BCS22 – Bachelor of Cybersecurity

1. About the Bachelor of Cybersecurity

The Bachelor of Cybersecurity (BCS) is an AQF 7 qualification designed to provide graduates with a well-developed theoretical and technical base of coherent information technology knowledge with practical skills closely aligned with market demands and expectations in the disciplines of cybersecurity and emerging technologies.

The final capstone project is an opportunity for students to apply a culmination of knowledge and skills to achieve a particular project outcome, where possible working with industry clients and to a set project brief. There is also an opportunity to gain work integrated learning experiences.

The BCS prepares graduates to satisfy Skills Framework for the Information Age (SFIA) skills requirements in security administration, information security, incident management, and digital forensics, leading either to graduate-level employment in relevant cybersecurity sectors or to further study at a postgraduate level.

Graduate employment opportunities

The Bachelor of Cybersecurity provides graduates with the capability to seek professional level employment in either generalist or niche roles found within the IT and cybersecurity industries.

Examples include:

- Information Security Manager
- Cyber Security Manager
- Cyber Security Risk Analyst
- Senior Manager of IT Assurance
- Information Security Analyst

Course Overview

Course Title	**Bachelor of Cybersecurity (BCS22)**		
Study Options – Domestic Australian students	Face to Face delivery Online delivery Full-time and part-time options available.	**Study Options – International students**	International students on a student visa must not enroll into any more than a third or 33% of online subjects over their course and must study at least one subject that is face to face in each trimester. International students on a student visa are required to study full time, i.e. the student must complete a minimum of 1.0 EFTSL of study per year.
Start Dates	February, June, September For specific dates visit the website.	**Course Length**	Full-time: 3 years Part-time: 6 years
Payment Options - Domestic Australian students	**Upfront payment** This means tuition fees will be invoiced each semester and payment is required on or before the due date. **FEE-HELP** FEE-HELP is Australian Government's loan scheme for higher education degree courses. It can assist you in paying for all, or part of, your course fees. Repayments commence via the tax system once your income rises above a minimum threshold. Just like with any other debt, a FEE-HELP debt is a real debt that impacts your credit rating.	**Payment Options – International students**	***Upfront payment*** This means tuition fees will be invoiced each trimester and payment is required on or before the due date. *Further information within this Course Information Sheet*
Course study requirements	Each subject involves 10 hours of study per week, comprising 3 hours of facilitated study and 7 hours self-directed study.	**Assessment**	Project/Application Proposal, Process/Project Documentation, Application Outcome, Reflective Journal/Blog, Report/Essay, Presentation/Pitch, Examinations/Tests/Quizzes, Investigation, Collaboration, Individual self-directed major project, Work integrated learning project work
Locations	Sydney Melbourne Brisbane	**Delivered by**	Torrens University Australia

	Adelaide Online		
Provider	Torrens University Australia Ltd is registered as a self-accrediting Australian university by the Tertiary Education Quality and Standards Agency (TEQSA).	**CRICOS Course Code**	
Provider obligations	Torrens University is responsible for all aspects of the student experience, including the quality of course delivery, in compliance with the *Higher Education Standards 2015*	**Accrediting body**	Torrens University Australia Ltd
Course Fees	For details, refer to the website.	**Any other fees**	For details, refer to the website.

2. Essential requirements for admission

The general admission criteria that apply to Torrens University Australia courses can be located by visiting the Torrens University Australia website - https://www.torrens.edu.au/general-admission-information-for-torrens-university-australia-ltd.

3. Admission Criteria

Title of course of study	**Bachelor of Cybersecurity**
Applicants with higher education study	• A completed higher education qualification at AQF level 5 (diploma) or above, or equivalent, from an Australian University or another accredited higher education provider OR • Successful completion of at least 1 EFTSL (equivalent full-time student load, or one full year) of an AQF level 6 (Associate Degree) or above, or equivalent, from an Australian University or another accredited higher education provider.
Applicants with vocational education and training (VET) study	• A completed vocational education qualification at AQF level 4 (Certificate IV) or above, or equivalent, from a registered training organisation (RTO) OR • Successful completion of at least 1 EFTSL (equivalent full-time student load, or one full year) of an AQF level 5 (Diploma) or above, or equivalent, at a registered training organisation (RTO).
Applicants with recent secondary education (within the past two years) with ATAR or equivalent	Year 12 or equivalent

