# Proposal to Revise a Program

# 3648 Bachelor of Engineering in Software Engineering
# 3651 Bachelor of Engineering in Software Engineering Bachelor of Science
# 3652 Bachelor of Engineering in Software Engineering Bachelor of Arts
# 3653 Bachelor of Engineering in Software Engineering Bachelor of Commerce
# 3749 Bachelor of Engineering in Software Engineering Master of Biomedical Engineering

**Contents**

## 1. MAIN FEATURES OF PROPOSAL

### 1.1 Program name Bachelor of Engineering in Software Engineering

### 1.2 Abbreviation BE Software Engineering

### 1.3 Program code 3648/3651/3652/3653/3749

### 1.4 Staff Contact Ken Robinson 54045/k.robinson@unsw.edu.au

### 1.5 Program Authority

School: School of Computer Science & Engineering Faculty: Engineering AOU code: E250

### 1.6 Proposed Revision Summary Checklist

- to amend the program structure

### 1.7 Authorisation

| | |
|---|---|
| Has this proposal received endorsement from the **University Librarian** | YES/NO |
| Has this proposal received endorsement from the **Registrar's Nominee** | YES/NO |
| Has this proposal received approval from the **Dean** | YES/NO |

### 1.8 Consultation Process

Have other interested parties, including other academic units, students and visiting committees, been consulted on the proposed revision?

Provide details/copies of correspondence under section 3.

The School Teaching Committee have discussed and approved the proposal.

### 1.9 Planning Office

| | |
|---|---|
| Does this proposal fit in with your Faculty's enrolment profile? | Yes |
| Has the Planning Office been informed if the enrolment profile will be altered by the proposal? | NA |

### 1.10 Units of credit

| | |
|---|---|
| Does the proposed revision to the University's policy on units of credit? | Yes |

### 1.11 General Education program

| | |
|---|---|
| Does the proposed revision conform to the University's policy on General Education? | Yes |

## 2. PROGRAM DETAILS

### 2.1 Current Enrolment and EFTSU

| Stage | Enrolment | | | | | EFTSU |
|---|---|---|---|---|---|---|
| | **3648** | **3651** | **3652** | **3653** | **3749** | |
| Stage 1 | 39 | 7 | 7 | 2 | 5 | 48 |
| Stage 2 | 56 | 13 | 9 | 12 | 5 | 76 |
| Stage 3 | 79 | 9 | 2 | 24 | 5 | 103 |
| Stage 4 | 103 | 8 | 5 | 5 | 5 | 109 |
| Stage 5 | | 6 | 2 | 3 | 5 | 13 |

## 2.2 Proposed Program Entry in Faculty Handbook

### 2.2.1 3648 BE Software Engineering

#### Stage 1

| | | S1 | | S2 | |
|---|---|---|---|---|---|
| **Course No** | **Course Name** | **hr/wk** | **uoc** | **hr/wk** | **uoc** |
| COMP1011 | Computing 1A *or* | 6 | 6 | | |
| COMP1711 | Higher Computing 1A | | | | |
| MATH1131 | Mathematics 1A *or* | 6 | 6 | | |
| MATH1141 | Higher Mathematics 1A | | | | |
| MATH1081 | Discrete Mathematics | 6 | 6 | | |
| INFS1603 | Business Data Management | 3 | 6 | | |
| SENG1031 | Software Engineering Workshop 1 | | | 4 | 6 |
| MATH2400 | Finite Mathematics | | | 2 | 3 |
| COMP1021 | Computing 1B *or* | | | 6 | 6 |
| COMP1721 | Higher Computing 1B | | | | |
| INFS1611 | Requirements Engineering | | | 1.5 | 3 |
| | *Stage 1 free elective* | | | 3 | 6 |
| | Total | 21 | 24 | 16 | 24 |

#### Stage 2

| | | S1 | | S2 | |
|---|---|---|---|---|---|
| **Course No** | **Course Name** | **hr/wk** | **uoc** | **hr/wk** | **uoc** |
| SENG2010 | Software Engineering Workshop 2A | 2 | 3 | | |
| SENG2020 | Software Engineering Workshop 2B | | | 2 | 3 |
| COMP2111 | System Modelling and Design | 5 | 6 | | |
| COMP2011 | Data Organisation *or* | | | 5 | 6 |
| COMP2711 | Data Organisation advanced | | | | |
| COMP2021 | Digital Systems Structures | | | 5 | 6 |
| COMP3710 | Project Management | 3 | 3 | | |
| INFS2603 | System Analysis & Design | 3 | 6 | | |
| MATH2859 | Probability, Statistics and Information | | | 3 | 3 |
| | *General Education* | | | 3 | 6 |
| | *Stage 2 free elective* | 3 | 6 | | |
| | Total | 16 | 24 | 18 | 24 |

#### Stage 3

| | | S1 | | S2 | |
|---|---|---|---|---|---|
| **Course No** | **Course Name** | **hr/wk** | **uoc** | **hr/wk** | **uoc** |
| SENG3010 | Software Engineering Workshop 3A | 2 | 3 | | |
| SENG3020 | Software Engineering Workshop 3B | | | 2 | 3 |
| COMP3141 | Software System Design & Implementation | 5 | 6 | | |
| INFS2607 | Business Data Networks | | | 3 | 6 |
| | SE Electives | 8 | 9 | 13 | 15 |
| | *General Education* | 3 | 6 | | |
| | Total | 18 | 24 | 18 | 24 |

