

Liverpool John Moores University

Title: Automation
Status: Definitive
Code: **6500ELEICB** (129100)
Version Start Date: 01-08-2021

Owning School/Faculty: Engineering
Teaching School/Faculty: International College of Business and Technology

Team	Leader
Clifford Mayhew	Y

Academic Level: FHEQ6 **Credit Value:** 10 **Total Delivered Hours:** 33
Total Learning Hours: 100 **Private Study:** 67

Delivery Options

Course typically offered: Semester 1

Component	Contact Hours
Lecture	11
Practical	22

Grading Basis: 40 %

Assessment Details

Category	Short Description	Description	Weighting (%)	Exam Duration
Portfolio	Portfolio	Portfolio of Evidence	100	

Aims

To develop the students' knowledge and understanding of automation systems used in manufacturing and process industries

Learning Outcomes

After completing the module the student should be able to:

- 1 Evaluate the differences between the various types of programmable logic controllers (PLC) to choose an appropriate device for an application
- 2 Produce PLC programs using ladder logic
- 3 Produce PLC programs using sequential function charts
- 4 Select appropriate external devices and integrate them into a PLC based industrial automation system

Learning Outcomes of Assessments

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

Portfolio of Evidence	1	2	3	4
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Outline Syllabus

Programmable Logic Controller systems.

Programming with IEC 61131-3 standards – ladder diagram (LD), function block (FBD) and sequential function chart (SFC) programming.

Designing sequential systems using a State Machine paradigm.

PLC input/output considerations.

Integration of proximity sensors, fail safe sensors, flow, pressure, level and temperature measurement sensors, linear and rotary valve positioners, code reading sensors.

Learning Activities

By a combination of lectures and laboratory design exercises

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.