

• • • • •
• • • • •

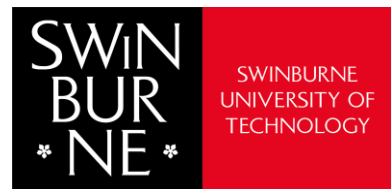
2023 Swinburne
Career Practitioner Seminar

Cyber Security

More than just pins and passwords

Presented By Prof. Jun Zhang, Dr. Rory Coulter & Andrew Plapp

17th February 2023 | AMDC505



• • •
• • •

• • • • • • • • • • • • • • •
• • • • • • • • • • • • • • •



• • • • •
• • • • •

Acknowledgement of Country

We respectfully acknowledge the Wurundjeri People of the Kulin Nation, who are the Traditional Owners of the land on which Swinburne's Australian campuses are located in Melbourne's east and outer-east, and pay our respect to their Elders past, present and emerging.

We are honoured to recognise our connection to Wurundjeri Country, history, culture, and spirituality through these locations, and strive to ensure that we operate in a manner that respects and honours the Elders and Ancestors of these lands.

We also respectfully acknowledge Swinburne's Aboriginal and Torres Strait Islander staff, students, alumni, partners and visitors.

We also acknowledge and respect the Traditional Owners of lands across Australia, their Elders, Ancestors, cultures, and heritage, and recognise the continuing sovereignties of all Aboriginal and Torres Strait Islander Nations.

• •
• •

• • • • • • • • • • • • • •
• • • • • • • • • • • • • •



Today's Presenters

Dr Rory Coulter

Industry Partner

{retrospect_labs}

Professor Jun Zhang, PhD

Director, Cyber Security Lab

Course Director

Andrew Plapp

Cyber Security student



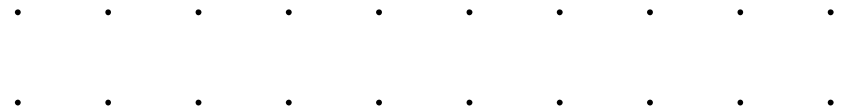
• • • • • • • •
• • • • • • • •
• • • • • • • •

What is Cyber Security?

