Liverpool John Moores University

Title:	SIMULATION AND ANALYSIS
Status:	Definitive
Code:	**7015ENG** (105393)
Version Start Date:	01-08-2016

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

Team	Leader
Dingli Yu	Y

Academic Level:	FHEQ7	**Credit Value:**	10	**Total Delivered Hours:**	18
Total Learning Hours:	100	**Private Study:**	82		

Delivery Options

Course typically offered: Semester 1

Component	Contact Hours
Lecture	6
Practical	12

Grading Basis: 40 %

Assessment Details

Category	Short Description	Description	Weighting (%)	Exam Duration
Essay	AS1	MATLAB programming	50	
Essay	AS2	Simulink	50	

Aims

To develop MATLAB programming for engineering design and analysis.
To be able to build and apply graphical simulation methods using Simulink.

Learning Outcomes

After completing the module the student should be able to:

1	Code programs using MATLAB
2	Graphically build simulations of dynamic systems and electronic circuits with Simulink
3	Apply MATLAB and Simulink to aid the analysis of engineering problems

Learning Outcomes of Assessments

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

CW	1	3
CW	2	3

Outline Syllabus

Numerical methods: Euler method, Runge-Kutta method.

Introduction of Matlab: matrix operations, plots, etc.
Matlab programming: loops, functions, conditional statements, etc.
Matlab functions for control systems and signal processing.
Discrete time simulation using Matlab.

Introduction to Simulink: real time and iteration number, sample times,
Simulation based on differential equations and transfer function models.
Simulation of dynamic systems and electronic circuits.
Continuous and discrete time simulations.

Learning Activities

Lectures supported by handouts.
Practical sessions will use software packages (MATLAB, Simulink and other toolboxes).
An individual student report is required for the coursework.

Notes

This M level module enables a student to simulate engineering systems and use MATLAB, Simulink to aid engineering design and analysis