

## Bachelor of Information Technology (BITC) - BIT

QTAC code (Australian and New Zealand applicants): Toowoomba campus: 903741; Online: 903745;  
Springfield campus: 923741

CRICOS code (International applicants): 007490J

	On-campus	Online
<b>Semester intake:</b>	Semester 1 (February) Semester 2 (July)	Semester 1 (February) Semester 2 (July) Semester 3 (November)
<b>Campus:</b>	Springfield, Toowoomba	-
<b>Fees:</b>	Commonwealth supported place Domestic full fee paying place International full fee paying place	Commonwealth supported place Domestic full fee paying place International full fee paying place
<b>Standard duration:</b>	3 years full-time, up to 6 years part-time	

### Notes:

The Information Technology Management major and Networking and Security major are available at Springfield campus.

### Contact us

Future Australian and New Zealand students	Future International students	Current students
<a href="#">Ask a question</a> Freecall (within Australia): 1800 269 500 Phone (from outside Australia): +61 7 4631 5315 Email: <a href="mailto:study@usq.edu.au">study@usq.edu.au</a>	<a href="#">Ask a question</a> Phone: +61 7 4631 5543 Email: <a href="mailto:international@usq.edu.au">international@usq.edu.au</a>	<a href="#">Ask a question</a> Freecall (within Australia): 1800 007 252 Phone (from outside Australia): +61 7 4631 2285 Email <a href="mailto:usq.support@usq.edu.au">usq.support@usq.edu.au</a>

### Professional accreditation

The Bachelor of Information Technology program (except the Data Analytics major) is accredited at professional level by the [Australian Computer Society](#) and, through the Seoul Accord, is recognised in other countries. The Data Analytics major is currently undergoing the accreditation process by the Australian Computer Society.

### Program aims

The Bachelor of Information Technology is a vocationally-oriented program which emphasises problem solving through the use of information technology. This program focuses on the effective analysis development and management of information and communication technologies in organisations.

The program's foundation is designed to provide students with knowledge and skills in key areas of IT as well as professionally relevant knowledge, qualities and skills in such areas as problem solving, project management, teamwork, communication and ethics.

### Program objectives

The objectives of the Bachelor of Information Technology are to enable graduates to:

- apply principles of information technology
- apply problem-solving skills and use information technology for problem solving as an individual or within a team

- think critically, constructively and logically about project management principles and tools to plan project completions
- communicate clearly and coherently to present relevant knowledge and ideas to a range of audiences
- identify, collect, analyse and manage information for a broad range of information technology issues and challenges
- demonstrate an understanding of ethical standards and socially responsible information technology practices.

## Major objectives

### **Applied Computer Science major**

On completion of the Applied Computer Science major, graduates should be able to:

- display detailed knowledge of and be competent in the fundamentals of structured programming, and the application of basic algorithms and data structures
- evaluate the difference between the major programming language paradigms, and be able to select the paradigm best suited to solve a problem
- demonstrate sound knowledge of operating systems principles and display familiarity with various modern operating systems
- demonstrate a sound knowledge of web technology and techniques both at the client and the server side
- design and implement web-based user interfaces in accordance to technical, stylistic, and open access standards
- evaluate and apply methods for planning and managing large software projects, including design, development and maintenance aspects
- demonstrate detailed knowledge of the fundamental principles of database systems and be able to apply these using database software.

### Data Analytics major

On completion of the Data Analytics major, graduates should be able to:

- capture manage and analyse large volumes of data (big data) both structured and unstructured using appropriate techniques and technologies
- effectively communicate information and knowledge obtained from large volumes (big data) in appropriate formats for the intended audience
- analyse large volumes of data in a critical ethical and professional manner.

### **Information Systems Development major**

On completion of the Information Systems Development major, graduates should be able to:

- demonstrate an understanding of the electronic business framework for areas such as marketing, supply chains and mobile commerce
- demonstrate an ability to design and analyse business systems including database design and use, network architectures, organisation and human-computer interaction issues
- demonstrate abilities with object-oriented development of systems, particularly Internet applications and enterprise systems in .NET and Java
- demonstrate expertise with the Oracle (SQL) environment.

### **Information Technology Management major**

On completion of the Information Technology Management major, graduates should be able to:

- demonstrate knowledge of the electronic business framework for areas such as marketing, supply chains and mobile commerce
- demonstrate an ability to design and analyse business systems including database design and use, network architectures, organisation and human-computer interaction issues
- demonstrate an understanding of information systems security and control issues

- recognise the importance of IT service management and demonstrate understanding of the important best practice frameworks
- identify information needs appropriate to their area of specialisation, and apply the techniques required to gather and interpret such information
- demonstrate skills in the analysis and determination of technological issues at management level.

