

# COMPUTER ENGINEERING/ RED RIVER COLLEGE POLYTECHNIC ARTICULATION AGREEMENT

## Computer Engineering/Red River College Polytechnic Articulation Agreement Electrical Engineering Technology Diploma Program

Course	Title	Hours
<b>Preliminary Engineering Program</b>		
CHEM 1100	Introductory Chemistry 1: Atomic and Molecular Structure and Energetics	3
CHEM 1122	Introduction to Chemistry Techniques for Engineering 1	1.5
COMP 1012	Computer Programming for Scientists and Engineers	3
ENG 1430	Design in Engineering	3
ENG 1440	Introduction to Statics	3
ENG 1450	Introduction to Electrical and Computer Engineering <sup>RRC1</sup>	3
ENG 1460	Introduction to Thermal Sciences	3
MATH 1210	Techniques of Classical and Linear Algebra	3
MATH 1510	Applied Calculus 1 <sup>RRC2</sup>	3
MATH 1710	Applied Calculus 2 <sup>RRC3</sup>	3
PHYS 1050	Physics 1: Mechanics <sup>RRC4</sup>	3
One course that satisfies the university "writing" requirement		3
One complementary studies elective <sup>1</sup>		3
<b>Program courses and electives taught by the department</b>		
ECE 2160	Electronics 2E <sup>RRC5</sup>	5
ECE 2220	Digital Logic Systems <sup>RRC6</sup>	5
ECE 2262	Electric Circuits <sup>RRC7</sup>	4
ECE 2400	Engineering Algorithms 1	4
ECE 3400	Engineering Algorithms 2	4
ECE 3610	Microprocessing Systems	4
ECE 3700	Telecommunication Network Engineering	4
ECE 3740	Systems Engineering Principles 1	4
ECE 3760	Digital Systems Design 1	4
ECE 3780	Signal Processing 1	4
ECE 4150	Control Systems	4
or ECE 4260	Communications Systems	4
ECE 4240	Microprocessor Interfacing	4
ECE 4830	Signal Processing 2	4
ECE 4600	Group Design Project <sup>2</sup>	6
Choose ONE of:		3-4
ECE 3630	Real-time Embedded Systems	
ECE 4530	Parallel Processing	
COMP 3010	Distributed Computing	

ECE 3720	Electric Power and Machines <sup>RRC8</sup>	4
ECE 4850	Topics in Electrical and Computer Engineering 1 <sup>RRC9</sup>	4
ECE 4860	Topics in Electrical and Computer Engineering 2 <sup>RRC10</sup>	4
One Technical Elective from the approved list		3-4
One Technical Elective from the approved list		3-4
<b>Program courses taught by other academic departments</b>		
ANTH 2430	Ecology, Technology and Society <sup>3</sup>	3
COMP 1020	Introductory Computer Science 2	3
COMP 2140	Data Structures: Analysis and Implementation	3
ENG 2040	Engineering Communication: Strategies, Practice and Design <sup>RRC11</sup>	3
ENG 3000	Engineering Economics	3
MATH 2130	Engineering Mathematical Analysis 1	3
MATH 2132	Engineering Mathematical Analysis 2	3
MATH 2136	Mathematics for Computer Engineering	3
PHYS 2152	Modern Physics for Engineers	3
STAT 2220	Contemporary Statistics for Engineers <sup>4</sup>	3
<b>Electives taught by other departments</b>		
One complementary studies elective <sup>1</sup>		3
One natural science elective course from the approved list		3
One natural science elective course from the approved list		3
<b>Total Hours</b>		<b>157.5-160.5</b>

<sup>1</sup> The complementary studies elective can be any course at the 1000 level or above from either the faculties of Arts or Management. However, ARTS 1110 may not be used for credit in the Price Faculty of Engineering.

<sup>2</sup> Course continues through both terms with credit given upon completion.

<sup>3</sup> ANTH 2430 is an Indigenous Knowledge course.

<sup>4</sup> STAT 2220 is the recommended statistics course within this program, however, STAT 1000 and STAT 2000 together are considered equivalent to STAT 2220.

