

Liverpool John Moores University

Title: MOBILE AND WIRELESS SYSTEMS
Status: Definitive
Code: **6021KCOM** (118267)
Version Start Date: 01-08-2011

Owning School/Faculty: Computing and Mathematical Sciences
Teaching School/Faculty: Kaplan Financial Singapore

Team	Leader
Omar Abuelma'atti	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	Design of a mobile telecommunications system and applying proper techniques in achieving the network requirements.	50.0	

Aims

To provide an in-depth study of the application and network requirements of wireless

and mobile communications systems.

To develop an understanding of the theory and practice of building modern mobile and wireless systems.

To develop an advanced understanding of the technical concepts for the design, modeling, implementation and optimisation of mobile and wireless systems.

Learning Outcomes

After completing the module the student should be able to:

- 1 Critically review and identify the technical requirements of applications and network infrastructures supporting modern wireless systems.
- 2 Apply creative skills in the development of applications and network infrastructures of modern wireless systems.
- 3 Critical evaluate and identify the technical requirements of applications and network infrastructures supporting modern mobile telecommunication systems.
- 4 Apply knowledge in the development of applications and network infrastructures of modern mobile telecommunications systems

Learning Outcomes of Assessments

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

Wireless Networking	1	2
Mobile telecommunications	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

Mobile Telecommunication Systems:

Application and Network Requirements

Mobile Communication Systems: Cellular concept, spectrum management, voice communications, power and energy control

GSM network design and optimization

UMTS, GPRS, networks and data connectivity.

Learning Activities

Lectures, tutorials, seminar/group work, 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

Notes

The course will provide advanced understanding of modern mobile and wireless systems. It will provide the fundamental technical concepts for the design, modeling, implementation and optimisation of mobile and wireless systems including GSM,

UMTS, WLAN and WiMAX systems. It will cover concepts including architectures, design and implementation, mobility and network management, network evolution and development, rollout, adaptation and optimisation.