### Networking and Security major

On completion of the Networking and Security major, graduates should be able to:

- design, install, configure, troubleshoot, and maintain networks and their operating systems
- install, configure and manage network, system, user, and security services
- demonstrate acquired skills in development of new systems to operate networks
- interface networks with wide area networks such as the Internet and newer network architectures
- demonstrate sound knowledge of the operating systems that are used to provide services on networks, including at least Linux and Windows
- demonstrate detailed knowledge of the fundamental principles of database systems and be able to apply these using database software.

### Australian Qualifications Framework

The Australian Qualifications Framework (AQF) is a single national, comprehensive system of qualifications offered by higher education institutions (including universities), vocational education and training institutions and secondary schools. Each AQF qualification has a set of descriptors which define the type and complexity of knowledge, skills and application of knowledge and skills that a graduate who has been awarded that qualification has attained, and the typical volume of learning associated with that qualification type.

This program is at AQF Qualification Level 07. Graduates at this level will have broad and coherent knowledge and skills for professional work and/or further learning.

The full set of levels criteria and qualification type descriptors can be found by visiting [www.aqf.edu.au](http://www.aqf.edu.au).

### Program Information Set

View USQ's admission criteria, student profiles and a summary of all offers made under [Course Admission Information Set](#) via the QTAC website.

### Admission requirements

To be eligible for admission, applicants must satisfy the following requirements:

- Have achieved a minimum Overall Position (OP) **16**, tertiary entrance rank **66** or equivalent qualification.<sup>^</sup>
- English Language Proficiency requirements for Category 2.

Applicants are advised to also address the following:

- [Assumed Knowledge](#) expectations: English. Data Analytics major - Mathematics A or equivalent.
- Recommended Prior Study:  
Applied Computer Science major and Networking and Security major - Mathematics A\* (4, SA) or equivalent.  
Data Analytics major - Mathematics B\* (4, SA) or equivalent.

\* Open Access College has courses available via [Tertiary Preparation Program](#) which will allow students to up-skill in Mathematics prior to entry.

All students are required to satisfy the applicable [English language requirements](#).

If students do not meet the English language requirements they may apply to study a University-approved [English language program](#). On successful completion of the English language program, students may be admitted to an award program.

^ These are determined by the University for specific programs each Semester. The 2019 OP and tertiary entrance ranks are based on agreed QTAC schedules which assess formal study at Year 12 or [equivalent level](#), tertiary, preparatory, professional or vocational qualifications or work experience, as detailed in the QTAC Assessment of Qualifications Manual and QTAC Assessor Guidelines.

Special admissions may help you get into the program of your choice by increasing your Selection Rank. The additional points don't apply to all applicants or all programs. Please read the information about USQ's [Special Admissions](#) carefully to find out what you may be eligible for.

## Program fees

### Commonwealth supported place

A Commonwealth supported place is where the Australian Government makes a contribution towards the cost of a students' higher education and students pay a [student contribution amount](#), which varies depending on the courses undertaken. Students are able to calculate the fees for a particular course via the [Course Fee Finder](#).

Commonwealth Supported students may be eligible to defer their fees through a Government loan called [HECS-HELP](#).

### Domestic full fee paying place

Domestic full fee paying places are funded entirely through the full fees paid by the student. Full fees vary depending on the courses that are taken. Students are able to calculate the fees for a particular course via the [Course Fee Finder](#).

Domestic full fee paying students may be eligible to defer their fees through a Government loan called [FEE-HELP](#) provided they meet the residency and citizenship requirements.

Australian citizens, Permanent Humanitarian Visa holders, Permanent Resident visa holders and New Zealand citizens who will be resident outside Australia for the duration of their program pay full tuition fees and are not eligible for [FEE-Help](#).

### International full fee paying place

International students pay full fees. Full fees vary depending on the courses that are taken and whether they are studied on-campus, via distance education/online. Students are able to calculate the fees for a particular course via the [Course Fee Finder](#).

## Program structure

The Bachelor of Information Technology is comprised of 24 units as below. Students may not complete more than 10 first-year level courses in the Bachelor of Information Technology.

Area of study	Number of units
<p>Core Courses</p> <p>8 core courses comprising:</p> <ul style="list-style-type: none"> <li>● 5 common courses</li> <li>● 3 major specific courses<sup>*#</sup></li> </ul> <p>* Students taking the Information System Development major or Information Technology Management major should choose the additional core approved courses from the defined list.</p> <p># Students taking the Applied Computer Science major, Data Analytics or Networking and Security major must take the nominated list of courses (<a href="#">MAT1101</a>, <a href="#">CSC2406</a> and <a href="#">CSC3600</a>) as the three additional core approved courses.</p>	8 units

Bachelor of Information Technology major (select one):	8 units
<ul style="list-style-type: none"> <li>• Applied Computer Science</li> <li>• Data Analytics</li> <li>• Information Systems Development</li> <li>• Information Technology Management</li> <li>• Networking and Security.</li> </ul>	
Plus one of the following:	8 units
<ul style="list-style-type: none"> <li>• 1 x 8-unit second major <b>or</b></li> <li>• 2 x 4-unit minors <b>or</b></li> <li>• 1 x 4-unit minor and 4 elective units.</li> </ul>	
Students may complete a second major or up to two minors from other USQ undergraduate programs subject to pre-requisite requirements and approval of the Program Coordinator.	
Total	24 units

## Required time limits

Students have a maximum of 9 years to complete this program.