~~RRC~~ Polytech Equivalent Course: CIRC-1005 DC Circuits AND DIGI-1003 Digital Logic.

~~RRC~~ Polytech Equivalent Course: MATH-2013 Calculus.

~~RRC~~ Polytech Equivalent Course: MATH-2013 Calculus AND CTRL-1001 Linear Controls.

~~RRC~~ Polytech Equivalent Course: PHYS-1001 Physics 1 AND PHYS-2001 Physics 2.

~~RRC~~ Polytech Equivalent Course: DEVC-2003 Power Electronics 1 AND DEVC-2004 Semiconductor Devices AND DEVC-3001 Power Electronics.

~~RRC~~ Polytech Equivalent Course: DIGI-1003 Digital Logic.

~~RRC~~ Polytech Equivalent Course: CIRC-1005 DC Circuits AND CIRC-2002 AC Circuits AND PROJ-3002 Final Project.

~~RRC~~ Polytech Equivalent Course: MACH-1092 Electrical Machines 1 AND MACH-2000 Electrical Machines 2 AND TRAN-1000 Transformers.

~~RRC~~ Polytech Equivalent Course: CODE-2001 Electrical Practices and Design AND PRJ-2000 Project Management AND WRKS-1037 Introduction to Quality.

~~RRC~~ Polytech Equivalent Course: DCOM-1001 Digital Communications AND PLCS-1110 PLCs 1 AND PLCS-2111 PLCs 2.

**RRC** Polytech Equivalent Course: COMM-1152 Technical Communications AND COMM-3005 Technical Thesis AND PROJ-3002 Final Project.

## Electronic Engineering Technology Diploma Program

Course	Title	Hours
<b>Preliminary Engineering Program</b>		
CHEM 1100	Introductory Chemistry 1: Atomic and Molecular Structure and Energetics	3
CHEM 1122	Introduction to Chemistry Techniques for Engineering 1	1.5
COMP 1012	Computer Programming for Scientists and Engineers	3
ENG 1430	Design in Engineering	3
ENG 1440	Introduction to Statics	3
ENG 1450	Introduction to Electrical and Computer Engineering <sup>RRC1</sup>	3
ENG 1460	Introduction to Thermal Sciences	3
MATH 1210	Techniques of Classical and Linear Algebra	3
MATH 1510	Applied Calculus 1 <sup>RRC2</sup>	3
MATH 1710	Applied Calculus 2 <sup>RRC3</sup>	3
PHYS 1050	Physics 1: Mechanics <sup>RRC4</sup>	3
One course that satisfies the university "writing" requirement		3
One complementary studies elective <sup>1</sup>		3
<b>Program courses and electives taught by the department</b>		
ECE 2160	Electronics 2E <sup>RRC5</sup>	5
ECE 2220	Digital Logic Systems <sup>RRC6</sup>	5
ECE 2262	Electric Circuits <sup>RRC7</sup>	4
ECE 2400	Engineering Algorithms 1	4
ECE 3400	Engineering Algorithms 2	4
ECE 3610	Microprocessing Systems	4
ECE 3700	Telecommunication Network Engineering	4
ECE 3740	Systems Engineering Principles 1	4
ECE 3760	Digital Systems Design 1	4
ECE 3780	Signal Processing 1	4
ECE 4150	Control Systems	4
or ECE 4260	Communications Systems	4
ECE 4240	Microprocessor Interfacing	4
ECE 4830	Signal Processing 2	4
ECE 4600	Group Design Project <sup>2</sup>	6
Choose ONE of:		3-4
ECE 3630	Real-time Embedded Systems	
ECE 4530	Parallel Processing	
COMP 3010	Distributed Computing	
ECE 4850	Topics in Electrical and Computer Engineering 1 <sup>RRC8</sup>	4
ECE 4860	Topics in Electrical and Computer Engineering 2 <sup>RRC9</sup>	4
One Technical Elective from the approved list		3-4
One Technical Elective from the approved list		3-4
One Technical Elective from the approved list		3-4
<b>Program courses taught by other academic departments</b>		

