



Course Outline (Higher Education)

Institute / School:	Institute of Innovation, Science & Sustainability
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:

The explosion of information and communication technologies, systems, applications, and networks have enormous benefits to government and industry. However, there are also increasing incidents of major cyber-attacks that have numerous threats to privacy and security. In this course we will cover fundamental concepts of cyber security, risk mitigation mechanisms associated with the implementation and management of IT infrastructure. You will learn real-world applications of cyber security and a solid foundation in theory and practice to support your future career. The course aligns with requirements of the Certified Information Systems Security Professional (CISSP) certification.

Grade Scheme: Graded (HD, D, C, P, MF, F, XF)

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:

Topics may include:

- 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.

FEDTASKS

Federation University Federation recognises that students require key transferable employability skills to prepare them for their future workplace and society. FEDTASKS (**T**ransferable **A**tttributes **S**kills and **K**nowledge) provide a targeted focus on five key transferable Attributes, Skills, and Knowledge that are embedded within curriculum, developed gradually towards successful measures and interlinked with cross-discipline and Co-operative Learning opportunities. *One or more FEDTASK, transferable Attributes, Skills or Knowledge must be evident in the specified learning outcomes and assessment for each FedUni course, and all must be directly assessed in each program.*

FEDTASK attribute and descriptor		Development and acquisition of FEDTASKS in the course	
		Learning Outcomes (KSA)	Assessment task (AT#)
FEDTASK 1 Interpersonal	Students at this level will demonstrate an advanced ability in a range of contexts to effectively communicate, interact and work with others both individually and in groups. Students will be required to display high level skills in-person and/or online in: <ul style="list-style-type: none"> • Using and demonstrating a high level of verbal and non-verbal communication • Demonstrating a mastery of listening for meaning and influencing via active listening • Demonstrating and showing empathy for others • High order skills in negotiating and conflict resolution skills • Demonstrating mastery of working respectfully in cross-cultural and diverse teams. 	K3, K4, S5	AT1, AT2, AT3
FEDTASK 2 Leadership	Students at this level will demonstrate a mastery in professional skills and behaviours in leading others. <ul style="list-style-type: none"> • Creating and sustaining a collegial environment • Demonstrating a high level of self-awareness and the ability to self-reflect and justify decisions • Inspiring and initiating opportunities to lead others • Making informed professional decisions • Demonstrating initiative in new professional situations 	Not applicable	Not applicable
FEDTASK 3 Critical Thinking and Creativity	Students at this level will demonstrate high level skills in working in complexity and ambiguity using the imagination to create new ideas. Students will be required to display skills in: <ul style="list-style-type: none"> • Reflecting critically to generate and consider complex ideas and concepts at an abstract level • Analysing complex and abstract ideas, concepts and information • Communicate alternative perspectives to justify complex ideas • Demonstrate a mastery of challenging conventional thinking to clarify complex concepts • Forming creative solutions in problem solving to new situations for further learning 	K1, K2, K3, K5, S2, S3, S4	AT1, AT2, AT3
FEDTASK 4 Digital Literacy	Students at this level will demonstrate the ability to work competently across a wide range of tools, platforms and applications to achieve a range of tasks. Students will be required to display skills in: <ul style="list-style-type: none"> • Mastering, exploring, evaluating, managing, curating, organising and sharing digital information professionally • Collating, managing complex data, accessing and using digital data securely • Receiving and responding professionally to messages in a range of professional digital media • Contributing competently and professionally to digital teams and working groups • Participating at a high level in digital learning opportunities 	K4, S1, A2	AT1, AT2, AT3

FEDTASK attribute and descriptor		Development and acquisition of FEDTASKS in the course	
		Learning Outcomes (KSA)	Assessment task (AT#)
FEDTASK 5 sustainable and Ethical Mindset	Students at this level will demonstrate a mastery of considering and assessing the consequences and impact of ideas and actions in enacting professional ethical and sustainable decisions. Students will be required to display skills in: <ul style="list-style-type: none"> • Demonstrate informed judgment making that considers the impact of devising complex solutions in ambiguous global economic environmental and societal contexts • Professionally committing to the promulgation of social responsibility • Demonstrate the ability to evaluate ethical, socially responsible and/or sustainable challenges and generating and articulating responses • Communicating lifelong, life-wide and life-deep learning to be open to the diverse professional others • Generating, leading and implementing required actions to foster sustainability in their professional and personal life. 	S1	AT1, AT2, AT3

Learning Task and Assessment:

Learning Outcomes Assessed	Assessment 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)	20% - 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

Refer to the [library website](#) for more information

Fed Cite - [referencing tool](#)