# Faculty of Engineering and Applied Science

# 4.1 Program of Study

1. Courses in the Engineering Program are normally taken in Academic Terms as shown in the appropriate program table. Students must satisfy the criteria for promotion as described below under [Promotion Regulations](https://www.mun.ca/university-calendar/st-johns-campus/faculty-of-engineering-and-applied-science/7/1/) to remain in the Engineering program.
2. The Engineering Program consists of eight academic terms and four to six work terms. The first-year of the Engineering Program, known as Engineering One, forms a core that is common to all majors. All students must successfully complete the requirements of Engineering One prior to being promoted to Academic Term 3 as indicated under [Promotion Regulations, Promotion Status (Engineering One)](https://www.mun.ca/university-calendar/st-johns-campus/faculty-of-engineering-and-applied-science/7/1/).
3. To be eligible for registration for ENGI [001W](https://www.mun.ca/university-calendar/st-johns-campus/faculty-of-engineering-and-applied-science/4/1/) in the Spring semester after completing Engineering One, students are expected to successfully complete the prerequisite ENGI [200W](https://www.mun.ca/university-calendar/st-johns-campus/faculty-of-engineering-and-applied-science/4/1/) in the Fall semester of Engineering One. All other Engineering One students are expected to successfully complete ENGI [200W](https://www.mun.ca/university-calendar/st-johns-campus/faculty-of-engineering-and-applied-science/4/1/) in the Winter semester of Engineering One.
4. In 1000 level Engineering courses, registration priority is given to students who have been admitted to Engineering One. Other students will be admitted to these courses only with the approval of the Associate Dean (Undergraduate Studies) (or delegate).
5. In these program regulations, including the program tables, wherever reference is made to Chemistry [1050](https://www.mun.ca/university-calendar/st-johns-campus/faculty-of-engineering-and-applied-science/4/1/), this course may be replaced by a course deemed equivalent by the relevant academic unit.
6. Upon entering Academic Term 3, students begin to specialize in their academic program, in one of the following seven majors: Civil Engineering, Computer Engineering, Electrical Engineering, Mechanical Engineering, Mechatronics Engineering, Ocean and Naval Architectural Engineering, or Process Engineering.
7. Upon entering Academic Term 6, students in the Computer Engineering and Electrical Engineering majors may choose to enter the Biomedical stream. Upon entering Academic Term 6, students in the Mechanical Engineering major choose one of five technical streams: [Biomedical](https://www.mun.ca/university-calendar/st-johns-campus/faculty-of-engineering-and-applied-science/6/4/#d.en.303597), [Mechanics and Materials](https://www.mun.ca/university-calendar/st-johns-campus/faculty-of-engineering-and-applied-science/6/4/#d.en.303598), [Mechatronics](https://www.mun.ca/university-calendar/st-johns-campus/faculty-of-engineering-and-applied-science/6/4/#d.en.303598), [Petroleum](https://www.mun.ca/university-calendar/st-johns-campus/faculty-of-engineering-and-applied-science/6/4/#d.en.303597), and [Thermo-Fluids](https://www.mun.ca/university-calendar/st-johns-campus/faculty-of-engineering-and-applied-science/6/4/#d.en.303597). Upon entering Academic Term 6, students in the Process Engineering major may choose one of two technical streams: [Chemical and Bioprocess](https://www.mun.ca/university-calendar/st-johns-campus/faculty-of-engineering-and-applied-science/6/7/#d.en.303608), and [Mineral and Energy Resources](https://www.mun.ca/university-calendar/st-johns-campus/faculty-of-engineering-and-applied-science/6/7/#d.en.303608).
8. Courses offered in the Faculty of Engineering and Applied Science are restricted to students who have been admitted or promoted to the appropriate academic term and major (e.g., Academic Term 3 for 3000 level courses, restricted by major; Engineering One for 1000 level courses). Other students will be admitted to these courses only with the approval of the Head of the appropriate Department for courses at the 3000 level and higher, or the Associate Dean (Undergraduate Studies) (or delegate) for ENGI courses.  
     
