

Diploma of Information Technology

Course Outline (T2, 2019)

Campus	Melbourne Burwood Campus / Jakarta Campus, Indonesia
Intake	March, June, October
CRICOS	097891B
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 (8 credit points).
Units	<p>Complete and pass eight units (8 credit points):</p> <ul style="list-style-type: none"> SIT102 Introduction to Programming SIT103 Data and Information Management SIT105 Thinking Technology and Design SIT111 Algorithms and Computing Systems SIT112 Data Science Concepts SIT113 Cloud Computing and Virtualisation SIT120 Introduction to Responsive Web Apps SIT123 Data Capture Technologies SIT124 Exploring I.T. SIT151 Game Fundamentals SIT162 Introduction to Creative Technologies SIT182 Real World Practices for Cyber Security SIT190 Introductory Mathematical Methods # SIT192 Discrete Mathematics # <p># SIT190 Introductory Mathematical Methods is a foundation mathematics unit designed to prepare students for tertiary level mathematics. Students who have not completed VCE Mathematical Methods 3 and 4 should complete SIT190 (in place of an elective) prior to enrolling into SIT192.</p>

	<p>All Diploma of Information Technology students must complete STP050 Academic Integrity, which is a free, zero credit point compulsory online unit and does not count toward your total units.</p>
<p>Transfer to Deakin University</p>	<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 WAMs 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>

Diploma of Information Technology

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 Information Technology. 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)

Units	Trimester 1 2019	Trimester 2 2019	Trimester 3 2019
SIT102 Introduction to Programming	✓	✓	✓
SIT103 Data and Information Management	✓	✓	✓
SIT105 Thinking Technology and Design	✓	✓	✓
SIT111 Algorithms and Computing Systems	✓	✓	✓
SIT112 Data Science Concepts	✓	✓	✓
SIT113 Cloud Computing and Virtualisation	✓	✓	✓
SIT120 Introduction to Responsive Web Apps	✓	✓	✓
SIT123 Data Capture Technologies	✓	✓	✓
SIT124 Exploring I.T.	✓	✓	✓
SIT151 Game Fundamentals	✓	✓	✓
SIT162 Introduction to Creative Technologies	✓	✓	✓
SIT182 Real World Practices for Cyber Security	✓	✓	✓
SIT190 Introductory Mathematical Methods	✓	✓	✓
SIT192 Discrete Mathematics	✓	✓	✓

*Archived units **SIT101** *Fundamentals of Information Technology* and **SIT104** *Introduction to Web Development* have been merged and replaced by **SIT124** *Exploring I.T.* since T1 2019. Students completed **BOTH** SIT101 and SIT104 will be precluded from taking SIT124. Students completed **either** SIT101 **or** SIT104 will be required to take SIT124.

**When I transfer to Deakin University I want to study
S326 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)					
1 st Trimester	CORE SIT105 Thinking Technology and Design	CORE SIT124 Exploring I.T.	Elective	Elective	STP050 Academic Integrity Unit (Compulsory zero credit point online)
2 nd Trimester	CORE SIT102 Introduction to Programming	CORE SIT103 Data and Information Management	Elective	Elective	

Normal Track (Completing course in 12 months/ 3 Trimesters)				
1 st Trimester	CORE SIT105 Thinking Technology and Design	CORE SIT124 Exploring I.T.	Elective	STP050 Academic Integrity Unit (Compulsory zero credit point online)
2 nd Trimester	CORE SIT102 Introduction to Programming	CORE SIT103 Data and Information Management	Elective	
3 rd Trimester	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 Responsive Web Apps
*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 Introduction to Creative Technologies
*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 Introduction to Creative Technologies
*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 Algorithms and Computing Systems
- SIT112 Data Science Concepts
- SIT113 Cloud Computing and Virtualisation
- SIT120 Introduction to Responsive Web Apps
- SIT123 Data Capture Technologies
- SIT151 Game Fundamentals
- SIT162 Introduction to Creative Technologies
- SIT182 Real World Practices for Cyber Security
- SIT190 Introductory Mathematical Methods
- SIT192 Discrete Mathematics

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**When I transfer to Deakin University I want to study
S306 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)					
1 st Trimester	CORE SIT111 Algorithms and Computing Systems	CORE SIT102 Introduction to Programming	CORE SIT123 Data Capture Technologies	Elective	STP050 Academic Integrity Unit (Compulsory zero credit point online)
2 nd Trimester	CORE SIT112 Data Science Concepts	CORE SIT192 Discrete Mathematics #	CORE SIT103 Data and Information Management	Elective	

Normal Track (Completing course in 12 months/ 3 Trimesters)				
1 st Trimester	CORE SIT111 Algorithms and Computing Systems	CORE SIT102 Introduction to Programming	CORE SIT123 Data Capture Technologies	STP050 Academic Integrity Unit (Compulsory zero credit point online)
2 nd Trimester	CORE SIT112 Data Science Concepts	CORE SIT103 Data and Information Management	Elective	
3 rd Trimester	CORE SIT192 Discrete Mathematics #	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 Thinking Technology and Design
- SIT113 Cloud Computing and Virtualisation
- SIT120 Introduction to Responsive Web Apps
- SIT124 Exploring I.T.
- SIT151 Game Fundamentals
- SIT162 Introduction to Creative Technologies
- SIT182 Real World Practices for Cyber Security
- SIT190 Introductory Mathematical Methods

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
S334 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)					
1 st Trimester	CORE SIT102 Introduction to Programming	CORE SIT103 Data and Information Management	CORE SIT182 Real World Practices for Cyber Security	Elective	STP050 Academic Integrity Unit (Compulsory zero credit point online)
2 nd Trimester	CORE SIT124 Exploring I.T.	CORE SIT105 Thinking Technology and Design	CORE SIT192 Discrete Mathematics #	Elective	

