

Diploma of Computing

Course Outline (T3, 2017)

Campus	Melbourne Burwood Campus / Jakarta Campus, Indonesia
Intake	March, June, October
CRICOS	022638B
Course Duration	The duration of the Diploma course is three trimesters (12 months). There is an option, however, to fast track the course and complete it in two trimesters (8 months).
Teaching Methods	Instruction for all units is classroom based. Generally, four hours of class contact per week are allocated to each unit. Some units have additional laboratory hours/practical classes.
Assessment	Assessment for all units is ongoing and continuous consisting of tests, assignments and reports. Most units have a final two-hour examination.
Course Structure	Eight units must be completed and passed to be awarded the Diploma.
Units	<p>SIT101 Fundamentals of Information Technology SIT102 Introduction to Programming SIT103 Database and Information Retrieval SIT104 Introduction to Web Development SIT105 Critical Thinking and Problem Solving for IT SIT111 Introduction to Computer Science SIT112 Data Science Concepts ** SIT113 Cloud Computing and Virtualisation SIT120 Introduction to Apps Design SIT151 Game Fundamentals SIT162 Interactive Media Systems SIT182 Real World Practices for Cyber Security SIT190 Introductory Mathematical Methods § SIT191 Introduction to Statistics and Data Analysis SIT192 Discrete Mathematics</p> <p>** It is recommended that students take SIT111 Introduction to Computer Science (Python) before undertaking SIT112 Data Science Concepts due to the progression of software knowledge. § SIT190 Introductory Mathematical Methods is a foundation mathematics unit designed to prepare students for tertiary level mathematics. Students who have completed Year 12 Mathematical Methods, Units 3 and 4 (or equivalent) may choose to replace SIT190 with another SIT coded elective. Documentary evidence is required</p>

Transfer to Deakin University	<p>The following transfer criteria apply:</p> <ul style="list-style-type: none">• You must complete and pass eight Deakin College diploma units*.• You must achieve the required Weighted Average Mark (WAM) for your Deakin College diploma taking into account all units attempted at Deakin College (required WAM's are included under each Deakin University degree on the following pages). <p>* Transfer to some degrees requires specific Deakin College units to be completed in order to receive the appropriate credits (see Deakin University degrees below for core units).</p>
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Diploma of Computing

Example Course Plans for Students

Example Course Plans for Students

The following are a series of example course plans for students studying in the Diploma of Computing. Please note that core and elective units can be taken in any order. The following course plans should be used as a guide only.

How to use the Plans

Students need to select or choose which Deakin University Course they wish to transfer into once they have completed their studies at Deakin College. Deakin University offers direct transfer into the following courses:

- Bachelor of Information Technology (S326)
- Bachelor of Computer Science (S306)
- Bachelor of Cyber Security (S334)

Restructure of pathways in 2018

As of 2018, the School of I.T. will no longer offer Bachelor of Games Design and Development (S333).

Units	Trimester 3 2017	Trimester 1 2018
SIT101 Fundamentals of Information Technology	✓	New structure and pathways for 2018, please see 2018 Course Outline.
SIT102 Introduction to Programming	✓	
SIT103 Database and Information Retrieval	✓	
SIT104 Introduction to Web Development	✓	
SIT105 Critical Thinking and Problem Solving for IT	✓	
SIT111 Introduction to Computer Science	✓	
SIT112 Data Science Concepts	✓	
SIT113 Cloud Computing and Virtualisation	✓	
SIT120 Introduction to Apps Design	✓	
SIT151 Game Fundamentals	✓	
<i>SIT153 Introduction to Game Programming</i>	Archived not available	
<i>SIT161 Principles of Interactive Media</i>	Archived not available	
SIT162 Interactive Media Systems	✓	
SIT182 Real World Practices for Cyber Security	✓	
SIT190 Introductory Mathematical Methods	✓	
SIT191 Introduction to Statistics and Data Analysis	✓	
SIT192 Discrete Mathematics	✓	

When I transfer to Deakin University I want to study Bachelor of Information Technology (B WP T1 T2)

International Students WAM: **B 50 WP 50**
 Australian Students WAM: **B 50 WP 50 C 50**
 Credits for Transfer: 8

Majors offered at Deakin University include:

- Application Development ● Cloud Computing ● Creative Technologies ● Game Development
- Cyber Security ● Virtual and Augmented Reality

Fast Track (Completing In 8 months/2 trimesters)				
T3, 2017	CORE SIT105 Critical Thinking and Problem Solving for IT	CORE SIT101 Fundamentals of Information Technology	CORE SIT104 Introduction to Web Development	Elective
T1, 2018	CORE SIT102 Introduction to Programming	CORE SIT103 Database and Information Retrieval	Elective	Elective