ANTH 2430	Ecology, Technology and Society <sup>3</sup>	3
COMP 1020	Introductory Computer Science 2	3
COMP 2140	Data Structures: Analysis and Implementation	3
ENG 2040	Engineering Communication: Strategies, Practice and Design <sup>RRC10</sup>	3
ENG 3000	Engineering Economics	3
MATH 2130	Engineering Mathematical Analysis 1	3
MATH 2132	Engineering Mathematical Analysis 2	3
MATH 2136	Mathematics for Computer Engineering	3
PHYS 2152	Modern Physics for Engineers	3
STAT 2220	Contemporary Statistics for Engineers <sup>4,RRC11</sup>	3
<b>Electives taught by other departments</b>		
One complementary studies elective <sup>1</sup>		3
One natural science elective course from the approved list		3
One natural science elective course from the approved list		3
<b>Total Hours</b>		<b>156.5-160.5</b>

<sup>1</sup> The complementary studies electives can be any course at the 1000 level or above from either the faculties of Arts or Management. However, ARTS 1110 may not be used for credit in the Price Faculty of Engineering.

<sup>2</sup> Course continues through both terms with credit given upon completion.

<sup>3</sup> ANTH 2430 is an Indigenous Knowledge course.

<sup>4</sup> STAT 2220 is the recommended statistics course within this program, however, STAT 1000 and STAT 2000 together are considered equivalent to STAT 2220.

**RRC** Polytech Equivalent Course: CIRC-1005 DC Circuits AND DIGI-1003 Digital Logic.

**RRC** Polytech Equivalent Course: MATH-2013 Calculus.

**RRC** Polytech Equivalent Course: MATH-2013 Calculus AND MATH-3007 Advanced Calculus.

**RRC** Polytech Equivalent Course: PHYS-1001 Physics 1 AND PHYS-2001 Physics 2.

**RRC** Polytech Equivalent Course: DEVC-2004 Semiconductor Devices AND DEVC-2005 Analog Devices and Applications.

**RRC** Polytech Equivalent Course: DIGI-1003 Digital Logic AND DIGI-2224 Digital Systems.

**RRC** Polytech Equivalent Course: CIRC-1005 DC Circuits AND CIRC-2002 AC Circuits AND PROJ-3000 Final Project.

**RRC** Polytech Equivalent Course: DCOM-1000 Digital Communications AND DCOM-2001 Routing & Switching.

**RRC** Polytech Equivalent Course: EMBD-3000 Embedded Systems 2 AND MANU-2009 Printed Circuit Board Manufacturing and Layout.

**RRC** Polytech Equivalent Course: COMM-1152 Technical Communications AND COMM-3005 Technical Thesis AND PROJ-3000 Final Project

**RRC** Polytech Equivalent Course: STAT-1001 Statistics and Quality Assurance.

## Instrumentation and Control Engineering Technology Diploma Program

Course	Title	Hours
<b>Preliminary Engineering Program</b>		
CHEM 1100	Introductory Chemistry 1: Atomic and Molecular Structure and Energetics	3