**Stage 4**

| Course No | Course Name | S1 hr/wk | S1 uoc | S2 hr/wk | S2 uoc |
|---|---|---|---|---|---|
| SENG4910 | Thesis part A | 0 | 6 | | |
| SENG4911 | Thesis part B | | | 0 | 12 |
| SENG4921 | Professional Issues and Ethics | 4 | 6 | | |
| | SE Electives | 10 | 12 | 10 | 12 |
| | Total | 14 | 24 | 10 | 24 |

### 2.2.2 3651 BE Software Engineering BSc

The BE Software Engineering BSc combined program requires the completion of at least 84uoc of Science courses, and must contain a major sequence of 42uoc at stages 2 and 3, with at least 18uoc at stage 3 in a single Science discipline.

#### Stage 1

| | | S1 | | S2 | |
|---|---|---|---|---|---|
| **Course No** | **Course Name** | **hr/wk** | **uoc** | **hr/wk** | **uoc** |
| COMP1011 | Computing 1A *or* | 6 | 6 | | |
| COMP1711 | Higher Computing 1A | | | | |
| MATH1131 | Mathematics 1A *or* | 6 | 6 | | |
| MATH1141 | Higher Mathematics 1A | | | | |
| MATH1081 | Discrete Mathematics | 6 | 6 | | |
| INFS1603 | Business Data Management | 3 | 6 | | |
| SENG1031 | Software Engineering Workshop 1 | | | 4 | 6 |
| MATH2400 | Finite Mathematics | | | 2 | 3 |
| COMP1021 | Computing 1B *or* | | | 6 | 6 |
| COMP1721 | Higher Computing 1B | | | | |
| INFS1611 | Requirements Engineering | | | 1.5 | 3 |
| | *Stage 1 Science electives* | | | 3 | 6 |
| | Total | 21 | 24 | 16.5 | 24 |

#### Stage 2

| | | S1 | | S2 | |
|---|---|---|---|---|---|
| **Course No** | **Course Name** | **hr/wk** | **uoc** | **hr/wk** | **uoc** |
| SENG2010 | Software Engineering Workshop 2A | 2 | 3 | | |
| SENG2020 | Software Engineering Workshop 2B | | | 2 | 3 |
| COMP2111 | System Modelling and Design | 5 | 6 | | |
| COMP2011 | Data Organisation *or* | | | 5 | 6 |
| COMP2711 | Data Organisation advanced | | | | |
| COMP2021 | Digital Systems Structures | | | 5 | 6 |
| COMP3710 | Project Management | 3 | 3 | | |
| INFS2603 | System Analysis & Design | 3 | 6 | | |
| MATH2859 | Probability, Statistics and Information | | | 3 | 3 |
| | *Stage 2 Science electives* | 5 | 6 | 5 | 6 |
| | Total | 18 | 24 | 20 | 24 |

### Stage 3

| Course No | Course Name | S1 hr/wk | S1 uoc | S2 hr/wk | S2 uoc |
|---|---|---|---|---|---|
| SENG3010 | Software Engineering Workshop 3A | 2 | 3 | | |
| SENG3020 | Software Engineering Workshop 3B | | | 2 | 3 |
| COMP3141 | Software System Design & Implementation | 5 | 6 | | |
| INFS2607 | Business Data Networks | | | 3 | 6 |
| | SE Electives | 10 | 12 | 10 | 12 |
| | *Stage 2 Science electives* | 2 | 3 | 2 | 3 |
| | Total | 19 | 24 | 17 | 24 |

### Stage 4

| Course No | Course Name | S1 hr/wk | S1 uoc | S2 hr/wk | S2 uoc |
|---|---|---|---|---|---|
| | *Stage 2 or 3 Science/SE electives* | | 6 | | |
| | *Stage 2 or 3 Science electives* | | 12 | | 12 |
| | *Stage 3 Science electives* | | 6 | | 12 |
| | Total | | 24 | | 24 |

### Stage 5

| Course No | Course Name | S1 hr/wk | S1 uoc | S2 hr/wk | S2 uoc |
|---|---|---|---|---|---|
| SENG4910 | Thesis part A | 0 | 6 | | |
| SENG4911 | Thesis part B | | | 0 | 12 |
| SENG4921 | Professional Issues and Ethics | 4 | 6 | | |
| | SE Electives | 10 | 12 | 10 | 12 |
| | Total | 14 | 24 | 10 | 24 |

### Notes

1. To satisfy prerequisites it may be necessary to use a different arrangement of courses than shown above.

### 2.2.3 3652 BE Software Engineering BA

The BE Software Engineering BA combined program requires the completion of at least 60uoc of Arts courses, and must contain a major sequence of 42uoc at stages 2 and 3 in a single Arts discipline.

The major Arts discipline may not be Computer Science.

