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MODULE DESCRIPTOR

Module Title

Database and Web Security

Reference	CMM523	Version	2
Created	February 2019	SCQF Level	SCQF 11
Approved	August 2017	SCQF Points	15
Amended	February 2019	ECTS Points	7.5

Aims of Module

To gain an understanding of the main security threats to databases and web applications. To enable students to develop the skills necessary to secure databases and web applications.

Learning Outcomes for Module

On completion of this module, students are expected to be able to:

1	Identify, analyse and discuss the main threats to databases and web applications.
2	Analyse and appraise the necessary countermeasures to secure databases and web applications.
3	Apply the methods and techniques used in designing secure databases and web applications.
4	Discuss the legal and ethical considerations related to data and web privacy and security.

Indicative Module Content

Security Services: Data Confidentiality, Integrity and Availability. Security Controls: Authentication, Authorisation and Auditing; Managing user accounts, roles and privileges. Data Security: Encryption, and Row-level security. Internet infrastructure and technologies: client-server architectures, client-side (e.g., HTML and JavaScript) and server-side (e.g., PHP) technologies. Threats: HTTP vulnerabilities, SQL injection, privilege misuse, cache poisoning, and cross-site scripting. Security in the development lifecycle of databases and web applications: prepared statements, Web application firewalls, input validation, etc. Database and Web Application Monitoring and Forensics. Compliance, Privacy and Ethics: web tracking and privacy (e.g., cookies), and standards (e.g., PCI-DSS).

Module Delivery

Key concepts are introduced and illustrated through lectures and directed reading. The understanding of students is tested and further enhanced through lab sessions.

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Indicative Student Workload	Full Time	Part Time
Contact Hours	44	44
Non-Contact Hours	106	106
Placement/Work-Based Learning Experience [Notional] Hours	N/A	N/A
TOTAL	150	150
Actual Placement hours for professional, statutory or regulatory body		

ASSESSMENT PLAN

If a major/minor model is used and box is ticked, % weightings below are indicative only.

Component 1

Type:	Examination	Weighting:	50%	Outcomes Assessed:	1, 2, 4
Description:	This is a closed book examination.				

Component 2

Type:	Practical Exam	Weighting:	50%	Outcomes Assessed:	3
Description:	This is a practical assessment where students will be applying methods to atack and secure a database-driven web site.				

MODULE PERFORMANCE DESCRIPTOR

Explanatory Text

The calculation of the overall grade for this module is based on equal weighting of C1 and C2 components.

		Examination:						
		A	**B**	**C**	**D**	**E**	**F**	**NS**
Coursework:	**A**	A	A	B	B	C	E	
	B	A	B	B	C	C	E	
	C	B	B	C	C	D	E	
	D	B	C	C	D	D	E	
	E	C	C	D	D	E	E	
	F	E	E	E	E	E	F	
	NS	Non-submission of work by published deadline or non-attendance for examination						

Module Requirements

Prerequisites for Module	None.
Corequisites for module	None.
Precluded Modules	None.

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INDICATIVE BIBLIOGRAPHY

1	Connolly, T. and Begg, C., 2015. Database Systems: A Practical Approach to Design, Implementation and Management. Pearsons.
2	Prettyman, S., 2016. Lear PHP 7: Object Oriented modular Programming using HTML5, CSS3, Javascript, XMl, JSON and MySQL. Apress.
3	Mueller, J.P., 2015. Security for Web Developers: Using JavaScript, HTML and CSS. O?Reilly.
4	Cherry, D., 2015. Securing SQL Server: Protecting your database from attackers. Syngress.
5	Wright, P., 2014. Protecting Oracle database 12c. Apress.
6	Welling, L. and Thomson L., 2016. PHP and MySQL Web Development. Addison-Wesley.