## Core courses

Course	Semester of offer Distance/Online	Semester of offer Toowoomba campus	Semester of offer Springfield campus
<a href="#">CIS1000 Information Systems Concepts</a>	1, 2, 3	1, 2	1, 2, 3
<a href="#">CIS3002 Agile Methods</a>	1	1	1
<a href="#">CMS1000 Communication and Scholarship</a>	1, 2, 3	1, 2	1, 2
<a href="#">CSC1401 Foundation Programming</a>	1, 2, 3	1, 2	1, 2
<a href="#">CSC2407 Introduction to Software Engineering</a>	2	2	2

### Compulsory courses per major:\*

#### Applied Computer Science major, Data Analytics major and Networking and Security major

Course	Semester of offer Distance/Online	Semester of offer Toowoomba campus	Semester of offer Springfield campus
<a href="#">CSC2406 Web Technology 1</a>	2	2	2
<a href="#">CSC3600 ICT Professional Project</a>	1, 2	1, 2	1, 2
<a href="#">MAT1101 Discrete Mathematics for Computing</a>	1	1	1

#### Information Systems Development major and Information Technology Management major

Course	Semester of offer Distance/Online	Semester of offer Toowoomba campus	Semester of offer Springfield campus
<b>Select 3 courses from the following:</b>			

<a href="#">ACC1101 Accounting for Decision-Making</a>	1, 2, 3	1, 2	1, 2
<a href="#">CSC2401 Algorithms and Data Structures</a>	2	2	
<a href="#">CSC2406 Web Technology 1</a>	2	2	2
<a href="#">ECO1000 Economics</a>	1, 2, 3	1, 2	2
<a href="#">ELE1301 Computer Engineering</a>	1	1	1
<a href="#">FIN1101 Introduction to Corporate Finance</a>	1, 2, 3	1	1, 2
<a href="#">LAW1500 Introduction to Business and Company Law<sup>+</sup></a>	1, 2, 3	1, 2	1, 2
<a href="#">MAT1100 Foundation Mathematics</a>	2	2	2
<a href="#">MAT1101 Discrete Mathematics for Computing</a>	1	1	1
<a href="#">MGT1000 Organisational Behaviour</a>	1, 2, 3	1	1
<a href="#">MKT1001 Introduction to Marketing</a>	1, 2, 3	1	1
<a href="#">POL1000 Government, Business and Society</a>	1, 2	1	1
<a href="#">STA2300 Data Analysis</a>	1, 2, 3	1, 2	2

#### Footnotes

- + Students who have successfully completed LAW1101 Introduction to Law should not complete [LAW1500 Introduction to Business and Company Law](#).
- \* **Please note:** Students undertaking a double major with either Applied Computer Science, Data Analytics or Networking and Security as one of the majors **must** complete [CSC2406 Web Technology 1](#), [CSC3600 ICT Professional Project](#) and [MAT1101 Discrete Mathematics for Computing](#) as their optional core courses.

## Major studies

All students in the Bachelor of Information Technology must complete at least one major study. A major study is a set of courses that make up a coherent, in-depth study of a specific discipline.

## Double Major Studies

Students may choose to complete two majors from the Bachelor of Information Technology or they may choose to complete a second 8-unit major from the undergraduate degree programs in the area of Business, Law or Sciences. Alternately they may choose a major from the undergraduate degree programs in another area at the University of Southern Queensland. A program in which there is a first and second major is known as a 'double major'. Where a second major from another program contains less than 8 units, students must complete extra elective units, chosen from undergraduate courses offered at the University of Southern Queensland to ensure that their program contains 24 units in total. The sets of courses that make up each major in the Bachelor of Information Technology are summarised in the following tables:

## Applied Computer Science major

Course	Semester of offer Distance/Online	Semester of offer Toowoomba campus	Semester of offer Springfield campus
<a href="#">CSC2401 Algorithms and Data Structures</a>	2	2	

<a href="#">CSC2402 Object-Oriented Programming in C++</a>	1	1	
<a href="#">CSC2404 Operating Systems</a>	2	2	2
<a href="#">CSC2408 Software Development Tools</a>	1, 2	1, 2	1, 2
<a href="#">CSC3400 Database Systems<sup>^</sup></a>	1	1	1
<a href="#">CSC3403 Comparative Programming Languages<sup>*</sup></a>	1	1	
<a href="#">CSC3412 System and Security Administration</a>	1	1	1
<a href="#">CSC3426 Web Technology 2</a>	2	2	

#### Footnotes

<sup>^</sup> In 2020 students should complete [CIS2002 Database Design and Implementation](#) instead of CSC3400 Database Systems.

