

Liverpool John Moores University

Title: Introduction to Communications Systems
Status: Definitive
Code: **4039ENG** (116940)
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 |

Academic Level: FHEQ4 **Credit Value:** 10 **Total Delivered Hours:** 22
Total Learning Hours: 100 **Private Study:** 78

Delivery Options

Course typically offered: Semester 2

| Component | Contact Hours |
|-----------|---------------|
| Lecture | 10 |
| Practical | 10 |

Grading Basis: 40 %

Assessment Details

| Category | Short Description | Description | Weighting (%) | Exam Duration |
|-----------|-------------------|-------------|---------------|---------------|
| Portfolio | Port | portfoloio | 50 | |
| Exam | Exam | exam | 50 | 2 |

Aims

To introduce students to basic the concepts associated with information distribution

Learning Outcomes

After completing the module the student should be able to:

- 1 Describe the basic aspects of a communications system
- 2 Carry out calculations which characterise aspects of communications systems
- 3 Simulate various communications situations

Learning Outcomes of Assessments

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

| | | |
|-----------|---|---|
| Portfolio | 2 | 3 |
| Exam | 1 | 2 |

Outline Syllabus

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

Spectrum – Wavelength, bandwidth

Propagation - Free space, fibre, copper

Antennas.

Digital and Analogue data - conversion

Baseband systems – line coding

Modulation

Noise and Interference

Radio Links - Bandwidth; Noise & Interference; Antennas; Amplifiers; Link Budgets; Digital and Analogue data; text and voice - ASCII and PCM codes;

Learning Activities

Lectures and Lab sessions

Notes

Students will discuss analogue and digital data formats, data distribution between two or several users, physical distance between users. They will also be introduced to the basics of information codes and modulation.