



Program/Major or Minor/Concentration Revision Form

(07/2004)

1.0 Degree Title

Specify the two degrees for concurrent degree programs

B.Sc.

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

Software Engineering

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

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

1.4 Category

- | | |
|--|---|
| <input type="checkbox"/> Faculty Program (FP) | <input type="checkbox"/> Honours (HON) |
| <input checked="" type="checkbox"/> Major | <input type="checkbox"/> Joint Honours Component (HC) |
| <input type="checkbox"/> Joint Major | <input type="checkbox"/> Internship/Co-op |
| <input type="checkbox"/> Major Concentration (CON) | <input type="checkbox"/> Thesis (T) |
| <input type="checkbox"/> Minor | <input type="checkbox"/> Non-Thesis (N) |
| <input type="checkbox"/> Minor Concentration (CON) | <input type="checkbox"/> Other |
| | Please specify |

1.5 Complete Program Title

MAJOR IN SOFTWARE ENGINEERING

2.0 Administering Faculty/Unit

Science

Offering Faculty/Department

Computer Science

3.0 Effective Term of revision or retirement

Please give reasons in 5.0 "Rationale" in the case of retirement

(Ex. Sept. 2004 = 200409) Retirement

Term: 201009

4.0 Existing Credit Weight

69

Proposed Credit Weight

60-63

5.0 Rationale for revised program

Changes are to provide a broader and more consistent content in line with Software Engineering principles and emerging canon, as well as to accommodate new courses from recent hires in the area. The structure is designed better to match recent changes in the CS major.

6.0 Revised Program Description (Maximum 150 words)

This program provides a broad introduction to the principles of computer science and covers in depth the design and development of software systems.

B.Sc. Major in Software Engineering

EXISTING as of 2009/10 (online)

MAJOR IN SOFTWARE ENGINEERING (69 credits)

PROPOSED 2010/11

MAJOR IN SOFTWARE ENGINEERING (60-63 credits)

Required Courses (60 credits)

*COMP 202 Introduction to Computing 1 (3)
COMP 206 Introduction to Software Systems (3)
COMP 250 Introduction to Computer Science (3)
COMP 251 Data Structures and Algorithms (3)
COMP 273 Introduction to Computer Systems (3)
COMP 302 Programming Languages and Paradigms (3)
~~COMP 304 Object-oriented Design (3)~~
COMP 310 Operating Systems (3)
or ECSE 427 Operating Systems (3)
COMP 330 Theoretical Aspects: Computer Science (3)
COMP 360 Algorithm Design Techniques (3)
COMP 361 Systems Development Project (3)
~~ECSE 321 Introduction to Software Engineering (3)~~
~~ECSE 428 Software Engineering Practice (3)~~
ECSE 429 Software Validation (3)
~~ECSE 495 Software Engineering Design Project (3)~~
MATH 222 Calculus 3 (3)
MATH 223 Linear Algebra (3)
MATH 240 Discrete Structures 1 (3)
MATH 323 Probability (3)
MATH 324 Statistics (3)
*Students who have sufficient knowledge in a programming language are not required to take COMP 202.

Complementary Courses (9 credits)

~~COMP 303 Software Development (3)~~
~~COMP 308 Computer Systems Lab (1)~~
~~COMP 321 Programming Challenges (1)~~
~~COMP 322 Introduction to C++ (1)~~
~~COMP 335 Software Engineering Methods (3)~~
COMP 350 Numerical Computing (3)
COMP 409 Concurrent Programming (3)
~~COMP 420 Secondary Storage Algorithms and Data Structures (3)~~
COMP 421 Database Systems (3)
COMP 424 Topics: Artificial Intelligence 1 (3)
~~COMP 435 Basics of Computer Networks (3)~~
~~COMP 505 Advanced Computer Architecture (3)~~
COMP 512 Distributed Systems (4)
COMP 520 Compiler Design (4)
COMP 521 Modern Computer Games (4)
COMP 522 Modelling and Simulation (4)
COMP 523 Language-based Security (3)
COMP 525 Formal Verification (3)
~~COMP 526 Probabilistic Reasoning and AI (3)~~
COMP 529 Software Architecture (4)
COMP 533 Object-Oriented Software Development (3)
COMP 535 Computer Networks 1 (3)
~~COMP 537 Internet Programming (3)~~
~~COMP 547 Cryptography and Data Security (4)~~
COMP 558 Fundamentals of Computer Vision (3)
~~COMP 560 Graph Algorithms and Applications (3)~~
~~COMP 566 Discrete Optimization 1 (3)~~

