Signals and Systems

Module Information

2022.01, Approved

Summary Information

Module Code	4506ICBTEL
Formal Module Title	Signals and Systems
Owning School	Engineering
Career	Undergraduate
Credits	15
Academic level	FHEQ Level 4
Grading Schema	40

Teaching Responsibility

LJMU Schools involved in Delivery
LJMU Partner Taught

Partner Teaching Institution

Institution Name
International College of Business and Technology

Learning Methods

Learning Method Type	Hours
Lecture	45
Practical	9
Tutorial	6

Module Offering(s)

Display Name	Location	Start Month	Duration Number Duration Unit
APR-PAR	PAR	April	12 Weeks

JAN-PAR	PAR	January	12 Weeks
SEP_NS-PAR	PAR	September (Non-standard start date)	12 Weeks

Aims and Outcomes

Aims	This module will introduce the student to basics of Signals and Systems. In addition, student will be exposed to linear time-invariant systems and software packages such as Matlab to simulate signals in various conditions.

After completing the module the student should be able to:

Learning Outcomes

Code	Number	Description
MLO1	1	Demonstrate the basic knowledge of understanding continuous time and discrete time signals, plotting and applications.
MLO2	2	Demonstrate the basic knowledge of continuous time physical system mathematical modelling and find transfer functions.
MLO3	3	Solve problems related to time domain, frequency domain, plot CT/DT signals, DT convolution, Laplace transforms to understand the basic concepts of signals and systems.
MLO4	4	Apply Matlab or Simulink tools for analyse and simulate real signals or systems.

Module Content

Outline Syllabus	1. Introduction to CT and DT signals and systems. Discus real examples available in nature and manmade.2. Mathematical physical modelling of CT systems3. Laplace transformation and inverse Laplace transformation.4. First order and second order CT transfer function for physical systems.5. CT time response6. CT convolution7. DT signal and system representation and plotting.8. DT system blocks and DT transfer function.9. Introduction to Z-transform10. Classification of DT systems11. DT-Impulse response12. Fourier series13. Fourier transform14. Matlab for signals or systems.
Module Overview	
Additional Information	This content appears to be Signal & System both. Finally, student will be able to model, simulate and apply signal and systems in real engineering scenarios.

Assessments

Assignment Category	Assessment Name	Weight	Exam/Test Length (hours)	Module Learning Outcome Mapping
Report	Coursework	30	0	MLO1, MLO4
Exam	Exam	70	2	MLO2, MLO3

Module Contacts

Module Leader

Contact Name	Applies to all offerings	Offerings
Karl Jones	Yes	N/A

Partner Module Team

Contact Name	Applies to all offerings	Offerings