

Liverpool John Moores University

Title: Wireless Networks and Data Analytics
Status: Definitive
Code: **7314ELEM** (121629)
Version Start Date: 01-08-2019

Owning School/Faculty: Electronics and Electrical Engineering
Teaching School/Faculty: Electronics and Electrical Engineering

Team	Leader
Princy Johnson	Y

Academic Level: FHEQ7
Credit Value: 20
Total Delivered Hours: 47
Total Learning Hours: 200
Private Study: 153

Delivery Options

Course typically offered: Semester 2

Component	Contact Hours
Lecture	22
Practical	12
Tutorial	11

Grading Basis: 50 %

Assessment Details

Category	Short Description	Description	Weighting (%)	Exam Duration
Exam	Exam	Exam	70	2
Report	AS1	2000 words	30	

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 the concepts, opportunities and issues surrounding Wireless Sensor Networks.
- 2 Evaluate various protocols, traffic, propagation models and access techniques using analytical methods and modelling techniques.
- 3 Demonstrate a high level understanding of the concepts, principles, opportunities and issues surrounding Big Data.
- 4 Apply mathematical and data analytic techniques, and computer-based models for solving complex problems and to assess sensor networks.
- 5 Design, implement and critically evaluate a practical solution that uses wireless networks and the data generated for a given engineering problem.

Learning Outcomes of Assessments

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

Exam	1	2	4
Assignment	3	4	5

Outline Syllabus

*Wireless Sensor Networks: Introduction, topologies, protocols and platforms.
Radio Technologies: 802.15.4, 802.11, Bluetooth, WiFi and other proprietary systems.*

Big Data Analytics: Principles and techniques, Issues and opportunities, k-means and other statistical algorithms, community clustering principles etc.

Modelling tools and simulation techniques to explore and address limitation and issues in sensor networks and data analytics techniques.

Applications and case studies: for example remote condition monitoring

Learning Activities

Lectures, Tutorials, Practical activities

Notes

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