    Some of the courses offered in academic terms 3 to 8 are taken by all Engineering students, others are offered for more than one major, but most technical courses in academic terms 3 to 8 are specific to the individual majors. Students should refer to the program descriptions for the detailed course requirements in each phase of their program.
9. Technical elective courses may be offered in terms other than those indicated in the program tables.
10. A student who has previously met a technical elective requirement in a given semester or wishes to defer it, may request an exemption or deferral by applying to the Head of the appropriate Department. A minimum grade of 60% is required for credit to be given towards a student’s engineering program for any technical elective taken outside the normal Academic Terms as shown in the tables.
11. A minimum grade of 60% is required for credit to be given towards a student's engineering program for any course beyond Engineering One that is taken outside the normal Academic Terms as shown in the tables.
12. Transfer credit cannot be awarded for project or design courses in Academic Terms 7 or 8 of the Engineering program.
13. Students registered in Academic Term 7 of any Engineering major are eligible to apply for admission to a [Master of Engineering Fast-Track Option](https://www.mun.ca/university-calendar/school-of-graduate-studies/school-of-graduate-studies/19/5/) (M.Eng.). The purpose of the Option is to encourage students interested in pursuing graduate studies to begin their graduate program while still registered as an undergraduate student. While enrolled in the Option, a student may complete some of the M.Eng. Degree requirements and potentially be able to graduate earlier from the M.Eng. Program. For further details and the regulations regarding the option, refer to the [School of Graduate Studies, Regulations Governing the Degree of Master of Engineering](https://www.mun.ca/university-calendar/school-of-graduate-studies/school-of-graduate-studies/19/).

# 5.3 Admission Requirements to the Faculty Program

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* [5.3.1 High School Applicants](https://www.mun.ca/university-calendar/st-johns-campus/faculty-of-engineering-and-applied-science/5/3/#5.3.1)
* [5.3.2 Memorial University of Newfoundland Applicants](https://www.mun.ca/university-calendar/st-johns-campus/faculty-of-engineering-and-applied-science/5/3/#5.3.2)
* [5.3.3 Transfer Applicants](https://www.mun.ca/university-calendar/st-johns-campus/faculty-of-engineering-and-applied-science/5/3/#5.3.3)

An applicant must be eligible for admission or readmission to the University in a category as defined in the Calendar section [University Regulations (Undergraduate), Categories of Applicants, Admission Criteria and Other Information](https://www.mun.ca/university-calendar/university-regulations-undergraduate/4/3/). In addition to meeting these regulations, an applicant to the Bachelor of Engineering program in the following admission categories must meet the requirements as indicated below.

[5.3.1 High School Applicants](https://www.mun.ca/university-calendar/st-johns-campus/faculty-of-engineering-and-applied-science/5/3/#5.3.1)

1. The Faculty of Engineering and Applied Science encourages applications for admission to the Bachelor of Engineering program from high school students who are new to post-secondary education, have an interest in pursuing an engineering degree and have achieved a good academic performance during high school. In addition to meeting the requirements under [University Regulations (Undergraduate), Applicants Who Have Followed the High School Curriculum of Newfoundland and Labrador, Admission Criteria](https://www.mun.ca/university-calendar/university-regulations-undergraduate/4/3/#d.en.299526), performance in advanced mathematics, chemistry, physics and English is of particular interest, and grades above 80% are normally required for consideration.
2. Applicants who have not successfully completed either chemistry or physics but who have performed well in the other subjects may be considered.
3. Applicants must meet the English language proficiency requirements as noted in [English Language Proficiency Requirements](https://www.mun.ca/university-calendar/st-johns-campus/faculty-of-engineering-and-applied-science/5/4/).
4. An applicant who is not admitted to the Bachelor of Engineering program is encouraged to contact the University’s [Academic Advising Centre](http://www.mun.ca/advice/) or the Office of the Associate Dean (Undergraduate Studies) to discuss an appropriate first-year program.