Normal Track (Completing course in 12 months/ 3 Trimesters)				
1 st Trimester	CORE SIT102 Introduction to Programming	CORE SIT103 Data and Information Management	CORE SIT182 Real World Practices for Cyber Security	STP050 Academic Integrity Unit (Compulsory zero credit point online)
2 nd Trimester	CORE SIT105 Thinking Technology and Design	CORE SIT124 Exploring I.T.	Elective	
3 rd Trimester	CORE SIT192 Discrete Mathematics #	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:

- SIT111 Algorithms and Computing Systems
- SIT112 Data Science Concepts
- SIT113 Cloud Computing and Virtualisation
- SIT120 Introduction to Responsive Web Apps
- SIT123 Data Capture Technologies
- SIT151 Game Fundamentals
- SIT162 Introduction to Creative Technologies
- SIT190 Introductory Mathematical Methods

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Deakin University Campuses and Trimester codes

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

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

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 1 2019 UNIT OUTLINE FOR ANY CONTENT AND ASSESSMENT UPDATES.

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: 100% learning portfolio

SIT103 Data and Information Management

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

SIT105 Thinking Technology and Design

In a world where technology is encompassing every part of our lives, the skill of thinking critically and solving problems can fall to the way side. Technology helps us to achieve a lot of things much more easily, which is great, but we need to control and shape it to fit our needs. If you do not exercise these skills, they will become fatigued and disappear but we need them to be paramount if we are to thrive in

this technological world and design the next big thing. To be successful technologists, we need to be able to develop knowledge and confidence to think critically in order to analyse requirements of technological projects and synergise this with problem solving abilities to creatively respond to design challenges in order to get the best outcomes. The knowledge, understanding and skills you learn in this unit will aid in your ability to critically analyse information and design technologies with algorithms that will play a key role in enriching and transforming our society.

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

SIT111 Algorithms and Computing Systems

Over the past 70 years computing systems and algorithms have revolutionised nearly every facet of modern life, from healthcare to education, manufacturing to transport, and entertainment to agriculture. Computing hardware and the algorithms encoded into software are thus vital to the continued growth of modern society, as are computer scientists - the professionals who design and develop algorithms and computational solutions to many of the world's problems. In this unit students will investigate some of the major computing system innovations over the past 70 years, to understand the role of computer scientists, computing hardware, algorithms and software as drivers of change and innovation. The unit will also look at recent developments and applications of computer science that are set to revolutionise our futures, such as digital currencies, intelligent machines, and the Internet of Things.

Assessment: 10% critical reflection, 20% research report; 30% learning 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: 20% quizzes, 10% written report, 10% problem solving task, 60% final examination

SIT120 Introduction to Responsive Web Apps

This unit will explore foundational knowledge of and basic skills related to responsive web app design and development. Students will learn basic HTML, responsive CSS and JavaScript skills in order to build web apps both for desktop and mobile devices. Students will develop an understanding of how web design and web programming work together, as well as learn fundamentals of responsive web design,

mobile UI design, licensing of media, mobile screen handling, touch events, and game concepts.

Assessment: 30% report, 40% project and presentation, 30% portfolio

SIT123 Data Capture Technologies

This unit will introduce students to ubiquitous and readily accessible devices for data capture, such as the sensor suite on a mobile smartphone, and those commonly used in homes, vehicles and current examples of cyber-physical systems. Students will be introduced to data capture protocols and methodologies, as well as data presentation and visualisation methods. Through practical investigations and analysis, students will investigate issues of robustness, reliability and validity of data and the effects of these on conclusions drawn from data. **Assessment: See unit outline**

SIT124 Exploring I.T.

SIT124 is about exploring the IT Industry in the 21st century and the development and innovations that had led up to where IT stands today. Exploring IT focuses on how the web has been one of the biggest contributors in regards to the direction that IT has taken over the last decade. Within SIT124 students will start to develop their professional identify and explore the requirements needed to gain employment within the field through case studies and a peek behind the curtain provided by recent graduates. Students will also explore and acquire skills in web design and development, in order to gain an understanding of the important role that the web plays in the delivery and storage of information within the IT industry.

Assessment: See unit outline

SIT151 Game Fundamentals

This unit is for students to study the concepts that define the design and development of games. Through the combination of practical application and theory, students will learn about designing games with a focus on engaging and refining their creative skills. Students will analyse existing games,

learn about current processes of game design and development, and design a game implementation.

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

SIT162 Introduction to Creative Technologies

The focus of this unit is to introduce students to the emerging field of creative technology, enabling students to build product that solve pressing social, community and creative problems. Students will explore applications of creative technology, investigating products from fields such as; Interactive media, Games, Virtual Reality and Augment reality. Across these creative technology systems combination of the five multimedia assets are common: text, images, sounds, video and animation. Students will apply their explorations into creative technologies to develop and demonstrate deliver a cohesive product that achieves given specifications, while taking into consideration audience, suitable technology and interactive design components. **Assessment: See unit outline**

SIT182 Real World Practices for Cyber Security

In SIT182 students will learn the real world practices of cyber security by solving problems based on realistic case studies. Students will explore fundamental concepts of risks in managing communication networks and choose the appropriate means to manage these risks. The unit enables students to understand threats and vulnerabilities in the context of how systems can be compromised and how we can prevent harm to systems. There will be a practical focus on how we can detect and respond to cyber-attacks. The key to learning will be introducing students to practices through case studies.

Assessment: 50% two assignments (30%+20%), 50% final examination

SIT190 Introductory Mathematical Methods

This unit aims to develop 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.

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