refer to the on-line Course Timetable to determine the terms in which the courses in this Technical Elective section will be offered.*

Mathematics and Engineering, Applied Mechanics (M6): Technical Electives (https://www.queensu.ca/academic-calendar/engineering-applied-sciences/academic-plans/mathematics-engineering/mathematics-engineering-applied-mechanics-m6-technical-electives/)

Minimum Total Credits: 38.5

Computing and Communications Sub-Plan (M9)

Code	Title	Units
Fourth Year Core		10.50
MTHE 455	Stochastic Processes & Applications	3.50
MTHE 474	Information Theory	3.50
MTHE 477	Data Compression and Source Coding: Theory and Algorithms	3.00
Complementary Studies, List A or B, F or W		6.00
Total Units		**26.50**

Electives

M9 students must choose four technical electives: a minimum of one must be taken from MTHE 430/433/472, at least one must be taken from List II, and the remaining from List I or II, subject to the requirement that the elective selection satisfies the following two criteria:

1. the selection exceeds the minimum of 40 Accreditation Units (AUs) in Engineering Design (ED) and
2. the selection exceeds the minimum of 120 AUs in Engineering Design + Engineering Science (ES+ED).

Please Note: *the term in which a course is offered can change from one academic year to the next. This can occur due to instructor availability or a change to departmental resources. Please refer to the on-line Course Timetable to determine the terms in which the courses in this Technical Elective section will be offered.*

Mathematics and Engineering, Computing and Communications (M9): Technical Electives (https://www.queensu.ca/academic-calendar/engineering-applied-sciences/academic-plans/mathematics-engineering/mathematics-engineering-computing-communications-m9-technical-electives/)

Minimum Total Credits: 38.5

Systems and Robotics Sub-Plan (M11)

Code	Title	Units
Fourth Year Core		10.50
MTHE 430	Control Theory	4.00
MTHE 472	Optimization and Control of Stochastic Systems	3.50
MTHE 474	Information Theory	3.50
Complementary Studies, List A or B, F or W		6.00
Total Units		**27.50**

Electives

M11 students must choose four technical electives: a minimum of one must be taken from MTHE 433/477, at least one must be taken from List II, and the remaining from List I or II, subject to the requirement that the elective selection satisfies the following two criteria:

1. the selection exceeds the minimum of 40 Accreditation Units (AUs) in Engineering Design (ED) and
2. the selection exceeds the minimum of 120 AUs in Engineering Design + Engineering Science (ES+ED).

Please Note: *the term in which a course is offered can change from one academic year to the next. This can occur due to instructor availability or a change to departmental resources. Please refer to the on-line Course Timetable to determine the terms in which the courses in this Technical Elective section will be offered.*

Mathematics and Engineering, Systems and Robotics (M11): Technical Electives (https://www.queensu.ca/academic-calendar/engineering-applied-sciences/academic-plans/mathematics-engineering/mathematics-engineering-systems-robotics-m11-technical-electives/)

Minimum Total Credits: 39.5

Complementary Studies

Refer to the Complementary Studies section of this calendar for details regarding the requirements for all Engineering programs. For the Mathematics and Engineering Program, the Engineering Economics course is APSC 221 Economic and Business Practice, and the Communications requirements are met through courses taken in the core program (MTHE 393 Engineering Design and Practice for Mathematics and Engineering , MTHE 494 Professional Development and Responsible Engineering , MTHE 493 Engineering Math Project and APSC 293 Engineering Communications 2).