**Liverpool** John Moores University

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|---|---|
| Title: | AUTOMOTIVE MANUFACTURE |
| Status: | Definitive |
| Code: | **6124ENG** (117173) |
| Version Start Date: | 01-08-2011 |
| Owning School/Faculty: | Engineering |
| Teaching School/Faculty: | Engineering |

| Team | Leader |
|---|---|
| Stephen Ebbrell | Y |

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| **Academic Level:** | FHEQ6 | **Credit Value:** | 24.00 | **Total Delivered Hours:** | 48.00 |
| **Total Learning Hours:** | 240 | **Private Study:** | 192 | | |

**Delivery Options**
Course typically offered: Standard Year Long

| Component | Contact Hours |
|---|---|
| Lecture | 24.000 |
| Practical | 12.000 |
| Tutorial | 12.000 |

**Grading Basis:** 40 %

**Assessment Details**

| Category | Short Description | Description | Weighting (%) | Exam Duration |
|---|---|---|---|---|
| Essay | Essay | | 40.0 | |
| Essay | Essay | | 30.0 | |
| Essay | Essay | | 30.0 | |

**Aims**

*This module covers the highly automated and sophisticated computerised manufacturing and operational systems found in a top tier OEM, Automotive manufacturing facility. It will give students an insight into the issues of a modern manufacturing plant and how these issues are managed.*

## Learning Outcomes

After completing the module the student should be able to:

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| LO1 | Compare and contrast advanced manufacturing technology found in an automotive manufacturer. |
| LO2 | Evaluate manufacturing operations management systems employed in large automotive organisations. |
| LO3 | Understand and apply modern quality management system methodologies. |

## Learning Outcomes of Assessments

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

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| CW 1 | LO 1 |
| CW 2 | LO 2 |
| CW 3 | LO 3 |

## Outline Syllabus

*Advanced Manufacturing Technology:*
*Factory layout; cellular layout; group technology; flexible manufacturing systems; flexible manufacturing cells; CAD/CAM/CIM; assembly; automation; robotics.*
*Manufacturing methods: precision machining, manufacturing with polymers and composites, press tool technology, non-traditional manufacturing methods.*
*Operations Management:*
*Inventory management; MRPII; ERP; JIT; lean manufacturing; total productive maintenance.*
*Quality Management:*
*Quality assurance and controls; changing roles of operators/ inspectors; statistical process control, process capability, acceptance sampling; total quality management and six sigma quality.*

## Learning Activities

This module will be delivered with a series of structured lectures and practical sessions. Extensive use of case studies will be adopted to put the subject into context.

## References

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| **Course Material** | Book |

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| **Author** | Graeme P. Maxton, John Wormald |
| **Publishing Year** | 2004 |
| **Title** | Time for a Model Change: Re-engineering the Global Automotive Industry |
| **Subtitle** | |
| **Edition** | |
| **Publisher** | Cambridge University Press |
| **ISBN** | 10: 0521837154 |

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|---|---|
| **Course Material** | Book |
| **Author** | Jeffrey Liker |
| **Publishing Year** | 2004 |
| **Title** | The Toyota Way :14 Management Principles from the World's Greatest Manufacturer |
| **Subtitle** | |
| **Edition** | |
| **Publisher** | McGraw-Hill Professional |
| **ISBN** | 10: 0071392319 |

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|---|---|
| **Course Material** | Book |
| **Author** | Michael L. George, John Maxey, David T. Rowlands, Malcolm Upton |
| **Publishing Year** | 2005 |
| **Title** | The Lean Six Sigma Pocket Toolbook : Quick Reference Guide to 70 Tools for Improving Quality and Speed |
| **Subtitle** | |
| **Edition** | |
| **Publisher** | McGraw-Hill Professional |
| **ISBN** | 10: 0071441190 |

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|---|---|
| **Course Material** | Book |
| **Author** | Nigel Slack, Stuart Chambers, Robert Johnston |
| **Publishing Year** | 2005 |
| **Title** | Operations Management |
| **Subtitle** | |
| **Edition** | 3rd |
| **Publisher** | Financial Times/ Prentice Hall |
| **ISBN** | 10: 0273646575 |

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|---|---|
| **Course Material** | Book |
| **Author** | Serope Kalpakjian |
| **Publishing Year** | 2006 |
| **Title** | Manufacturing, Engineering and Technology |
| **Subtitle** | |
| **Edition** | 5th |
| **Publisher** | Prentice Hall Singapore |
| **ISBN** | 10: 0131976397 |

**Notes**

The delivery method will take a holistic approach in delivering the learning outcomes. This shall be done with the use of case studies that place the subject into context and integrates the topics within the syllabus. A factory visit will also add to the student experience.