CHEM 1122	Introduction to Chemistry Techniques for Engineering 1	1.5
COMP 1012	Computer Programming for Scientists and Engineers	3
ENG 1430	Design in Engineering	3
ENG 1440	Introduction to Statics	3
ENG 1450	Introduction to Electrical and Computer Engineering <sup>RRC1</sup>	3
ENG 1460	Introduction to Thermal Sciences <sup>RRC2</sup>	3
MATH 1210	Techniques of Classical and Linear Algebra	3
MATH 1510	Applied Calculus 1 <sup>RRC3</sup>	3
MATH 1710	Applied Calculus 2 <sup>RRC4</sup>	3
PHYS 1050	Physics 1: Mechanics <sup>RRC5</sup>	3
One course that satisfies the university "writing" requirement		
One complementary studies elective <sup>1</sup>		
<b>Program courses and electives taught by the department</b>		
ECE 2160	Electronics 2E <sup>RRC6</sup>	5
ECE 2220	Digital Logic Systems <sup>RRC7</sup>	5
ECE 2262	Electric Circuits <sup>RRC8</sup>	4
ECE 2400	Engineering Algorithms 1	4
ECE 3400	Engineering Algorithms 2	4
ECE 3610	Microprocessing Systems	4
ECE 3700	Telecommunication Network Engineering	4
ECE 3740	Systems Engineering Principles 1	4
ECE 3760	Digital Systems Design 1	4
ECE 3780	Signal Processing 1	4
ECE 4150	Control Systems	4
or ECE 4260	Communications Systems	
ECE 4240	Microprocessor Interfacing	4
ECE 4830	Signal Processing 2	4
ECE 4600	Group Design Project <sup>2</sup>	6
Choose ONE of:		3-4
ECE 3630	Real-time Embedded Systems	
ECE 4530	Parallel Processing	
COMP 3010	Distributed Computing	
ECE 4850	Topics in Electrical and Computer Engineering 1 <sup>RRC9</sup>	4
ECE 4860	Topics in Electrical and Computer Engineering 2 <sup>RRC10</sup>	4
One Technical Elective from the approved list		3-4
One Technical Elective from the approved list		3-4
One Technical Elective from the approved list		3-4
<b>Program courses taught by other academic departments</b>		
ANTH 2430	Ecology, Technology and Society <sup>3</sup>	3
COMP 1020	Introductory Computer Science 2	3
COMP 2140	Data Structures: Analysis and Implementation	3
ENG 2040	Engineering Communication: Strategies, Practice and Design <sup>RRC11</sup>	3
ENG 3000	Engineering Economics	3
MATH 2130	Engineering Mathematical Analysis 1	3
MATH 2132	Engineering Mathematical Analysis 2	3
MATH 2136	Mathematics for Computer Engineering	3
PHYS 2152	Modern Physics for Engineers	3

STAT 2220	Contemporary Statistics for Engineers <sup>4</sup>	3
-----------	--	---

<b>Electives taught by other departments</b>		
One complementary studies elective <sup>1</sup>		3
One natural science elective course from the approved list		3
One natural science elective course from the approved list		3
<b>Total Hours</b>		<b>156.5-160.5</b>

- <sup>1</sup> The complementary studies electives can be any course at the 1000 level or above from either the faculties of Arts or Management. However, ARTS 1110 may not be used for credit in the Price Faculty of Engineering.
- <sup>2</sup> Course continues through both terms with credit given upon completion.
- <sup>3</sup> ANTH 2430 is an Indigenous Knowledge course.
- <sup>4</sup> STAT 2220 is the recommended statistics course within this program, however, STAT 1000 and STAT 2000 together are considered equivalent to STAT 2220.
- <sup>RRC1</sup> Polytech Equivalent Course: CIRC-1005 DC Circuits AND DIGI-1003 Digital Logic.
- <sup>RRC2</sup> Polytech Equivalent Course: INST-2001 Heat Transfer and Thermodynamics.
- <sup>RRC3</sup> Polytech Equivalent Course: MATH-2013 Calculus
- <sup>RRC4</sup> Polytech Equivalent Course: MATH-2013 Calculus AND MATH-3006 Applied Calculus
- <sup>RRC5</sup> Polytech Equivalent Course: PHYS-1001 Physics 1 AND PHYS-2001 Physics 2.
- <sup>RRC6</sup> Polytech Equivalent Course: DEVC-2004 Semiconductor Devices AND PROJ-3003 Final Project and Technical Thesis.
- <sup>RRC7</sup> Polytech Equivalent Course: DIGI-1003 Digital Logic AND DIGI-2224 Digital Systems.
- <sup>RRC8</sup> Polytech Equivalent Course: CIRC-1005 DC Circuits AND CIRC-2002 AC Circuits AND PROJ-3003 Final Project and Technical Thesis.
- <sup>RRC9</sup> Polytech Equivalent Course: PLCS-1002 Instrumentation PLCs 1 AND PLCS-2002 Instrumentation PLCs 2 AND INST-2004 Process Measurements 2.
- <sup>RRC10</sup> Polytech Equivalent Course: DCOM-1009 Data Acquisition AND DCOM-2003 Electrical Systems 2 AND INST-1008 Robotics and Automation.
- <sup>RRC11</sup> Polytech Equivalent Course: PROJ-1004 Project Management AND PROJ-3003 Final Project and Technical Thesis.

