

## **\*New\* Minor in Computer Science for Engineering Students**

### **Information:**

Engineering students may obtain a Minor in Computer Science as part of their B.Eng. degree by satisfying the 24-credit requirement described below. In general, some complementary courses within Engineering Departmental programs may be used to satisfy some of these requirements, but the Minor in Computer Science will require at least 12 extra credits from Computer Science (COMP) courses beyond those needed for the B.Eng. degree. Students should consult their departments about the use of complementaries, and credits that can be double counted.

### **How to register:**

The minor form is available in the Undergraduate Student Affairs, Lorne Trottier Building, Room 2060, and students must contact Prof. Nathan Friedman, Minor Advisor, for an appointment and obtain approval of their course selection. His office is located in the McConnell Engineering Bldg., Room 325 McConnell and is available during his office hours for advising.

*Note: Forms must be approved before the end of the Add/Drop period of the student's final term.*

### **Requirements:**

The program must consist of 24 credits from courses passed with a grade of "C" or better, as follows:

#### **Required Course (6 credits)**

COMP 203 (3) Introduction to Computing 2  
or Comp 250 (3) Introduction to Computer Science  
COMP 206 (3) Introduction to Software Systems

#### **Complementary Courses (18 credits)**

##### **3 credits – one of the following courses:**

COMP 302 (3) Programming Languages and Paradigms  
COMP 303 (3) Software Development

##### **3 credits - one of the following courses:**

ECSE 221 (3) Introduction to Computer Engineering  
COMP 273 (3) Introduction to Computer Systems

##### **3 credits - one of the following courses:**

COMP 350 (3) Numerical Computing  
MECH 309 (3) Numerical Methods in Mechanical Engineering

##### **The remaining credits selected from:**

COMP 251 (3) Data Structures & Algorithms

**and** Computer Science courses **at the 300 level or higher**. Courses from other departments making considerable use of computing and approved by the School of Computer Science may also be selected. Students should consult with their advisors about counting specific courses.

### **NOTE:**

- COMP 202 and COMP 208 (compulsory for some Engineering students) do not form part of the Minor.
- COMP 203 and COMP 250 are considered to be equivalent from a prerequisite point of view, and cannot both be taken for credit. Students with a substantial high-level language programming course may forego this prerequisite. Some additional make-up effort may be needed at the start of the course.
- COMP 208 cannot be taken for credit with or after COMP 250.

*A form for registration is attached. The completed form bearing an approval signature from the School of Computer Science Minor Adviser must be returned to the Faculty of Engineering, 3rd floor, Macdonald Engineering Building, no later than the ADD/DROP period of the student's final term. In addition the student must submit a copy of this form to the School of Computer Science.*

- The following is a list of courses, offered by other departments that will normally be approved for inclusion in the Minor Program under category 3(b) of the requirements. This list is not necessarily complete. Some courses may not be available or may have enrolment restrictions.

#### **Department of Mathematics and Statistics**

MATH 327	Matrix Numerical Analysis
MATH 328	Computability and Mathematical Linguistics
MATH 407	Dynamic Programming
MATH 417	Mathematical Programming
MATH 578	Numerical Analysis
MATH 579	Numerical Solution of Differential Equations

#### **Faculty of Engineering**

CHEE 453	Process Design
CHEE 455	Process Control
CHEE 458	Computer Applications
CHEE 571	Small Computer Applications: Chemical Engineering
CIVE 208	Civil Engineering Systems Analysis
CIVE 460	Matrix Structural Analysis
ECSE 323	Digital System Design
ECSE 420	Parallel Computing
ECSE 424	Human-Computer Interaction
ECSE 425	Computer Organization and Architecture
ECSE 426	Microprocessor Systems
ECSE 427	Operating Systems
ECSE 429	Software Validation
ECSE 512	Digital Signal Processing
ECSE 521	Data Communications
ECSE 529	Image Processing and Communication
ECSE 531	Real Time Systems
ECSE 532	Computer Graphics
ECSE 543	Numerical Methods in Electrical Engineering
ECSE 548	Introduction to VLSI Systems
MECH 474	Selected Topics in Operations Research
MECH 540	Design: Modelling and Decision
MECH 554	Microprocessors for Mechanical Systems
MECH 555	Applied Process Control
MECH 572	Introduction to Robotics
MECH 573	Mechanics of Robotic Systems
MECH 576	Computer Graphics and Geometric Modelling
MECH 577	Optimum Design
MIME 311	Modelling and Automatic Control

#### **Faculty of Management**

INSY 431	Information Systems Design
INSY 432	Information Systems Administration
MGSC 678	Simulation of Management Systems
MGSC 679	Applied Deterministic Optimization
MGSC 680	Applied Sequential Optimization
MGCR 373	Operations Research

- In addition, there are other courses that may be approved for inclusion under category (b). Students may consult with the School of Computer Science about the acceptability of particular courses. The courses in other departments are at a variety of levels. Some are required courses in the student's ordinary program; some are courses that may be taken as technical complementaries. Students should consult with their advisers about the possibility of taking specific courses.



## Approval Form for Engineering Students ~ Minor in Computer Science

Name: .....

*(last name/ first name ~ please print)*

Student No.: .....

**Note:** Make 3 copies of this completed form. Hand in one copy of the completed and approved form to the Faculty of Engineering, Room 376, Macdonald Engineering Building, before the end of the ADD/DROP period of your final term.

(The two additional copies are for yourself and the School of Computer Science).

**Prof. N. Friedman, McConnell Engineering Building, Room 325, is available during his office hours for advising.**

**NOTE:** Plan your program early, keeping in mind that the timetable is subject to change. However, do not file your form in Room 376 until you are reasonably certain that you will not revise your program, as any changes in your program must be re-approved.

Category	Courses used for Minor	Year taken/ To be taken	Grade <i>(if available)</i>
1	Circle one from each row:  COMP 203 or COMP 250 ( <i>required</i> ) COMP 206 ( <i>required</i> ) COMP 273 or ECSE 221 COMP 350 or MECH 309		
2	six additional credits**		
Remarks:			

\*\* To be chosen from CS courses numbered 251 or at the 300 level or higher and Computer Science approved courses in other departments. See Faculty of Engineering courses and degrees catalogue.

When all courses listed above have been completed with a grade of "C" or better, the student will have completed the requirements of the Computer Science Minor for students in the Faculty of Engineering.

Date: .....

Approved: .....

*Signature (N. Friedman)*