#### Stage 1

| | | S1 | | S2 | |
|---|---|---|---|---|---|
| **Course No** | **Course Name** | **hr/wk** | **uoc** | **hr/wk** | **uoc** |
| COMP1011 | Computing 1A *or* | 6 | 6 | | |
| COMP1711 | Higher Computing 1A | | | | |
| MATH1131 | Mathematics 1A *or* | 6 | 6 | | |
| MATH1141 | Higher Mathematics 1A | | | | |
| MATH1081 | Discrete Mathematics | 6 | 6 | | |
| INFS1603 | Business Data Management | 3 | 6 | | |
| SENG1031 | Software Engineering Workshop 1 | | | 4 | 6 |
| MATH2400 | Finite Mathematics | | | 2 | 3 |
| COMP1021 | Computing 1B *or* | | | 6 | 6 |
| COMP1721 | Higher Computing 1B | | | | |
| INFS1611 | Requirements Engineering | | | 1.5 | 3 |
| | *Stage 1 Arts elective* | | | 3 | 6 |
| | Total | 21 | 24 | 16.5 | 24 |

#### Stage 2

| | | S1 | | S2 | |
|---|---|---|---|---|---|
| **Course No** | **Course Name** | **hr/wk** | **uoc** | **hr/wk** | **uoc** |
| SENG2010 | Software Engineering Workshop 2A | 2 | 3 | | |
| SENG2020 | Software Engineering Workshop 2B | | | 2 | 3 |
| COMP2111 | System Modelling and Design | 5 | 6 | | |
| COMP2011 | Data Organisation *or* | | | 5 | 6 |
| COMP2711 | Data Organisation advanced | | | | |
| COMP2021 | Digital Systems Structures | | | 5 | 6 |
| COMP3710 | Project Management | 3 | 3 | | |
| INFS2603 | System Analysis & Design | 3 | 6 | | |
| MATH2859 | Probability, Statistics and Information | | | 3 | 3 |
| | *Arts electives* | 3 | 6 | 3 | 6 |
| | Total | 16 | 24 | 18 | 24 |

### Stage 3

| Course No | Course Name | S1 hr/wk | S1 uoc | S2 hr/wk | S2 uoc |
|---|---|---|---|---|---|
| SENG3010 | Software Engineering Workshop 3A | 2 | 3 | | |
| SENG3020 | Software Engineering Workshop 3B | | | 2 | 3 |
| COMP3141 | Software System Design & Implementation | 5 | 6 | | |
| INFS2607 | Business Data Networks | | | 3 | 6 |
| | SE Electives | 8 | 9 | 8 | 9 |
| | *Arts electives* | 3 | 6 | | 6 |
| | Total | 18 | 24 | 18 | 24 |

### Stage 4

| Course No | Course Name | S1 hr/wk | S1 uoc | S2 hr/wk | S2 uoc |
|---|---|---|---|---|---|
| | SE electives | | | | 6 |
| | *Arts electives* | | 24 | | 18 |
| | Total | 14 | 24 | 10 | 24 |

### Stage 5

| Course No | Course Name | S1 hr/wk | S1 uoc | S2 hr/wk | S2 uoc |
|---|---|---|---|---|---|
| SENG4910 | Thesis part A | 0 | 6 | | |
| SENG4911 | Thesis part B | | | 0 | 12 |
| SENG4921 | Professional Issues and Ethics | 4 | 6 | | |
| | SE Electives | 10 | 12 | 10 | 12 |
| | Total | 14 | 24 | 10 | 24 |

### Notes

1. To satisfy prerequisites it may be necessary to use a different arrangement of courses than shown above.
2. To accommodate particular sequences of Arts electives it may be necessary to change the distribution of SE electives between stages 3, 4 and 5.

### 2.2.4 3653 BE Software Engineering BCom

The BE(Software Engineering) BCom combined program requires the following:

- at least 96uoc from the courses offered by the Faculty of Commerce and Economics (FCE), including ACCT1501, ACCT1511, ECON1101, ECON1102; and,
- completion of a major of at least 48uoc in an FCE approved disciplinary stream and a minor of 24 units of credit in INFS courses of which no than 12uoc may be Level 1 courses;
- no more that 60uoc of level 1 FCE courses;
- 6uoc of first year mathematics courses as required for the Software Engineering program and at least 6uoc in statistics and mathematics chosen from ECON1203, MATH1041, MATH1141, MATH1081, MATH2400, MATH2859, MATH2801, MATH2901, MATH2841, or alternative statistics and mathematics courses approved by the program advisor.

**Stage 1**

| | | S1 | | S2 | |
|---|---|---|---|---|---|
| **Course No** | **Course Name** | **hr/wk** | **uoc** | **hr/wk** | **uoc** |
| COMP1011 | Computing 1A *or* | 6 | 6 | | |
| COMP1711 | Higher Computing 1A | | | | |
| MATH1131 | Mathematics 1A *or* | 6 | 6 | | |
| MATH1141 | Higher Mathematics 1A | | | | |
| MATH1081 | Discrete Mathematics | 6 | 6 | | |
| INFS1603 | Business Data Management | 3 | 6 | | |
| SENG1031 | Software Engineering Workshop 1 | | | 4 | 6 |
| MATH2400 | Finite Mathematics | | | 2 | 3 |
| COMP1021 | Computing 1B *or* | | | 6 | 6 |
| COMP1721 | Higher Computing 1B | | | | |
| INFS1611 | Requirements Engineering | | | 1.5 | 3 |
| ACCT1501 | Accounting and Financial Management 1A | | | 3 | 6 |
| | Total | 21 | 24 | 16.5 | 24 |

