RMIT University

Program Guide
Bachelor of Engineering (Computer Systems Engineering)/Bachelor of Computer Science

1. Program Details

Title	Bachelor of Engineering (Computer Systems Engineering)/ Bachelor of Computer Science
Abbreviation	BEng(CompSysEng)/BCompSci
RMIT Program Code	BP002
Credit Points	528
Career	undergraduate
Duration/length	5 years full-time or equivalent part-time study
Campuses	City Campus
Location	Onshore
Owning School	140H – School of Computer Science and IT (www.rmit.edu.au/csit) and 125H – School of Electrical and Computer Engineering (www.rmit.edu.au/sece)
Partnered offering / corporate client	Not applicable
ASCED code:	031305
CRICOS code: (If known)	063284F
Proposed Introduction	Semester 1, 2009
Contact Details	Santha Sumansekara (santha.sumanasekara@rmit.edu.au)

2. Plan Details

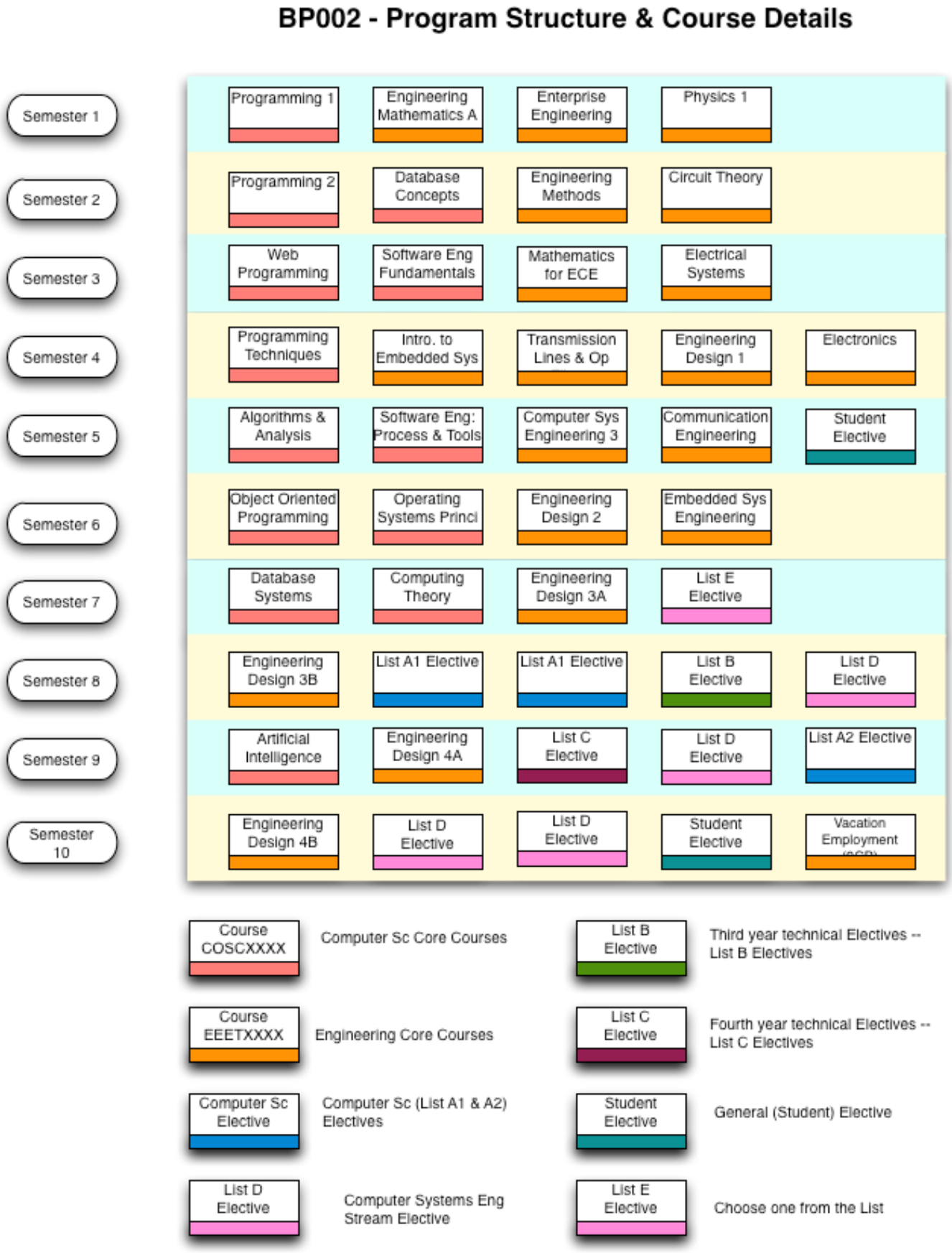
Plan 1

RMIT Plan Code	BP002ENGDD
Title	Bachelor of Engineering (Computer Systems Engineering)/ Bachelor of Computer Science
Award Title	Bachelor of Engineering (Computer Systems Engineering)
ASCED code:	031305
CRICOS code:	063284F

Plan 2

RMIT Plan Code	BP002CSDD
Title	Bachelor of Engineering (Computer Systems Engineering)/ Bachelor of Computer Science
Award Title	Bachelor of Computer Science
ASCED code:	031305
CRICOS code:	063284F