Normal Track (Completing course in 12 months/ 3 Trimesters)			
T3, 2017	CORE SIT105 Critical Thinking and Problem Solving for IT	CORE SIT101 Fundamentals of Information Technology	CORE SIT104 Introduction to Web Development
T1, 2018	CORE SIT102 Introduction to Programming	CORE SIT103 Data and Database and Information Retrieval	Elective
T2, 2018	Elective	Elective	

Electives

Students must complete one of the following majors. Students wishing to major in the following areas must include the following subjects in their electives:

- **Application Development** –SIT120 Introduction to Apps Design
*Additional 1st year units to be taken at Deakin University as part of this major-
SIT122 Robotics Studio*
- **Cloud Computing** SIT113 Cloud Computing and Virtualisation
- **Creative Technologies** – SIT162 Interactive Media Systems
*Additional 1st year units to be taken at Deakin University as part of this major-
SIT122 Robotics Studio*
- **Game Development** – SIT151 Game Fundamentals, SIT190 Introductory Mathematical Methods and SIT192 Discrete Mathematics
- **Cyber Security** – SIT182 Real World Practices for Cyber Security and SIT192 Discrete Mathematics
- **Virtual and Augmented Reality** - SIT162 Interactive Media Systems
*Additional 1st year units to be taken at Deakin University as part of this major
SIT183 Application and Design of Virtual and Augmented Reality Systems*

Other Electives can include any of the following:

- SIT111 Introduction to Computer Science
- SIT112 Data Science Concepts
- SIT113 Cloud Computing and Virtualisation
- SIT120 Introduction to Apps Design
- SIT151 Game Fundamentals
- SIT162 Interactive Media Systems
- SIT182 Real World Practices for Cyber Security
- SIT190 Introductory Mathematical Methods
- SIT191 Introduction to Statistics and Data Analysis
- SIT192 Discrete Mathematics

**When I transfer to Deakin University I want to study
Bachelor of Computer Science (B T1 T2)**

International Students WAM: **B 50**
 Australian Students WAM: **B 50**
 Credits for Transfer: 8

Fast Track (Completing In 8 months/2 trimesters)				
T3, 2017	CORE SIT111 Introduction to Computer Science	CORE SIT103 Database and Information Retrieval	CORE SIT102 Introduction to Programming	Elective SIT190 Introductory Mathematical Methods
T1, 2018	CORE SIT112 Data Science Concepts	CORE SIT192 Discrete Mathematics #	Elective SIT105 Critical Thinking and Problem Solving	Elective

Normal Track (Completing course in 12 months/ 3 Trimesters)			
T3, 2017	CORE SIT111 Algorithms and Computing Systems	CORE SIT102 Introduction to Programming	Elective SIT190 Introductory Mathematical Methods
T1, 2018	CORE SIT112 Data Science Concepts	CORE SIT192 Discrete Mathematics #	CORE SIT103 Database and Information Retrieval
T2, 2018	Elective SIT105 Critical Thinking and Problem Solving	Elective	

Students who have not completed VCE Mathematical Methods 3 and 4 should complete SIT190 (in place of an elective) prior to enrolling into SIT192.

Electives can include any of the following:

- SIT105 Critical Thinking and Problem Solving for IT
- SIT113 Cloud Computing and Virtualisation
- SIT120 Introduction to Apps Design
- SIT151 Game Fundamentals
- SIT162 Interactive Media Systems
- SIT182 Real World Practices for Cyber Security
- SIT190 Introductory Mathematical Methods
- SIT191 Introduction to Statistics and Data Analysis

Students who have not completed VCE Mathematical Methods 3 and 4 should complete SIT190 (in place of an elective) prior to enrolling into SIT192

**When I transfer to Deakin University I want to study
Bachelor of Cyber Security (B WP T1 T2)**

International Students WAM: **B 50 WP 50**
 Australian Students WAM: **B 50 WP 50**
 Credits for Transfer: 8

Fast Track (Completing In 8 months/2 trimesters)				
T3, 2017	CORE SIT101 Fundamentals of Information Technology	CORE SIT104 Introduction to Web Development	CORE SIT192 Discrete Mathematics	CORE SIT105 Critical Thinking and Problem Solving
T1, 2018	CORE SIT103 Database and Information Retrieval	CORE SIT102 Introduction to Programming	CORE SIT182 Real World Practices for Cyber Security	Elective

Normal Track (Completing course in 12 months/ 3 Trimesters)			
T3, 2017	CORE SIT101 Fundamentals of Information Technology	CORE SIT104 Introduction to Web Development	CORE SIT105 Critical Thinking and Problem Solving
T1, 2018	CORE SIT102 Introduction to Programming	CORE SIT103 Database and Information Retrieval	CORE SIT182 Real World Practices for Cyber Security
T2, 2018	CORE SIT192 Discrete Mathematics	Elective	

