

Program Guide

Graduate Diploma in Software Engineering

1. Program Details

| | |
|---------------------------------------|--|
| Title | Graduate Diploma in Software Engineering, incorporating Graduate Certificate in Software Engineering |
| Abbreviation | Grad Dip Software Engineering and Grad Cert in Software Engineering |
| RMIT Program Code | GD058, GC039 |
| Credit Points | 96 |
| Career | Postgraduate |
| Duration/length | 1 year (2 semesters) full time or 2 years (4 semesters) part time. |
| Campuses | City |
| Location | Onshore |
| Owning School | 140H, School of Computer Science and IT, http://www.rmit.edu.au/csit/ |
| Partnered offering / corporate client | N/A |
| ASCED code: | 020100 Computer Science |
| CRICOS code: | n/a |
| Proposed Introduction | 2008 Semester 1 |
| Contact Details | Dr. Xiuzhen Jenny Zhang, Program coordinator, xiuzhen.zhang@rmit.edu.au , x52774, 14.09.05 |

2. Plan Details

| | |
|----------------|--|
| RMIT Plan Code | GD058 |
| Title | Graduate Diploma in Software Engineering |
| Award Title | Graduate Diploma in Software Engineering |
| ASCED code: | 020100 Computer Science |
| CRICOS code: | n/a |

| | |
|----------------|--|
| RMIT Plan Code | GD039 |
| Title | Graduate Certificate in Software Engineering |
| Award Title | Graduate Certificate in Software Engineering |
| ASCED code: | 020100 Computer Science |
| CRICOS code: | n/a |

3. Program Map

Before starting your officially enrolled courses in your program plan, you are strongly advised to complete the Unix Survival Skills, a 4-hour intensive practical training course delivered in computer labs at the School of Computer Science and IT. The Unix Survival skills are essential for all courses in your program plan.

Many courses have prerequisites: these are listed in the program summary, which can be downloaded from <http://www.rmit.edu.au/browse;ID=spagdcjoui91> (most of these you will have completed as part of your undergraduate degree).

Complete at least six advanced electives from:

| Subject area | Catalogue number | Title | Credit points |
|--------------|------------------|---|---------------|
| ISYS | 2377 | Enterprise Architecture | 12 |
| ISYS | 2404 | Software Engineering for Large Scale Systems (seminar*) | 12 |
| COSC | 2275 | Software Requirements Engineering | 12 |
| ISYS | 1083 | Object Oriented Software Design | 12 |
| ISYS | 1081 | Software Reuse | 12 |
| ISYS | 1085 | Software Testing | 12 |
| ISYS | 1088 | Systems Architecture | 12 |
| COSC | 1182 | Usability Engineering | 12 |
| ISYS | 2040 | Usability Analysis | 12 |

and complete at most two advanced electives from:

| Subject area | Catalogue number | Title | Credit points |
|--------------|------------------|---|---------------|
| COSC | 1174 | Advanced Client/Server Architecture | 12 |
| ISYS | 2402 | Advanced Distributed Systems (seminar*) | 12 |
| COSC | 2308 | Advanced Topics in Bioinformatics (seminar*) | 12 |
| COSC | 2048 | Agent Oriented Programming and Design (seminar*) | 12 |
| COSC | 2306 | Search Technology (seminar*) | 12 |
| MATH | 1300 | Analysis of Medical Data | 12 |
| BIOL | 2034 | Bioinformatics | 12 |
| COSC | 2302 | Computer and Internet Forensics | 12 |
| INTE | 1125 | Cryptography and Security | 12 |
| COSC | 2407 | Database Systems | 12 |
| ISYS | 1072 | Knowledge & Data Warehousing | 12 |
| ISYS | 1095 | Distributed Databases | 12 |
| COSC | 2033 | Evolutionary Computing (seminar*) | 12 |
| COSC | 1170 | Foundation Distributed Computing | 12 |
| ISYS | 1078 | Information Retrieval | 12 |
| COSC | 1163 | Intelligent Agents and Agent Systems (seminar*) | 12 |
| COSC | 1165 | Intelligent Web Systems (seminar*) | 12 |
| COSC | 1168 | Internet and Intranet Document Engineering | 12 |
| COSC | 2151 | Introduction to Computational Biology | 12 |
| COSC | 2049 | Mathematical Logic and Logic Programming (seminar*) | 12 |
| COSC | 2304 | Mobile and Wireless Computing | 12 |
| COSC | 1176 | Network Programming | 12 |
| COSC | 2107 | Network Security | 12 |
| COSC | 2149 | Research Methods | 12 |
| INTE | 1070 | Secure Electronic Commerce | 12 |
| INTE | 2401 | Secure Programming Environments | 12 |

| Subject area | Catalogue number | Title | Credit points |
|--------------|------------------|--------------|---------------|
| COSC | 2279 | Web Services | 12 |

