

## Course Sequence Software Engineering (COOP)

### **1<sup>st</sup> YEAR (30 credits)**

		<b><u>Session</u></b>	<b><u>Prerequisite</u></b>
CHM1311	Principles of Chemistry	Fall	4U chemistry or OAC Chemistry or equivalent.
GNG1105	Engineering Mechanics	Fall	Physics 4U, advanced functions and Introductory Calculus 4U or equivalent
ITI1120	Introduction to computing I	Fall	
MAT1320	Calculus I	Fall	One of MAT1339, Ontario 4U Calculus and Vectors MCV4U) or an equivalent.
MAT1341	Introduction to Linear Algebra	Fall	MAT1339 or Ontario 4U Calculus and Vectors (MCV4U), or an equivalent.
ITI1100	Digital systems I	Winter	
ITI1121	Introduction to computing II	Winter	ITI1120
MAT1322	Calculus II	Winter	MAT1320
MAT1348	Discrete Mathematics for Computing	Winter	
PHY1124	Fundamentals of Physics for Engineers	Winter	OAC or 4U Physics, MAT1320
SEG2901	CO-OP Work Term I	Summer	

### **2<sup>nd</sup> YEAR (36 credits)**

		<b><u>Session</u></b>	<b><u>Prerequisite</u></b>
CEG2136	Computer architecture I	Fall	ITI1100
CSI2110	Data Structures and Algorithms	Fall	ITI1121, MAT1348
ECO1192	Engineering Economics	Fall	
ENG1112	Technical Report Writing	Fall	
SEG2105	Introduction to Software Engineering	Fall	ITI1121
Science Elective		<b>Fall/Winter</b>	
ADM1100	Introduction to Business Management	Winter	
CSI2101	Discrete Structures	Winter	MAT1348
CSI2132	Databases I	Winter	CSI2110
MAT2377	Probability and Statistics for Engineers	Winter	MAT1320 or MAT1330; corequisite: MAT1322 or MAT1325 or MAT1332
SEG2106	Software Construction	Winter	CSI2110, SEG2105
SEG2911	Professional Software Engineering Practice	Winter	
SEG3901	CO-OP Work Term II	Summer	

### **3<sup>rd</sup> YEAR (33 credits)**

		<b><u>Session</u></b>	<b><u>Prerequisite</u></b>
CSI3105	Design and Analysis of Algorithms I	Fall	CSI2110, CSI2101 or for honors mathematics students: CSI2110, (MAT2141 or MAT2143)
SEG3101	Software Requirements Analysis	Fall	SEG2105
SEG3102	Software Design and Architecture	Fall	SEG2105
HIS2129 or	Technology, Society and	Winter (HIS2129)	
PHI2394	Environment since 1800 /	Fall (PHI2394)	
	Scientific Thought and Social		
	Value		
Computing elective <sup>1</sup>		Fall	
Engineering elective <sup>2</sup>		<b>Fall/Winter</b>	
SEG3902	CO-OP Work Term III	Winter	
CSI3131	Operating systems	Summer	CEG2136, CSI2110
SEG3103	Software Quality Assurance	Summer	SEG2105
SEG3125	Analysis and Design of User Interfaces	Summer	SEG2105
SEG3155	Communication and Networking	Summer	MAT2377 or (MAT2371, MAT2375)
Elective		Summer	

<sup>1</sup> 6 credits from: {CEG3136/3536, CEG3155/3555, CSI2120/2520, CSI2372/2772, CSI3130/3530, CSI3140/3540, CSI4139/4539 / CEG4399/4799, SEG4110, SEG4156 et SEG4189}

<sup>2</sup> 3 credits from: {CHG2317/2717, CVG2141/2541, CVG2149/2549, ELG2138/2538, MCG2108/2508, MCG2130/2530 et MCG2360/2760}

### **4<sup>th</sup> YEAR (15 credits)**

		<b><u>Session</u></b>	<b><u>Prerequisite</u></b>
SEG4901	CO-OP Work Term IV	Fall	
SEG4145	Real Time and Embedded Software	Winter	CEG2136, CSI3131, SEG2106
	Design		
SEG4910	Engineering Capstone Project - Part 1	Winter	
			Completion of all 3000 series SEG courses required by the SEG program. Note: The project started in SEG4910 must be completed in SEG4911; if a student has to start a new project, SEG4910 must be repeated. Completion of 2 COOP terms.
Technical elective <sup>3</sup>		Fall/ <b>Winter</b>	
Technical elective <sup>3</sup>		Fall/ <b>Winter</b>	
Technical elective <sup>3</sup>		Fall/ <b>Winter</b>	
SEG4902	CO-OP Work Term V	Summer	

<sup>3</sup> 15 credits at the 3000 level from {CEG/CSI/ELG/SEG} or 12 credits at the 3000 level from {CEG/CSI/ELG/SEG} and 3 credits from ADM3378 et GEG2320}

### **5<sup>th</sup> YEAR (18 credits)**

		<b><u>Session</u></b>	<b><u>Prerequisite</u></b>
SEG4105	Software Project Management	Fall	SEG2105 plus two third year SEG or CSI courses
SEG4911	Engineering Capstone Project - Part 2	Fall	SEG4910
Science elective		<b>Fall/Winter</b>	
Technical elective <sup>3</sup>		<b>Fall/Winter</b>	
Technical elective <sup>3</sup>		<b>Fall/Winter</b>	
Computing elective <sup>1</sup>		Fall	

<sup>1</sup> 6 credits from: {CEG3136/3536, CEG3155/3555, CSI2120/2520, CSI2372/2772, CSI3130/3530, CSI3140/3540, CSI4139/4539 / CEG4399/4799, SEG4110, SEG4156 et SEG4189}

<sup>3</sup> 15 credits at the 3000 level from {CEG/CSI/ELG/SEG} or 12 credits at the 3000 level from {CEG/CSI/ELG/SEG} and 3 credits from ADM3378 et GEG2320}

For the *Extended French Stream* program, in addition to the above you will also have to fulfill the following requirements:

- The student must be admitted as an Anglophone in the program; the Admissions officers will ensure that the student is coming from an English high school and the student must pass a French proficiency test.
- The student must complete at least 42 credits in courses whose language of instruction is French. Note that bilingual courses such as research courses, do not count. However if the capstone project is solely completed in French, these credits can be applied against the 42 credits.
- A minimum of 6 credits (within the maximum of 42 credits) must be done in approved, non-technical courses such as Complementary studies courses or electives in the Humanities; it may also include courses within the Faculty of Engineering related to professional development, management and communication.
- 12 credits (within the minimum number of 42 credits) must be done in required first year courses, another 12 credits must be done in required second year courses within the program of study, and another 12 credits must be done in required third year courses within the program of study.
- Students must pass FLS3500. This test ensures that the immersion graduates are indeed fluently bilingual.