3. Program Map



Year One

Total Credit Points = 96

Complete following Seven (7) Courses:			
Subject Area	**Catalogue Number**	**Name**	**Credit Points**
EEET	2249	Circuit Theory	12
ISYS	1057	Database Concepts	12
MATH	2160	Engineering Mathematics A	12
EEET	2248	Engineering Methods	12
EEET	2247	Enterprise Engineering	12
COSC	1073	Programming 1	12
COSC	1076	Programming 2	12

AND

Complete One (1) Course from:			
Subject Area	**Catalogue Number**	**Name**	**Credit Points**
PHYS	2082	Physics 1	12
PHYS	2083	Physics 1 (Advanced)	12

Year Two

Total Credit Points = 108

Complete following Nine (9) Courses:			
Subject Area	**Catalogue Number**	**Name**	**Credit Points**
EEET	1316	Electrical Systems	12
EEET	2255	Electronics	12
EEET	2251	Engineering Design 1	12
EEET	2256	Introduction to Embedded Systems	12
MATH	2161	Mathematics for ECE	12
COSC	1284	Programming Techniques	12
ISYS	1118	Software Engineering Fundamentals	12
EEET	2253	Transmission Lines and Optical Fibres	12
COSC	2413	Web Programming	12

Year Three
Total Credit Points = 108

Complete following Eight (8) Courses:			
Subject Area	**Catalogue Number**	**Name**	**Credit Points**
COSC	2123	Algorithms and Analysis	12
EEET	2254	Communication Engineering	12
EEET	2096	Computer Systems Engineering 3	12
EEET	2261	Embedded Systems Engineering	12
EEET	2257	Engineering Design 2	12
COSC	1254	Programming using C++	12
COSC	1114	Operating Systems Principles	12
COSC	2299	Software Engineering: Process & Tools	12

AND

Complete One (1) Course from:			
Subject Area	**Catalogue Number**	**Name**	**Credit Points**
		Student Elective	12

Year Four
Total Credit Points = 108

Complete following Four (4) Courses:			
Subject Area	**Catalogue Number**	**Name**	**Credit Points**
COSC	1107	Computing Theory	12
COSC	2406	Database Systems	12
EEET	2258	Engineering Design 3A	12
EEET	2259	Engineering Design 3B	12

AND

Complete One (1) Course from:			
Subject Area	**Catalogue Number**	**Name**	**Credit Points**
EEET	2290	Network Engineering	12
EEET	2097	Electronic Circuits	12
EEET	2098	Electronic Engineering 3	12

AND

Complete Two (2) Courses (Computer Science Electives) from:			
Subject Area	**Catalogue Number**	**Name**	**Credit Points**
COSC	1204	Agent-oriented Programming and Design	12
COSC	2269	AI Concepts and Applications	12
COSC	1235	Broadcast Network Applications	12
COSC	2404	Database Administration	12
COSC	2271	Digital Media Computing	12
COSC	2104	Document Markup Languages	12
COSC	2353	E-Commerce and Enterprise Systems	12
COSC	1207	Evolutionary Computing	12
COSC	1187	Interactive 3D Graphics and Animation	12
COSC	1197	Distributed Systems	12
INTE	2425	Introduction to Network Security	12
ISYS	1073	Knowledge and Data Warehousing	12
COSC	1208	Mathematical Logic and Logic Programming	12
COSC	2309	Mobile Application Development	12
COSC	1179	Network Programming	12
COSC	2391	Software Architecture: Design & Implementation	12
COSC	1226	Real-time Rendering and 3D Games	12
COSC	1093	Scripting Language Programming	12
INTE	1071	Secure E-Commerce	12
INTE	2402	Secure Programming Environments	12
COSC	1133	Unix Systems Administration	12
COSC	1221	User Interface Programming	12
ISYS	1126	Web Database Applications	12
COSC	2276	Web Development Technologies	12
COSC	1301	Web Servers and Web technology	12
COSC	2424	Windows System Administration	12

AND

Select One (1) Course (Third Year Technical Electives) from:			
Subject Area	**Catalogue Number**	**Name**	**Credit Points**
EEET	1414	Medical Engineering And Instrumentation	12
EEET	1417	Signal Processing for Multimedia and Telemedicine	12
EEET	2097	Electronic Circuits	12

EEET	2098	Electronic Engineering 3	12
EEET	2105	Industrial Automation	12
EEET	2109	Mechatronics & Control	12
EEET	2110	Electrical Energy Systems	12
EEET	2113	Digital Signal Processing 1	12
EEET	2114	RF and Photonic Engineering 2	12
EEET	2115	Communication Engineering 3	12
EEET	2160	Bioelectromagnetism	12
EEET	2238	Intro to Biocomputing and Medical Informatics	12
EEET	2260	Electronic Materials	12
EEET	2263	Power Engineering 1	12
EEET	2264	Micro-controller Based Electrical Systems	12
EEET	2265	Efficient Energy Systems	12
EEET	2286	Advanced Network Engineering	12
EEET	2288	Network Design and Switching	12
EEET	2290	Network Engineering	12
EEET	2292	Network Infrastructure	12

