

## Liverpool John Moores University

Title: WIRELESS NETWORKS  
Status: Definitive  
Code: **7033COMP** (103292)  
Version Start Date: 01-08-2011

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

Team	Leader
Omar Abuelma'atti	Y

**Academic Level:** FHEQ7      **Credit Value:** 15.00      **Total Delivered Hours:** 38.00  
**Total Learning Hours:** 150      **Private Study:** 112

### Delivery Options

Course typically offered: Semester 2

Component	Contact Hours
Lecture	12.000
Practical	12.000
Tutorial	12.000

**Grading Basis:** 40 %

### Assessment Details

Category	Short Description	Description	Weighting (%)	Exam Duration
Report	AS1	Individual report, including review of the main technologies of wireless communications and design of a wireless network.	25.0	
Exam	AS2	Examination.	75.0	2.00

### Aims

*To develop an advanced understanding of the theory and practice of building wireless networks.*

*To provide an in-depth study of the requirements of wireless communications, including the development of standards for wireless networks;*

*To examine current research topics associated with wireless communications and*

networks.

## Learning Outcomes

After completing the module the student should be able to:

- 1 Critically review the fundamental technical concepts, design and implementation of wireless networks.
- 2 Apply creative skills concerning the approaches and practices used to build wireless networks.
- 3 Critically evaluate the provision of wireless networks and their impact on current wireless networking environment.

## Learning Outcomes of Assessments

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

Individual report	1	2	
Examination	1	2	3

## Outline Syllabus

*The course outline includes:*

*Applications and Architectures: characteristics of wireless communications, types of wireless systems (GSM, WLAN, WMAN, Ad-Hoc), wireless networks, cellular networks, ad-hoc networks (Bluetooth), location-based services, networked appliances, sensor networks.*

*Internetworking: Wireless Internet, Mobile IP, MIPv6, Cellular IP, WAP, Wireless QoS, Middleware for wireless, adaptation, security.*

*Wireless Communications: Cellular concept, spectrum management, MAC schemes, TDMA/CDMA/FDMA, voice communications, power and energy control*

## Learning Activities

Lectures and tutorials

## References

<b>Course Material</b>	Book
<b>Author</b>	Stallings, W.
<b>Publishing Year</b>	2005
<b>Title</b>	Wireless Communications and Networks"
<b>Subtitle</b>	
<b>Edition</b>	2nd

<b>Publisher</b>	Prentice Hall (Pearson),
<b>ISBN</b>	9780131918351

<b>Course Material</b>	Book
<b>Author</b>	Schiller, J.
<b>Publishing Year</b>	2003
<b>Title</b>	Mobile Communications
<b>Subtitle</b>	
<b>Edition</b>	2nd
<b>Publisher</b>	Addison-Wesley (Pearson),
<b>ISBN</b>	9780321123817

<b>Course Material</b>	Journal / Article
<b>Author</b>	
<b>Publishing Year</b>	
<b>Title</b>	Current Journal Papers – from e.g 'IEEE Wireless Communications, IEEE Network, Computer Communications, Computer Networks'
<b>Subtitle</b>	
<b>Edition</b>	
<b>Publisher</b>	
<b>ISBN</b>	

## Notes

This advanced course is intended for graduate students interested in the emerging field of wireless networking. The purpose of the course is to provide the fundamental technical concepts essential for the design and implementation of wireless networks. The course will cover different types of networks and architectures, networking functions, mobility management, overview of current systems and standards, and related hot issues debated in the research community.