**Stage 2**

| | | S1 | | S2 | |
|---|---|---|---|---|---|
| **Course No** | **Course Name** | **hr/wk** | **uoc** | **hr/wk** | **uoc** |
| SENG2010 | Software Engineering Workshop 2A | 2 | 3 | | |
| SENG2020 | Software Engineering Workshop 2B | | | 2 | 3 |
| COMP2111 | System Modelling and Design | 5 | 6 | | |
| COMP2011 | Data Organisation *or* | | | 5 | 6 |
| COMP2711 | Data Organisation advanced | | | | |
| COMP2021 | Digital Systems Structures | | | 5 | 6 |
| COMP3710 | Project Management | 3 | 3 | | |
| INFS2603 | System Analysis & Design | 3 | 6 | | |
| MATH2859 | Probability, Statistics and Information | | | 3 | 3 |
| ECON1101 | Microeconomics 1 | | | 3 | 6 |
| ACCT1511 | Accounting and Financial Management 1B | 3 | 6 | | |
| | Total | 16 | 24 | 18 | 24 |

### Stage 3

| Course No | Course Name | S1 hr/wk | S1 uoc | S2 hr/wk | S2 uoc |
|---|---|---|---|---|---|
| SENG3010 | Software engineering Workshop 3A | 2 | 3 | | |
| SENG3020 | Software Engineering Workshop 3B | | | 2 | 3 |
| COMP3141 | Software System Design & Implementation | 5 | 6 | | |
| INFS2607 | Business Data Networks | | | 3 | 6 |
| ECON1102 | Macroeconomics 1 | 3 | 6 | | |
| | SE Electives† | 8 | 9 | 13 | 15 |
| | Total | 18 | 24 | 18 | 24 |

### Stage 4

| Course No | Course Name | S1 hr/wk | S1 uoc | S2 hr/wk | S2 uoc |
|---|---|---|---|---|---|
| | *FCE electives* | 8 | 24 | 8 | 24 |
| | Total | 12 | 24 | 12 | 24 |

### Stage 5

| Course No | Course Name | S1 hr/wk | S1 uoc | S2 hr/wk | S2 uoc |
|---|---|---|---|---|---|
| SENG4910 | Thesis part A | 0 | 6 | | |
| SENG4911 | Thesis part B | | | 0 | 12 |
| SENG4921 | Professional Issues and Ethics | 4 | 6 | | |
| | SE Electives† | 10 | 12 | 10 | 12 |
| | Total | 14 | 24 | 10 | 24 |

### Notes

† In order to meet the requirement for 96uoc of FCE content, at least 3uoc of the SE-electives must be chosen from INFS courses.

### 2.2.5 3749 BE Software Engineering MBiomedE

The BE Software Engineering MBiomedE concurrent degree program is offered jointly through the School of Computer Science and Engineering and the Graduate School of Biomedical Engineering.

#### Stage 1

| Course No | Course Name | S1 hr/wk | S1 uoc | S2 hr/wk | S2 uoc |
|---|---|---|---|---|---|
| SENG1031 | Software Engineering Workshop 1 | | | 4 | 6 |
| MATH1131 | Mathematics 1A *or* | 6 | 6 | | |
| MATH1141 | Higher Mathematics 1A | | | | |
| MATH1081 | Discrete Mathematics | 6 | 6 | | |
| MATH2400 | Finite Mathematics | | | 2 | 3 |
| COMP1011 | Computing 1A *or* | 6 | 6 | | |
| COMP1711 | Higher Computing 1A | | | | |
| COMP1021 | Computing 1B *or* | | | 6 | 6 |
| COMP1721 | Higher Computing 1B | | | | |
| INFS1611 | Requirements Engineering | | | 1.5 | 3 |
| INFS1603 | Business Data Management | 3 | 6 | | |
| BIOM9010 | Biomed Eng Practice | | | 2 | 3 |
| | *General education* | | | 2 | 3 |
| | Total | 21 | 24 | 17.5 | 24 |

#### Stage 2

| Course No | Course Name | S1 hr/wk | S1 uoc | S2 hr/wk | S2 uoc |
|---|---|---|---|---|---|
| SENG2010 | Software Engineering Workshop 2A | 2 | 3 | | |
| SENG2020 | Software Engineering Workshop 2B | | | 2 | 3 |
| COMP2111 | System Modelling and Design | 5 | 6 | | |
| COMP2011 | Data Organisation *or* | | | 5 | 6 |
| COMP2711 | Data Organisation advanced | | | | |
| COMP3710 | Project Management | 3 | 3 | | |
| COMP2021 | Digital Systems Structures | | | 5 | 6 |
| INFS2603 | System Analysis & Design | 3 | 6 | | |
| MATH2859 | Probability, Statistics and Information | | | 3 | 3 |
| BIOM1001 | Professional Biomedical Studies | 1 | 3 | | |
| | *Preferred Biomedical elective* | | | 3 | 6 |
| | *General education* | 2 | 3 | | |
| | Total | 16 | 24 | 18 | 24 |

### Stage 3

| Course No | Course Name | S1 hr/wk | S1 uoc | S2 hr/wk | S2 uoc |
|---|---|---|---|---|---|
| SENG3010 | Software engineering Workshop 3A | 2 | 3 | | |
| SENG3020 | Software Engineering Workshop 3B | | | 2 | 3 |
| COMP3141 | Software System Design & Implementation | 5 | 6 | | |
| INFS2607 | Business Data Networks | | | 3 | 6 |
| PHPH2101 | Physiology 1A | 6 | 6 | | |
| PHPH2201 | Physiology 1B | | | 6 | 6 |
| | *SE Electives* | 8 | 9 | 8 | 9 |
| | Total | 21 | 24 | 19 | 24 |