AND

Select One (1) Course (CSE Stream Electives) from:			
EEET	2145	Microprocessor Systems 2	12
EEET	2161	Microprocessor Systems 1	12
EEET	2162	Advanced Digital Design 1	12
EEET	2163	Advanced Digital Design 2	12
EEET	2164	Advanced Computer Architecture	12
EEET	2165	Computer Robotics and Control	12
EEET	2166	Real Time Systems Engineering	12
EEET	2169	Image Processing Systems	12
EEET	2171	Intelligent Systems	12

Year Five
Total Credit Points = 108

Complete following Four (4) Courses:			
Subject Area	**Catalogue Number**	**Name**	**Credit Points**
COSC	1127	Artificial Intelligence	12
EEET	2267	Engineering Design 4A	12
EEET	2268	Engineering Design 4B	12
EEET	2269	Vacation Employment (ECE) – 0CP	0

AND

Select Three (3) Courses (CSE Stream Electives) from:			
EEET	2145	Microprocessor Systems 2	12
EEET	2161	Microprocessor Systems 1	12
EEET	2162	Advanced Digital Design 1	12
EEET	2163	Advanced Digital Design 2	12
EEET	2164	Advanced Computer Architecture	12
EEET	2165	Computer Robotics and Control	12

EEET	2166	Real Time Systems Engineering	12
EEET	2169	Image Processing Systems	12
EEET	2171	Intelligent Systems	12

AND

Complete One (1) Course (Advanced Computer Science Electives) from:			
Subject Area	**Catalogue Number**	**Name**	**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	2305	Search Technology	12
COSC	2301	Computer and Internet Forensics	12
ISYS	1096	Distributed Databases	12
COSC	2111	Data Warehousing and Data Mining	12
ISYS	1108	Engineering Software Projects	12
INTE	2470	Enterprise Database Integration	12
INTE	2472	Frontiers of 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	2303	Mobile and Wireless Computing	12
ISYS	1079	Information Retrieval	12
COSC	2105	Network Security	12
COSC	2108	Search Engines	12
INTE	2474	Search Engine Optimisation	12
INTE	1071	Secure Electronic Commerce	12
ISYS	1089	Systems Architecture	12
ISYS	1110	Software Engineering 2	12
COSC	2274	Software Requirements Engineering	12
ISYS	2405	Software Engineering for Large Scale Systems	12
ISYS	2368	Software Reuse	12
ISYS	1087	Software Testing	12
COSC	1183	Usability Engineering	12
COSC	2278	Web Services	12

AND

Select One (1) Course (Fourth Year Technical Electives) from:			
EEET	1070	Optical Fibre Communication Systems	12
EEET	1074	Antennas for Mobile & Satellite Communication	12
EEET	1075	Optical Fibre Technology	12

EEET	1080	Satellite Communication System Eng.	12
EEET	1083	Mobile & Personal Comm. System Eng.	12
EEET	1086	Digital Access Systems	12
EEET	1088	Data and Internet Transmission	12
EEET	1089	Internet Communication Engineering	12
EEET	1414	Medical Engineering And Instrumentation	12
EEET	1416	Digital Signal Processing 3	12
EEET	1417	Signal Processing for Multimedia and Telemedicine	12
EEET	2100	Advanced control systems	12
EEET	2145	Microprocessor Systems 2	12
EEET	2161	Microprocessor Systems 1	12
EEET	2162	Advanced Digital Design 1	12
EEET	2163	Advanced Digital Design 2	12
EEET	2164	Advanced Computer Architecture	12
EEET	2165	Computer Robotics and Control	12
EEET	2166	Real Time Systems Engineering	12
EEET	2169	Image Processing Systems	12
EEET	2171	Intelligent Systems	12
EEET	2221	Real Time Estimation & Control	12
EEET	2270	Microwave Circuits	12
EEET	2271	Radar Systems 1	12
EEET	2274	Power Electronics and EMC	12
EEET	2286	Advanced Network Engineering	12
EEET	2288	Network Design and Switching	12
EEET	2292	Network Infrastructure	12
EEET	2294	Network Management and Security	12
EEET	2296	Network Planning and Performance	12

AND

Complete One (1) Course from:			
Subject Area	**Catalogue Number**	**Name**	**Credit Points**
		Student Elective	12

Program Progression Rules

The program is structured so that capabilities are developed sequentially through the five years. 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 five-year period.

4. External Accreditation and Industry Links

The Computer Science component of this double degree program is accredited at professional level by the Australian Computer Society, which accredits Information and Communication Technology related programs in Australia.

The Computer Systems Engineering component is accredited at the professional engineering category by the Engineers Australia (formerly known as Institute of Engineers Australia), which accredits engineering degree programs in Australia.

5. Objectives of the Program

Traditionally, large information systems have been implemented by engineers with an intensive understanding of electronics and communications technologies, and by IT professionals who have a detailed knowledge of computer science and programming. As the systems have become large and more complex, the need has arisen for specialists with an intensive training in both the “hardware” and “software” areas.

The combined Bachelor of Engineering/Bachelor of Computer Science has been developed as part of the RMIT's response to the Commonwealth Government's Information Strategy in the fields of electronics, computer science and related disciplines. The double degree integrates courses from the degrees in Communication/ Computer Systems/Electronics Engineering and Computer Science. The program is targeted at students who see their future working extensively in Information Technology with emphasis in computer and communication software, hardware and systems.