[5.3.2 Memorial University of Newfoundland Applicants](https://www.mun.ca/university-calendar/st-johns-campus/faculty-of-engineering-and-applied-science/5/3/#5.3.2)

1. To be eligible for consideration for admission to the Bachelor of Engineering program, a student who is attending or has previously attended this University must have a cumulative average of at least 70%, and obtained a grade of at least 70% in two or more of the following courses or their prerequisites: Chemistry [1050](https://www.mun.ca/university-calendar/st-johns-campus/faculty-of-engineering-and-applied-science/5/3/) (or Chemistry [1200](https://www.mun.ca/university-calendar/st-johns-campus/faculty-of-engineering-and-applied-science/5/3/)), 3 credit hours in English at the 1000 level, Mathematics [1001](https://www.mun.ca/university-calendar/st-johns-campus/faculty-of-engineering-and-applied-science/5/3/), Mathematics [2050](https://www.mun.ca/university-calendar/st-johns-campus/faculty-of-engineering-and-applied-science/5/3/), Physics [1051](https://www.mun.ca/university-calendar/st-johns-campus/faculty-of-engineering-and-applied-science/5/3/).
2. Applicants must meet the English language proficiency requirements as noted in [English Language Proficiency Requirements](https://www.mun.ca/university-calendar/st-johns-campus/faculty-of-engineering-and-applied-science/5/4/).

[5.3.3 Transfer Applicants](https://www.mun.ca/university-calendar/st-johns-campus/faculty-of-engineering-and-applied-science/5/3/#5.3.3)

1. An applicant seeking admission to the Bachelor of Engineering program through transfer from recognized post-secondary institutions must have achieved a minimum overall average of 70% or GPA of 3.0, or equivalent.
2. Applicants must have obtained a grade of at least 70% in two or more courses that have been deemed equivalent for transfer credit purposes to the following courses or their prerequisites: Chemistry [1050](https://www.mun.ca/university-calendar/st-johns-campus/faculty-of-engineering-and-applied-science/5/3/) (or Chemistry [1200](https://www.mun.ca/university-calendar/st-johns-campus/faculty-of-engineering-and-applied-science/5/3/)), 3 credit hours in English at the 1000 level, Mathematics [1001](https://www.mun.ca/university-calendar/st-johns-campus/faculty-of-engineering-and-applied-science/5/3/), Mathematics [2050](https://www.mun.ca/university-calendar/st-johns-campus/faculty-of-engineering-and-applied-science/5/3/), Physics [1051](https://www.mun.ca/university-calendar/st-johns-campus/faculty-of-engineering-and-applied-science/5/3/).
3. Where it is determined, at the time of admission, that an applicant has met all the requirements for promotion from Engineering One, customized program requirements will be determined on an individual basis following transfer credit evaluation.
4. Applicants must meet the English language proficiency requirements as noted in [English Language Proficiency Requirements](https://www.mun.ca/university-calendar/st-johns-campus/faculty-of-engineering-and-applied-science/5/4/).
5. A transfer applicant is advised that more than half of the total credit hours must be completed at this University as indicated under [University Regulations (Undergraduate), Residence Requirements, First Degree and Second Degree](https://www.mun.ca/university-calendar/university-regulations-undergraduate/6/3/).

Engineering One courses are designated by ENGI.

\*\*Course Title:\*\* ENGI 1010 Engineering Statics

\*\*Course Information:\*\* ENGI 1010 is the first course in Engineering mechanics. It covers the description of forces and moments with vector algebra, leading to the equilibrium conditions for particles and solid bodies. The importance of free body diagrams is highlighted. The course applies this knowledge to the analysis of trusses, frames, and machines. Additional topics include an examination of friction and the concepts of the center of force, centroids, and second moments of area.