### Stage 4

| Course No | Course Name | S1 hr/wk | S1 uoc | S2 hr/wk | S2 uoc |
|---|---|---|---|---|---|
| SENG4921 | Professional Issues and Ethics | 4 | 6 | | |
| BIOM5001 | Thesis A | | | 4 | 6 |
| | *SE Electives* | 10 | 12 | 5 | 6 |
| BIOM9xxx | *BIOM Electives* | 3 | 6 | 6 | 12 |
| | Total | 17 | 24 | 15 | 24 |

### Stage 5

| Course No | Course Name | S1 hr/wk | S1 uoc | S2 hr/wk | S2 uoc |
|---|---|---|---|---|---|
| BIOM5904 | Thesis B | 12 | 12 | | |
| BIOM9xxx | *BIOM Electives* | 3 | 6 | 6 | 12 |
| BIOM9913 | Masters thesis *or* | | | 6 | 12 |
| BIOM9xxx | *BIOM Electives* | | | | |
| | *SE Electives* | 5 | 6 | | |
| | Total | 20 | 24 | 12 | 24 |

### Note

The above staging of the program represents one possible sequence of courses. The staging of the courses may be modified, subject to prerequisites and timetabling.

In particular, the Biomed and SE electives may be redistributed to suit.

## 2.3 Proposed Revision in Detail

**Merge SENG1010 and SENG1020** In the 1999 revision of the Software Engineering program SENG1010 (Software Engineering Workshop 1A) was moved from S1 to S2, accompanying SENG1020. For adminstrative reasons it would be more convenient to have a single course SENG1031. The course description of SENG1031 is simply be the merge of the two component courses, so there are no real course changes in this proposal.

**Units:** 6uoc

**Unit change:** 0uoc

**Replace COMP2110 by a new course COMP2111**

**Reason for change** COMP2110 (Software System Specification) is concerned with formal modelling and development of systems, especially software, using the B Method (B), but being a 3uoc course it primarily covers specification and only briefly looks at refinement and implementation. The material from COMP2110 is used in SENG2010 for specification and later in SENG2020 where implementation is introduced in an adhoc and unsatisfactory manner. In SENG2020 we also briefly discuss the modelling of UML classes in B, thus enabling the embedding of formal implementations in an informal OO development. The B Toolkit has been extended to facilitate such embedding in Java and C++.

COMP2111 (System Development) extends COMP2110 by covering refinement, implementation, more on proof and also discuss the modelling of UML including class diagrams and sequence diagrams.

The integration of formal and informal is regarded as important. Further out we may deal with things like refactoring; perhaps even explore where extreme programming fits in a formal/informal development.

**Course content** See separate course proposal.

**Prerequisites:** (COMP1021 or COMP1721 or COMP2811) and MATH1081;

**Units:** 6uoc

**Unit change:** +3uoc

**Remove COMP2411 from the core of the Software System program**

**Reason** The original purpose of having COMP2411 (Logic and Logic Programming) in the core was twofold: a) to provide experience in the use of logic, and b) to give experience in the use of the logic programming paradigm. Purpose a) was intended to provide support for COMP2110, but the course is not fulfilling that role and does not appear to be necessary to remain as a core course.

**Unit change:** -6uoc

**Introduce COMP3710 (Project Management)**

**Reason:** Project management should be in the core of the Software System program; its absence was noted by the IEAust during the last accreditation review. S1 stage 2 is a very appropriate location, fitting in well with the SENG2010 workshop.

**Unit change:** +3uoc

**Note:** the 3 changes above result in no change to the required 24uoc in S1. The standard stage 2 S1 program would now be:

| | | |
|---|---|---|
| COMP2111 | System Development | 6uoc |
| SENG2010 | Software Engingeering Workshop 2A | 3uoc |
| COMP3710 | Project Management | 3uoc |
| INFS2603 | System Analysis and Design | 6uoc |
| | Gen Ed or COMP2711 | 6uoc |
| | **Total** | 24uoc |

### 2.4 Units of credit

| | 3648 | 3651/3652/3653/3749 |
|---|---|---|
| Stage 1 | 24uoc | 24uoc |
| Stage 2 | 24uoc | 24uoc |
| Stage 3 | 24uoc | 24uoc |
| Stage 4 | 24uoc | 24uoc |
| Stage 5 | | 24uoc |
| **Total** | 192uoc | 240uoc |

Full-time program load equivalence (EFTSU): ??

### 2.5 Date of Last Program Revision

Last review: 1999

### 2.6 Next Program Review Date

Next review: 2008

### 2.7 Student Impact Statement/Transitional Arrangements

| **Stage** | **Category** | **Options** |
|---|---|---|
| Stage 1 2004 | | move to revised program in stage 2 2005 |
| Stage 2–4 2004 | COMP2110 not completed | take COMP2111 |
| Stage 2–4 2004 | COMP2411 not completed | take COMP2411 *or* take COMP3710 *and* extra 3uoc of SE electives. |

### 2.8 General Education program (for undergraduate programs only)

This proposal has no effect on the General Education or Professional Ethics and Social Responsibility content.