On successful completion of the program, students are awarded two separate degrees, one degree is a Bachelor of Computer Science, the other a Bachelor of Engineering in Computer Systems Engineering. This program is jointly delivered by School of Computer Science and Information Technology and School of Electrical and Computer Engineering.

The Computer Engineering component of this double degree is derived from BP200 – Bachelor of Engineering (Computer Systems) degree program. This component of the program structure and contents were developed through a formal process of program renewal. A major part of this process was to identify the industry trends and the graduate capabilities required of an engineering graduate to successfully engage in a professional capacity with the relevant engineering industries of the 21st century. This involved research into the literature of engineering education and consultation with a number of stakeholders, including the professional body (Engineers Australia), industry bodies, alumni and current students, and the academic staff of the school. This resulted in the identification of the following graduate attributes for the program (these are mostly based on the graduate attributes defined by Engineers Australia).

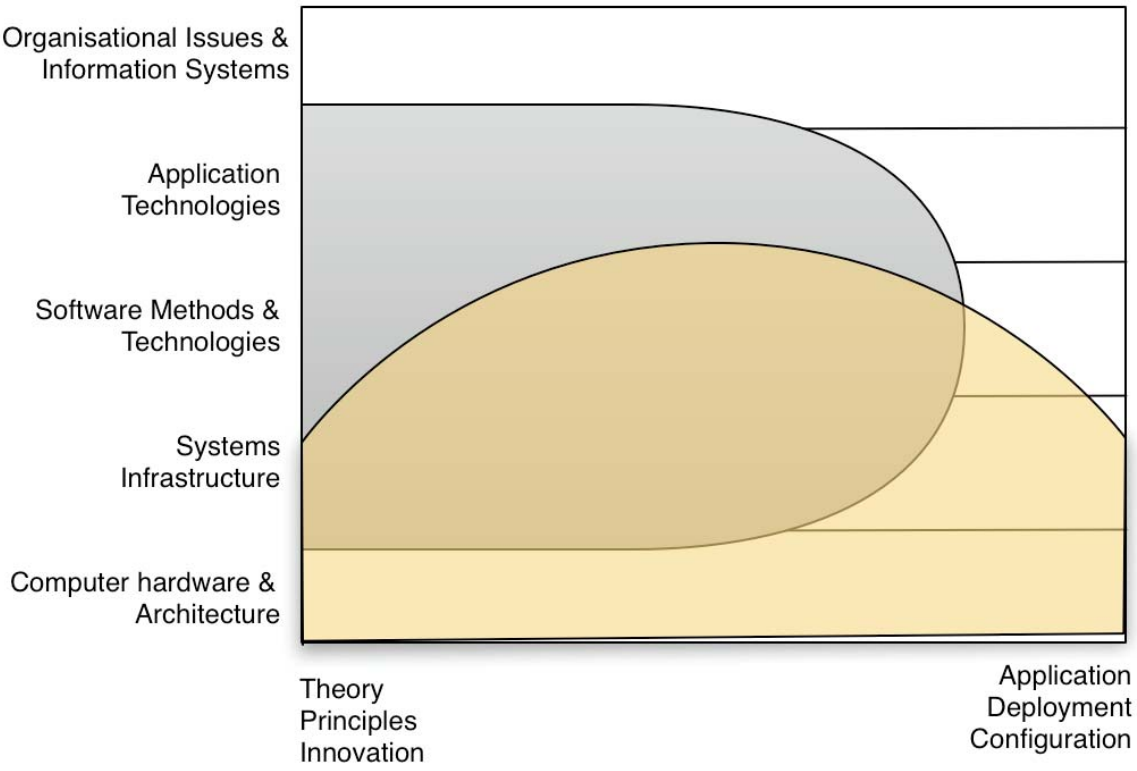
The School of Computer Science and Information Technology has a strong tradition of “hands on” teaching, providing students with the opportunity to mix course content and practical experience. This approach, coupled with our close involvement with industry, produces graduates who are highly regarded in the workplace. The curricula used in our various degree programs reflect these needs incorporating cutting-edge technologies while maintaining a good coverage of theoretical and algorithmic foundations of computer science, information technology, and software engineering. The Computer Science degree, in particular, develops a skills set that spans from theoretical and algorithmic foundations to cutting-edge developments in various aspects of Computer Science and Information Technology.

The curriculum guidelines for undergraduate degrees compiled by the joint task force of IEEE Computer Society and the Association of Computing Machinery provide a two-dimensional characterisation of the entire computing discipline. One dimension describes the depth of coverage between more theoretical aspects and more applied aspects. The other dimension describes the breadth of coverage of topics between lower-level computer hardware and architecture focused coverage and higher-level organisational issues and information systems focused coverage[1].

The grey-shaded area of the following diagram represents the coverage domain of the Computer Science degree component. This degree program component provides an extensive treatment of systems infrastructure, software methods and technologies, and application technologies from a more theoretical aspect. In addition, as computer scientists are expected to have some understanding of all aspects of computing, some treatment of computer hardware and organisational issues will also be provided. This degree program concentrates on developing capabilities in theory, principles, and innovation of these topics; it is not intended to build capabilities of application and deployment of products to the organisational needs.

