RMIT University

Program Guide
Bachelor of Computer Science (Honours)

1. Program Details

Title	Bachelor of Computer Science (Honours)
Abbreviation	B Comp Sci (Hons)
RMIT Program Code	BH013
Credit Points	96
Career	Undergraduate
Duration/length	One year full-time or two years part-time
Campuses	City Campus
Location	Onshore, City Campus
Owning School	School of Computer Science and Information Technology URL: http://www.rmit.edu.au/csit
Partnered offering / corporate client	N/A
ASCED code:	020100 Computer Science
CRICOS code: (If known)	064395B
Proposed Introduction	2009, Semester 1
Contact Details	Xiaodong Li (xiaodong.li@rmit.edu.au) 9925 9585

2. Plan Details

RMIT Plan Code	BH013P9
Title	Bachelor of Computer Science (Honours)
Award Title	Bachelor of Computer Science (Honours)
ASCED code:	020100
CRICOS code:	064395B

3. Program Structure

Year	Semester	BH013 Bachelor of Computer Science (Honours)			
1	Sem 1	Research Methods (12CP)	CS Honours Elective (12CP)	CS Honours Elective (12CP)	CS Honours Elective (12CP)
	Sem. 2	Preliminary CS Honours Thesis (12CP)		CS Honours Thesis (36CP)	

If you wish to take a second semester elective or wish to start the research project early or study part-time, you may follow one of the following program structures.

Year	Semester	BH013 Bachelor of Computer Science (Honours)			
1	Sem 1	Research Methods (12CP)	Preliminary CS Honours Thesis (12CP)	CS Honours Elective (12CP)	CS Honours Elective (12CP)
	Sem. 2	CS Honours Thesis (36CP)			CS Honours Elective (12CP)

OR (Part-time mode)

Year	Semester	BH013 Bachelor of Computer Science (Honours)	
1	Sem 1	CS Honours Elective (12CP)	CS Honours Elective (12CP)
	Sem 2	Research Methods (12CP)	CS Honours Elective (12CP)
2	Sem 1	CS Honours Thesis Part 1 (24CP)	
	Sem 2	CS Honours Thesis Part 2 (24CP)	

Year 1 Program
Total Credit Points = 96

Complete the following one (1) Course:			
Subject Area	**Catalogue Number**	**Course Title**	**Credit Points**
COSC	2148	Research Methods	12

AND

Complete Three (3) Courses from: CS Honours Electives			
Subject Area	**Catalogue Number**	**Course Title**	**Credit Points**
COSC	1175	Advanced Client Server Architecture	12
ISYS	2403	Advanced Topics in Distributed Systems	12
COSC	2457	Advanced Topics in Computer Networking	12
COSC	2307	Advanced Topics in Bioinformatics	12
COSC	1204	Agent-Oriented Programming and Design	12
BIOL	2254	Bioinformatics	12
COSC	2301	Computer and Internet Forensics	12
COSC	2111	Data Warehousing and Data Mining	12
ISYS	2378	Enterprise Architecture	12
INTE	2470	Enterprise Database Integration	12
INTE	2472	Frontiers of Information Retrieval	12

COSC	1207	Evolutionary Computing	12
COSC	1171	Foundation Distributed Computing	12
ISYS	1079	Information Retrieval	12
COSC	1164	Intelligent Agents and Agent Systems	12
COSC	1167	Intelligent Web Systems	12
COSC	1169	Internet and Intranet Document Engineering	12
COSC	2296	Introduction to Computational Biology	12
ISYS	1073	Knowledge and Data Warehousing	12
COSC	1208	Mathematical Logic and Logic Programming	12
COSC	2303	Mobile and Wireless Computing	12
COSC	2105	Network Security	12
ISYS	1084	Object Oriented Software Design	12
COSC	1226	Real-Time Rendering and 3D Games Programming	12
INTE	2480	Search Engine Optimisation	12
COSC	2305	Search Technology	12
INTE	1071	Secure Electronic Commerce	12
INTE	2402	Secure Programming Environments	12
COSC	2274	Software Requirements Engineering	12
ISYS	2405	Software Engineering for Large Scale Systems	12
COSC	2368	Software Reuse	12
ISYS	1087	Software Testing	12
INTE	2478	Sustainable Energy Efficient Data Storage	12
ISYS	1089	Systems Architecture	12
COSC	2278	Web Services	12

AND

Complete the following Two (2) Courses:			
Subject Area	**Catalogue Number**	**Course Title**	**Credit Points**
COSC	2462	Preliminary CS Honours Thesis	12
COSC	2177	Computer Science Honours	36

OR

Complete the following Two (2) Courses:			
Subject Area	**Catalogue Number**	**Course Title**	**Credit Points**
COSC	2460	Computer Science Honours Thesis Part 1	24
COSC	2461	Computer Science Honours Thesis Part 2	24

Program Progression Rules

This program is structured for two semesters in one calendar year, although it is possible to do this program part-time. You may undertake the 12 credit point course Preliminary CS Honours Thesis in either the first or second semester, depending on whether one of the electives you want to do runs during semester 2.