### 2.9 Alternative Delivery of Programs

- NA

#### 2.9.1 Alternative Delivery Arrangements

- NA

### 2.9.2 Multi-mode Delivery Guidelines

- NA

### 2.9.3 University resources required by students

This proposal does not substantially change the resources required for students.

## 2.10 Information Technology Requirements for students

This proposal does not substantially change the IT resource requirements for students in the Software Engineering program.

# 3. CROSS REFERRAL

The changes in the program described in this proposal affect only the School of Computer Science & Engineering.

## 3.1 Academic Units with Potential Interest

- NA

## 3.2 Material Overlap and Service Teaching

| | | | |
|---|---|---|---|
| (i) | Does the proposal overlap with material already being taught by other academic units? | No | |
| (ii) | Will students in other programs take courses in this program? | Yes | as they do in the current program |
| (iii) | Will service teaching be provided or has it been in the past and will it no longer be provided, by other departments/schools? | No | |

### 3.3 Academic Cross-referral

Note: this section of the Proposal must be signed by any interested parties (the Dean and/or Presiding Member of the consulted Faculty/Faculties), stating: OR alternatively, attach copies of correspondence of consultation.

Email from the Dean, Faculty of Commerce and Economics:

```
From: "Greg Whittred" <g.whittred@unsw.edu.au>
To: "Graham Low" <G.Low@unsw.edu.au>
Cc: Bill Wilson <billw@cse.unsw.edu.au>,
        Ken Robinson <kenr@cse.unsw.edu.au>
Subject: Re: SE revision
Date: Tue, 21 Sep 2004 02:01:26 +1000


All, if you need my agreement this email will hopefully suffice.
greg


**********************************************************************


Greg Whittred
Dean
Faculty of Commerce and Economics
UNSW Sydney NSW 2052
AUSTRALIA

Phone:   + 61 2 9385 5899
Fax:         + 61 2 9385 6363
email: g.whittred@unsw.edu.au
```

I have examined the Program Proposal and have no concerns with the matter proceeding.

Further Comments:

_____

Dean or Presiding Member of consulted Faculty/Faculties

/ /2004

### 3.4 Administrative Units or External Organisations with Interest

### 3.5 Administrative Cross-referral

Note: the Registrar's Division needs to be consulted on the Program Proposal and this section of the Proposal must be signed by the Registrar's Nominee, stating:

I have examined the Program Proposal and have no administrative concerns with the matter proceeding.

Further Comments:

Registrar's Nominee

/ /2004

## 4. COURSE DETAILS

### 4.1 Summary of Handbook Course Descriptions

Handbook entries for the new courses COMP2111 and SENG1031 are given in the attached course proposals. All other courses have their existing handbook entries, except for the following changes.

**SENG2010:** Prerequisites: SENG1020 or SENG1031
Corequisites: COMP2111 and INFS2603

## 5. RESOURCE STATEMENT

### 5.1 Enrolment Planning

### 5.2 Details of Fees

Other than for local fee-paying students and international students this program is covered by HECS. For local and international fee-paying students the appropriate fees to be charged under the UNSW fee band policy will be derived from the relative cost of providing each type of course and calculated on the basis the relevant year's current fee. This represents no change from the current program.

### 5.3 Resource Impact

#### 5.3.1 Teaching Format

| Hours per Week per Student: | Session 1 | Session 2 |
|---|---|---|
| | Lectures | Lectures |
| | Tutorials | Tutorials |
| | Laboratories | Laboratories |
| | Seminars | Seminars |
| | Other | Other |
| | Total hours per week | Total hours per week |

As for current program.

### 5.3.2 Staffing Requirements

| | |
|---|---|
| Hours per week: | Full-time Academic Staff |
| | Part-time Teaching Staff |
| | General Staff |

As for current program.

### 5.3.3 Support Requirements

Laboratories
Equipment
Other

As for current program.

### 5.3.4 Accommodation

No additional accommodation required

### 5.3.5 Materials Requirements

No additional materails required.

### 5.3.6 Equipment Requirements

| | | |
|---|---|---|
| (i) | Expenditure on new or replacement equipment | no extra expenditure |
| (ii) | Annual maintenance on new equipment | no additional expenditure on maintenance. |

### 5.3.7 Computing Requirements

No additional computing requirements.

### 5.3.8 Library Requirements

No additional library resources required.

## 6. AUTHORISATION

### 6.1 Librarian's Endorsement

*I have examined the Library needs related to the above proposal and certify that existing Library holdings, staffing, services and accommodation are adequate/inadequate to cover the demands that are inherent in it.*

*Appropriate arrangements for the use of digitised material to support this course have been made by the Course Authority with the University Librarian.*

Further comments:

_____

University Librarian

/ /2004

## 6.2 Dean's Approval

*I have examined the resource implications of the above proposal in regard to staff, space, materials, equipment, capital funds, and computing and certify that:*

***(tick whichever is applicable)***

### 6.2.1

1. *the proposal involves no additional resources (A statement from the Head of School explaining how this can be achieved must be included); or*
2. *the proposal involves additional resources and it is proposed to redeploy existing resources within the faculty. (A statement from the Head of School explaining how this can be achieved must be included); or*
3. *the proposal involves additional resources to be obtained as set out below; or*
4. *the additional resources essential to bring the proposal into effect cannot be found within resources available to the faculty.*

