

Liverpool John Moores University

Title: Digital Communications Systems
Status: Definitive
Code: **7010ELE** (120414)
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
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Academic Level: FHEQ7 **Credit Value:** 20 **Total Delivered Hours:** 62
Total Learning Hours: 200 **Private Study:** 138

Delivery Options

Course typically offered: Semester 1

Component	Contact Hours
Lecture	24
Practical	24
Tutorial	12

Grading Basis: 50 %

Assessment Details

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

Aims

To develop knowledge and technical skills in the field of digital communications

Learning Outcomes

After completing the module the student should be able to:

- 1 Simulate and critique aspects of a communications system.
- 2 Demonstrate a detailed knowledge of the principles of Digital Communications systems
- 3 Analyse and critique digital communications scenarios
- 4 Develop solutions to digital communications problems

Learning Outcomes of Assessments

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

Exam	2	3	4
Report	1		

Outline Syllabus

Signals and channels

Baseband and pass band systems

Information Theory; channel capacity.

Coding - Source coding, Line coding, Channel coding

Modulation - AM, FM, PM, Higher order schemes and consequences for digital signals

Multiple Access

Multiplexing

Single and multicarrier systems

Noise and interference

Learning Activities

By a series of Lectures and Lab sessions

Notes

This module develops skills and knowledge in the area of digital communications. Students completing this module will have a comprehensive understanding of the complex relationship between bandwidth, modulation, coding, noise and interference, and effective data transfer rate.