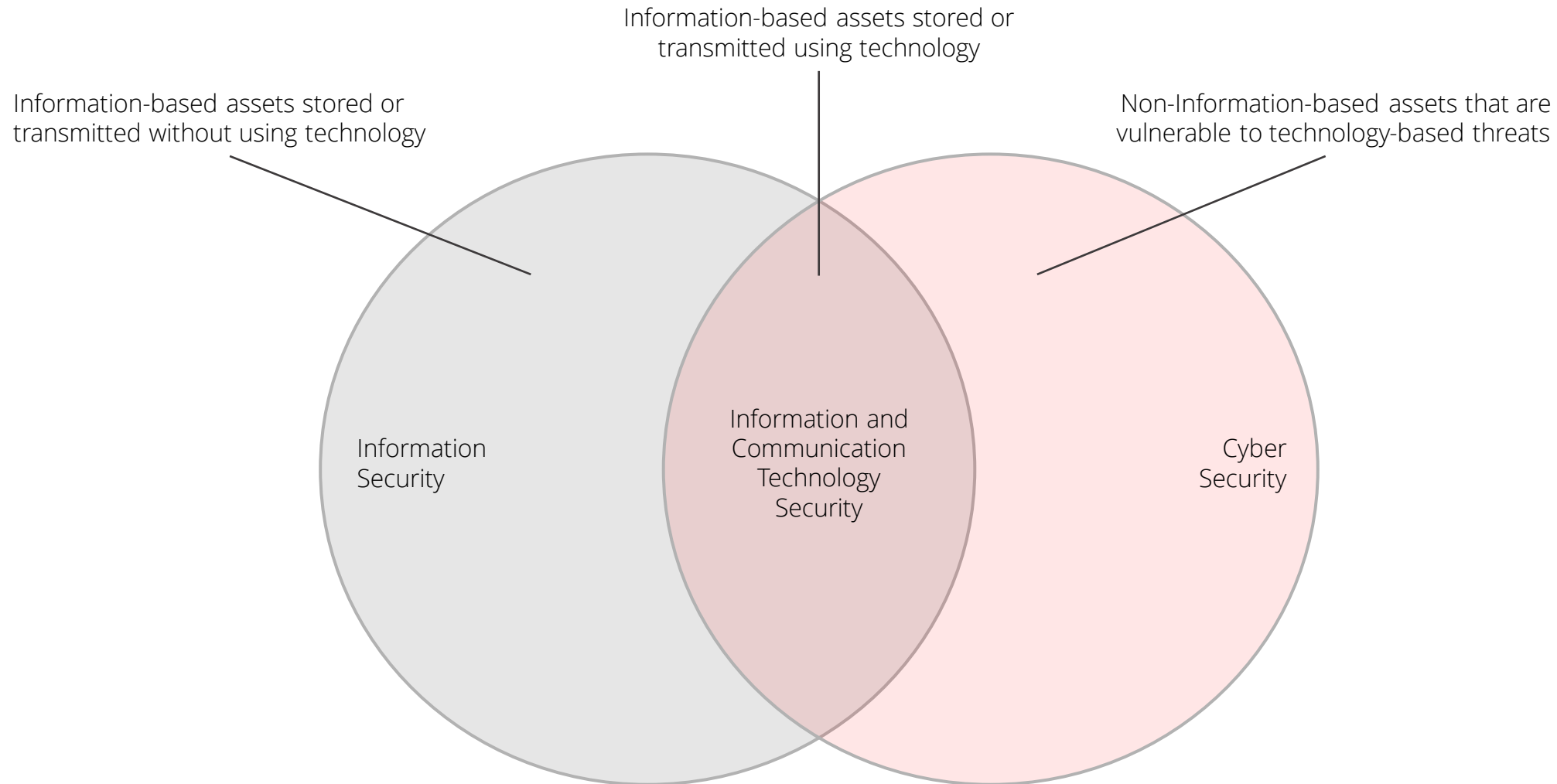
• • • • • • • •
• • • • • • • •
• • • • • • • •
• • • • • • • •
• • • • • • • •
• • • • • • • •
• • • • • • • •

What is Cyber Security?

- We're here to understand careers and pathways in cyber security, but what is it?
- "Cyber" has become a generic term, likely the figure on the right
- *Cyber Security* is a field of both technical and non-technical roles
- Let's first understand what Cyber Security is

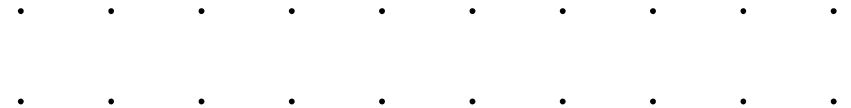


What is Cyber Security?



What is Cyber Security?

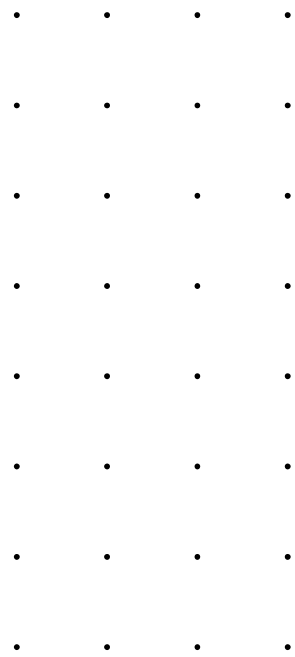
- **Information Security**
 - Filing cabinet or computer data
- **ICT Security**
 - Information being transmitted over communication technology
- **Cyber Security**
 - Digital information communication
 - Everything else



