Liverpool John Moores University

Title:	Introduction to Telecommunication Systems
Status:	Definitive
Code:	**4000ELE** (120032)
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:**	72
Total Learning Hours:	200	**Private Study:**	128		

Delivery Options
Course typically offered: Standard Year Long

Component	Contact Hours
Lecture	48
Practical	24

Grading Basis: 40 %

Assessment Details

Category	Short Description	Description	Weighting (%)	Exam Duration
Test	Test	In Class Test (x2)	50	
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 (x2)	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
Niose 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.