

## Liverpool John Moores University

Title: QUALITY SYSTEMS AND SIX SIGMA  
Status: Definitive  
Code: **7031ENG** (105398)  
Version Start Date: 01-08-2016

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

| Team    | Leader |
|---------|--------|
| Jun Ren | Y      |

**Academic Level:** FHEQ7  
**Credit Value:** 10  
**Total Delivered Hours:** 38  
**Total Learning Hours:** 100  
**Private Study:** 62

### Delivery Options

Course typically offered: Semester 1

| Component | Contact Hours |
|-----------|---------------|
| Lecture   | 24            |
| Tutorial  | 12            |

**Grading Basis:** 40 %

### Assessment Details

| Category | Short Description | Description | Weighting (%) | Exam Duration |
|----------|-------------------|-------------|---------------|---------------|
| Exam     | AS1               | Examination | 70            | 2             |
| Report   | AS2               | Assignment  | 30            |               |

### Aims

*To introduce students to the principles and techniques of Total Quality Management and to examine in detail the elements which contribute towards the quality management systems from the perspectives of people, techniques and systems.*

### Learning Outcomes

After completing the module the student should be able to:

- 1 Understand the concepts and principles of total quality management.
- 2 Apply a range of quality techniques to monitor, analyse and improve manufacturing processes.
- 3 Evaluate a range of business improvement techniques and their impact on business performance
- 4 Understand the six sigma methodologies and apply the DMAIC model to an improvements activity.

### **Learning Outcomes of Assessments**

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

|            |   |   |   |   |
|------------|---|---|---|---|
| EXAM       | 1 | 2 | 3 | 4 |
| Assignment | 1 | 2 | 3 |   |

### **Outline Syllabus**

*Background and evolution of the quality movement.*

*Quality gurus and the cost of quality.*

*Quality control procedures.*

*Process capability and statistical process control techniques.*

*The continuous improvement environment, quality tools and problem solving techniques.*

*Teamwork, working relationships and leadership.*

*Quality management systems - standards and models: ISO9000:2000.*

*Business improvement techniques - FMEA, QFD and value management.*

*The six sigma approach, its methodologies.*

*The DMAIC project model and six sigma process mapping.*

### **Learning Activities**

This module is taught through a combination of lectures, tutorial, small group work, video case studies and workshops, use of relevant software where appropriate.

### **Notes**

This module focuses on the practical application of quality management techniques used in both service and manufacturing industry.