

## Liverpool John Moores University

Title: Modelling with Matlab and Simulink  
Status: Definitive  
Code: **7134ENG** (120345)  
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:** 30  
**Total Learning Hours:** 100      **Private Study:** 70

### Delivery Options

Course typically offered: Runs Twice - S1 & S2

Component	Contact Hours
Lecture	12
Practical	12
Tutorial	6

**Grading Basis:** 50 %

### Assessment Details

Category	Short Description	Description	Weighting (%)	Exam Duration
Technology	Matlab		50	
Technology	Simulink		50	

### Aims

*This module is designed to introduce Matlab coding for scientific computation, and system simulation using Simulink.*

### Learning Outcomes

After completing the module the student should be able to:

- 1 Use Matlab to code programs for scientific computation
- 2 Solve ODEs using Matlab
- 3 Combine Matlab and Simulink and do data communication between Matlab and Simulink
- 4 Simulate dynamic systems with Simulink

### **Learning Outcomes of Assessments**

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

Matlab coding for simulation	1	2
Simulink coding for simulation	3	4

### **Outline Syllabus**

*Matlab coding: vector/matrix input and calculation, loop coding, condition coding, plot curves, coding and calling functions, M-file coding, M-file debugging.*

*Solving ODEs: dynamic system modelling, numerical methods for solving ODE's including fourth order Runge Kutta method, solving ODEs.*

*Simulink with Matlab: data communication including From workspace, To workspace, import and outport, calling Simulink model from Matlab.*

*Simulation with Simulink: dynamic system simulation examples with Matlab and Simulink.*

### **Learning Activities**

The module is designed for student self-learning with the teaching notes and exercise questions provided on Blackboard.

### **Notes**

This is a level 7 module for students to learn how to use Matlab/Simulink for scientific computation and dynamic system simulation.