Work on the honours thesis actually takes place during the whole of the honours program, not just in one semester. The initial work on the research project is done as part of the course Research Methods and Preliminary Computer Science Honours Thesis. This includes selecting a supervisor, performing a literature review, writing a project proposal that is reviewed, and making progress on the project.

In second semester (i.e., the honours thesis part) there is a single major deadline – the delivery of the final honours thesis by the end of the semester. Each student can schedule the project as they wish. Note, however, that most HD students take at least six weeks, or 200 hours, to write their honours thesis after all of the research is complete. A typical (successful) schedule would allow about eight weeks between completion of research and submission date, or, alternatively, specify dates throughout the year for progressive drafts of the thesis, so that it is written as the research proceeds.

Part-time students should aim to enrol in the CS Honours Thesis Part 1 and Part 1 in two consecutive semesters.

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 one year.

4. External Accreditation and Industry Links

This program is accredited at professional level by the Australian Computer Society, which accredits Information and Communication Technology related programs in Australia.

This program was developed based on the recommendations of the curriculum development joint task force of IEEE Computer Society and Association of Computing Machinery. It was developed though a formal consultation process with a number of stakeholders, including the School's Industry Advisory Committee, academic staff of the School, alumni, and current students.

5. Objectives of the Program

The Computer Science Honours program is intended for undergraduate students interested in research careers in computer science. "*The primary goal of Honours programs [is] research training.*" (The quoted material in this document is from the Australian Vice-Chancellors' Committee's "Fourth Year Honours Programs-Guidelines for good practice", June 1995.) Honours graduates will have completed advanced level studies in computer science and be experienced in the processes of research and written and oral communication; and are therefore able to proceed immediately to postgraduate research. The Honours program consists of a research methods course (12credit points), a preliminary honours thesis course (12 credit points), an honours thesis course (36 credit points) and three honours electives (12 credit points each). The program "contains a mix of advanced theory, professional training, and a research project leading to a thesis".

At the end of the Honours program you will: be employable in the Information Technology Industry in Australia or worldwide, particularly in entrepreneurial research and development areas; have completed advanced level studies in Computer Science; be aware of and experienced in the processes of research and written and oral communication; therefore be able to proceed immediately to postgraduate research.

6. Statement of capabilities

The program structure and contents were developed through a formal process of program renewal. A major part of this process was to identify the capabilities required for doing computer science research. This involved research into the literature of computer science education and consultation with a number of computer science researchers, including academic staff in the school and professional bodies such as the Australian Computer Society and IEEE. This resulted in the identification of the following graduate attributes for this program.

Graduates of this program will have the following capabilities:

- **GC1: Enabling Knowledge**
  This capability allows you to apply knowledge effectively to new situations and learn from the experience.

- **GC2: Critical Analysis**
  In general, this capability allows you to examine and consider accurately and objectively any topic, evidence, or situation.
  More specifically, this capability allows you to:
    - Analyse and model requirements and constraints for the purpose of designing and implementing software systems;
    - Evaluate and compare designs of such systems on the basis of requirements of the organisational needs.

- **GC3: Problem Solving**
  In general, this capability allows you to analyse problems and synthesise suitable solutions.
  Specifically, this capability allows you to:
    - Design and implement software systems that accommodate specified requirements and constraints, based on analysis or modelling or requirements specification

- **GC4: Communication**
  In general, this capability allows you to communicate effectively with a variety of audiences through a range of modes and media.
  Specifically, this capability allows you to:
    - Present and explain complex software systems solutions, alternative solutions, and decision recommendations to both IT and non-IT personnel via technical reports of professional standard and technical presentations.

- **GC5: Responsibility**
  In general this capability refers to accepting responsibility for your own learning and make informed decisions in judging and adopting appropriate behaviour in professional and social situations. This includes accepting the responsibility for life-long learning.
  Specifically, this capability allows you to:
    - Effectively apply relevant standards, ethical considerations, and an understanding of legal and privacy issues to designing software systems.