<sup>\*</sup> In 2020 students should complete [CIS3001 Object-Oriented Programming with Java](#) instead of CIS3403 .

## Data Analytics major

Course	Semester of offer Distance/Online	Semester of offer Toowoomba campus	Semester of offer Springfield campus
<a href="#">CSC3501 Principles of Data Science and Visualisation</a>	2	2	2
<a href="#">CSC3502 Principles of Big Data Management</a>	2	2	2
<a href="#">STA3200 Multivariate Statistical Methods</a>	1		
<a href="#">CSC2410 Computational Thinking with Python</a>	2	2	2
<a href="#">CSC2408 Software Development Tools</a>	1, 2	1, 2	1, 2
<a href="#">CSC3400 Database Systems<sup>^</sup></a>	1	1	1
<a href="#">STA2300 Data Analysis</a>	1, 2, 3	1, 2	2
<a href="#">CSC3407 Network Fundamentals and Routing</a>	1	1	1

#### Footnotes

<sup>^</sup> In 2020 students should complete [CIS2002 Database Design and Implementation](#) instead of CSC3400 Database Systems.

## Information Systems Development major

Course	Semester of offer Distance/Online	Semester of offer Toowoomba campus	Semester of offer Springfield campus
<a href="#">CIS1101 Business Online</a>	2, 3	2	2
<a href="#">CIS2000 Systems Analysis and Design</a>	1, 3	1	1
<a href="#">CIS2002 Database Design and Implementation</a>	1	1	1
<a href="#">CIS2003 Component Based Software Development</a>	2	2	

<a href="#">CIS3001 Object-Oriented Programming with Java</a>	1	1	
<a href="#">CIS3003 Networks and Distributed Systems</a>	1	1	1
<a href="#">CIS3007 Enterprise Solutions Project</a>	2	2	
<a href="#">CIS3010 Oracle Development</a>	2	2	

### Information Technology Management major

Course	Semester of offer Distance/Online	Semester of offer Toowoomba campus	Semester of offer Springfield campus
<a href="#">CIS1101 Business Online</a>	2, 3	2	2
<a href="#">CIS2000 Systems Analysis and Design</a>	1, 3	1	1
<a href="#">CIS2002 Database Design and Implementation</a>	1, 3	1	1
<a href="#">CIS2005 Principles of Information Security</a>	2	2	2
<a href="#">CIS3003 Networks and Distributed Systems</a>	1	1	1
<a href="#">CIS3008 Information Technology Service Management</a>	1	1	1
<a href="#">CIS3009 Enterprise Systems in Practice</a>	2, 3	2	2
<a href="#">CIS3011 Information Systems Industry Project</a>	2	2	

### Networking and Security major

Course	Semester of offer Distance/Online	Semester of offer Toowoomba campus	Semester of offer Springfield campus
<a href="#">CSC2404 Operating Systems</a>	2	2	2
<a href="#">CSC2408 Software Development Tools</a>	1, 2	1, 2	1, 2
<a href="#">CSC3400 Database Systems<sup>^</sup></a>	1	1	1
<a href="#">CSC3407 Network Fundamentals and Routing</a>	1	1	1
<a href="#">CSC3412 System and Security Administration</a>	1	1	1
<a href="#">CSC3413 Network Design and Analysis</a>	2	2	2
<a href="#">CSC3420 Mobile Internet Technology</a>	1	1	
<a href="#">CSC3427 Switching, Wireless and WAN Technologies</a>	2	2	2

#### Footnotes

<sup>^</sup> In 2020 students should complete [CIS2002 Database Design and Implementation](#) instead of [CSC3400 Database Systems](#).



## Minor Studies

A minor study is a coherent group of four units of courses that provides students with an appropriate breadth of study in their program. All students, except those undertaking a second major, must complete a 4-unit minor study. Students who wish to take a minor study not listed in the recommended minors must obtain permission from the Faculty of Business, Education, Law and Arts. Before undertaking any course, the pre-requisite courses must be completed or exempted.

### Please note:

When students select a minor(s), courses will only count towards that minor(s) if they have not already counted towards another selected major or minor. Not all minors are available on-campus at all campuses. Students may choose courses from those listed in the [Minor Studies](#) section of this Handbook. Enrolment requirements must be satisfied for any course selected.