Title of course of study	Bachelor of Cybersecurity
Applicants with work and life experience	Demonstrated ability to undertake study at the required level: • broadly relevant work experience in Information Technology (documented e.g. CV), demonstrating a reasonable prospect of success; OR • formal, informal or non-formal study, completed or partially completed, demonstrating a reasonable prospect of success; OR • written submission to demonstrate reasonable prospect of success.
English Language Proficiency (applicable to international students, and in addition to academic or special entry requirements noted above)	Equivalent IELTS of 6.0 (Academic) or above, with no skills band less than 5.5.

Other admission options

(For applicants who will be selected on a basis other than ATAR)

Special Entry	Applicants in any category whose study, work or life experiences have been impacted by disability, illness or family disruption will be given special consideration for admission. Each application will be considered on its merit, based on the evidence supplied by the applicant attesting to the circumstances of the applicant. Applicants for special entry may need to complete written or numerical tasks to assist with assessing eligibility for admission.

4. How to apply

Via direct application to the institution

- https://apply.torrens.edu.au/

5. Advanced standing/academic credit/recognition of prior learning (RPL)

You may be entitled to credit for prior learning, whether formal or informal. Formal learning can include previous study in higher education, vocational education, or adult and community education. Informal learning can include on the job learning or various kinds of work and life experience. Credit can reduce the amount of study needed to complete a degree.

Applicants admitted based on prior higher education study may be eligible for Advanced Standing in the form of credit and/or recognition of prior learning (RPL) under the Torrens University Australia Credit Policy - (https://www.torrens.edu.au/policies-and-forms).

- Students with completed subjects may be eligible for specified credit and/or elective exemptions
- Students who have completed a qualification at AQF level 5 (diploma) or above may be eligible for block credit (where a block credit agreement exists)

- Students with a mix of formal study and informal and/or non-formal learning may be eligible for recognition of prior learning in addition to any credit approved.

Credit will not be applied automatically. Applicants must apply for credit and/or RPL as early as possible prior to each study period, with applications not accepted after week 2.

For further information about credit and recognition of prior learning please see http://www.torrens.edu.au/apply-online/course-credits.

6. Where to get further information

- Torrens University Australia (TUA) Website
  - https://www.torrens.edu.au/
- Universities Admissions Centre (UAC) Website
  - http://www.uac.edu.au/
- Quality Indicators for Learning and Teaching (QILT) Website
  - https://www.qilt.edu.au/

7. Additional Information

Course Structure
The course structure comprises of 18 core subjects and 2 elective subjects over levels 100, 200 and 300, as follows:

- Level 100: 8 mandatory core subjects (total of 80 credit points)
- Level 200: 7 mandatory core subjects and 1 elective subject (total of 80 credit points)
- Level 300: 5 mandatory core subjects (including one 30-credit point subject) and 1 elective subject (total of 80 credit points)

Course Rules
To be awarded the Bachelor of Cybersecurity, students must complete 240 credit points over 22 subjects as outlined in the course structure below. Each subject has a value of 10 credit points, with one subject having a value of 30 credit points (ATW306 Advanced Technology - Work Integrated Learning).