The shaded area in brown in the following diagram represents Computer Systems Engineering discipline. It is broad across the bottom because Computer Systems Engineering covers a broad range from theory and principles to practical application of designing and implementing of system infrastructures for various applications. It narrows towards the centre as we move upwards, as this discipline’s main focus is hardware. However, some appreciation to the software development is also given, mainly due to the need for the development of integrated devices.

[1] http://www.acm.org/education/curric_vols/CC2005-March06Final.pdf



This program was developed based on the recommendations of the curriculum development joint task force of IEEE Computer Society and Association of Computing Machinery and Engineers Australia. It was developed though a formal consultation process with a number of stakeholders, including the both Schools' Industry Advisory Committees, academic staff of the Schools, alumni, and current students. This process resulted in the identification of the following graduate capabilities that are required of a computer science/Computer Systems graduate to successfully engage in a professional capacity in the relevant field of industry of the 21st century.

6. Statement of capabilities

The graduate capabilities developed by the Computer Science component of the degree program are composed of the following dimensions:

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

- **Critical Analysis**
  In general, this capability allows one to examine and consider accurately and objectively any topic, evidence, or situation.
  More specifically, this capability allows one 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.

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

- **Communication**
  In general, this capability allows one to communicate effectively with a variety of audiences through a range of modes and media.

Specifically, this capability allows one 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.

- **Team Work**

  In general this capability allows one to work as an effective and productive team member in a range of professional and social situations.

  Specifically, this capability allows one to:

  - Work effectively in different roles, to form, manage, and successfully produce outcomes from teams, whose members may have diverse cultural backgrounds and life circumstances, and differing levels of technical expertise.

- **Responsibility**

  In general this capability refers to accepting responsibility for one's 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 one to:

  - Effectively apply relevant standards, ethical considerations, and an understanding of legal and privacy issues to designing software systems.

Graduates of the Computer Systems Engineering component will have the following capabilities:

Key	Capability
GC1	High levels of technical competence in the field
GC2	Be able to apply problem solving approaches to work challenges and make decisions using sound engineering methodologies
GC3	Be able to apply a systematic design approach to engineering projects and have strong design skills in their stream
GC4	Contribute effectively to and lead multidisciplinary teams in local and global environments
GC5	Communicate effectively across all modes: listen, speak, write and draw
GC6	Apply the principles of lifelong learning to any new challenge
GC7	Balance the technical, economic, social and ethical demands of a problem in sustainable and culturally sensitive ways

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

RMIT has a commitment to the principle of student-centred learning: that learning is most meaningful when topics are relevant to your life, needs, and interests and when learning activities actively engage you in creating, understanding, and connecting to knowledge[2].The teaching and learning methods used in this program aim to implement student-centred learning by recognizing that your perceptions of the world are important and relevant, and encouraging you to actively participate in your learning, and to develop solutions in collaboration with your peers. Learning activities include practical exercises, case study analysis, oral presentations, technical and business reports, and individual and group project work.

Lectures (some presented by industry experts) are used to convey some of the basic information necessary for each part of the various courses. Smaller tutorials or laboratory sessions are then used to explore the ideas raised in the lectures, or to give you hands-on experience of technologies. In tutorials, you will often work in a smaller group of about 5 students, to ensure there is real scope for genuinely interactive discussions. Most courses use carefully constructed tutorial questions to illustrate key concepts and to help you develop your understanding.

Course materials (printed course notes, textbooks and reference books) are available from the RMIT Bookshop; the RMIT Library has copies of the books and also provides online access to electronic books and journals; course web pages contain links that let you download worksheets and assignment specifications, email teaching staff, and access message forums, as well as links to external course-related web sites. Lecturers provide additional suitably formatted electronic files and handouts to visually impaired students upon request.

[2] McCombs, B. and Whistler, J.S. (1997). *The Learner-Centered Classroom and School: Strategies for Increasing Student Motivation and Achievement*. San Francisco:Josey-Bass Publishers.

Assessment

The school views teaching and learning as a cyclic activity, with assessment and evaluation driving planning and teaching. Assessment is an integral part of learning: information derived from assessment activities is used to facilitate student learning and development, and to improve the quality of the school's programs, services and facilities. Assessment activities examine processes as well as products, and are designed to measure your work against standards, not against other students. As no one assessment can capture the full range of student learning and academic growth, courses use multiple assessments to evaluate what you know and are able to do and to inform adjustments to learning activities.

Assessment is developmental and continuous: that is, you have the opportunity to learn by building on what you already know and are able to do and to carry forward these skills and knowledge to expanded and more complex uses. To reflect industry practice in this area, as you progress through assessments at each level of the program, you are expected to demonstrate at increasingly higher levels of complexity and integration, the knowledge and capabilities set forth in the program standards.

Formative assessment progresses from tutorial exercises and self-test quizzes in foundation courses to participation in seminar discussions, moderated by the lecturer, in some elective courses, to seminar-style discussions in key courses, where you present additional topics in the course material, and apply your knowledge of earlier topics to recognize underlying principles and potential applications of new topics. Some courses involve group meetings and discussions relating to assignments, and participation in case study sessions within groups and with key input and guidance from lecturers and industry experts. Tutorial exercises allow you to explore team dynamics, diagnostics, and management issues.