Program Map for Graduate Certificate in Software Engineering (GC039)

Complete four advanced electives from:

| Subject area | Catalogue number | Title | Credit points |
|--------------|------------------|---|---------------|
| ISYS | 2377 | Enterprise Architecture | 12 |
| ISYS | 2404 | Software Engineering for Large Scale Systems (seminar*) | 12 |
| COSC | 2275 | Software Requirements Engineering | 12 |
| ISYS | 1083 | Object Oriented Software Design | 12 |
| ISYS | 1081 | Software Reuse | 12 |
| ISYS | 1085 | Software Testing | 12 |
| ISYS | 1088 | Systems Architecture | 12 |
| COSC | 1182 | Usability Engineering | 12 |
| ISYS | 2040 | Usability Analysis | 12 |

Program Progression Rules

The program is structured so that capabilities are developed sequentially through the 1 year. Assumed prerequisite capabilities are listed for each course in the individual course guides. You are strongly advised against enrolling in courses for which you do not have the required prerequisites, unless prior approval has been obtained from the Program Leader. Failure in one or more courses may make it impossible for you to complete the program within the minimum 1-year period.

4. External Accreditation and Industry Links

Graduates of this program are eligible for membership at the professional level of the Australian Computer Society, which accredits Information and Communication Technology related programs in Australia.

5. Objectives of the Program

The objective of this program is to develop your knowledge and skills essential for the IT industry to become employable as a competent software engineer.

6. Statement of capabilities

At the conclusion of this program, you will achieve advanced postgraduate-level technical software engineering capabilities. You will develop specialized expertise in different solutions. The curriculum of this program is developed in consultation with stakeholders and validated by employers and students.

The graduate capabilities developed by this program are composed of the following dimensions:

- Problem Solving**
 You will possess the capability to analyse problems in the software development industry, and synthesise suitable solutions with current technologies in software engineering. You can solve problems in different application areas with advanced knowledge in software engineering.

- **Communication**
You will possess the capability that allows you to communicate effectively with IT and non-IT audiences through a range of modes and media.
- **Working in Teams**
You will possess the capability to work as an effective and productive team member in a range of professional and social situations, especially in large scale application software engineering.
- **Responsibility**
In general this capability refers to accepting responsibility for one's own learning and making informed decisions in judging and adopting appropriate behaviour in professional and social situations. This includes accepting the responsibility for life-long learning. Specifically, the responsibility that you develop from this program will allow you to effectively apply relevant standards, ethical considerations, and an understanding of legal and privacy issues to designing software systems.
- **Enabling Knowledge**
The curriculum for this program incorporates advanced techniques in large scale software development, including software reuse and testing, object-oriented software design, and systems and enterprise architecture. At the end of the program, you will possess the expertise in software engineering and advanced knowledge in minor areas that will allow you to excel and apply knowledge effectively to solve complex problems and come up with creative solutions for new situations.

7. An approach to Teaching and Learning

The learning activities included in this program are:

- key concepts will be explained in lectures, seminars or online, where syllabus material will be presented and illustrated with demonstrations and examples;
- tutorials and group discussions (including online forums) focussed on projects and problem solving will provide practice in the application of theory and procedures, allow exploration of concepts with tutors and other students, and give feedback on your progress and understanding;
- written assignments consisting of case studies and other problems requiring an integrated understanding of the subject matter; and
- private study, working through the courses as presented in classes and learning materials, and gaining practice at solving conceptual and practical problems.