The research methods course, the preliminary thesis course, and the thesis course are designed to introduce students to the skills and character of computer science research. An Honours thesis is a substantial work of supervised research or development, requiring the equivalent of about four months full-time work from start to finish. An Honours thesis project involves:

- Identification of a task or problem;
- Search and review of the relevant literature;
- A proposed, implemented, and critically analysed solution or partial solution to the task or problem; and
- A written report describing the problem, the relevant literature, the solution, and its relation to other work in the area.

To successfully complete the thesis, you must demonstrate research skills: ability to undertake research under supervision, ability to present the research in a written form like that used for published papers, and ability to present the research in an oral seminar.

7. An approach to Teaching and Learning (including a statement on assessment)

Work on the Honours thesis actually takes place during both semesters of the Honours program (or in the last three semesters, if done part-time). The first semester work on the project is done as part of the Research Methods course and in the preliminary thesis course, if you undertake this in the first semester. This work includes selecting a supervisor, performing a literature review, writing a project proposal that is reviewed, and making progress on the project.

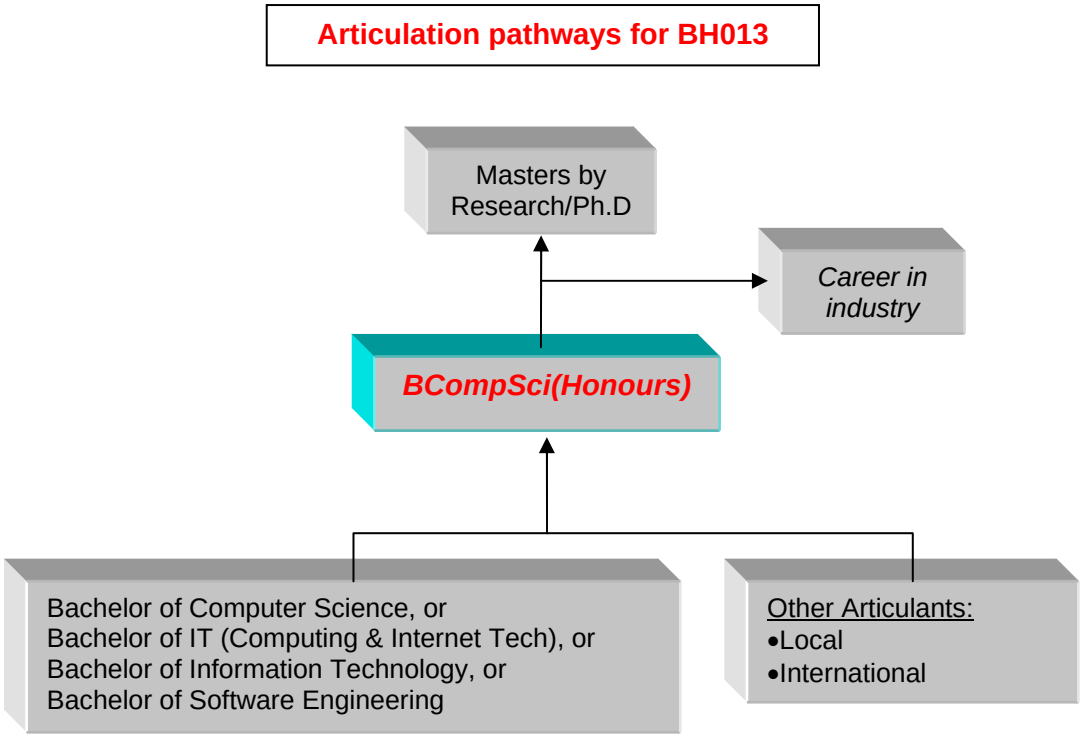
In second semester there is a single major deadline – the delivery of the final honours thesis by the end of October. Each student can schedule the project as they wish. Note, however, that most HD students take at least six weeks, or 200 hours, to write their honours reports after all of the research is complete. This does not include the time spent by supervisors reading drafts of reports, at a time of year when academics are busy with tasks such as preparing exams. A typical (successful) schedule would allow about eight weeks between completion of research and submission date, or alternatively, would specify dates throughout the year for progressive drafts of the report, so that it is written as the research proceeds.

Assessment

Honours projects are assessed on the final report and on the merits of the report as a research publication. Each report is initially examined by two academics, usually from within the School. (Each examiner usually will have at least two reports to examine.) Usually both examiners will themselves be supervisors of students at honours level, but they are not allowed to examine theses of their own students. Where possible one examiner will be an expert in the topic of the thesis. Other aspects of the project - programming undertaken and so on - are not examinable; assessment is based on the thesis alone.

In addition to the thesis, you are "required to provide a seminar on their thesis", shortly after the thesis itself is submitted. This seminar (of 20 minutes) is a hurdle: if it is not given to a satisfactory standard, it must be repeated.