How Cyber Security is shaping our world

Modern Threats

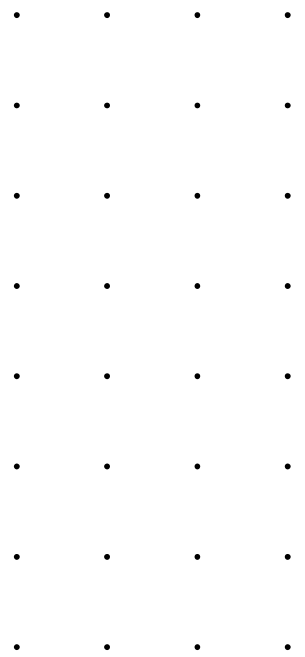
| Threats | Objectives | Skill | Attack Span |
|-----------------------|--|---------------|----------------|
| Nation/States | Geopolitical/Espionage, profit | High | Long |
| Cyber Criminals/Gangs | Profit | Medium - High | Long - Short |
| Terrorist Groups | Ideology, profit | Medium | Somewhat Short |
| Hacktivists | Ideology | Medium | Somewhat Short |
| Insider Threats | Disgruntled, profit, corporate espionage | Medium - Low | Long to short |
| Script Kiddies | Satisfaction or notoriety | Low | Short |



How Cyber Security is shaping our world

Let's consider *some* areas of web browsing

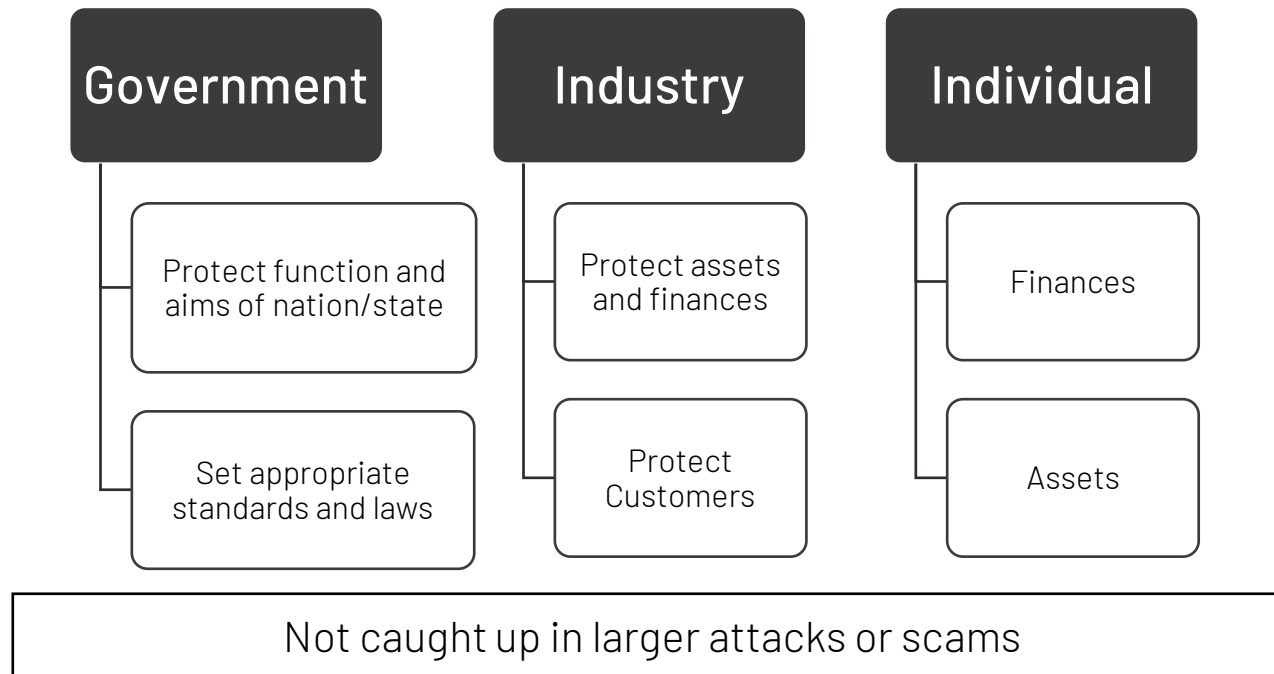
- Firewalls, Intrusion Detection
- Websites (testing for vulnerabilities, blocking attacks, audits, etc.)
- Database security (sanitisation, audit, testing, application firewalls)
- Keeping your connections secure (cryptography, protocols)
- Keeping the infrastructure secure (standards and audits, vulnerabilities)
- Physical controls (standards for access, visibility, audit)
- Scanning websites visited
- Blocking malicious website elements
- Scanning downloads
- Application controls for opening downloads
- Analysts monitoring for compromise of website, hunting threats, looking for passwords or vulnerabilities on the dark web



How Cyber Security is shaping our world

How relevant is Cyber Security today?

