Liverpool John Moores University

Title:	Wireless Networks and Technologies
Status:	Definitive
Code:	**7014ELE** (120435)
Version Start Date:	01-08-2016
Owning School/Faculty:	Electronics and Electrical Engineering
Teaching School/Faculty:	Electronics and Electrical Engineering

Team	Leader
Princy Johnson	Y

Academic Level:	FHEQ7	**Credit Value:**	10	**Total Delivered Hours:**	38
Total Learning Hours:	100	**Private Study:**	62		

Delivery Options
Course typically offered: Semester 2

Component	Contact Hours
Lecture	12
Practical	12
Tutorial	12

Grading Basis: 50 %

Assessment Details

Category	Short Description	Description	Weighting (%)	Exam Duration
Exam	Exam	exam	60	2
Technology	Demo	demo	20	
Report	Report	report	20	

Aims

To develop an understanding of ad hoc and sensor networking concepts, protocol design, and coding techniques.

Learning Outcomes

After completing the module the student should be able to:

1	Demonstrate a comprehensive understanding of an overview of the concepts, principles, evolution, opportunities and issues surrounding the Wireless and Ad Hoc Networks
2	Evaluate various wireless routing protocols, traffic, propagation models, and access techniques in Wireless networks through the use of analytical methods and modelling techniques for Ad hoc and Sensor Networks
3	Apply mathematical and computer-based models for solving problems and to assess the limitations of Ad hoc and Sensor Networks
4	Design, implement and evaluate wireless hardware/software solutions for a given engineering problem

Learning Outcomes of Assessments

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

Exam	1	2	4
Lab demo	2		
Simulation demo and report	3	4	

Outline Syllabus

Introduction & overview of wireless Ad hoc and Sensor Networks; Topology, Routing and Communication techniques in Ad hoc and Sensor Networks;
Protocol stack forAd hoc and Sensor Networks: AODV, DSR, DSDV, etc.
Radio Technologies: 802.15.4, 802.11, Bluetooth, WiFi and Other proprietary systems.
Hardware Platforms: Module selection, driver development.
Modelling tools and simulation techniques to explore and address limitation and issues;
Applications and case studies
Testing: RSSI for various environments. Energy, Battery/Network Lifetime

Learning Activities

Lectures, Tutorials, Practical activities

Notes

This module encourages development of theoretical understanding and practical experience in wireless and sensor networks.