8. Articulation and Pathways

| Destination Program | Owning school | Credit from this program towards destination program | | Academic requirement for entry | Terms of entry (guaranteed place, merit, etc) | Date of agreement & expiry |
|---------------------|---------------|--|---------------|--------------------------------|---|----------------------------|
| | | Courses | Time | | | |
| MC060 | CSIT | all courses | Semesters 1,2 | complete | guaranteed | |
| MC061 | CSIT | all courses | Semesters 1,2 | complete | guaranteed | |

9. Entrance requirements

Successful completion of a bachelor level degree in computer science or information technology, or be a qualified IT professional with extensive relevant industry experience.

International Students

An IELTS English language test score of 6.5 or greater with no band less than 6.0.

10. Library, IT and specialist resources

You will be able to access course information and learning materials through the Learning Hub (also known as online@RMIT) and the RMIT Library, and will be provided with copies of additional materials in class or via email. Lists of relevant reference texts, resources in the library and freely accessible Internet sites will be provided.

11. Student expenses and charges in addition to fees

Expenses other than university tuition fees may be expected in relation to purchase of lecture notes, textbooks, stationery, consumables such as printer paper, fees levied by commercial internet service providers for internet access outside of the university campus, and other relevant costs.

Advanced electives:

| Title | Course guide part A |
|--|---|
| Advanced Client/Server Architecture | http://www.rmit.edu.au/courses/004195 |
| Advanced Topics in Bioinformatics | http://www.rmit.edu.au/courses/036676 |
| Agent Oriented Programming and Design | http://www.rmit.edu.au/courses/014061 |
| Search Technology | http://www.rmit.edu.au/courses/036673 |
| Analysis of Medical Data | http://www.rmit.edu.au/courses/012000 |
| Bioinformatics | http://www.rmit.edu.au/courses/028321 |
| Computer and Internet Forensics | http://www.rmit.edu.au/courses/036671 |
| Cryptography and Security | http://www.rmit.edu.au/courses/014836 |
| Database Systems | http://www.rmit.edu.au/courses/039983 |
| Knowledge & Data Warehousing | http://www.rmit.edu.au/courses/004171 |
| Distributed Databases | http://www.rmit.edu.au/courses/004194 |
| Enterprise Architecture | http://www.rmit.edu.au/courses/037926 |
| Evolutionary Computing | http://www.rmit.edu.au/courses/014062 |
| Foundation Distributed Computing | http://www.rmit.edu.au/courses/004192 |
| Information Retrieval | http://www.rmit.edu.au/courses/004175 |
| Intelligent Agents and Agent Systems | http://www.rmit.edu.au/courses/004169 |
| Intelligent Web Systems (Seminar) | http://www.rmit.edu.au/courses/004170 |
| Internet & Intranet Document Engineering | http://www.rmit.edu.au/courses/004176 |
| Introduction to Computational Biology | http://www.rmit.edu.au/courses/031751 |
| Mathematical Logic and Logic Programming | http://www.rmit.edu.au/courses/014063 |
| Mobile and Wireless Computing | http://www.rmit.edu.au/courses/036672 |
| Network Programming | http://www.rmit.edu.au/courses/004197 |
| Network Security | http://www.rmit.edu.au/courses/029567 |
| Object Oriented Software Design | http://www.rmit.edu.au/courses/004185 |
| Research Methods | http://www.rmit.edu.au/courses/031749 |
| Secure Electronic Commerce | http://www.rmit.edu.au/courses/004178 |
| Secure Programming Environments | http://www.rmit.edu.au/courses/038407 |
| Software Requirements Engineering | http://www.rmit.edu.au/courses/035217 |
| Software Reuse | http://www.rmit.edu.au/courses/004183 |
| Software Testing | http://www.rmit.edu.au/courses/004186 |
| Systems Architecture | http://www.rmit.edu.au/courses/004187 |
| Usability Analysis | http://www.rmit.edu.au/courses/013842 |
| Usability Engineering | http://www.rmit.edu.au/courses/004199 |
| Web Services | http://www.rmit.edu.au/courses/035219 |

Capability Matrix

Generic capabilities are developed in all courses with varying degrees. The matrix below indicates the capability level developed in each core course, and collectively in electives and advanced electives. Keys used in the matrix: Foundation (F), Consolidated (C) and Advanced (A)

| Capability | Software Engineering | Other Adv Electives |
|-------------------|----------------------|---------------------|
| critical analysis | A | A |
| problem solving | A | A |
| communication | A | A |
| responsibility | A | A |
| teamwork | A | |