Cyber Security encompasses almost all Government, industry and individual activities



No computer, no Internet, likely there is still some connection

Different industries have different specifications (i.e. higher for critical infrastructure)



How Cyber Security is shaping our world

Present cyber security issues – 2021 – 2022

Cyber Security has become a battleground

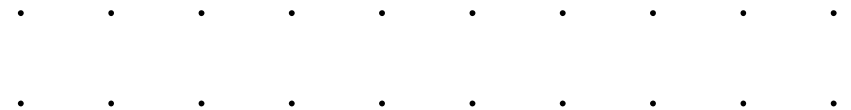
- Malware use in Ukraine
- Nation/station espionage

The exploitation of vulnerabilities is not just the story of organisations

- Attacks now targeting individuals

Ransomware is prolific

- Attackers fluid with price between individuals and organisations



How Cyber Security is shaping our world

A snapshot of present cyber security issues – 2021 - 2022

We are facing...

14% Increase in the cost per cyber crime
*\$39,000 for small business,
\$88,000 for medium business,
over \$62,000 for large business*

25% Increase in the number of publicly reported vulnerabilities

76K Cyber crime reports, an increase of 13%

150-200K Small office/home office routers in Australian homes and small businesses vulnerable

Australia's response

24M Malicious domain requests blocked

29K Brute force attacked against Australian servers taken down

15K Domains hosting malicious software taken down
targeting Australia's COVID-19 vaccine rollout

28K Indicators of compromise shared

Where Cyber Can Lead You

The field consists of a wide range of technical and non-technical roles

- Penetration testing
- Auditing
- Governance / Risk / Compliance
- Network Architecture
- Systems Analyst
- Intelligence
- Forensic and / or incident responding
- Research and / or education
- Plus many more

Key Skills include:

- Critical thinking
- Client Service
- Diversity of thought
- Reading and writing
- Problem solving
- STEM
- Collaboration
- Logic and reason
- IT and programming

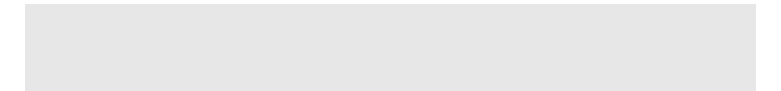
Candidates are in demand.

• • • • • • • •
• • • • • • • •
• • • • • • • •

Cyber Security at Swinburne



• • • • • • • •
• • • • • • • •
• • • • • • • •
• • • • • • • •
• • • • • • • •
• • • • • • • •
• • • • • • • •