Subjects

SUBJECT DETAILS
SUBJECT TITLE, DESCRIPTOR
LEVEL 100
CAO107 - Computer Architecture and Operating Systems This subject examines the design, organisation, and operation of modern computer systems from both a hardware and software perspective. The first half of this subject explores the five classic components of a computer system: input, output, memory, data path and control, with the last two making up the processor. We explore the history of computer systems, highlighting the recent change in trend from increasing clock speeds to increasing processor/core counts. We describe how the performance of a computer system can be evaluated, how it has been the driving factor behind progress and why this recent change in trend was necessary. Each of the five classic components are examined in both an abstract sense and by looking at specific real-world examples. We put particular emphasis on the structure, design and operation of modern CPUs, how CPUs differ in design and operation from GPUs, and how memory hierarchies are used to improve performance. The second half of this subject examines how operating systems bring all of these computer system components together in a cohesive way, to allow user programs to interact with these components without needing to know about the low-level details. Students will learn about the structure of a modern operating system, with particular emphasis on processes & threads, memory management, file systems and I/O.
MIS100 - Foundations of Information Systems This subject is designed to prepare students for a career in a business information systems field as a Business Analyst (BA). They will gain insight into organisation and functions of a modern computer and communication and software components that support it. Through awareness of potential and limitations of systems and technologies students will work with testing and verifying data, develop confidence and competence in ability to understand, analyse, and apply information technology. The principles and importance of the agile methodology will be applied to the BA space.
ITP122- Introduction to Programming In this subject, students will be introduced to the fundamental concepts and methodologies utilised in programming. Students will develop problem solving skills in order to identify appropriate tools and methodologies to address software requirements. Decision logics and iterative programming will be explored and applied through software coding, debugging and testing on various platforms. Lastly, students will produce and present verified and validated software solutions and documentation to meet project goals.

SUBJECT DETAILS
SUBJECT TITLE, DESCRIPTOR
MIS102- Data and Networking The management of data underpins most aspects of information system at both theoretical and practical levels. Data is often stored in a distributed environment and management requires students to build an understanding of data networking, data communication, MS windows and network administration. This subject sets the foundations for many subsequent subjects in this course.
CBS131-Cybersecurity Principles The management of data underpins most aspects of information system at both theoretical and practical levels. Data is often stored in a distributed environment and management requires students to build an understanding of data networking, data communication, MS windows and network administration. This subject sets the foundations for many subsequent subjects in this course.
ISE102 - Introduction to Software Engineering This subject provides an introduction to the ideas and skills foundational to software engineering and will cover the fundamental concepts of programming with a particular focus on learning to use the C++ programming language. Students will gain an understanding of the basic ideas underlying programming and experience developing applications using an integrated development environment (IDE).
ICC104- Introduction to Cloud Computing In this subject, students learn the fundamental elements of Cloud Computing. They identify the building blocks of Cloud Computing including essential characteristics, different service models and how these models differ from each other. In addition, students also develop an understanding of resource pooling and virtualisation in Cloud. They learn about various deployment models in cloud computing and how these deployment models differ from traditional IT deployment models.
UED100-User Experience Design This subject introduces students to fundamental concepts in user experience (UX) design, which include user requirements analysis and modeling, prototype design and development, user-journey maps, usability testing and validation. Students engage with essential front-end design and development concepts and develop software-enabled interfaces using visual elements and interactive components. In addition, students will examine the principles of human interaction and responsiveness with computer-driven systems and the user interface design for variety of media in emerging applications.
LEVEL 200
NIS244-Network Security and Infrastructure Protection In Network Security and Infrastructure Protection, students will be introduced to principles of network operational protocols and network security concerns in relation to vulnerabilities and threats. Contemporary network security tools and techniques will be explored to detect vulnerabilities and assess their impacts on digital infrastructures. Students will analyse the benefits of network protection with a focus on next generation firewalls and advanced access management, evaluate network performance and present the integration of network security solutions into a digital infrastructure.
USD241-User, Software and Data Security In this subject, students will explore how to reduce vulnerabilities in software programs to protect applications and ensure systems security and data integrity. Important topics will be explored, such as developing resilient software programs and sustained software risk management to protect users and data against cybersecurity attacks. Upon completion of this subject, students have the skills and knowledge needed to develop secure software solutions that incorporate advanced software security, data protection, and incident management according to secure software governance standards.