8. Articulation and Pathways



9. Entrance requirements

Local:
Bachelor of Computer Science, or
Bachelor of IT (Computing and Internet Technology), or
Bachelor of Information Technology, or
Bachelor of Software Engineering.
At least a “credit" average for final year, and preferably a "distinction" average.

International:
English Language Requirements:

One of the following:
IELTS – 6.5+ (no band less than 6.0)
TOEFL – Paper based = 580+ (TWE 4.5+)
TOEFL – Computer based = 237+ (TWE 4.5+)
REW – English for Academic Purposes Advanced 1&2

Academic:

A "distinction" average in an undergraduate degree in Computer Science, equivalent to a similar degree offered in Australia.

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.

The Library has an excellent range of electronic resources to support all streams of the program, and most of these resources are accessible via the library website allowing access whatever your location.

The school has many laboratories, to support the relevant teaching and learning activities, and most of these labs have been upgraded in recent years, to ensure that you have access to modern computers and equipment that you are likely to use in industry. RMIT has a planned budget to ensure that all computers are upgraded on a regular basis (currently every three years).

11. Student expenses and charges in addition to fees

Student tuition charges will consist of either HECS or approved university program fees. There will be no additional charges levied by the university in relation to the program.

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.

12. Program Transition Plan

In addition to the title change, the only change introduced in this program amendment is the expansion of the Computer Science Research Project from 36 credit points to 48 credit points. The old program structure was designed to accommodate only full-time students and completed within a calendar year. Therefore, a transition plan is not required.

13. Course descriptions

The course guides for all existing courses are available on the RMIT Web Site
http://www.rmit.edu.au/programs/courseshe

Capability Matrix

Key	Capability
GC1	Enabling Knowledge
GC2	Critical Analysis
GC3	Problem Solving
GC4	Communication
GC5	Responsibility

Year One	**BH013**					
Code	**Name**	**GC 1**	**GC 2**	**GC 3**	**GC 4**	**GC 5**
COSC1175	Adv Client/Server Architecture	X	X	X		
ISYS2403	Adv Topics in Distributed Systems	X	X	X		
COSC2456	Adv Topics in Computer Networking	X	X	X		
COSC2307	Adv Topics in Bioinformatics (seminar)	X	X	X	X	X
COSC1204	Agent oriented Programming & Design	X	X	X	X	X
BIOL2254	Bioinformatics	X	X	X		X
COSC2301	Computer & Internet Forensics	X	X	X	X	X
ISYS1073	Knowledge and Data Warehousing	X	X	X	X	X
COSC2111	Data Warehousing and Data Mining	X	X	X		X
INTE2470	Enterprise Database Integration	X	X	X	X	X
INTE2472	Frontiers of Information Retrieval	X	X	X	X	X
ISYS2378	Enterprise Architecture	X	X	X	X	X
COSC1207	Evolutionary Computing (seminar)	X	X	X	X	X
COSC1171	Foundations of Distributed Computing	X	X	X		
ISYS1079	Information Retrieval	X	X	X		X
COSC1164	Intelligent Agents & Agent Sys (seminar)	X	X	X	X	
COSC1167	Intelligent Web Systems (seminar)	X	X	X	X	
COSC1169	Internet and Intranet Document Eng	X	X	X	X	X
COSC2269	Intro to Computational Biology (seminar)	X	X	X	X	
COSC1208	Mathematical Logic and Logic Programming (seminar)	X	X	X	X	
COSC2303	Mobile and Wireless Computing	X	X	X	X	X
COSC2105	Network Security	X	X	X	X	X
ISYS1084	Object Oriented Software Design	X	X	X		X
COSC1226	Real-Time Rendering and 3D Games Programming	X	X	X	X	X
COSC2305	Search Technology	X	X	X	X	X
INTE2474	Search Engine Optimisation	X	X	X	X	X
INTE2476	Sustainable Energy Efficient Data Storage	X	X	X	X	X
INTE1071	Secure Electronic Commerce	X	X	X	X	
INTE2402	Secure Programming Environment	X	X	X		X
ISYS1087	Software Testing	X	X	X	X	X
ISYS1089	Systems Architecture	X	X	X	X	X
COSC2278	Web Services	X	X	X		X
COSC2148	Research Methods (core)	X	X	X	X	X
COSC2462 COSC2177	Preliminary CS Honours Thesis + CS Honours Thesis (core)	X	X	X	X	X
COSC2460 COSC2461	CS Honours Thesis Part 1 + CS Honours Thesis Part 2 (core)	X	X	X	X	x

F – Foundation level capabilities

C – Consolidated level capabilities

A – Advanced level capabilities