Bachelor of Cyber Security

Overview



3 years full-time or
equivalent part-time

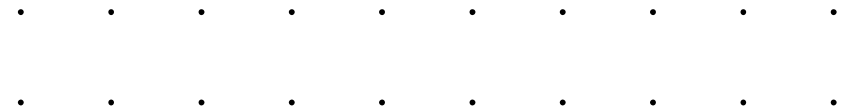
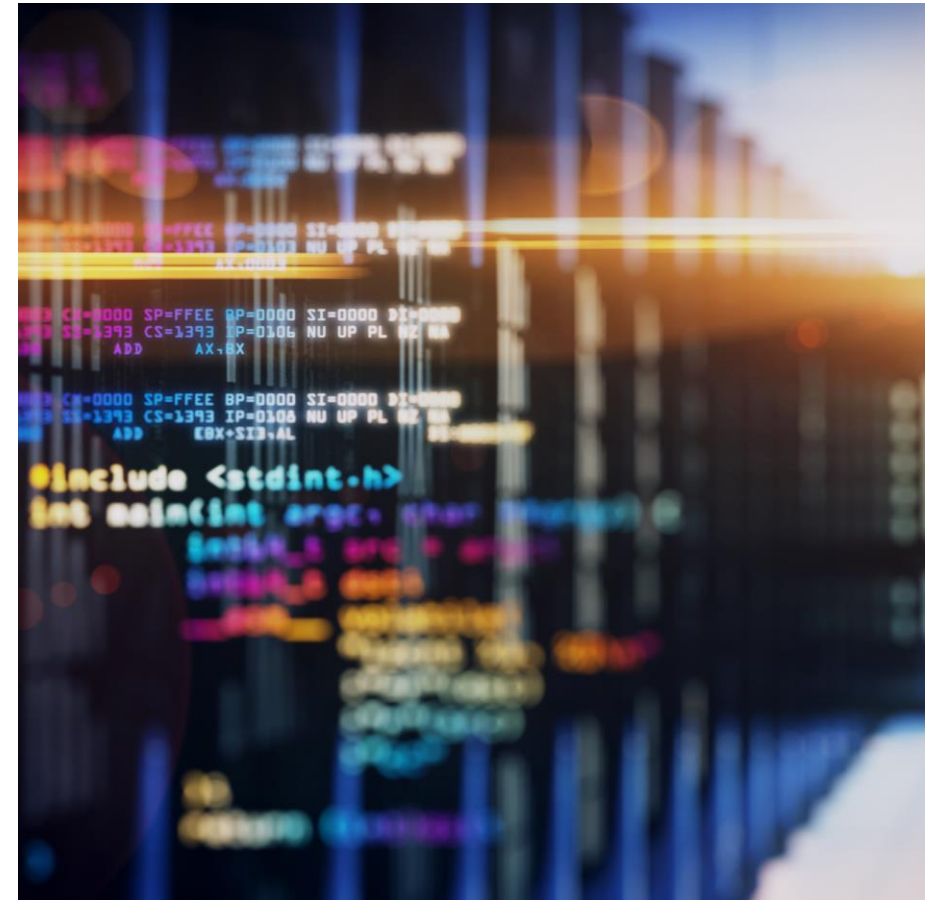


Semester 1 and
Semester 2 intakes



Hawthorn

- Topics covered: network security, cyber crime, cryptography, ethical hacking, legal/regulatory aspects, risk management
- Hands-on experience in identifying and mitigating cyber threats
- Equips graduates for careers in government, finance, IT, and other industries
- Develops a comprehensive understanding of cyber security and its importance in today's world



Bachelor of Cyber Security

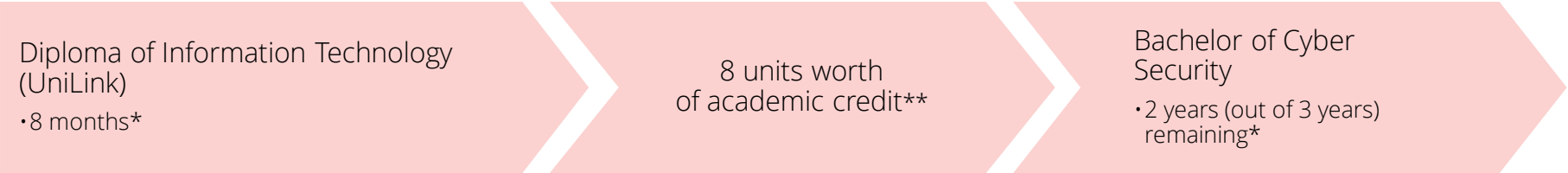
Entry requirements

70 min. 25

ATAR Guaranteed
Entry Score

VCE Units 3 and 4 English (except EAL) or
30 in English as an Additional Language (EAL) or equivalent.