## Concentrations

### Computer Engineering Focus Areas

Students wishing to pursue more focused studies in a Computer Engineering subject/research area have the choice of doing so through a recognized Focus Area. Courses taken towards a Focus Area take the place of some of the Technical Electives required in the Computer Engineering program.

### Computer Networks and Communications Focus Area

Course	Title	Hours
ECE 4260	Communications Systems	4
Three CNC Electives		9-12
Two Technical Electives		6-8
<b>Total Hours</b>		<b>19-24</b>

**Computer Networks and Communications (CNC) Electives**

Course	Title	Hours
ECE 4250	Digital Communications	4
ECE 4520	Simulation and Modelling	4
ECE 4540	Wireless Networks	4
ECE 4870	Topics in Electrical and Computer Engineering 3 <sup>1</sup>	3
COMP 3010	Distributed Computing	3
COMP 4580	Computer Security	3

<sup>1</sup> Topic Title: ECE 4870 Computer Communication Networks

**Embedded Systems Focus Area**

Course	Title	Hours
ECE 4150	Control Systems	4
Three ES Electives		9-12
Two Technical Electives		6-8
<b>Total Hours</b>		<b>19-24</b>

**Embedded Systems (ES) Electives List**

Course	Title	Hours
ECE 3630	Real-time Embedded Systems <sup>1</sup>	4
ECE 3770	Digital Systems Design 2	4
ECE 4180	Introduction to Robotics	4
ECE 4440	Computer Vision	4
ECE 4560	Modern Computing Systems	4
ECE 4570	Sensors, Instrumentation, and the IoT	4
ECE 4610	Biomedical Instrumentation and Signal Processing	4
ECE 4740	Digital Systems Implementation	4
COMP 3020	Human-Computer Interaction 1	3
COMP 4580	Computer Security	3

<sup>1</sup> If selected as a focus area elective, this course may not be used to satisfy other program requirements.

**Software Engineering Focus Area**

Course	Title	Hours
ECE 4260	Communications Systems	4
or ECE 4150	Control Systems	
COMP 3350	Software Engineering 1	3
Three SE Electives		9-12
One Technical Elective		3-4
<b>Total Hours</b>		<b>19-23</b>

**Software Engineering (SE) Electives**

Course	Title	Hours
ECE 3750	Systems Engineering Principles 2	4
ECE 4530	Parallel Processing	4
COMP 3010	Distributed Computing	3
COMP 3020	Human-Computer Interaction 1	3
COMP 3380	Databases Concepts and Usage	3
COMP 4350	Software Engineering 2	3
COMP 4580	Computer Security	3
COMP 4710	Introduction to Data Mining	3

**Biomedical Focus Area**

Course	Title	Hours
ECE 4610	Biomedical Instrumentation and Signal Processing	4
BIOL 1410	Anatomy of the Human Body <sup>1</sup>	3
PHYS 2600	Electromagnetic Field Theory <sup>1</sup>	3
One Biomedical Group A Elective Course		3-4
One Biomedical Group A or Group B Elective Course		3-4
Two Technical Electives		6-8
<b>Total Hours</b>		<b>22-26</b>

<sup>1</sup> These courses satisfy the Natural Science Elective Requirement.

