**Liverpool** John Moores University

Title: INDUSTRIAL AUTOMATION
Status: Definitive
Code: **6508ENGHAL** (106689)
Version Start Date: 01-08-2016

Owning School/Faculty: Maritime and Mechanical Engineering
Teaching School/Faculty: Riverside College

| Team | Leader |
|---|---|
| Russell English | Y |

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|---|---|---|---|---|---|---|
| **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.