### 6.2.2 Fees (delete if not applicable)

- *a fee will/will not be charged for this course (other than HECS).*
- *a fee will be charged for this program for local fee-paying students.*
- *a fee will be charged for international students*

*If a fee is to be charged the Dean certifies as follows:*

*I have ensured that the Vice-Chancellor has been advised of the proposed fee arrangements, and note that approval of fee arrangements is required before the new course can be introduced.*

### 6.2.3 the proposal conforms to the University's commitment to Equal Opportunity in Education.

Statement from Head of School on Source of Additional Resources and/or Further Comments:

_____

*Dean*

*/ /199*

# PROPOSAL TO INTRODUCE A NEW COURSE

## 7. COURSE DETAILS

### 7.1 Course ID

COMP2111

### 7.2 Course name – Long

System Modelling and Design

### 7.3 Course name – Abbreviated

System Modelling and Design

### 7.4 Course Authority

Ken Robinson 54045/k.robinson@unsw.edu.au

### 7.5 Organisational Unit responsible for the course

School: **Computer Science & Engineering** Faculty: **Engineering**
Academic Group Code (Faculty): **ENG**

Academic Organisation Code (Owner): **COMPSC**

### 7.6 Justification of Proposal

This course is being proposed as an extension of COMP2110, which is a 3uoc course treating some of the same material, namely software (or system) modelling and specification. Unfortunately, this omits an important part of the process of system modelling and implementation called *refinement*. This results in a significant part of the picture being missing. Also, since this material is used in SENG2020 it has to be dealt with in that course in a rushed, incomplete and unsatisfactory way.

### 7.7 Consultation Process

This is a core course for the Software Engineering program and is largely taken only by such students. The proposal has been circulated within the School of Computer Science & Engineering (CSE) and to the head of the School of Systems, Information, Technology & Management (SISTM). The proposal has been discussed and approved by the Teaching Committee of CSE.

### 7.8 Units of credit (UOC) Session/s offered Hours Per Week

6UOC; offered in S1; 5 hours/week

**7.9**

| | |
|---|---|
| Prerequisites: | COMP1021 or COMP1721 |
| Corequisites: | MATH1081 |
| Exclusions: | COMP2110 |

## 7.10 Proposed Entry in the Faculty Handbook (including course description)

### COMP2111 System Modelling and Design

**Faculty:** Engineering
**School:** School of Computer Science & Engineering
**Contact:** A/Prof. KA Robinson
**Campus:** Kensington Campus
**Course Outline**

This course introduces rigorous and formal methods for modelling system behaviour. The course will use the B Method (B), which is a formal method founded on set theory and logic. B supports the modelling of abstract specifications and the refinement of abstract specifications through to concrete implementations. Consistency of formal development is verified by proof obligations and formal proof. A toolkit (the B-Toolkit or Atelier B) assists with all aspects of the process.

The course will cover: set theory, logic, abstract machines, specification, animation, refinement, implementation, proof obligations and proof.

The course will also explore the relationship between formal B models and UML, the informal or semi-formal modelling notation for Object-Oriented design.

The course will use case-studies and assignments to develop competence.

The methods developed in this course will be used in the SENG2010 and SENG2020 workshops.

## 7.11 Is this course replacing an existing course?

Yes COMP2110 Software System Specification

## 7.12 Undergraduate

## 7.13 Core

This course is core in programs: 3648, 3651, 3652, 3653, 3749.

## 7.14 Program stage

Usually taken in Stage 2
First offered: S1 2005

## 7.15 Programs in which course will be available

Available to students with the prerequisites in any program, especially 3648, 3651, 3652, 3653, 3749.

### 7.16 Proposed teaching methods and assessment practices

Teaching will be via lectures, case studies, course notes, laboratory exercises, tutorial exercises, small graded assignments.

Assessment will consist of the assignments and a formal multiple choice, multiple correct answer examination.

### 7.17 Assessment grades to be used

- Full range of grades HD, DN, CR, PS, FL

### 7.18 Mode of delivery

- Internal

#### 7.18.1 Multi-mode Delivery Guidelines

- NA

### 7.19 Information Technology Requirements for students

The assignments will use the CSE Computing Laboratories. Additionally, the B-Toolkit will be distributed for free to students for installation on home computers.

### 7.20 Textbooks

Steve Schneider *The B-Method: An Introduction*, Palgrave 2001, (ISBN:033379284X).

### 7.21 Industrial experience component

- NA

## 8. RESOURCE STATEMENT

### 8.1 Enrolments

| | |
|---|---|
| 2005 | 90 |
| 2006 | 90 |
| 2007 | 90 |

## 8.2 Resource Requirements

**Staffing Requirements:**

| | Hours per week |
|---|---|
| Full-time Academic Staff | 8 |
| Part-time Teaching Staff | 6 |
| General Staff | NIL |

| | |
|---|---|
| Field Costs: | NIL |
| Studio/Laboratory Requirements: | NIL |
| Materials Requirements: | NIL |
| Equipment Costs: | NIL |
| Computing Requirements: | NIL |
| Library Requirements: | NIL |
| Capital Funds Requirements: | NIL |

## 8.3 Servicing Implications

- NA

## 8.4 Teaching arrangements:

1. Will other units contribute on a regular basis to the teaching of this course?
   - No
2. If yes, which units are involved and what proportion of the course will they teach?