## Electives/Approved courses

Students not completing a double major must select 4 units of elective courses from courses offered at undergraduate level in the area of Business, Law or Sciences or, with the approval of the Faculty of Business, Education, Law and Arts, from other undergraduate courses offered at the University of Southern Queensland. Pre-requisite enrolment requirements must be satisfied for any course selected.

CSC1402 will not be approved as an elective.

## IT requirements

For information technology requirements please refer to the [minimum computing standards](#). Students completing either the Applied Computer Science major or the Networking and Security major will be required to install the Linux operating system as well as a Microsoft Windows operating system. A Linux installation DVD, together with instructions, is available from the USQ Bookshop.

## Other program requirements

Students must maintain good standing in this program. Please refer to the [Academic Standing, Progression and Exclusion Procedure](#).

## Articulation

Students enrolled in the joint Diploma of Information Technology/Bachelor of Information Technology must complete the Diploma at TAFE Queensland before continuing enrolment at USQ.

## Exit points

Students not wishing to complete the Bachelor of Information Technology may be permitted to exit with the Diploma of Information Technology (DITC) if they have completed 8 courses as follows:

- at least 2 core courses from the Bachelor of Information Technology
- 6 other courses from the Bachelor of Information Technology.

Please note that students who exit with the Diploma of Information Technology (DITC) may need to undertake further study to be eligible for membership of the [Australian Computer Society](#).

## Credit

Candidates for admission to the Bachelor of Information Technology program may be eligible for up to 16 units of credit on the basis of successful completion of relevant, equivalent undergraduate study from a recognised university or institution offering equivalent study. Credit approved in this program will not automatically apply to other programs offered by USQ. Claims for credit for previous study should be submitted prior to or at the time of enrolment. Each claim will be assessed on individual merit in line with USQ policy.

**Note:** Where credit is granted, maximum and minimum duration will be adjusted in the same proportion as credit, e.g. where 8 units of credit is granted, maximum time will be 6 years and minimum time will be 4 semesters.

## Recommended Enrolment Patterns

Students are able to enrol in any offered mode of a course (on-campus, external or online), regardless of the program mode of study they enrolled in.

Students should plan their enrolment making sure that they have fulfilled all core, major, minor and elective requirements as shown in the program structure information. Enrolment requirements must be satisfied before enrolling in a course.

## Recommended Enrolment Pattern - Applied Computer Science

Students are able to enrol in any offered mode of a course (on-campus, external or online), regardless of the program mode of study they enrolled in.

Course	Year of program and semester in which course is normally studied						Enrolment requirements
	On-campus (ONC)		External (EXT)		Online (ONL)		
	Year	Sem	Year	Sem	Year	Sem	
<b>Year 1</b>							
<a href="#">CSC1401 Foundation Programming</a>	1	1, 2			1	1, 2	
<a href="#">CIS1000 Information Systems Concepts</a>	1	1, 2			1	1, 2	
Elective/second major course	1	1			1	1	
<a href="#">MAT1101 Discrete Mathematics for Computing</a>	1	1			2	1	
<a href="#">CMS1000 Communication and Scholarship</a>	1	1, 2			1	1, 2, 3	Enrolment is not permitted in <a href="#">CMS1000</a> if <a href="#">MGT1200</a> has been previously completed.
Elective/second major course	1	2			2	2	
<a href="#">CSC2408 Software Development Tools</a>	1	1, 2			1	1, 2	
<a href="#">CSC2407 Introduction to Software Engineering</a>	1	2			2	2	Pre-requisite: <a href="#">CSC1401</a> or Students must be enrolled in one of the following Programs: <a href="#">GDTI</a> or <a href="#">GCSC</a> or <a href="#">GCEN</a> or <a href="#">METC</a> or <a href="#">MCOT</a> or <a href="#">MCTE</a> or <a href="#">MCOP</a> or <a href="#">MPIT</a> or <a href="#">MCTN</a>
<b>Year 2</b>							
Elective/second major course	2	1, 2			3	1, 2, 3	
Elective/second major course	2	1			3	1	
<a href="#">CSC2402 Object-Oriented Programming in C++</a>	2	1			4	1	Pre-requisite: <a href="#">CSC1401</a> or Students must be enrolled in one of the following Programs: <a href="#">GDTI</a> or <a href="#">GCSC</a> or <a href="#">GCEN</a> or <a href="#">METC</a> or <a href="#">MCOT</a> or <a href="#">MCTE</a> or <a href="#">MCOP</a> or <a href="#">MPIT</a> or <a href="#">MCTN</a>
<a href="#">CSC3412 System and Security Administration</a>	2	1			3	1	
<a href="#">CSC2406 Web Technology 1</a>	2	2			4	2	Pre-requisite: <a href="#">CSC1401</a> or Students must be enrolled in one of the following Programs: <a href="#">GDTI</a> or <a href="#">GCEN</a> or <a href="#">METC</a> or <a href="#">MCOT</a> or <a href="#">MCTE</a> or <a href="#">MCOP</a> or <a href="#">MPIT</a> or <a href="#">MCTN</a> or <a href="#">BSED</a>
<a href="#">CSC2401 Algorithms and Data Structures</a>	2	2			4	2	Pre-requisite: <a href="#">CSC2402</a> or Students must be enrolled in one of the following Programs: <a href="#">GDTI</a> or <a href="#">GCSC</a> or <a href="#">GCEN</a> or <a href="#">METC</a> or <a href="#">MCOT</a> or <a href="#">MCTE</a> or <a href="#">MCOP</a> or <a href="#">MPIT</a>
<a href="#">CSC2404 Operating Systems</a>	2	2			3	2	Pre-requisite: <a href="#">CSC1401</a> or <a href="#">CSC2408</a> or have experience using Linux systems or students must be enrolled in one of the following Programs: <a href="#">GDTI</a> or <a href="#">GCSC</a> or <a href="#">GCEN</a> or <a href="#">METC</a> or <a href="#">MCOT</a> or <a href="#">MCTE</a> or <a href="#">MCOP</a> or <a href="#">MPIT</a>
Elective/second major course	2	2			4	1	

