

Liverpool John Moores University

Title: MOBILE SYSTEMS AND FORENSICS
Status: Definitive
Code: **6058BECK** (118390)
Version Start Date: 01-08-2011

Owning School/Faculty: Computing and Mathematical Sciences
Teaching School/Faculty: Beckett College London

Team	Leader
Robert Askwith	Y

Academic Level: FHEQ6 **Credit Value:** 24.00 **Total Delivered Hours:** 72.00
Total Learning Hours: 240 **Private Study:** 168

Delivery Options

Course typically offered: Standard Year Long

Component	Contact Hours
Lecture	24.000
Practical	12.000
Seminar	12.000
Tutorial	24.000

Grading Basis: 40 %

Assessment Details

Category	Short Description	Description	Weighting (%)	Exam Duration
Report	AS1	Design of a Wireless Networking Infrastructure supporting specific application requirement.	50.0	
Report	AS2	Forensic analysis of traffic captures.	50.0	

Aims

To provide an in-depth study of the application and network requirements of wireless and mobile communications systems.

To develop an advanced understanding of the theory and practice of building

modern mobile and wireless systems.

To develop a critical appreciation of both the theoretical and practical issues in the field of network forensics.

To develop the necessary skills, methodologies and processes to conduct a basic network forensics investigation within an organisation.

Learning Outcomes

After completing the module the student should be able to:

- 1 Critically review and identify the fundamental technical requirements of applications and network infrastructures supporting modern wireless systems.
- 2 Apply creative skills concerning the development of applications and network infrastructures of modern wireless systems.
- 3 Critically evaluate recent advances in network technologies to assess their impact and applicability to a network forensics investigation.
- 4 Critically analyse and evaluate network forensics data evidence.

Learning Outcomes of Assessments

The assessment item list is assessed via the learning outcomes listed:

Design	1	2
Forensic analysis	3	4

Outline Syllabus

Wireless Networking Infrastructures: Application and Network Requirements, Wireless Network Architectures; WLAN infrastructure, Bluetooth ad hoc, Protocols and Internetworking issues; wireless Internet, Mobile IP, MIPv6, Cellular IP, WAP, Wireless QoS, Middleware for wireless, adaptation, security, MAC schemes, TDMA/CDMA/FDMA, Applications; location-based services, networked appliances, sensor networks

Network forensics basics: network forensics fundamentals, understanding network protocols, communications, the Windows network environment and identifying key sources of evidence within a network investigation, networked storage and servers,

Network analysis: email as source of contextual information and evidence, identifying communications path evidence, Web-based email versus client applications and legal considerations when investigating emails, advances in network applications e.g. VoIP, mobile phones and PDAs, social network analysis, live response, attack detection and incident response.

Learning Activities

Students will participate in lectures, tutorials, and practical lab sessions.

References

Course Material	Book
Author	Stallings, W.
Publishing Year	2004
Title	Wireless Communications and Networks
Subtitle	
Edition	
Publisher	Prentice Hall (Pearson)
ISBN	0131967908

Course Material	Book
Author	Mallick, M.
Publishing Year	2003
Title	Mobile and Wireless Design Essentials
Subtitle	
Edition	
Publisher	Wiley
ISBN	0471214191

Course Material	Book
Author	Schiller, J.
Publishing Year	2004
Title	Mobile Communications
Subtitle	
Edition	2nd Edition
Publisher	Addison-Wesley (Pearson)
ISBN	0-321-12381-6

Course Material	Book
Author	Punz, G.
Publishing Year	2009
Title	Evolution of 3G Networks
Subtitle	The Concept, Architecture and Realization of Mobile Networks beyond UMTS
Edition	
Publisher	Springer
ISBN	3211094393

Course Material	Book
Author	Anson, S. and Bunting, S.
Publishing Year	2007

Title	Mastering Windows Network Forensics and Investigation
Subtitle	
Edition	
Publisher	John Wiley & Sons
ISBN	0-470-09762-0

Course Material	Book
Author	Di Pietro, R. and Mancini, L.V.
Publishing Year	2008
Title	Intrusion Detection Systems
Subtitle	
Edition	
Publisher	Springer
ISBN	0-387-77265-0

Course Material	Book
Author	Jones, K.J., Bejtlich, R. and Rose, C.W.
Publishing Year	2005
Title	Real Digital Forensics
Subtitle	Computer Security and Incident Response
Edition	
Publisher	Addison-Wesley
ISBN	0-321-24069-3

Course Material	Book
Author	Jones, R.
Publishing Year	2005
Title	Internet Forensics
Subtitle	
Edition	
Publisher	O'Reilly
ISBN	0-596-10006-X

Notes

The module provides advanced communications networks skills by looking at wireless and mobile systems and forensics analysis of networked systems.