



Course Outline (Higher Education)

School:	School of Engineering, Information Technology and Physical Sciences
Course Title:	INTRODUCTION TO CYBER SECURITY FUNDAMENTALS AND PRACTICES
Course ID:	ITECH7611
Credit Points:	15.00
Prerequisite(s):	Nil
Co-requisite(s):	Nil
Exclusion(s):	Nil
ASCED:	029901

Description of the Course :

This course provides students with an easy understanding of fundamental concepts of cyber security as well as the knowledge needed to understand security risks and mitigation mechanisms associated with the implementation and management of IT infrastructure. The students learn real-world cyber security fundamentals/practices to serve as the foundation of their career skills and knowledge for years to come.

Grade Scheme: Graded (HD, D, C, etc.)

Placement Component: No

Supplementary Assessment: Yes

Where supplementary assessment is available a student must have failed overall in the course but gained a final mark of 45 per cent or above and submitted all major assessment tasks.

Program Level:

Level of course in Program	AQF Level of Program					
	5	6	7	8	9	10
Introductory	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Intermediate	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	✓	<input type="checkbox"/>
Advanced	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Learning Outcomes:

Knowledge:

- K1.** Analyse and describe the principles of information in the context of cyber security threats and attacks
- K2.** Investigate Internet tools used by hackers to penetrate systems and launch attacks.
- K3.** Differentiate and integrate legal, privacy and ethical aspects in the context of cyber security.
- K4.** Review basic security issues related to wired, wireless and mobile networks covering authentication, message encryption and key management.
- K5.** Analyse different mitigation mechanisms and prevention to determine and evaluate possible security solutions.

Skills:

- S1.** Outline threats and risks from cyberspace.
- S2.** Appraise the encryption strength by the key size and algorithm applied.
- S3.** Perform the anti-malware scanning and/or intrusion detection using open source software.
- S4.** Utilize open-source tools to create a simple yet fully functional firewall.
- S5.** Compare and contrast presentations of cyber security topics.

Application of knowledge and skills:

- A1.** Demonstrate initiative and judgement to adapt cyber security technologies to unique and diverse contexts.
- A2.** Relate and interpret emerging developments in cyber security to historical developments.

Course Content:

Topics may include:

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- Protecting your computer and its contents.
- Securing computer networks, communications and Information practices.
- Safe Internet usage, ethics and privacy guidelines.
- Fundamental of digital signatures, cryptography, physical and logical security controls.
- Firewalls, IDS/IPS systems, antivirus: signatures and sandboxing, and Incident response.
- Vulnerability and penetration testing.
- Telecommunications systems, network security, wireless security, host and server security.
- Introduction to web browser, mobile and cloud security.
- Operation system and software security.

Values:

- V1.** Understand cyber threats, attacks and incidents arising from all sectors of industry.
- V2.** Appreciate the importance of cyber security for the global development.

Graduate Attributes

The Federation University FedUni graduate attributes (GA) are entrenched in the Higher Education Graduate Attributes Policy (LT1228). FedUni graduates develop these graduate attributes through their engagement in explicit learning and teaching and assessment tasks that are embedded in all FedUni programs. Graduate attribute attainment typically follows an incremental development process mapped through program progression. **One or more graduate attributes must be evident in the specified learning outcomes**

and assessment for each FedUni course, and all attributes must be directly assessed in each program

Graduate attribute and descriptor		Development and acquisition of GAs in the course			
		Learning Outcomes (KSA)	Code A. Direct B. Indirect N/A Not addressed	Assessment task (AT#)	Code A. Certain B. Likely C. Possible N/A Not likely
GA 1 Thinkers	Our graduates are curious, reflective and critical. Able to analyse the world in a way that generates valued insights, they are change makers seeking and creating new solutions.	K1-K5, S1-S5, A1-A2	A	AT1, AT2, AT3	A
GA 2 Innovators	Our graduates have ideas and are able to realise their dreams. They think and act creatively to achieve and inspire positive change.	K1-K3, K5, S1-S5, A2	A	AT1, AT2, AT3	B
GA 3 Citizens	Our graduates engage in socially and culturally appropriate ways to advance individual, community and global well-being. They are socially and environmentally aware, acting ethically, equitably and compassionately.	K1-K3, K5, S1-S5, A2	B	AT1, AT2, AT3	A
GA 4 Communicators	Our graduates create, exchange, impart and convey information, ideas, and concepts effectively. They are respectful, inclusive and empathetic towards their audience, and express thoughts, feelings and information in ways that help others to understand.	K1-K3, K5, S1-S5, A2	A	AT2	A
GA 5 Leaders	Our graduates display and promote positive behaviours, and aspire to make a difference. They act with integrity, are receptive to alternatives and foster sustainable and resilient practices.	K3, K5, S1, A1	B	AT2	C

Learning Task and Assessment:

Learning Outcomes Assessed	Learning Tasks	Assessment Type	Weighting
K1 - K5, S1 - S5, A1 - A2	Participate in lectures, read and summarize conceptual and practical aspects of the course	Assignment(s)	10% - 30%
K1 - K5, S1 - S5, A1 - A2	Self directed initiatives aimed at producing an artifact that demonstrates skill acquisition	Assignment(s) and Presentation(s)	30% - 50%
K1 - K5, S1 - S5, A1 - A2	Examination(s)/Test(s) questions covering the course material, read and theoretical aspects of the course	Examination(s)/Test(s)	30% - 40%

Adopted Reference Style:

APA