

X—Degree Programs, Bachelor of Science in Technology [B.Sc.(Tech.)]

The B.Sc.(Tech.) program was designed for students who do not intend to pursue post-graduate studies and are strongly focused on securing industrial employment that makes use of the knowledge acquired in their bachelors degree. This program provides students with the knowledge and skills deemed to be essential by employers and exemplifies the positive benefits of cooperation between colleges and universities. The program combines rigorous theory with practical applications.

For the B.Sc.(Tech.) degree the University offers an honours program requiring the equivalent of 8 semesters of successful full-time study. Two of the semesters will be located at Seneca College in Toronto. The program requires the completion of four co-op work-terms. Students are encouraged to study full-time and to follow the schedule of studies listed below. In the B.Sc.(Tech.) program, 2.50 credits per semester is the normal load for a regular full-time student.

Program Information

Students are required to follow the pattern of study for one of the two majors offered (Applied Pharmaceutical Chemistry or Physics and Technology) and complete all of the required courses specified in the Schedule of Studies. Courses taught by Seneca College are noted in the schedule of studies. The course descriptions are in this calendar however detailed course profiles can be accessed through the Seneca College home page.

Continuation of Study

Students are advised to consult the University's regulations for continuation of study which are outlined in detail in Section VIII—Undergraduate Degree Regulations & Procedures. In addition to the University regulations, students will also be required to achieve a 70% cumulative average by the end of semester 2. Students will be evaluated after semester 2 and those students who have an average less than 70% but meet the Guelph continuation of study requirements will either be:

1. withdrawn from the B.Sc.(Tech.) program. These students will be eligible to transfer into the B.Sc. program at Guelph, or apply to transfer into a program at Seneca or another program at Guelph; or
2. placed on conditional status and allowed to continue in the program for one semester and be required to achieve a 70% average in that semester.

Honours Minors

Students may wish to add a minor to their major. A minor is a group of courses which provides for exposure to and mastery of the fundamental principles of a subject. A minor consists of a minimum of 5.00 credits. It may also require certain specified courses. Given the intended technical training of this degree, students have very little flexibility in terms of electives. As such, students wishing to add a minor would be required to enrol in additional semesters of study. Students wishing to take a minor should consult with their program counsellor.

Conditions for Graduation

In order to qualify for graduation from the B.Sc.(Tech.) program, the student must have successfully completed all of the courses approved for the program, and receive a minimum grade of satisfactory for the co-op work reports and work performance evaluations.

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Applied Pharmaceutical Chemistry (APPC:C)

Major (Honours Program)

This major will require the completion of 20.25 credits as indicated below:

Semester 1 – Fall

BIOL*1030	[0.50]	Biology I
CHEM*1040	[0.50]	General Chemistry I
MATH*1200	[0.50]	Calculus I
PHYS*1000	[0.50]	An Introduction to Mechanics

0.50 credit from an Arts/Social Science elective

Semester 2 – Winter

BIOL*1040	[0.50]	Biology II
CHEM*1050	[0.50]	General Chemistry II
COOP*1100	[0.00]	Introduction to Co-operative Education
MATH*1210	[0.50]	Calculus II
PHYS*1010	[0.50]	Introductory Electricity and Magnetism
XSEN*2010	[0.50]	Effective Business and Technical Writing

Semester 3 – Fall

CHEM*2060	[0.50]	Structure and Bonding
CHEM*2400	[0.75]	Analytical Chemistry I
CHEM*2880	[0.50]	Physical Chemistry
CIS*1200	[0.50]	Introduction to Computing
STAT*2040	[0.50]	Statistics I

Winter Semester

COOP*1000	[0.00]	Co-op Work Term I
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Semester 4 – Summer

CHEM*2070	[0.50]	Structure and Spectroscopy
CHEM*2580	[0.50]	Introductory Biochemistry
CHEM*2700	[0.50]	Organic Chemistry I
MICR*2030	[0.50]	Microbial Growth

0.50 elective

Fall Semester

COOP*2000	[0.00]	Co-op Work Term II
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Semester 5 – Winter

XSEN*2020	[0.50]	Management Studies: Business and Human Relations
XSEN*3020	[0.50]	Pharmaceutical Analysis
XSEN*3030	[0.50]	Pharmacology and Applied Toxicology
XSEN*3040	[0.50]	Occupational Health and Chemistry
XSEN*4050	[0.50]	Biopharmaceuticals

Note: All courses in Semester 5 are taught by Seneca College.