**Biomedical Group A Elective Courses**

Course	Title	Hours
ECE 4860	Topics in Electrical and Computer Engineering 2 <sup>1</sup>	4
PHYS 3220	Medical Physics and Physiological Measurement	3
PHYS 4300	Topics in Physics	3

<sup>1</sup> Topic Title: ECE 4860 Biomedical Optics

**Biomedical Group B Elective Courses**

Course	Title	Hours
BIOL 1412	Physiology of the Human Body	3
MBIO 1220	Essentials of Microbiology	3
BIOE 3320	Engineering Properties of Biological Materials	4
BIOE 4610		4

**mECHATRONICS FOCUS AREA (cOMP e)**

Course	Title	Hours
ECE 4150	Control Systems	4
ECE 4180	Introduction to Robotics	4
MECH 4900	Mechatronics System Design	4
Two ME Electives		8
One Technical Elective		3-4
<b>Total Hours</b>		<b>23-24</b>

**Mechatronics (ME) Electives List**

Course	Title	Hours
ECE 3720	Electric Power and Machines <sup>1</sup>	4
ECE 4160	Control Engineering <sup>1</sup>	4
ECE 4370	Power Electronics <sup>1</sup>	4
ECE 4440	Computer Vision	4
ENG 4110	Operational Excellence	4

<sup>1</sup> Computer Engineering students are limited to a maximum of two (2) Electrical Engineering elective courses in their program.

**Entrepreneurship Focus Area**

Course	Title	Hours
MECH 3170	Project Management	4
ENTR 2020	Starting a New Business <sup>1</sup>	3
Two EN Electives		6-7

Two Technical Electives	6-8
<b>Total Hours</b>	<b>19-22</b>

<sup>1</sup> In addition to satisfying focus area requirements, ENTR 2020 also meets the general program requirement for one complementary studies elective.

### Entrepreneurship (EN) Electives List

Course	Title	Hours
ENG 4110	Operational Excellence	4
ENTR 3060	Creativity and Entrepreneurial Thinking	3
ENTR 3070	Innovation Management	3
ENTR 3102	Technological Entrepreneurship	3
ENTR 4100	New Venture Analysis	3

## Preliminary Engineering Program

**Campus Address/General Office:** E2-262 EITC

**Telephone:** (204) 474 9167

**Email Address:** [eng.info@umanitoba.ca](mailto:eng.info@umanitoba.ca) ([eng\\_info@umanitoba.ca](mailto:eng_info@umanitoba.ca))

**Website:** [umanitoba.ca/engineering](http://umanitoba.ca/engineering) (<https://umanitoba.ca/engineering/>)

The Preliminary Engineering Program is common to all programs in engineering. Students must complete a minimum of eight (**excluding CHEM 1122**) to be eligible to apply to one of the five degree granting engineering programs. A student must complete the following list of 13 courses as part of their engineering program in order to graduate with a BSc degree in engineering.

Course	Title	Hours
CHEM 1100	Introductory Chemistry 1: Atomic and Molecular Structure and Energetics <sup>1</sup>	3
CHEM 1122	Introduction to Chemistry Techniques for Engineering 1 <sup>1</sup>	1.5
COMP 1012	Computer Programming for Scientists and Engineers	3
ENG 1430	Design in Engineering	3
ENG 1440	Introduction to Statics	3
ENG 1450	Introduction to Electrical and Computer Engineering	3
ENG 1460	Introduction to Thermal Sciences	3
MATH 1210	Techniques of Classical and Linear Algebra <sup>2</sup>	3
MATH 1510	Applied Calculus 1 <sup>3</sup>	3
MATH 1710	Applied Calculus 2 <sup>3</sup>	3
PHIL 1290	Critical Thinking <sup>4</sup>	3
PHYS 1050	Physics 1: Mechanics	3
Written English Course <sup>5,6</sup>		3
<b>Total Hours</b>		<b>37.5</b>

<sup>1</sup> The former CHEM 1300 may be used in lieu of the combination of CHEM 1100 and CHEM 1122.

<sup>2</sup> MATH 1300 is not an acceptable equivalent to MATH 1210.