## 8.5 Alternative Delivery Arrangements

- NA

## 8.6 Details of Tuition Fees

Fees for courses are calculated on a pro-rata basis. Proposed fee:

- Standard fees for a 6uc Faculty of Engineering course

# PROPOSAL TO INTRODUCE A NEW COURSE

## 9. COURSE DETAILS

### 9.1 Course ID

SENG1031

### 9.2 Course name – Long

Software Engineering Workshop 1

### 9.3 Course name – Abbreviated

Software Engineering Workshop 1

### 9.4 Course Authority

Ken Robinson 54045/k.robinson@unsw.edu.au

### 9.5 Organisational Unit responsible for the course

School: **Computer Science & Engineering** Faculty: **Engineering**
Academic Group Code (Faculty): **ENG**

Academic Organisation Code (Owner): **COMPSC**

### 9.6 Justification of Proposal

SENG1031 is a single course equivalent to the existing courses SENG1010 and SENG1020. Since those latter two courses now run sequentially in the same semester (S2) it is convenient to have a single course code.

### 9.7 Consultation Process

This is a core course for the Software Engineering program and is largely taken only by such students. The proposal has been circulated within the School of Computer Science & Engineering (CSE) and to the head of the School of Systems, Information, Technology & Management (SISTM). The proposal has been discussed and approved by the Teaching Committee of CSE.

### 9.8 Units of credit (UOC) Session/s offered Hours Per Week

6UOC; offered in S1; 5 hours/week

**9.9**

| | |
|---|---|
| Prerequisites: | none |
| Corequisites: | INFS1611 |
| Exclusions: | SENG1020 |

## 9.10 Proposed Entry in the Faculty Handbook (including course description)

### SENG1031 Software Engineering Workshop 1

**Faculty:** Engineering
**School:** School of Computer Science & Engineering
**Contact:** Peter Steven Ho
**Campus:** Kensington Campus
**Course Outline**

The Software Engineering Workshop is a series of courses that span the first three years of the Software Engineering program. The course series will provide an opportunity to work in small teams on substantial, realistic projects, covering most phases of the software production life cycle. The SE Workshop stream also provides an opportunity to apply the techniques and methods covered in other courses of the course. Under guidance from staff, the intention of this series is to enable students to learn by reflective practice. Whatever steps are taken students should become aware of what they are doing, and reflect on the consequences. This is the essence of the Personal Software Process described in the textbook by Watts Humphrey. Each course in the series will involve group project work, presentations, report writing, and documentation. This is the first course in the series and will contain: an introduction to the software process and to a number of the software engineering practices to be adopted throughout the series; the formation of the first set of small groups; a number of exercises to develop group skills.

Each group will complete a domain analysis and a requirements analysis for a project. Each group will: examine similar systems; interview users or potential users of the system; develop a requirements document; validate the requirements by prototyping. This course will form the practical component of INFS1611.

## 9.11 Is this course replacing an existing course?

Yes equivalent to SENG1010 + SENG1020

## 9.12 Undergraduate

## 9.13 Core

This course is core in programs: 3648, 3651, 3652, 3653, 3749.

## 9.14 Program stage

Usually taken in Stage 1
First offered: S2 2005

### 9.15 Programs in which course will be available

Available to students with the prerequisites in any program, especially 3648, 3651, 3652, 3653, 3749.

### 9.16 Proposed teaching methods and assessment practices

Teaching will be via lectures and group project work.

Assessment will be based on a number of project deliverables distributed across the semester. There is no formal examination.

### 9.17 Assessment grades to be used

- Full range of grades HD, DN, CR, PS, FL

### 9.18 Mode of delivery

- Internal

#### 9.18.1 Multi-mode Delivery Guidelines

- NA

### 9.19 Information Technology Requirements for students

The assignments will use the CSE Computing Laboratories. Additionally, the B-Toolkit will be distributed for free to students for installation on home computers.

### 9.20 Textbooks

Steve Schneider *The B-Method: An Introduction*, Palgrave 2001, (ISBN:033379284X).

### 9.21 Industrial experience component

- NA

## 10. RESOURCE STATEMENT

### 10.1 Enrolments

| | |
|---|---|
| 2005 | 90 |
| 2006 | 90 |
| 2007 | 90 |

## 10.2 Resource Requirements

**Staffing Requirements:**

| | Hours per week |
|---|---|
| Full-time Academic Staff | 8 |
| Part-time Teaching Staff | 6 |
| General Staff | NIL |

| | |
|---|---|
| Field Costs: | NIL |
| Studio/Laboratory Requirements: | NIL |
| Materials Requirements: | NIL |
| Equipment Costs: | NIL |
| Computing Requirements: | NIL |
| Library Requirements: | NIL |
| Capital Funds Requirements: | NIL |

## 10.3 Servicing Implications

- NA

## 10.4 Teaching arrangements:

1. Will other units contribute on a regular basis to the teaching of this course?
    - No
2. If yes, which units are involved and what proportion of the course will they teach?

## 10.5 Alternative Delivery Arrangements

- NA

## 10.6 Details of Tuition Fees

Fees for courses are calculated on a pro-rata basis. Proposed fee:

- Standard fees for a 6uc Faculty of Engineering course