Module Proforma

Approved, 2022.02

Summary Information

Module Code	5216COMP
Formal Module Title	System Penetration Testing
Owning School	Computer Science and Mathematics
Career	Undergraduate
Credits	20
Academic level	FHEQ Level 5
Grading Schema	40

Module Contacts

Module Leader

Contact Name	Applies to all offerings	Offerings
Mahmoud Hashem Eiza	Yes	N/A

Module Team Member

Contact Name	Applies to all offerings	Offerings
Sorren Hanvey	Yes	N/A

Partner Module Team

Contact Name	Applies to all offerings	Offerings

Teaching Responsibility

LJMU Schools involved in Delivery
Computer Science and Mathematics

Learning Methods

Learning Method Type	Hours
Lecture	22
Practical	22

Module Offering(s)

Offering Code	Location	Start Month	Duration
JAN-CTY	CTY	January	12 Weeks

Aims and Outcomes

Aims	To familiarize students with common penetration testing techniques, security issues and software vulnerabilities as well as the methods, tools and techniques that can be used during penetration testing to detect such vulnerabilities.To provide students with an understanding of techniques that should be applied through a penetration testing methodology in order to test for system insecurity.

Learning Outcomes

After completing the module the student should be able to:

Code	Description
MLO1	Analyse software for vulnerabilities.
MLO2	Apply a range of techniques to detect software insecurity.
MLO3	Demonstrate awareness of the technical issues and complexity surrounding software security assessment.
MLO4	Investigate software vulnerabilities through performing penetration tests

Module Content

Outline Syllabus
Software vulnerability analysisLow level programming language analysis in a security contextAnalysis and exploitation of data structures Practical penetration and software testingOperating system securityUse of exploitation toolsBug and exploitation hunting

Module Overview
In this module you will consider the various stages of a penetration testing lifecycle and the necessary technologies available in performing software tests. This module follows on from skills developed in the Operating System module and prepares you for a boarder discussion of ethical hacking topics covered in the final year. You will be familiarised with common penetration testing techniques, security issues and software vulnerabilities as well as the methods, tools and techniques that can be used during penetration testing to detect such vulnerabilities.

Additional Information
Students will produce a report discussing aspects of penetration testing and vulnerability analysis. They will consider the various stages of a penetration testing lifecycle and the necessary technologies available in performing software tests. This module follows on from skills developed in the Operating System module and prepares students for a boarder discussion of ethical hacking topics covered in the final year.

Assessments

Assignment Category	Assessment Name	Weight	Exam/Test Length (hours)	Learning Outcome Mapping
Report	Research Report	50	0	MLO1, MLO3
Report	Technical Analysis Task	50	0	MLO2, MLO4