Electives can include any of the following:

- SIT111 Introduction to Computer Science
- SIT112 Data Science Concepts
- SIT113 Cloud Computing and Virtualisation
- SIT120 Introduction to Apps Design
- SIT151 Game Fundamentals
- SIT162 Interactive Media Systems
- SIT190 Introductory Mathematical Methods
- SIT191 Introduction to Statistics and Data Analysis

Deakin University Campuses and Trimester codes

B Melbourne Burwood Campus **WP** Geelong Waurn Ponds Campus

T1 Trimester 1 entry **T2** Trimester 2 entry

NOTE: for Australian students entry is for T1 only. T2 entry is subject to availability of places.

CRICOS Codes: Bachelor of Information Technology 053993D, Bachelor of Computer Science 083695K, Bachelor of Cyber Security 091336M.

Unit Outlines

PLEASE ENSURE YOU CHECK THE TRIMESTER 3 2017 UNIT OUTLINE FOR ANY CONTENT AND ASSESSMENT UPDATES.

SIT101 Fundamentals of Information Technology

SIT101 introduces students to key concepts in Information Technology. Students will explore computer hardware and software, communications and networks, system development, security, ethics and privacy, which are essential components of Information Technology Systems and Information Systems. While addressing the assessment requirements students develop knowledge of a number of software applications and tools including: word processing, spreadsheets, and electronic portfolios. In serving as a foundation within undergraduate IT degrees, this unit allows students to explore different career streams of IT Professionals, key skill sets and ethics in the world of business through the impact of information on industry and society.

Assessment: 20% revision test, 30% two assignments (15% each), 50% final examination.

SIT102 Introduction to Programming

This unit explores the relationship between computer program code and the software systems that are generated from them. Students will experience developing simple software using a variety of data types, selection and repetition control structures, functions, simple text files, and console and Graphical User Interfaces (GUIs) to interact with users.

Assessment: 60% three projects (20% each), 40% final examination

SIT103 Database and Information Retrieval

This unit will provide a solid foundation for the design, implementation and management of database systems. Data modelling is introduced,

focusing on entity-relationship (ER) modelling. The skills required to construct such ER diagrams will be explored, with a focus on ensuring that the semantics of the model match those of the real-world it is representing. The relational data model will be presented and the functionality it affords will be explored. The process of constructing, maintaining and retrieving information from the database using SQL will be a focus of this unit. Key implementation and management concepts, including transaction management and concurrency control, database backup and recovery, and security will be investigated.

Assessment: 40% two practical assessments (20% each), 60% final examination

SIT104 Introduction to Web Development

This unit introduces the techniques of creating static and dynamic web content using (X) HTML, style sheets, client side and server side scripting languages and databases. It focuses on developing the skills required for web programming with mark-up and scripting languages such as, building quality web pages, designing and maintaining a website. It introduces the concepts and technologies of the Web, the Internet and data networks, addresses how to use basic web programming tools and discusses the potential future of web/internet applications.

Assessment: 40% two assignments, 60% final examination

SIT105 Critical Thinking and Problem Solving for IT

Everyone experiences problems from time to time. Some of our problems are big and complicated, while others may be more easily solved. There is no

shortage of challenges and issues that can arise on the job, at home and in the society. Whether these problems are large or small, they need to be dealt with constructively and fairly. The ability to develop a well thought out solution within a reasonable timeframe is a skill that is highly valued by employers. SIT105 provides students with the knowledge and skills to study problems critically and identify strategies to solve those problems from an Information Technology perspective. Problem solving and critical thinking in an IT context refers to the ability to use knowledge, facts, and data to effectively solve problems. In this unit, students will learn how to think on their feet, assess problems, requirements and specifications, and find solutions using general and specific techniques.

Assessment: 20% two quizzes (10% each), 40% two assignments, 40% final examination

SIT111 Introduction to Computer Science

SIT111 is the foundation unit for the Bachelor Computer Science degree. It emphasises the role that a professional computer scientist plays in the development of complex solutions to computing problems. It introduces students to the major areas within computer science studies, including: hardware systems, software, operating systems, data structures, and algorithms. Students will explore the role of abstraction in computer science through the development of computer programs and the practice of computational thinking.