Required Courses (36-39 credits)

*COMP 202 Introduction to Computing 1 (3)
COMP 206 Introduction to Software Systems (3)
COMP 250 Introduction to Computer Science (3)
COMP 251 Data Structures and Algorithms (3)
COMP 273 Introduction to Computer Systems (3)
COMP 302 Programming Languages and Paradigms (3)
COMP 303 Software Development (3)
COMP 310 Operating Systems (3)
or ECSE 427 Operating Systems (3)
COMP 361 Systems Development Project (6)
ECSE 429 Software Validation (3)
MATH 223 Linear Algebra (3)
MATH 240 Discrete Structures 1 (3)
*Students who have sufficient knowledge in a programming language are not required to take COMP 202.

Complementary Courses (24 credits)

At least 9 credits selected from groups A and B, with at least 3 credits selected from each:

Group A:

*MATH 222 Calculus 3 (3)
MATH 323 Probability (3)
MATH 324 Statistics (3)

Group B:

COMP 330 Theoretical Aspects: Computer Science (3)
COMP 360 Algorithm Design Techniques (3)

*Students who have successfully completed MATH 150 and MATH 151 are not required to take MATH 222.

At least 15 credits selected from the following, with at least 6 credits selected from Software Engineering Specializations, and at least 6 credits selection from Application Specialties.

Software Engineering Specializations

COMP 409 Concurrent Programming (3)
or ECSE 420 Parallel Computing (3)
COMP 523 Language-based Security (3)
COMP 525 Formal Verification (3)
COMP 529 Software Architecture (4)
COMP 533 Object-Oriented Software Development (3)

Application Specialties

COMP 350 Numerical Computing (3)
COMP 417 Introduction to Robotics and Intelligent Systems (3)
COMP 421 Database Systems (3)
COMP 424 Topics: Artificial Intelligence 1 (3)
COMP 512 Distributed Systems (4)
COMP 520 Compiler Design (4)
COMP 521 Modern Computer Games (4)
COMP 522 Modelling and Simulation (4)
COMP 535 Computer Networks 1 (3)
COMP 557 Fundamentals of Computer Graphics (3)
or ECSE 532 Computer Graphics (3)
COMP 558 Fundamentals of Computer Vision (3)
ECSE 424 Human-Computer Interaction (3)

EXISTING as of 2009/10 (online)

~~COMP 575 Fundamentals of Distributed Algorithms (3)~~
~~COMP 577 Distributed Database Systems (3)~~
~~ECSE 200 Fundamentals of Electrical Engineering (3)~~
~~ECSE 210 Circuit Analysis (3)~~
~~ECSE 291 Electrical Measurement Laboratory (2)~~
~~ECSE 303 Signals and Systems 1 (3)~~
~~ECSE 304 Signals and Systems 2 (3)~~
~~ECSE 322 Computer Engineering (3)~~
~~ECSE 323 Digital Systems Design (5)~~
~~ECSE 404 Control Systems (3)~~
~~ECSE 411 Communications Systems (3)~~
~~ECSE 420 Parallel Computing (3)~~
~~ECSE 421 Embedded Systems (3)~~
~~ECSE 422 Fault Tolerant Computing (3)~~
~~ECSE 424 Human-Computer Interaction (3)~~
~~ECSE 425 Computer Organization and Architecture (3)~~
~~ECSE 426 Microprocessor Systems (3)~~
~~ECSE 504 Computer Control (3)~~
~~ECSE 508 Multi-Agent Systems (3)~~
~~ECSE 522 Asynchronous Circuits and Systems (3)~~
~~ECSE 526 Artificial Intelligence (3)~~
~~ECSE 529 Image Processing and Communication (3)~~
~~ECSE 530 Logic Synthesis (3)~~
~~ECSE 532 Computer Graphics (3)~~
or COMP 557 Fundamentals of Computer Graphics (3)
~~MATH 315 Ordinary Differential Equations (3)~~
~~MATH 381 Complex Variables and Transforms (3)~~

8.0 Consultation with
Related Units

Yes No

Financial Consult

Yes No

Attach list of consultations

9. Approvals

Routing Sequence

Name

Signature

Date

Department

Curric/Acad Committee

Faculty 1

Faculty 2

Faculty 3

SCTP

GS

APPC

Senate

Submitted by

Name

To be completed by ARR:

Phone

CIP Code

Email

Submission Date