

Liverpool John Moores University

Title: WIRELESS SENSOR NETWORKS
Status: Definitive
Code: **7018ENG** (105402)
Version Start Date: 01-08-2016

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

Team	Leader
Ronan McMahon	Y
Princy Johnson	

Academic Level: FHEQ7 **Credit Value:** 15 **Total Delivered Hours:** 38
Total Learning Hours: 150 **Private Study:** 112

Delivery Options

Course typically offered: Semester 2

Component	Contact Hours
Lecture	30
Practical	6

Grading Basis: 40 %

Assessment Details

Category	Short Description	Description	Weighting (%)	Exam Duration
Exam	AS1	Examination	50	2
Essay	AS2	Assignment	20	
Essay	AS3	Case study	30	

Aims

To introduce fundamental concepts and the state of the art in wireless sensor networks.

Learning Outcomes

After completing the module the student should be able to:

- 1 demonstrate a comprehensive understanding of the concepts and principles surrounding the Wireless Sensor Networks (WSNs).
- 2 demonstrate a comprehensive knowledge and understanding of the evolution of the WSNs, opportunities and the issues posed by WSNs
- 3 identify, classify and describe the performance of transport protocols, routing and data dissemination through the use of analytical methods and modelling techniques.
- 4 apply mathematical and computer-based models for solving problems and the ability to assess the limitations of security issues in sensor networks.
- 5 extract data pertinent to networks problems, and apply in its solution using computer based engineering tools when appropriate.
- 6 manipulate the sensor network middle-ware, data storage in sensor networks, localisation, sensor node hardware and operating systems

Learning Outcomes of Assessments

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

EXAM	1	2	3	4	5	6
CW	1	4	6			
CW	2	5				

Outline Syllabus

- Lecture 1: Introduction & Overview*
- Lecture 2: Sensor Node Hardware & Operating Systems*
- Lecture 3: Medium Access Control*
- Lecture 4: Localisation*
- Lecture 5: Topology Control*
- Lecture 6: Data Storage in Sensor Networks*
- Lecture 7: Sensor Network Programming Languages*
- Lecture 8: Simulation & Experiment Environments*
- Lecture 9: Security issues in Sensor Networks*
- Lecture 10: Transport protocols*
- Lecture 11-12: Applications*

Learning Activities

This module will be delivered through a combination of formal lectures, tutorials and assignments.

Notes

The module will introduce students to fundamental concepts and the state of the art in wireless sensor networks.