Course	Year of program and semester in which course is normally studied						Enrolment requirements
	On-campus (ONC)		External (EXT)		Online (ONL)		
	Year	Sem	Year	Sem	Year	Sem	
<b>Year 3</b>							
CSC3403 Comparative Programming Languages *	3	1			5	1	
CSC3400 Database Systems ^	3	1			5	1	
<a href="#">CIS3002 Agile Methods</a>	3	1			6	1	
Elective/second major course	3	1			6	2	
<a href="#">CSC3426 Web Technology 2</a>	3	2			5	2	Pre-requisite: <a href="#">CSC2406</a>
<a href="#">CSC3600 ICT Professional Project</a>	3	2			6	1	Pre-requisite: Students must have satisfactorily completed <a href="#">CIS3002</a> Business Analysis and at least 16 courses including seven BITC core courses other than this course.
Elective/second major course	3	2			5	2	
Elective/second major course	3	2			6	2	

#### Footnotes

\* In 2020 students should complete [CIS3001 Object-Oriented Programming with Java](#) instead of CIS3403 .

^ In 2020 students should complete [CIS2002 Database Design and Implementation](#) instead of CSC3400 Database Systems.

## Recommended Enrolment Pattern – Data Analytics

Students are able to enrol in any offered mode of a course (on-campus, external or online), regardless of the program mode of study they enrolled in.

Course	Year of program and semester in which course is normally studied						Enrolment requirements
	On-campus (ONC)		External (EXT)		Online (ONL)		
	Year	Sem	Year	Sem	Year	Sem	
<b>Year 1</b>							
<a href="#">CSC1401 Foundation Programming</a>	1	1, 2			1	1, 2	
<a href="#">CIS1000 Information Systems Concepts</a>	1	1, 2			1	1, 2	
<a href="#">CSC2408 Software Development Tools</a>	1	1, 2			1	1, 2	
<a href="#">MAT1101 Discrete Mathematics for Computing</a>	1	1			2	1	
<a href="#">CMS1000 Communication and Scholarship</a>	1	1, 2			2	1, 2, 3	Enrolment is not permitted in <a href="#">CMS1000</a> if <a href="#">MGT1200</a> has been previously completed.
<a href="#">STA2300 Data Analysis</a>	1	2			2	2	Enrolment is not permitted in <a href="#">STA2300</a> if <a href="#">STA8170</a> has been previously completed.
Elective/second major course	1	2			1	2	
<a href="#">CSC2407 Introduction to Software Engineering</a>	1	2			2	2	Pre-requisite: <a href="#">CSC1401</a> or Students must be enrolled in one of the following Programs: GDT1 or GCSC or GCEN or METC or MCOT or MCTE or MCOP or MPIT or MCTN
<b>Year 2</b>							
<a href="#">STA3200 Multivariate Statistical Methods</a>					3	1	Pre-requisite: <a href="#">STA2300</a>
<a href="#">CSC3407 Network Fundamentals and Routing</a>	2	1			4	1	
Elective/second major course	2	1			3	1	
Elective/second major course	2	1			4	1	
<a href="#">CSC2410 Computational Thinking with Python</a>	2	2			3	2	
<a href="#">CSC2406 Web Technology 1</a>	2	2			3	2	Pre-requisite: <a href="#">CSC1401</a> or Students must be enrolled in one of the following Programs: GDT1 or GCEN or METC or MCOT or MCTE or MCOP or MPIT or MCTN or BSED
Elective/second major course	2	2			4	2	
Elective/second major course	2	2			4	2	