Assessment: 20% practical assessment; 40% project work and portfolio; 40% final examination

SIT112 Data Science Concepts

Data science is an emerging field and data scientists must be able to know how to make sense of data. In SIT112, students will develop knowledge of fundamentals in data science, in particular data manipulation and algorithms for analytics. The unit will also cover the practice of data science including

ethical and responsible behaviour when crawling, cleaning, analysing, representing and repurposing the data. Students will be able to obtain data, recognise data formats, summarise and visualise relationships in the data, perform exploratory data analysis tasks and build predictive models.

Assessment: 20% individual task, 30% group task, 20% project, 30% two quizzes (15% each)

SIT113 Cloud Computing and Virtualisation

Cloud computing represents a significant shift in the delivery of Information Technology to end users by introducing the ability to deliver infrastructure, platforms, and software via the network. This unit explores the technologies, models, benefits and risks of cloud computing and includes a study of virtualization as one of the key building blocks of most cloud computing solutions. Upon completion of the unit students will have a clear understanding of cloud computing, the types of problems solved by cloud computing, and the issues that must be considered when deploying cloud technologies in an organisation.

Assessment: 40% assignments and practicals; 60% final examination

SIT120 Introduction to Apps Design

In SIT120 students will develop foundational knowledge of and basic skills related to mobile app design and development. Students will learn the various ways that app ideas are conceptualised, marketed and commercialised. Students will analyse existing mobile apps in different categories, and evaluate the type of design and technological choices used to solve user problems. Students will also gain an understanding of mobile app development concepts, mobile UI design, licensing of media, mobile screen handling, touch events, and game concepts for mobile devices.

Assessment: 30% assignments, 40% project and presentation, 30% final examination

SIT151 Game Fundamentals

This unit introduces students to the basic concepts used in games design and development. Whilst the Games Design and Development Stream is open to Bachelor of Information Technology students, many students choose to study this unit as an elective adjunct to their studies in computing, multimedia, business, marketing, education and the arts. This unit focuses on why video games are such an important part in many aspects of society today.

Assessment: 10% online quiz, 50% three assignments (10%, 20%, 20%), 40% final examination

SIT162 Interactive Media Systems

In this unit, students will explore, the technical development of interactive media system that incorporates a combination of the five multimedia assets: text, images, sounds, video and animation with the inclusion of interactive elements for particular audiences. SIT162 extends the investigation and application of the principles and practices of interactive media from an independent technical perspective to a systems perspective. Students will develop and demonstrate competence in connecting various multimedia formats to deliver a cohesive product that achieves given specifications, while taking into consideration user needs, suitable technology and appropriate design. This will allow students to form the theoretical basis for subsequent practical, organisational and theoretical inquiry into interactive media.

Assessment: 60% three assignments (20% each), 40% final examination

SIT182 Real World Practices for Cyber Security

SIT182 student will learn the concepts of IT security. Students will also explore fundamental concepts of the threats and risks in managing communication networks and choose the appropriate means to manage these threats. The unit enables students to familiarise organizational security by examining the impacts of social engineering, ethics, policies, procedures and legislations. The key focus of SIT182 is on introducing students to concepts through case studies.

Assessment: 30% two tests, 20% mid-term exam, 50% final examination

SIT190 Introductory Mathematical Methods

SIT190 aims to develop student understanding of the fundamental functions of applied mathematics, and to introduce calculus to students who have not previously studied it in secondary school. It is designed to prepare students from a number of different disciplines for learning tertiary level mathematics. Students will explore the algebra of polynomials, exponentials, logarithms and trigonometric functions and learn rules for differentiating and integrating these functions. Applications studied include graph sketching, maximisation and minimisation problems, areas and kinematics.

Assessment: 40% three assignments, 60% final examination.

SIT191 Introduction to Statistics and Data Analysis

Data is everywhere in the world. Without knowing how to interpret or use information from the data it would be difficult to understand its meaning. Statistics is both a method and a tool for interpreting information, testing hypotheses and analysing the inferences people make about the real-world. SIT191 aims to aid students develop knowledge in using statistics to summarise, describe and interpret numerical and graphical data and perform statistical

inferences. In this unit, students will develop knowledge of the fundamentals of probability for reasoning real-world situations. Students will be required to use statistical software and calculators to analyse data and interpret results for tests on population means and proportions, chi-square tests, correlation and linear regression, and one-way ANOVA.

Assessment: 30% three assignments (10% each), 10% practical exercises, 60% final examination

SIT192 Discrete Mathematics

This unit provides students with the foundations in a range of areas in discrete mathematics, which is the basis for mathematical reasoning in applied sciences. SIT192 is designed to prepare students from a number of different disciplines for further study in the areas of linear algebra, number theory, graph theory, symbolic logic, set theory and combinatorics. These areas of study are vital for studying cryptography, networks, computer programming and analysis of algorithms.

Assessment: 40% assignments, 60% final examination.