\*\*CO:\*\* Mathematics 1000

\*\*CR:\*\* The former ENGI 1313

\*\*OR:\*\* Tutorial 1 hour per week

\*\*PR:\*\* Level III Physics or Physics 1020 or equivalent

\*\*Course Link:\*\* <https://www.mun.ca/university-calendar/st-johns-campus/faculty-of-engineering-and-applied-science/11/1/#d.en.303632>

\*\*Course Title:\*\* ENGI 1020 Introduction to Programming

\*\*Course Information:\*\* ENGI 1020 is an introduction to algorithmic problem-solving techniques and computer programming. It covers basic program control structures (sequence, call, branch, loop) and data representations, functional decomposition, and design by contract. Exercises and examples are drawn from a variety of engineering disciplines and are implemented using a standard modern programming language.

\*\*CR:\*\* The former ENGI 2420

\*\*LH:\*\* At least four 2-hour sessions per semester

\*\*PR:\*\* Eligibility to register for Mathematics 1000

\*\*Course Link:\*\* <https://www.mun.ca/university-calendar/st-johns-campus/faculty-of-engineering-and-applied-science/11/1/#d.en.303636>

\*\*Course Title:\*\* ENGI 1030 Engineering Graphics and Design

\*\*Course Information:\*\* ENGI 1030 provides an introduction to the fundamentals of graphic communication, including orthographic projections, three-dimensional pictorials, sectioning, and dimensioning. It utilizes both sketching and CAD. The course also introduces students to standard design methodologies, and the graphics and design competencies are reinforced through lab and project exercises.

\*\*LH:\*\* 3

\*\*PR:\*\* Eligibility to register for Mathematics 1000

\*\*Course Link:\*\* <https://www.mun.ca/university-calendar/st-johns-campus/faculty-of-engineering-and-applied-science/11/1/#d.en.303634>

\*\*Course Title:\*\* ENGI 1040 Mechanisms and Electric Circuits

\*\*Course Information:\*\* ENGI 1040 is offered in two serial modules, including laboratory and workshop practice, and a team project. The electrical module introduces dc circuits with an analysis of circuits used in control, measurement, and instrumentation systems. The mechanism module provides an introduction to machine components such as belts, pulleys, gears, and simple linkages. The laboratory and workshop component introduces students to hands-on practice in basic laboratory instruments, tools, and safety procedures. A team project involves the construction, assembly, and testing of a simple mechanism.

\*\*LH:\*\* 3

\*\*PR:\*\* Level III Physics or Physics 1051 (which may be taken concurrently) and Mathematics 1000 (which may be taken concurrently)

\*\*Course Link:\*\* <https://www.mun.ca/university-calendar/st-johns-campus/faculty-of-engineering-and-applied-science/11/1/#d.en.303633>

- \*\*AR:\*\* Attendance requirement as noted.

- \*\*CH:\*\* Credit hours: unless otherwise noted, a course normally has a credit value of 3 credit hours.

- \*\*CO:\*\* Co-requisite(s): course(s) listed must be taken concurrently with or successfully completed prior to the course being described.

- \*\*CR:\*\* Credit restricted: The course being described and the course(s) listed are closely related but not equivalent. Credit is limited to one of these courses. Normally, these courses cannot be substituted, one for the other, to satisfy program requirements.

- \*\*EQ:\*\* Equivalent: the course being described and the course(s) listed are equal for credit determination. Credit is limited to one of these courses. These courses can be substituted, one for the other, to satisfy program requirements.

- \*\*LC:\*\* Lecture hours per week: lecture hours are 3 per week unless otherwise noted.

- \*\*LH:\*\* Laboratory hours per week.

- \*\*OR:\*\* Other requirements of the course such as tutorials, practical sessions, or seminars.

- \*\*PR:\*\* Prerequisite(s): course(s) listed must be successfully completed prior to commencing the course being described.

- \*\*UL:\*\* Usage limitation(s) as noted.