Semester 6 – Summer

CHEM*3360	[0.50]	Environmental Chemistry and Toxicology
CHEM*3430	[0.50]	Analytical Chemistry II: Instrumental Analysis
CHEM*3570	[0.50]	Analytical Biochemistry
CHEM*3750	[0.50]	Organic Chemistry II

0.50 elective

Fall Semester

COOP*3000	[0.00]	Co-op Work Term III
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Semester 7 – Winter

XSEN*3060	[0.50]	Pharmaceutical Analysis – Advanced
XSEN*4010	[0.50]	Pharmaceutical Calculations
XSEN*4020	[0.50]	Pharmaceutical Organic Chemistry
XSEN*4030	[0.50]	Pharmaceutical Product Formulations
XSEN*4040	[0.50]	Pharmaceutical Manufacturing

Note: All courses in Semester 7 are taught by Seneca College.

Summer Semester

COOP*4000	[0.00]	Co-op Work Term IV
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Semester 8 – Fall

CHEM*3440	[0.50]	Analytical Chemistry III: Analytical Instrumentation
CHEM*4730	[0.50]	Synthetic Organic Chemistry

0.50 elective

One of:

CHEM*3640	[0.50]	Chemistry of the Elements I
CHEM*4520	[0.50]	Metabolic Processes
CHEM*4550	[0.50]	Biochemistry and Structure of Macromolecules
CHEM*4570	[0.50]	Applied Biochemistry

One of:

HK*3940	[1.25]	Human Physiology
MBG*2000	[0.50]	Introductory Genetics
PATH*3610	[0.50]	Principles of Disease
TOX*4590	[0.50]	Biochemical Toxicology

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Physics and Technology (PHTC:C)

Major (Honours Program)

This major will require the completion of 20.75 credits as indicated below:

Semester 1 – Fall

BIOL*1030	[0.50]	Biology I
CHEM*1040	[0.50]	General Chemistry I
CIS*1650	[0.50]	Programming I
MATH*1200	[0.50]	Calculus I
PHYS*1000	[0.50]	An Introduction to Mechanics

Semester 2 – Winter

CHEM*1050	[0.50]	General Chemistry II
CIS*2650	[0.50]	Programming II
COOP*1100	[0.00]	Introduction to Co-operative Education
MATH*1210	[0.50]	Calculus II
PHYS*1010	[0.50]	Introductory Electricity and Magnetism
PHYS*2040	[0.50]	Fundamental Electronics and Sensors

Semester 3 – Fall

MATH*2160	[0.50]	Linear Algebra I
MATH*2200	[0.50]	Advanced Calculus I
PHYS*2440	[0.75]	Mechanics I
PHYS*2460	[0.75]	Electricity and Magnetism I

One of:

MATH*2000	[0.50]	Set Theory
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0.50 elective

Winter Semester

COOP*1000	[0.00]	Co-op Work Term I
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Semester 4 – Spring

BIOL*1040	[0.50]	Biology II
MATH*2170	[0.50]	Differential Equations I
PHYS*2260	[0.50]	Experimental Basis of Quantum Physics
PHYS*3240	[0.50]	Statistical Physics I

One of:

CIS*2420	[0.50]	Data Structures
CIS*2450	[0.50]	Software Systems Development and Integration

Fall Semester

COOP*2000	[0.00]	Co-op Work Term II
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Semester 5 – Winter

XSEN*3100	[0.50]	Communication Systems and Circuits
XSEN*3110	[0.50]	Computer Information Systems II
XSEN*3120	[0.50]	Microprocessors I
XSEN*3130	[0.50]	Advanced C Programming
XSEN*3140	[0.50]	Operating Systems

Note: All courses in Semester 5 are taught by Seneca College.

Semester 6 – Spring

XSEN*4100	[0.50]	Object Oriented Programming Using C
XSEN*4110	[0.50]	Control Processes
XSEN*4120	[0.50]	Data Communications I
XSEN*4130	[0.50]	Digital Communications
XSEN*4140	[0.50]	Technical Writing

Note: All courses in Semester 6 are taught by Seneca College.

Fall Semester

COOP*3000	[0.00]	Co-op Work Term III
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Semester 7 – Winter

ENGG*3410	[0.50]	Systems and Control Theory
MATH*2210	[0.50]	Advanced Calculus II
PHYS*2470	[0.75]	Electricity and Magnetism II
PHYS*3220	[0.50]	Waves and Optics
STAT*2120	[0.50]	Probability and Statistics for Engineers

Summer Semester

COOP*4000	[0.00]	Co-op Work Term IV
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Semester 8 – Fall

MATH*3100	[0.50]	Differential Equations II
PHYS*3230	[0.50]	Quantum Mechanics I
PHYS*4240	[0.50]	Statistical Physics II

0.50 elective

One of:

PHYS*4180	[0.50]	Advanced Electromagnetic Theory
PHYS*4500	[0.50]	Advanced Physics Laboratory

Note: At least 0.50 in electives must be taken from courses in the Arts or Social Sciences.