

Liverpool John Moores University

Title: INDUSTRIAL AUTOMATION
Status: Definitive
Code: **6043ENG** (105533)
Version Start Date: 01-08-2016

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

Team	Leader
Colin Wright	Y

Academic Level: FHEQ6
Credit Value: 24
Total Delivered Hours: 51
Total Learning Hours: 240
Private Study: 189

Delivery Options

Course typically offered: Standard Year Long

Component	Contact Hours
Lecture	32
Practical	8
Tutorial	8

Grading Basis: 40 %

Assessment Details

Category	Short Description	Description	Weighting (%)	Exam Duration
Exam	AS1	Examination	70	3
Essay	AS2	Laboratory assignment	15	
Essay	AS3	Laboratory assignment	15	

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 explain the theory and operation of common industrial automation devices
- 2 design and implement programs for a range of devices
- 3 integrate devices and design automation systems

Learning Outcomes of Assessments

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

EXAM	1	2	3
CW	2		
CW	3		

Outline Syllabus

Industrial robot systems and automation: robot kinematics, control, programming languages, and computer aided programming systems. Integration with PLC systems and sensors.

Programmable Logical Controller systems. Programming with IEC 61131-3 standards. System design using communication systems: PROFIBUS, Ethernet/PROFINET and HART. Integration of proximity sensors, fail safe sensors, code reading sensors, RFID. Development of supervisory control and data acquisition systems.

Process control systems and application of closed loop control theory. Integration of flow, pressure, level and temperature measurement sensors, linear and rotary valve positioners.

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.