Course	Year of program and semester in which course is normally studied						Enrolment requirements
	On-campus (ONC)		External (EXT)		Online (ONL)		
	Year	Sem	Year	Sem	Year	Sem	
<b>Year 3</b>							
Elective/second major course	3	1			6	1	
CSC3400 Database Systems <sup>^</sup>	3	1			5	1	
<a href="#">CIS3002 Agile Methods</a>	3	1			5	1	
Elective/second major course	3	1			6	2	
<a href="#">CSC3502 Principles of Big Data Management</a>	3	2			5	2	
<a href="#">CSC3600 ICT Professional Project</a>	3	2			6	1	Pre-requisite: Students must have satisfactorily completed <a href="#">CIS3002 Business Analysis</a> and at least 16 courses including seven BITC core courses other than this course.
<a href="#">CSC3501 Principles of Data Science and Visualisation</a>	3	2			5	2	
Elective/second major course	3	2			6	2	

#### Footnotes

<sup>^</sup> In 2020 students should complete [CIS2002 Database Design and Implementation](#) instead of CSC3400 Database Systems.

## Recommended Enrolment Pattern - Information Systems Development

Students are able to enrol in any offered mode of a course (on-campus, external or online), regardless of the program mode of study they enrolled in.

Course	Year of program and semester in which course is normally studied						Enrolment requirements
	On-campus (ONC)		External (EXT)		Online (ONL)		
	Year	Sem	Year	Sem	Year	Sem	
<a href="#">CIS1000 Information Systems Concepts</a>	1	1			1	1	
<a href="#">CSC1401 Foundation Programming</a>	1	1, 2			1	1	
Core course	1	1			2	1	
Core course	1	1			2	1	
<a href="#">CMS1000 Communication and Scholarship</a>	1	2			1	2	Enrolment is not permitted in <a href="#">CMS1000</a> if <a href="#">MGT1200</a> has been previously completed.
<a href="#">CIS1101 Business Online</a>	1	2			1	2	
Core course	1	2			2	2	
Elective/second major course	1	2			2	2	
<a href="#">CIS2002 Database Design and Implementation</a>	2	1			3	1	
<a href="#">CIS2000 Systems Analysis and Design</a>	2	1			3	1	
Elective/second major course	2	1			4	1	
Elective/second major course	2	1			4	1	
<a href="#">CIS3010 Oracle Development</a>	2	2			3	2	Pre-requisite: <a href="#">CIS2002</a>
<a href="#">CSC2407 Introduction to Software Engineering</a>	2	2			3	2	Pre-requisite: <a href="#">CSC1401</a> or Students must be enrolled in one of the following Programs: GDTI or GCSC or GCEN or METC or MCOT or MCTE or MCOP or MPIT or MCTN
Elective/second major course	2	2			4	2	
<a href="#">CIS2003 Component Based Software Development</a>	2	2			4	2	Pre-requisite: <a href="#">CSC1401</a>
<a href="#">CIS3002 Agile Methods</a>	3	1			5	1	
<a href="#">CIS3001 Object-Oriented Programming with Java</a>	3	1			5	1	
Elective/second major course	3	1			6	1	
<a href="#">CIS3003 Networks and Distributed Systems</a>	3	1			6	1	
<a href="#">CIS3007 Enterprise Solutions Project</a>	3	2			5	2	Pre-requisite: <a href="#">CIS3001</a> and <a href="#">CIS3002</a>
Elective/second major course	3	2			5	2	
Elective/second major course	3	2			6	2	
Elective/second major course	3	2			6	2	

## Recommended Enrolment Pattern - Information Technology Management

Students are able to enrol in any offered mode of a course (on-campus, external or online), regardless of the program mode of study they enrolled in.

Course	Year of program and semester in which course is normally studied						Enrolment requirements
	On-campus (ONC)		External (EXT)		Online (ONL)		
	Year	Sem	Year	Sem	Year	Sem	
<a href="#">CIS1000 Information Systems Concepts</a>	1	1			1	1	
<a href="#">CSC1401 Foundation Programming</a>	1	1			1	1	
Core course	1	1			2	1	
Core course	1	1			2	1	
<a href="#">CMS1000 Communication and Scholarship</a>	1	2			1	2	Enrolment is not permitted in <a href="#">CMS1000</a> if <a href="#">MGT1200</a> has been previously completed.
Core course	1	2			1	2	
<a href="#">CIS1101 Business Online</a>	1	2			2	2	
Elective/second major course	1	2			2	2	
<a href="#">CIS2000 Systems Analysis and Design</a>	2	1			3	1	
<a href="#">CIS2002 Database Design and Implementation</a>	2	1			3	1	
Elective/second major course	2	1			4	1	
Elective/second major course	2	1			4	1	
<a href="#">CIS2005 Principles of Information Security</a>	2	2			3	2	
<a href="#">CSC2407 Introduction to Software Engineering</a>	2	2			3	2	Pre-requisite: <a href="#">CSC1401</a> or Students must be enrolled in one of the following Programs: GDT1 or GCSC or GCEN or METC or MCOT or MCTE or MCOP or MPIT or MCTN
Elective/second major course	2	2			4	2	
<a href="#">CIS3009 Enterprise Systems in Practice</a>	2	2			4	2	
Elective/second major course	3	1			5	1	
<a href="#">CIS3008 Information Technology Service Management</a>	3	1			5	1	
<a href="#">CIS3002 Agile Methods</a>	3	1			6	1	
<a href="#">CIS3003 Networks and Distributed Systems</a>	3	1			6	1	
Elective/second major course	3	2			5	2	
<a href="#">CIS3011 Information Systems Industry Project</a>	3	2			5	2	Pre-requisite: <a href="#">CIS3002</a>
Elective/second major course	3	2			6	2	
Elective/second major course	3	2			6	2	