Summative assessment also becomes more demanding as you progress from foundation courses to electives and key courses:

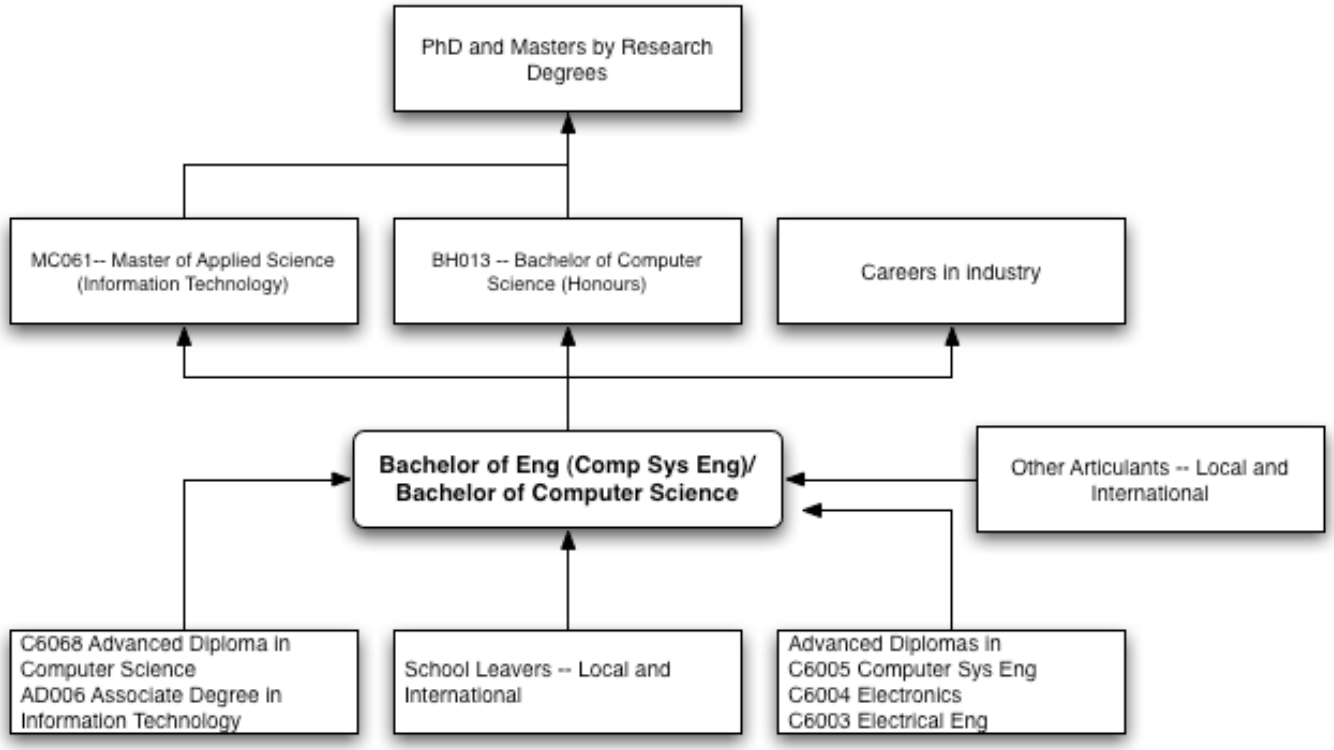
- The core courses focus on key concepts and initial capability attainment: most assessment activities are based on individual skills and capabilities, and ask you to apply fixed "toolsets" to familiar, well-defined problems, to demonstrate that you have grasped the necessary technical foundations and relevant technologies;
- Elective courses require more complex, open problem-solving, with assignments that require you to design or evaluate solutions for problems with complex or conflicting requirements, or to compare alternative solutions for such problems. In most elective courses, assessment activities also emphasize additional graduate capabilities such as written communication, where you demonstrate that you can integrate concepts and arguments into technical or business reports, or literature reviews of relevant standards, ethical considerations, and applicable research. Some elective courses involve group-focussed assessment.
- Assessment of minor courses vary widely among different minor study streams mainly due to substantial differences in the disciplines covered in these minor study areas. You will be advised by an academic advisor about the specific instruments of assessment once you have chosen the minor study area.

In order to be a lifelong learner, you must be able to evaluate your own work. To support this, some group work is peer-assessed, i.e., following criteria specified by the lecturer, or agreed upon by your class, you assess, and are assessed by, the other members of your group. This is in keeping with student-centred learning, and also helps to alleviate a major misgiving about group work - the possibility of some group members being "carried" by the other members.

Most courses in this program also require you to sit a written examination at the end of the semester, worth between 35% (key) and 60% (foundation) of your final result.

A **portfolio** is a collection of evidence that you prepare to demonstrate mastery, comprehension, application, and synthesis of this program’s concepts. Many of the learning and assessment activities described in this and the previous section can contribute to your portfolio of evidence, in particular, your individual assignments, and your [journal of your] contributions to group activities (case study analyses, presentations, technical and business reports, and group project work).

8. Articulation and Pathways



The following tables indicate how this program articulates with other programs (TAFE, HE – UG and PG) at RMIT highlighting educational pathways, and indicates to students with existing qualifications the extent of exemptions.

