Liverpool John Moores University

Title:	Dynamic Systems Simulation
Status:	Definitive
Code:	**7065ENG** (119378)
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:**	24
Total Learning Hours:	100	**Private Study:**	76		

Delivery Options
Course typically offered: Semester 1

Component	Contact Hours
Lecture	12
Practical	12

Grading Basis: 50 %

Assessment Details

Category	Short Description	Description	Weighting (%)	Exam Duration
Report	AS1		50	
Report	AS2		50	

Aims

To develop Matlab programming for dynamic systems simulation.
To be able to build a system model and simulate the system using Simulink.

Learning Outcomes

After completing the module the student should be able to:

1	Critically apply numerical methods for solving ODEs.
2	Graphically build simulation models of dynamic systems with Simulink.
3	Apply Matlab and Simulink to simulate dynamic systems.

Learning Outcomes of Assessments

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

Individual report	1	3
Individual report	2	3

Outline Syllabus

Introduction to simulation and dynamic system modelling.
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.

Introduction to Simulink: real time and iteration number, sample times,
Building Simulink models based on differential equations.
Simulation of dynamic systems by calling Simulink model.
Discrete time simulations using Simulink.

Learning Activities

Lectures supported by handouts.
Practical sessions using software packages (MATLAB, Simulink and toolboxes).
Individual student reports are required for the coursework.

Notes

This level 7 module enables a student to learn dynamic system simulation and simulate engineering systems using MATLAB/Simulink.