## Recommended Enrolment Pattern - Networking and Security

Students are able to enrol in any offered mode of a course (on-campus, external or online), regardless of the program mode of study they enrolled in.

Course	Year of program and semester in which course is normally studied						Enrolment requirements
	On-campus (ONC)		External (EXT)		Online (ONL)		
	Year	Sem	Year	Sem	Year	Sem	
<b>Year 1</b>							
<a href="#">CSC1401 Foundation Programming</a>	1	1, 2			1	1, 2	
<a href="#">CIS1000 Information Systems Concepts</a>	1	1, 2			1	1, 2	
Elective/second major course	1	1			2	2	
<a href="#">MAT1101 Discrete Mathematics for Computing</a>	1	1			2	1	
<a href="#">CMS1000 Communication and Scholarship</a>	1	1, 2			1	1, 2, 3	Enrolment is not permitted in <a href="#">CMS1000</a> if <a href="#">MGT1200</a> has been previously completed.
Elective/second major course	1	2			2	2	
<a href="#">CSC2408 Software Development Tools</a>	1	1, 2			1	1, 2	

Course	Year of program and semester in which course is normally studied						Enrolment requirements
	On-campus (ONC)		External (EXT)		Online (ONL)		
	Year	Sem	Year	Sem	Year	Sem	
<a href="#">CSC2407 Introduction to Software Engineering</a>	1	2			2	2	Pre-requisite: <a href="#">CSC1401</a> or Students must be enrolled in one of the following Programs: GDTI or GCSC or GCEN or METC or MCOT or MCTE or MCOP or MPIT or MCTN
<b>Year 2</b>							
<a href="#">CIS3002 Agile Methods</a>	2	1			3	1	
<a href="#">CSC3407 Network Fundamentals and Routing</a>	2	1			4	1	
<a href="#">CSC3400 Database Systems</a> ^	2	1			4	1	
<a href="#">CSC3412 System and Security Administration</a>	2	1			3	1	
<a href="#">CSC2406 Web Technology 1</a>	2	2			3	2	Pre-requisite: <a href="#">CSC1401</a> or Students must be enrolled in one of the following Programs: GDTI or GCEN or METC or MCOT or MCTE or MCOP or MPIT or MCTN or BSED
<a href="#">CSC2404 Operating Systems</a>	2	2			3	2	Pre-requisite: <a href="#">CSC1401</a> or <a href="#">CSC2408</a> or have experience using Linux systems or students must be enrolled in one of the following Programs: GDTI or GCSC or GCEN or METC or MCOT or MCTE or MCOP or MPIT
Elective/second major course	2	2			4	2	
Elective/second major course	2	2			4	2	
<b>Year 3</b>							
<a href="#">CSC3420 Mobile Internet Technology</a>	3	1			5	1	Pre-requisite: <a href="#">CSC3407</a> or Students must be enrolled in one of the following Programs: GDTI or GCSC or GCEN or METC or MCOT or MCTE or MCOP or MPIT
Elective/second major course	3	1			5	1	
Elective/second major course	3	1			6	1	
Elective/second major course	3	1			6	2	
<a href="#">CSC3413 Network Design and Analysis</a>	3	2			5	2	
<a href="#">CSC3427 Switching, Wireless and WAN Technologies</a>	3	2			5	2	Pre-requisite: <a href="#">CSC3407</a> or Students must be enrolled in one of the following Programs: GDTI or GCSC or GCEN or METC or MCOT or MCTE or MCOP or MPIT
<a href="#">CSC3600 ICT Professional Project</a>	3	2			6	1	Pre-requisite: Students must have satisfactorily completed <a href="#">CIS3002 Business Analysis</a> and at least 16 courses including seven BITC core courses other than this course.
Elective/second major course	3	2			6	2	

**Footnotes**

^ In 2020 students should complete [CIS2002 Database Design and Implementation](#) instead of [CSC3400 Database Systems](#).