### 1.0 Degree Title
Specify the two degrees for concurrent degree programs

| M.Sc. |

#### 1.1 Major (Legacy= Subject) (30-char. max.)

| Computer Science |

#### 1.2 Concentration (Legacy = Concentration/Option)
If applicable (30 char. max.)

| Computational Science and Engineering |

#### 1.3 Minor (with Concentration, if applicable)
(30 char. max.)

| |

#### 1.4 Category

- [ ] Faculty Program (FP)
- [ ] Major
- [ ] Joint Major
- [ ] Major Concentration (CON)
- [ ] Minor
- [ ] Minor Concentration (CON)
- [ ] Honours (HON)
- [ ] Joint Honours Component (HC)
- [ ] Internship/Co-op
- [ ] Thesis (T)
- [ ] Non-Thesis (N)
- [ ] Other
- [ ] Please specify

#### 1.5 Complete Program Title

M.Sc. in Computer Science (Thesis) - Computational Science and Engineering Option/Concentration

### 2.0 Administering Faculty/Unit

Graduate Studies

### 3.0 Effective Term of revision or retirement

Please give reasons in 8.0 “Rationale” in the case of retirement (Ex. Sept. 2004 = 200409)

<table>
<thead>
<tr>
<th>Term</th>
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<tr>
<td>200409</td>
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### 4.0 Existing Credit Weight

| 50 |

### Proposed Credit Weight

| 46 |

### 5.0 Description (Maximum 150 words)


### 6.0 List of existing program and proposed program

#### Existing program (list courses as follows: Subj Code/Crse Num, Title, Credit weight, under the headings of: Required Courses, Complementary Courses, Elective Courses)

M.Sc. in Computer Science (Thesis) - Computational Science and Engineering Option/Concentration (50 credits)

- **Required Courses (5 credits)**
  - COMP 601 (4) Special Topics in Computer Science
  - COMP 669D1/D2 (1) CSE Seminar

- **Complementary Courses (minimum 21 credits)**
  - Two courses from List A, two courses from List B, and the remaining credits to be chosen from graduate (500, 600 or 700-level) courses in the School of Computer Science. Two complementary courses must be taken outside the School of Computer Science.

Note: Students in the B.Sc./M.Sc. (Thesis) track can substitute one 3-credit course by COMP 696 and one 4-credit course by COMP 697, but still need to take two courses from List A and two courses from List B.

#### Proposed program (list courses as follows: Subj Code/Crse Num, Title, Credit weight, under the headings of: Required Courses, Complementary Courses, Elective Courses)

M.Sc. in Computer Science (Thesis) - Computational Science and Engineering Option/Concentration (46 credits)

- **Required Courses (1 credit)**
  - COMP 669D1/D2 (1) CSE Seminar

- **Complementary Courses (minimum 21 credits)**
  - Two courses from List A, two courses from List B, and the remaining credits to be chosen from graduate (500, 600 or 700-level) courses in the School of Computer Science. Two complementary courses must be taken outside the School of Computer Science.

Note: Students in the B.Sc./M.Sc. (Thesis) track can substitute one 3-credit course by COMP 696 and one 4-credit course by COMP 697, but still need to take two courses from List A and two courses from List B.
6.0 (Continued) List of existing program and proposed program

**Existing program** (list courses as follows: Subj Code/Crse Num, Title, Credit weight, under the headings of: Required Courses, Complementary Courses, Elective Courses)

- **List A - Scientific Computing Courses:**
  - CIVE 602 (4) Finite Element Analysis
  - COMP 522 (4) Modelling and Simulation
  - COMP 540 (3) Matrix Computations
  - COMP 566 (3) Discrete Optimization 1
  - MATH 578 (4) Numerical Analysis 1
  - MATH 579 (4) Numerical Differential Equations

- **List B - Applications and Specialized Methods Courses:**
  - ATOC 512 (3) Atmospheric and Oceanic Dynamics
  - ATOC 513 (3) Waves and Stability
  - CIVE 514 (3) Structural Mechanics
  - CIVE 572 (3) Computational Hydraulics
  - CIVE 583 (4) Structural Dynamics

**Proposed program** (list courses as follows: Subj Code/Crse Num, Title, Credit weight, under the headings of: Required Courses, Complementary Courses, Elective Courses)

- **List A - Scientific Computing Courses:**
  - CIVE 602 (4) Finite Element Analysis
  - COMP 522 (4) Modelling and Simulation
  - COMP 540 (3) Matrix Computations
  - COMP 566 (3) Discrete Optimization 1
  - MATH 578 (4) Numerical Analysis 1

- **List B - Applications and Specialized Methods Courses:**
  - ATOC 512 (3) Atmospheric and Oceanic Dynamics
  - ATOC 513 (3) Waves and Stability
  - CIVE 514 (3) Structural Mechanics
  - CIVE 572 (3) Computational Hydraulics
  - CIVE 583 (4) Structural Dynamics

- **Thesis Component – Required (minimum 24 credits)**
  - COMP 691 (2) Thesis Research 1
  - COMP 692 (3) Thesis Research 2
  - COMP 693 (4) Thesis Research 3
  - COMP 694 (9) Thesis Research 4
  - COMP 695 (15) Thesis Research 5
This modification achieves several purposes:

1) It allows the implementation of the new B.Sc./M.Sc. (Thesis) track.
2) It reduces to 46 the number of credits for the CSE Option. This is achieved by removing COMP 601 (reading course) from the list of required courses.
3) To afford additional flexibility to students who need to maintain a full time registration status, we introduce three new thesis courses, COMP 691 (2 credits), COMP 696 (3 credits), and COMP 697 (4 credits). The total number of required thesis credits remains unchanged.