<sup>3</sup> Students intending to obtain a degree in Engineering are strongly advised to complete MATH 1510 and MATH 1710. However, MATH 1500 or MATH 1230 may be taken in lieu of MATH 1510; MATH 1700 or MATH 1232 may be taken in lieu of MATH 1710. MATH 1524 is not an acceptable equivalent to MATH 1510.

- <sup>4</sup> PHIL 1290 is the recommended complementary studies elective. Students may; however, select any course from the Faculties of Arts or Management (Asper School of Business) at the 1000 level or above, except for ARTS 1110.
- <sup>5</sup> Course selected from the list of approved Written English Courses for Engineering students.
- <sup>6</sup> Three credit hours are required to satisfy the Written English course requirement. Should a student complete a six credit hour course, the additional three credit hours may be used to satisfy general complementary studies requirements within a student's program.
- <sup>7</sup> Equivalent courses offered through Université de Saint-Boniface may be used to satisfy program requirements.

## Co-operative Education and Industrial Internship Programs

### Contact and Program Information

**Director:** Carolyn Geddert, P.Eng., Engineer-in-Residence

**Tel.** 204 474 8948

**Email:** [carolyn.geddert@umanitoba.ca](mailto:carolyn.geddert@umanitoba.ca)

**Cooperative Education Administrator:** Megan Johnson

**Telephone:** 204 480 1069

**Email:** [megan.johnson@umanitoba.ca](mailto:megan.johnson@umanitoba.ca)

The Price Faculty of Engineering offers a Co-operative education and Industrial Internship Program (Co-op/IIP) designed to complement and enrich the academic program with work experience. The work terms provide students with practical experience, assistance in financing their education, and guidance for future career specialization.

Applications are accepted for Co-op/IIP every fall. Co-op/IIP supports the application and participation of all students who meet the requirements and wish to apply. Application to Co-op/IIP is a process. The Co-op/IIP Office will work with you. Please connect with our staff via email: [engineeringcoop@umanitoba.ca](mailto:engineeringcoop@umanitoba.ca) and refer to the web site (<https://umanitoba.ca/engineering/co-operative-education>) for the benefits of Co-op/IIP.

Successful applicants to Co-op/IIP have:

- Attended an information session.
- Been accepted as an undergraduate student into an Engineering Department.
- Completed all 13 Preliminary Engineering Program courses before their first work term.
- Completed 42 credit hours towards your degree by the end of the Fall term. Students must return for at least one academic term following the completion of their final work term placement. (Application early in a student's degree program will support the completion of 3 work terms.)
- Been assessed as in Good Academic standing (GPA above 2.0). I.E. not on Probation or Academic Warning.
- Agree to follow all rules and regulations of the program as detailed in the Rules and Regulations

Work placements must be confirmed to be appropriate by the Co-op/IIP office in order to be credited as a Co-op/IIP work term.

Upon securing a job placement, Engineering students enroll in the course ENG 4800 and subsequently the specific work term of employment ENG 4810, ENG 4820, ENG 4830, ENG 4840.

Students who are unable to maintain the standards of the Co-op/IIP will be transferred back into the regular program.

The course and grade requirements for completion of the Co-op/IIP are the same as those required for the regular program. However, in order to satisfy course prerequisite requirements, timetables may differ from the regular program. Co-op/IIP students are evaluated in the same manner as regular students and all rules and regulations of the Price Faculty of Engineering apply.

Students who are placed on Academic Probation may either be removed from Co-op/IIP or have their acceptance deferred until they have completed two consecutive terms with an Academic Standing of "Satisfactory".

Students who are Required to Withdraw will immediately become ineligible for Co-op/IIP and will remain ineligible after re-instatement to the Price Faculty of Engineering.

Written reports must be completed at the end of each four-month work term. Each successfully completed four-month work term and its corresponding report receives a Pass/Fail grade and is rated at one credit hour. Graduates who successfully complete at least three work terms and the required work term reports will have the Co-operative Education Option acknowledged on their B.Sc. graduation parchment.

For more information regarding the Co-op/IIP rules, benefits, regulations and requirements, please refer to the web site (<https://umanitoba.ca/engineering/co-operative-education>).