

Liverpool John Moores University

Title: INDUSTRIAL AUTOMATION
Status: Definitive
Code: **6500ENGSBC** (113908)
Version Start Date: 01-08-2018

Owning School/Faculty: Electronics and Electrical Engineering
Teaching School/Faculty: The Sino-British College

Team	Leader
Colin Wright	Y

Academic Level: FHEQ6
Credit Value: 12
Total Delivered Hours: 37
Total Learning Hours: 120
Private Study: 83

Delivery Options

Course typically offered: Semester 2

Component	Contact Hours
Lecture	20
Practical	5
Tutorial	10

Grading Basis: 40 %

Assessment Details

Category	Short Description	Description	Weighting (%)	Exam Duration
Exam	AS1	Examination	70	2
Report	AS2	Laboratory assignment	30	

Aims

To develop the students' knowledge and understanding of industrial automation systems for manufacturing and process industries

Learning Outcomes

After completing the module the student should be able to:

- 1 Critically review the differences between the various types of programmable logic controllers to choose an appropriate device for an application
- 2 Analyse industrial control problems and design suitable solutions
- 3 Write PLC programs in the appropriate language
- 4 Understand how to integrate external devices into a PLC based industrial automation system

Learning Outcomes of Assessments

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

EXAM	1	3	4
Laboratory assignment	1	2	3

Outline Syllabus

Programmable Logical Controller systems. Programming with IEC 61131-3 standards – ladder diagram (LD), function block (FBD) and sequential function chart (SFC) programming. PLC input/output considerations. Designing sequential systems using a State Machine paradigm. Introduction to networks used in industrial control systems: PROFIBUS, Ethernet/PROFINET. Integration of proximity sensors, fail safe sensors, flow, pressure, level and temperature measurement sensors, linear and rotary valve positioners, code reading sensors and RFID devices.

Learning Activities

Lectures, tutorials, laboratories, assignments, private study

Notes

On completion of the module the student should be able to design and implement automation systems for a range of industrial applications from factory automation to process control.