Software and Data Security Course Descriptor

Course Title	Software and Data Security	Faculty	EDGE Innovation Unit (London)
Course code	NCHNAP6141	Course Leader	Dr Yu-Chun Pan
Credit points	15	Teaching Period	This course will typically be delivered over a 6-week period.
FHEQ level	6	Date approved	September 2022
Core/Optional	Core for Software Engineer Specialism or Cyber Security Specialist	Date modified	
Prerequisites			

Course Summary

It is of vital importance that applications are secure and that users have complete confidence that their data is held securely, unavailable to those that would seek to use it for their own good and/or illegal purposes. This course therefore examines and investigates the principles, processes and procedures that underpin software and data security. Within the software development life cycle a range of methodologies and tools are employed to identify vulnerabilities and weaknesses and systematically review and build in robust security. Threats to data security and how to protect data are major concerns of all business and organisations. To achieve this and meet the requirements of regulations and legislation a range of methods and strategies are employed. The audit of data can classify it and manage it to mitigate risk, technological tools and methods may be employed to test and identify risk, while policies, procedures and practices aim to ensure the physical and human environment are safe.

Course Aims

- To provide learners with the principles, concepts and techniques that underpin software and data security, and the regulatory and legislative contexts within which they operate.
- To provide learners with detailed insight into vulnerabilities and weakness within software and threats to data security.

- To enable learners to analyse the wider environment in which software and data are stored, accessed, and used and make recommendations to enhance security and mitigate risk.

Learning Outcomes

On successful completion of the course, learners will be able to:

Knowledge and Understanding

K1c Demonstrate knowledge and critical understanding of the principles, concepts and processes that underpin software and data security and the regulatory and legislative context within which they operate.

K2c Demonstrate knowledge and critical understanding of vulnerabilities and weaknesses in software development, and threats to data security.

K3c Demonstrate knowledge and critical understanding of strategies and methodologies that build security into software and ensure a secure data environment.

Subject Specific Skills

S1c Accurately interpret regulations, legislation and the expectations of governance, policy, and processes for software and data security.

S2c Plan security measures, processes and methods that build security into the development and use of software, and ensure data is stored, accessed, and used in a robust security environment.

S3c Assess methodologies and use appropriate tools, processes and methods to identify weaknesses and vulnerabilities in software development, and identify threats to data security.

Transferable and Professional Skills

T1ci Engage in effective research, collate and analyse technical information to support complex problem solving.

T1cii Utilise an advanced level of technical proficiency of written English, while effectively applying scholarly terminology, to critically evaluate, analyse and make judgements and apply these appropriately to a range of diverse contexts.

T2c Apply analytical and critical thinking skills to complex technological problems and their solution.

T3c Apply understanding of business contexts and develop arguments to support technological solutions and innovation.

Teaching And Learning

This is an e-learning course, taught throughout the year.

Teaching and learning strategies for this course will include:

- Online learning
- Online discussion groups
- Online assessment

Course information and supplementary materials will be available on the College's Virtual Learning Environment (VLE).

Learners are required to attend and participate in all the formal and timetabled sessions for this course. Learners are also expected to manage their self-directed learning and independent study in support of the course.

The course learning and teaching hours will be structured as follows:

- Off-the-job learning and teaching (6 days x 7 hours) = 42 hours
- On-the-job learning (12 days x 7 hours) = 84 hours (e.g. 2 days per week for 6 weeks)
- Private study (4 hours per week) = 24 hours

Total = 150 hours

Workplace assignments (see below) will be completed as part of on-the-job learning.

Assessment

Formative

Learners will be formatively assessed during the course by means of set assignments. These will not count towards the final degree but will provide students with developmental feedback.

Summative

Assessment will be in two forms:

AE	Assessment Type	Weighting	Online submission	Duration	Length
1	Set Exercises	60%	Yes	Requiring on average 20 – 30 hours to complete	-
2	Written Assignment (workplace case study)	40%	Yes	-	1500 words

Feedback

Learners will receive formal feedback in a variety of ways: written (via email or VLE correspondence) and indirectly through online discussion groups. Learners will also attend a formal meeting with their Academic Mentor (and for apprentices, including their Line Manager). These bi or tri-partite reviews will monitor and evaluate the learner's progress.

Feedback is provided on summative assessed assignments and through generic internal examiners' reports, both of which are posted on the VLE.

Indicative Reading

Note: Comprehensive and current reading lists for courses are produced annually in the Course Guide or other documentation provided to learners; the indicative reading list provided below is used as part of the approval/modification process only.

Books

- Kohnfelder, L. (2021) *Designing Secure Software*: No Starch Press.
- Ribeiro, M. (2022) *Learning DevSecOps*: O'Reilly Media, Inc.
- Warren Axelrod, C. (2012) *Engineering Safe and Secure Software Systems*: Artech House.

Journals

Learners are encouraged to read material from relevant journals on Software and Data Security as directed by their course leader.

Electronic Resources

Learners are encouraged to consult relevant websites on Software and Data Security.

Indicative Topics

Learners will study the following topics:

- Software and Data Security
- Secure Software Development (DevSecOps)
- Secure Data Management

Title: NCHNAP6141 Software and Data Security **Approved by: Academic Board** **Location: Academic Handbook/Programme specifications and Handbooks/Undergraduate Apprenticeship Programmes/BSc (Hons) Digital & Technology Solutions Programme Specification/Course Descriptors**					
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