Source Program	Owning school	Credit towards this program		Academic requirement for entry	Terms of entry (guaranteed place, merit, etc)	Date of agreement & expiry
		Courses	Time			
C6068 - Advanced Diploma of Computer Science	School of Life and Physical Sciences	- Programming 1 - Programming 2 - Computer Organisation - Mathematics for Computing - Data Communication and Net-centric Computing - Database Concepts - Two Student Electives	1 year	Must obtain a CGPA of 3.0 (Distinction Average) or above.	Merit	
AD006 – Associate Degree in Information Technology	School of Life and Physical Sciences	- Programming 1 - Programming 2 - Computer Organisation - Mathematics for Computing - Programming Techniques - Software Engineering Fundamentals - Data Communication and Net-centric Computing	1.5 Years	Must obtain a CGPA of 3.0 (Distinction Average) or above.	Merit	

		- Database Concepts - CCNA Intro - CCNA ICND - Two Student Electives				

Program Destination	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			
MC061 – Master of Applied Science (Information technology)	School of Computer Science & IT	No exempt ions	0		Merit	
BH013 – Bachelor Computer Science (Honours)	School of Computer Science & IT	No exempt ions	0		Merit	

9. Entrance requirements

VCE Units 3 & 4 English (any) and mathematical methods or specialist mathematics.
Students who obtained study scores above 20 for English will earn selection credit.

10. Library, IT and specialist resources

RMIT Library already holds or has ordered all prescribed and recommended books. A limited number of copies of books will be available from the Library; some may be available electronically via Safari Bookshelf or electronic journals. This program will be delivered only in on-campus mode.
No additional IT or specialist resources are required to support the new courses. You will use IT facilities within the school. Special software required, such as Rational Rose, is already licensed and installed.

11. Student expenses and charges in addition to fees

For on-shore students:
None, apart from standard course fees and university charges.
For off-shore students: Students should seek advice from the local provider.

12. Program Transition Plan

There are no new courses (apart from one elective) so no transition plan is required.

Any changes from the 2006-2007 program structure are minor and should not affect on your progression through the program.

You will retain credit in these programs for all Credit Points earned and taken pursuant to any previously approved Program Structure.

If you have completed the full 96/108 Credit Points of any Program Year as previously prescribed you will retain full credit for that Program Year and will not be required to undertake any further courses to meet the requirements of that Program Year.

If you commenced in 2005 or earlier you should seek individual advice from the academic coordinator for your stream to ensure that you are able to complete in the minimum possible time.

13. Course descriptions

Part A course guides for all the courses can be found at: http://www.rmit.edu.au/programs/courses

Capability Matrix

Capability Development in Computer Science Component:

Capability	Programming 1	Programming 2	Database Concepts	Web Programming	S Eng Fundamentals	Prog Techniques	Algorithms & Analysis	SE: Process & Tools	Computing Theory	Object-oriented Prog	Operating Systems	Database Systems	Artificial Intelligence
Enabling Knowledge	P	S	P	P	P	S	S	S	S	S	S	S	S
Critical Analysis	P	S	P	P	P	S	S	S	S		S	S	S
Problem Solving	P	S	P	P	P	S	S	S	S	S	S	S	S
Communication	P	S		P	S	S	S	S	S				
Team Work		P			P	S		S	S				
Responsibility	P	P		P	S	S	S	S	S	S		S	

P – Primary level capabilities

S – Secondary level capabilities

Capability Development in Computer Systems Engineering Component:

The Computer Systems Engineering component of this degree will develop the following capabilities:

Key	Capability
GC1	High levels of technical competence in the field
GC2	Be able to apply problem solving approaches to work challenges and make decisions using sound engineering methodologies
GC3	Be able to apply a systematic design approach to engineering projects and have strong design skills in their stream
GC4	Contribute effectively to and lead multidisciplinary teams in local and global environments
GC5	Communicate effectively across all modes: listen, speak, write and draw
GC6	Apply the principles of lifelong learning to any new challenge
GC7	Balance the technical, economic, social and ethical demands of a problem in sustainable and culturally sensitive ways

Capability Mapping

Year One		**Capabilities Addressed**						
Code	**Name**	**1**	**2**	**3**	**4**	**5**	**6**	**7**
MATH2160	Engineering Mathematics A	X				X	X	
PHYS2082/3	Physics 1/Physics 1 (Advanced)	X				X	X	
	Introduction to Engineering Computing	X	X			X	X	
EEET2247	Enterprise Engineering			X	X	X	X	X
EEET2248	Engineering Methods	X	X			X	X	
EEET2249	Circuit Theory	X				X	X	
	Electrical and Computer Engineering	X	X	X	X	X	X	X
EEET2251	Engineering Design 1	X	X	X	X	X	X	x

Year Two		Capabilities Addressed						
Code	**Name**	**1**	**2**	**3**	**4**	**5**	**6**	**7**
MATH2161	Mathematics for ECE	X				X	X	
EEET1316	Electrical Systems	X	X	X	X	X	X	
	Engineering Computing Systems	X	X		X	X	X	
EEET2253	Transmission Lines and Optical Fibres	X	X	X	X	X	X	
EEET2254	Communication Engineering	X	X	X	X	X	X	
EEET2255	Electronics	X	X	X	X	X	X	
EEET2256	Introduction to Embedded Systems	X	X		X	X	X	
EEET2257	Engineering Design 2	X	X	X	X	X	X	x