SUBJECT DETAILS
SUBJECT TITLE, DESCRIPTOR
EPT232-Ethical Hacking and Penetration Testing Contemporary cybersecurity requires a proactive and offensive security approaches to protect business systems. This subject provides the opportunity for students to examine and understand the principles of offensive security paradigms and the impact on business computer systems. Students will explore and apply ethical hacking and penetration testing practices for vulnerability testing in order to propose security recommendations.
IPP221-IT Professional Practice Ethical practice, teamwork and professional communication skills are the key concepts that students will explore and apply in IT Professional Practice. Industry focused learning activities and assessment tasks allow students to examine authentic case studies to identify compliance issues that compromise the safeguarding of IT governance. Working with peers, students will develop their interpersonal and problem-solving skills as they collaboratively design and develop an IT security solution. The learning journey concludes with students presenting their final solution, demonstrating the ability to professionally articulate their ideas to an audience.
IDS201-Introduction to Data Science The aim of this subject is to provide students with fundamental knowledge of data, questions, and tools that a data scientist deals with. Students will not only be introduced to the ideas behind turning data into information but will also be introduced to the data scientist's toolbox. Topics include: data scientist skills and responsibilities in a business including planning, performing and presenting projects; data science code of ethics; data manipulation tools and techniques.
PBT205 - Project Based Learning Studio: Technology This subject provides students with an opportunity to work collaboratively on a series of projects, enhancing skills in a project-based environment such as time management, prioritisation, resilience and working within a team of people across multiple specialisations. Additionally, students will be challenged to find creative solutions to product development and small-scale rapid prototypes in the context of software engineering. Students will engage in peer learning through agile development and processes. This learning experience provides an opportunity to enhance self-development and promote continuous learning.
LEVEL 300
MLP301-Machine Learning Principles This subject aims to introduce students to the applications of machine learning, such as robotics, data mining, computer vision, bioinformatics and natural language processing, but will also discuss risks and limitations of machine learning. The subject also covers machine learning concepts and techniques such as supervised and unsupervised machine learning techniques; learning theory, reinforcement learning and model performance improvement. This subject requires students to have programming skills and knowledge in probability, statistics, regression, and classification.
CLA321-Cloud Architecture In Cloud Architecture, students will explore and examine the interwoven elements of cloud computing architecture that comprises of hardware, software, and networking. Building upon their database and networking design skills, students will gain significant knowledge on the design, construction, system, and testing of cloud architecture, with explicit consideration of relevant governance, cybersecurity, system acquisition, and ICT service requirements. Through collaborative project-based learning, students will construct and present schematics and simulated prototypes to communicate IT solutions which are scalable, efficient, dependable and cost effective.
HCC341-Human-Centric Cybersecurity in a Smart Society

SUBJECT DETAILS
SUBJECT TITLE, DESCRIPTOR
Human-centric cybersecurity in a smart society introduces students to cybersecurity strategies that address threat landscapes, vulnerability trends and human related risks. Increasing use of industry 4.0 technologies and the emergence of cyber-physical systems mean that cybersecurity is no longer contained to an organisation but becomes ubiquitous to daily life. In this subject there is a strong focus on human factors and intelligent technologies in the development of cybersecurity solutions that protect human users and digital societies. Students will present to stakeholders innovative and smart cybersecurity solutions that are designed to safe-guard human activities within digital society.
ECG334-Enterprise Cybersecurity Governance and Applications Planning, designing, securing and managing enterprise computing systems against cybersecurity attacks are the core themes that students will explore as their knowledge of cybersecurity continues to evolve. Security technologies and tools will be examined and assessed with consideration of cybersecurity standards and IT governance frameworks. Collaborating with peers, students will critically analyse and assess potential security risks to an enterprise system, culminating in the development and recommendation of an IT solution to secure its digital infrastructure. These skills will be developed and utilised further as students move on to their WIL major project.
DFT333-Digital Forensics Students will explore the contemporary tools and technologies utilised in a digital forensic. Interpreting evidence collected from a simulated cyber-crime, students employ critical-thinking and problem-solving skills to develop a hypothesis in consideration of legal obligations. Additionally, students will present the outcome/s of a collaborative investigation with consideration to ethical and professional practice. Acquiring this specialised knowledge will prepare students to rationalise and recommend future security protocols.
ATW306 - Advanced Tech: Work Integrated Learning This subject is designed to provide students with the experience in a professional environment in an area related to their specialisation. The aim of providing industry-specific opportunities is to enable students to develop skills to enhance their prospects of gaining meaningful employment and building their career as software engineers in the future. Much of the benefit of work integrated learning comes from observation, practicing under supervision and reflection. Work Integrated Learning is an excellent way to broaden the student's learning environment while they are studying. It allows them to see first-hand how what they are learning in their degree, translates into practice, as well as how 'real world' practice relates to what they are learning at university. This subject is designed to develop work ready skills to boost students' employability while they are studying. There are two work integrated learning options available to students: **Option 1: Industry Placement** Students are offered the opportunity to work within a technology company as an intern or volunteer at a technology non-profit organisation. It encourages students to build long-term relationships with the tech industry and provides an opportunity for them to work with and learn from people who may end up becoming colleagues, bosses or mentors. It also provides a context to enhance their communication skills and work collaboratively in a professional arena. Students will undertake a series of industry-led tasks that are relevant to software engineering in order to understand the key concepts of working within a professional technology team with emphasis placed on the operation of the environment. **Option 2: Industry Live Brief**

