

## Liverpool John Moores University

Title: NETWORK SECURITY  
Status: Definitive  
Code: **7007ONLINE** (103114)  
Version Start Date: 01-08-2012

Owning School/Faculty: Computing and Mathematical Sciences  
Teaching School/Faculty: Computing and Mathematical Sciences

Team	Leader
Qi Shi	Y

**Academic Level:** FHEQ7  
**Credit Value:** 15.00  
**Total Delivered Hours:** 36.00  
**Total Learning Hours:** 150  
**Private Study:** 114

### Delivery Options

Course typically offered: Runs Twice - S1 & S2

Component	Contact Hours
Lecture	12.000
Seminar	12.000
Tutorial	12.000

**Grading Basis:** 40 %

### Assessment Details

Category	Short Description	Description	Weighting (%)	Exam Duration
Report	AS1	Produce a report detailing the analysis, design and evaluation of given security problems.	100.0	

### Aims

*To develop an understanding of various security vulnerabilities in and threats to computer networks as well as the importance of network security.*  
*To assess critically a variety of generic security technologies for protection of computer networks.*  
*To promote the use of appropriate security techniques to solve network security problems.*

## Learning Outcomes

After completing the module the student should be able to:

- 1 Critically evaluate a variety of generic security threats and vulnerabilities, and identify and analyse particular security problems for a given application.
- 2 Assess and analyse security protocols and mechanisms for the provision of security services within security networked applications.
- 3 Justify and recommend appropriate security techniques to solve network security problems.

## Learning Outcomes of Assessments

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

Security problems report	1	2	3
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## Outline Syllabus

*Fundamentals of network security: security concepts, security policies, security threats and vulnerabilities, viruses, and importance of network security and its applications. Cryptographic techniques: conventional cryptography (e.g. DES), public-key cryptography (e.g. RSA), digital signatures (e.g. DSA), and applications of cryptography. Security services: message integrity, confidentiality and authentication, and key certification and management. Access control in computer networks: authentication protocols and services (e.g. Kerberos), intrusion detection, firewalls and virtual private networks. Network security applications: IP security (e.g. IPSec), web security (e.g. SSL/TLS), e-mail security, and e-payment systems (e.g. SET). Network attack signatures and analysis.*

*The practical laboratory exercises will develop skills in securing networks.*

## Learning Activities

Online lectures and online seminars. The practical work builds on core network security concepts covered in the lectures. This involves laboratory and user demonstrations of network security techniques and tools

## References

<b>Course Material</b>	Book
<b>Author</b>	W. Stallings
<b>Publishing Year</b>	2007
<b>Title</b>	Network Security Essentials
<b>Subtitle</b>	Applications and Standards
<b>Edition</b>	3rd

<b>Publisher</b>	Pearson Education
<b>ISBN</b>	0132303787

<b>Course Material</b>	Book
<b>Author</b>	A. Herzberg
<b>Publishing Year</b>	2008
<b>Title</b>	Applied Cryptography and Network Security
<b>Subtitle</b>	
<b>Edition</b>	
<b>Publisher</b>	Addison-Wesley
<b>ISBN</b>	0201788837

<b>Course Material</b>	Book
<b>Author</b>	R. Tibbs, and E. Oakes
<b>Publishing Year</b>	2006
<b>Title</b>	Firewalls and VPNs
<b>Subtitle</b>	Principles and Practices
<b>Edition</b>	
<b>Publisher</b>	Prentice Hall
<b>ISBN</b>	0131547313

<b>Course Material</b>	Book
<b>Author</b>	E. Rescorla
<b>Publishing Year</b>	2001
<b>Title</b>	SSL and TLS
<b>Subtitle</b>	Designing and Building Secure Systems
<b>Edition</b>	
<b>Publisher</b>	Addison-Wesley
<b>ISBN</b>	0201615983

<b>Course Material</b>	Book
<b>Author</b>	W. Ford, and M. Baum
<b>Publishing Year</b>	2001
<b>Title</b>	Secure Electronic Commerce
<b>Subtitle</b>	Building the Infrastructure for Digital Signature and Encryption
<b>Edition</b>	2nd
<b>Publisher</b>	Prentice Hall
<b>ISBN</b>	0130272760

<b>Course Material</b>	Book
<b>Author</b>	C. Pfleeger, and S. Pfleeger
<b>Publishing Year</b>	2007
<b>Title</b>	Security in Computing
<b>Subtitle</b>	
<b>Edition</b>	4th
<b>Publisher</b>	Prentice Hall

<b>ISBN</b>	0132390779
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<b>Course Material</b>	Journal / Article
<b>Author</b>	
<b>Publishing Year</b>	
<b>Title</b>	Conference on Computer and Communications Security
<b>Subtitle</b>	
<b>Edition</b>	
<b>Publisher</b>	ACM
<b>ISBN</b>	

<b>Course Material</b>	Journal / Article
<b>Author</b>	
<b>Publishing Year</b>	
<b>Title</b>	Symposium on Security and Privacy
<b>Subtitle</b>	
<b>Edition</b>	
<b>Publisher</b>	IEEE
<b>ISBN</b>	

<b>Course Material</b>	Journal / Article
<b>Author</b>	
<b>Publishing Year</b>	
<b>Title</b>	Applied Computer Security Applications Conference
<b>Subtitle</b>	
<b>Edition</b>	
<b>Publisher</b>	
<b>ISBN</b>	

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## Notes

The spectacular growth of the Internet has spawned a great demand for awareness of security threats to computer networks and application of security techniques to network protection. In response to the demand, this module examines various security issues and solutions to network protection. All online activities are scheduled.