Pathways



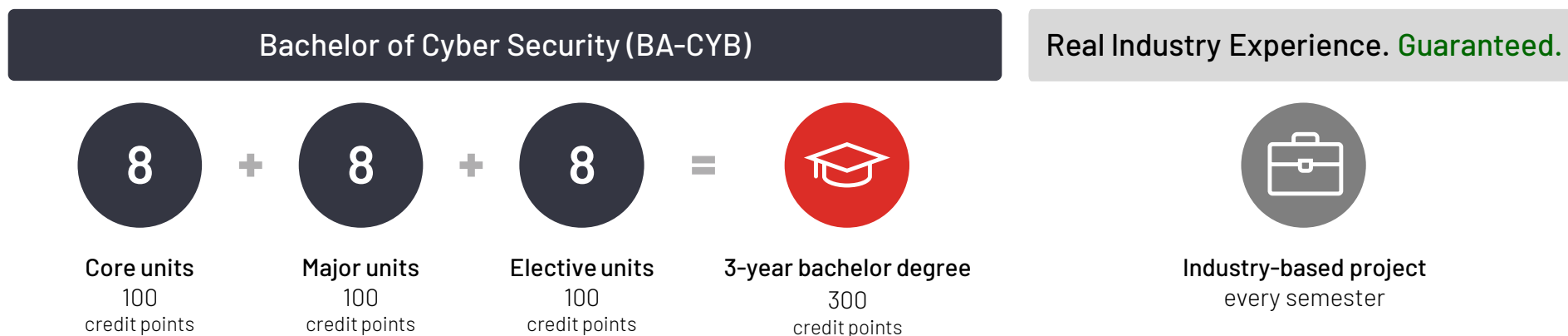
* full-time or equivalent part-time.

** credit information accurate as of 17 February 2023



Bachelor of Cyber Security

Course Structure



- Successful completion of the Bachelor of Cyber Security requires students to complete units of study to the value of **300 credit points**. All units of study are valued at 12.5 credit points unless otherwise stated.
- Full-time study: 100 credit points (8 standard units) of study per year.
- Part-time study: 50 credit points (4 standard units) of study per year.
- One credit point is equivalent to one hour of study per week per semester (including contact hours and private study).

Bachelor of Cyber Security – Industry connections



Industry Partner | {retrospect_labs}

Specialist Australian information security company focused on helping companies improve their security posture and resilience through realistic cyber security incident exercises.

They partner with Swinburne due to its cyber reputation and close links to industry

Real world challenges students solve:

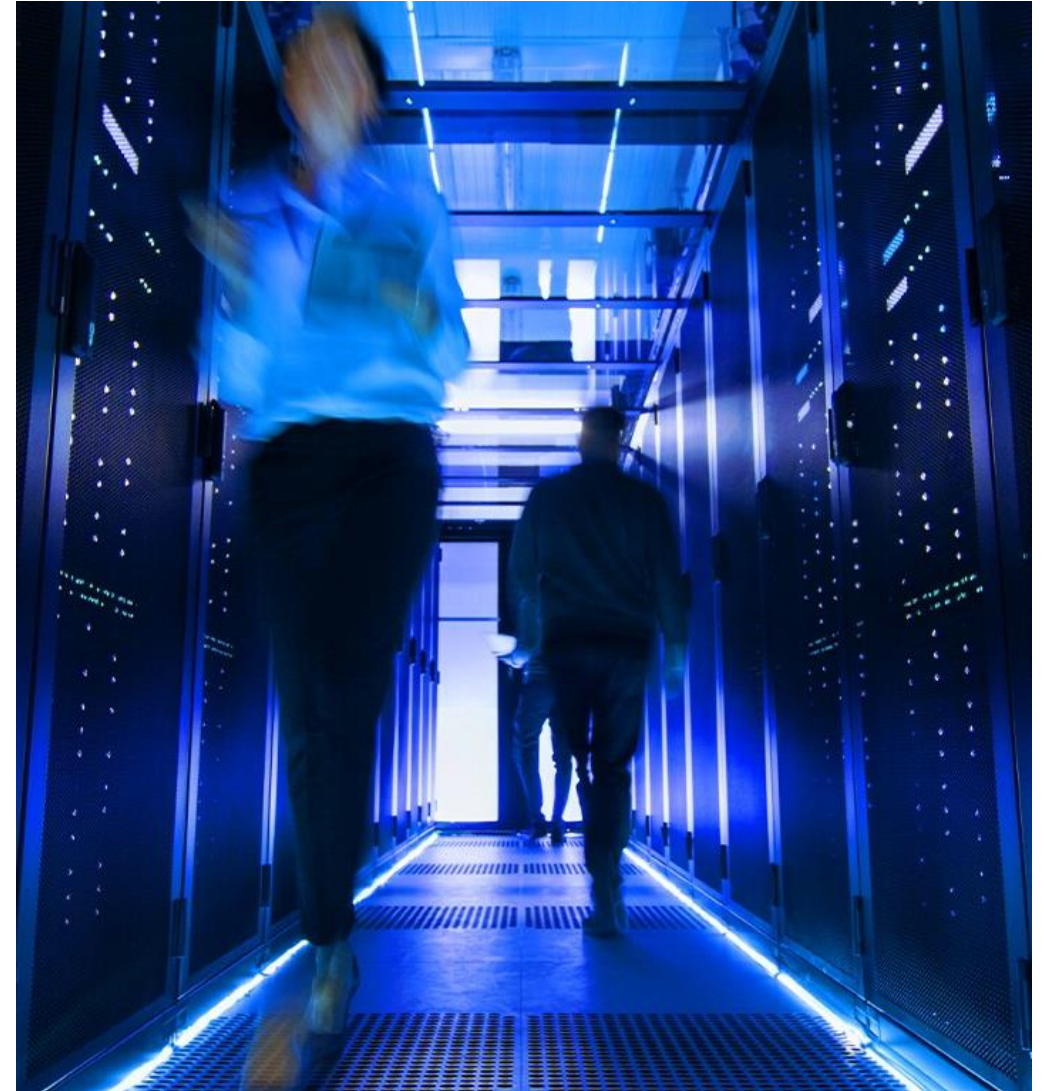
- UI/UX design of their platform
- Artificial Intelligence problems
- Data science uses of cyber threat intelligence



Deloitte
Cyber Academy



Deloitte.



Cyber Academy

Deloitte.



TAFE NSW



UNIVERSITY
OF WOLLONGONG
AUSTRALIA

Overview

The Deloitte Cyber Academy is a new Swinburne collaboration between industry, vocational education and higher education, aiming to narrow the Cyber Security Skills gap in the Australian market.

- 3-year program supported by Victorian and NSW governments.
- Create a talent pipeline of cyber security specialists.
- Students will be employed while they study.
- Dual enrolment into Diploma of Information Technology (Cyber Security) and the Bachelor of Cyber Security
- Employment by Deloitte, a government body or industry partner – earning a salary while they study
- Guaranteed job upon graduation



Why Swinburne for Cyber Security?



Cutting Edge Skills

- **Top research institution** for Cyber Security in The Australian's 2021 research magazine.
- **Swinburne Cyber Security lab**^[5] conducts world-class research and fosters cross-disciplinary collaboration. The outputs include hundreds of high-impact research papers and multi-million-dollar R&D projects.



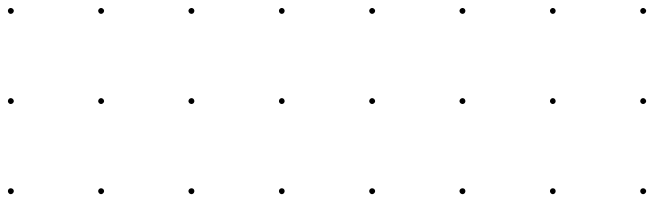
Real Industry Experience

- **Deloitte Cyber Academy** program connects Students to industry.
- Building cybersecurity and digital transformation skills with **CSIRO's Data 61 Next Generation - Emerging Technologies** grad program.



Community and Care

- **Small class sizes** and one-one-one connections with academic staff
- **Drop-in support** from tutors and experienced students for programming skills.
- **The Cyber Security Student club** gives students the opportunity to expand their knowledge and practice their classroom skills.



Thank you

Any questions?