SUBJECT DETAILS
SUBJECT TITLE, DESCRIPTOR
This subject requires students to respond to criteria set within the context of an Industry Project. An understanding of research methodologies appropriate to professional practice and the documentation of personal creative investigation will be explored. Students will also further investigate and examine entrepreneurial and commercial opportunities through collaborative work practice. The subject is delivered from a cross specialisation perspective and draws on both specialised and common software engineering practices. Students are required to work both independently or as part of a collaborative team in order to conduct research, analyse and define project parameters and deliver innovative solutions that expand the notion of an Industry Project.

Locations

The Bachelor of Information Technology can be studied fully online or at the below Torrens University Campuses:

- Sydney: 46-52 Mountain Street, Ultimo NSW Australia 2007
- Melbourne: 196 Flinders St, Melbourne, VIC 3000
- Adelaide: 82-98 Wakefield Street, Adelaide, SA, 5000
- Brisbane: 90 Bowen Terrace, Fortitude Valley, QLD 4006
- Online

Campus Facilities and Services

All campuses are designed to provide students with professional spaces in which to learn and work. They have been planned with student study needs in mind with well-equipped accessible learning spaces as well as student breakout areas for group work and spending time with friends.

Facilities and Services include:

- The Customer Service Hub – our friendly and experienced staff can give help and advice about courses, your enrolment and campus life, including all services and activities on campus.
- Counsellors are available for students to consult with on a range of personal issues
- Student wireless access throughout the Campus
- Student break-out and relaxed study spaces for group work
- Student lounge areas – most with microwaves, kitchenette facilities and vending machines
- The Learning Hub, home to the Learning Support Team, encompasses Learning Skills Advisors, Learning Technology Advisors, and Library & Learning Skills Officers. It provides an integrated, holistic support program for students throughout the study lifecycle within a library/collaborative study environment.
  The service includes:
  - Support and workshops with highly qualified staff in the areas of Academic skills, Library skills, and Technology skills, both on campus and online.
  - Physical and digital resources relevant to studies, such as books, journals, multimedia, databases
  - Self-check kiosks for library loans and print and copy facilities

A positive student experience

Torrens University Australia values the importance of a positive student experience, and therefore has robust processes to resolve student complaints. The Student Complaints Policy, and associated procedures, can be accessed from the website (https://www.torrens.edu.au/policies-and-forms).

Paying for your qualification

We offer two payment options for this course:

- **Upfront payment**

If you want to complete your qualification debt-free you can choose to pay as you go. This means tuition fees will be invoiced each semester and payment is required on or before the due date using EFTPOS, credit card or direct transfer.

- **FEE-HELP**

  FEE-HELP is Australian Government's loan scheme for higher education degree courses. It can assist you in paying for all, or part of, your course fees. Repayments commence via the tax system once your income rises above a minimum threshold. Just like with any other debt, a FEE-HELP debt is a real debt that impacts your credit rating.

  Further information about FEE-HELP, including eligibility, is available at:

  - FEE-HELP website: http://studyassist.gov.au/sites/studyassist/helppayingmyfees/fee-help/pages/fee-help-
  - FEE-HELP booklets: http://studyassist.gov.au/sites/studyassist/helpfulresources/pages/publications

Austudy and Abstudy

Students enrolled in this course may be eligible for government assistance, such as Austudy or Abstudy.