

## Liverpool John Moores University

Title: Introduction to Telecommunication Systems  
Status: Definitive  
Code: **4505ENGIYO** (120275)  
Version Start Date: 01-08-2016

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

Team	Leader
Colin Wright	Y
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**Academic Level:** FHEQ4      **Credit Value:** 20      **Total Delivered Hours:** 90  
**Total Learning Hours:** 200      **Private Study:** 110

### Delivery Options

Course typically offered: Standard Year Long

Component	Contact Hours
Lecture	70
Practical	20

**Grading Basis:** 40 %

### Assessment Details

Category	Short Description	Description	Weighting (%)	Exam Duration
Test	Test	In Class Test	50	2
Report	AS1	Report 1	25	
Report	AS2	Report 2	25	

### Aims

*Introduce the principles of Telecommunications Systems.*

### Learning Outcomes

After completing the module the student should be able to:

- 1 Discuss the principles of communications systems and networks
- 2 Solve simple problems in communications systems and networks
- 3 Simulate communications scenarios
- 4 Identify networking scenarios

### **Learning Outcomes of Assessments**

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

ICT Test	1	2
Report 1	3	
Report 2	4	

### **Outline Syllabus**

*Sine Waves – Frequency, Phase, Amplitude; Time and frequency domain representation;*

*Spectrum – Bandwidth and Frequency response*

*Fourier series*

*Propagation – fibre, copper, radio; Signal Strength; power and energy; dB Noise and Interference; SNR*

*Baseband– binary line coding, detection, timing, differential codes, block codes,*

*Passband –modulation, AM, FM*

*Digital and Analogue– comparison, uses, conversion, sampling*

*Network introduction - topologies, connection types, media, synchronous and asynchronous systems*

*Network protocols –multiple access, data fields, control issues, reliability, traffic types*

*FieldBus – purpose, nodes/devices, types of connectivity, topology; constraints, Devices,*

*Ethernet – network topology options, frame structure, data, control, limitations*

### **Learning Activities**

By a series of lectures and labs

### **Notes**

This module introduces the concepts underpinning Telecommunications and

networking systems.