Year Three		Capabilities Addressed						
Code	**Name**	**1**	**2**	**3**	**4**	**5**	**6**	**7**
EEET2258	Engineering Design 3A	X	X	X	X	X	X	X
EEET2259	Engineering Design 3B	X	X	X	X	X	X	X
MATH2162	Mathematics for Com Eng	X				X	X	
MATH2260	Electronic Materials	X	X	X	X	X	X	
EEET2092	Information Systems Eng 1	X	X	X		X	X	
EEET2093	Software Systems Engineering 3	X	X	X		X	X	
EEET2094	Computer Network Engineering 1	X	X	X		X	X	
EEET2096	Computer Systems Engineering 3	X	X	X		X	X	
EEET2097	Electronic Circuits	X	X	X	X	X	X	
EEET2098	Electronic Engineering 3	X	X	X	X	X	X	
EEET2261	Embedded Systems Engineering	X	X	X		X	X	
EEET2262	The .NET Framework	X	X	X		X	X	
EEET2263	Power Engineering 1	X	X	X	X		X	X
EEET2264	Micro-controller Based Electrical Systems	X	X	X	X		X	
EEET2265	Efficient Energy Systems	X	X	X	X		X	X
EEET2105	Industrial Automation	X	X	X	X		X	X
EEET2109	Mechatronics & Control	X	X	X	X	X	X	
EEET2110	Electrical Energy Systems	X	X	X	X		X	X
EEET2113	Digital Signal Processing 1	X	X	X	X	X	X	X
EEET2114	RF and Photonic Engineering 2	X	X	X		X	X	
EEET2115	Communication Engineering 3	X	X	X		X	X	
EEET2160	Bioelectromagnetism	X	X	X	X	X	X	X
EEET2238	Intro to Biocomputing and Medical Informatics	X	X	X	X	X	X	

Year Four		Capabilities Addressed						
Code	**Name**	**1**	**2**	**3**	**4**	**5**	**6**	**7**
EEET2267	Engineering Design 4A	X	X	X	X	X	X	X
EEET2268	Engineering Design 4B	X	X	X	X	X	X	X
EEET2269	Vacation Employment		X			X	X	
EEET1070	Optical Fibre Communication Systems	X	X	X		X	X	X
EEET1074	Antennas for Mobile & Satellite Communication	X	X	X		X	X	X
EEET1075	Optical Fibre Technology	X	X	X		X	X	X
EEET1078	Telecommunication Network Management & Security	X	X	X		X	X	
EEET1080	Satellite Communication System Engineering	X	X	X		X	X	X
EEET1082	Communication Network Planning & Performance	X	X	X		X	X	
EEET1083	Mobile & Personal Comm. System Eng.	X	X	X		X	X	X
EEET1084	Communication Switching & Broadband Networks	X	X	X		X	X	
EEET1086	Digital Access Systems	X	X	X		X	X	

Year Four		Capabilities Addressed						
Code	**Name**	**1**	**2**	**3**	**4**	**5**	**6**	**7**
EEET1087	Local & Metropolitan Area Networks	X	X	x		X	X	
EEET1088	Data and Internet Transmission	X	X	X		X	X	X
EEET1089	Internet Communication Engineering	X	X	X		X	X	
EEET1090	Teletraffic Engineering (Communication)	X	X	X		X	X	
EEET1224	Multimedia & Web System Eng	X	X	X		X	X	
EEET1270	E-Commerce Engineering	X	X	X		X	X	
EEET1412	Audio Engineering	X	X	X	X	X	X	
EEET1413	Sensors and Actuators	X	X	X		X	X	
EEET1414	Medical Engineering And Instrumentation	X	X	X	X	X	X	X
EEET1415	Circuit & System Simulation	X	X	X	X	X	X	
EEET1416	Digital Signal Processing 3	X	X	X	X	X	X	
EEET1417	Signal Processing for Multimedia and Telemedicine	X	X	X	X	X	X	X
EEET2270	Microwave Circuits	X	X	X		X	X	X
	Power Engineering 2 (Protection and High Voltage Engineering)	X	X	X	X	X	X	
	Power Electronics and Electromagnetic Compatability	X	X	X	X		X	
EEET2099	Variable Speed Drives	X	X	X	X		X	
EEET2100	Advanced control systems	X	X	X	X	X	X	
EEET2106	Power Systems Analysis & Control	X	X	X	X	X	X	X
EEET2145	Microprocessor Systems 2	X	X	X		X	X	
EEET2161	Microprocessor Systems 1	X	X	X		X	X	
EEET2162	Advanced Digital Design 1	X	X	X		X	X	
EEET2163	Advanced Digital Design 2	X	X	X		X	X	
EEET2164	Advanced Computer Architecture	X	X	X		X	X	
EEET2165	Computer Robotics and Control	X	X	X		X	X	
EEET2166	Real Time Systems Engineering	X	X	X	X	X	X	
EEET2167	User Interface Engineering	X	X	X		X	X	
EEET2169	Image Processing Systems	X	X	X		X	X	
EEET2170	Software Systems Engineering 4	X	X	X		X	X	
EEET2171	Intelligent Systems	X	X	X		X	X	
EEET2221	Real Time Estimation & Control	X	X	X	X		X	
	.NET Systems	X	X	X		X	X	
EEET2271	Radar Systems 1	X	X	X		X	X	X
EEET2272	Radar Systems 2	X	X	X		X	X	x