

Liverpool John Moores University

Title: Advanced Manufacturing Processes
Status: Definitive
Code: **6569ENGSBC** (120273)
Version Start Date: 01-08-2018

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

Team	Leader
Martin Sharp	Y

Academic Level: FHEQ6
Credit Value: 10
Total Delivered Hours: 44
Total Learning Hours: 100
Private Study: 56

Delivery Options

Course typically offered: Standard Year Long

Component	Contact Hours
Lecture	24
Practical	6
Tutorial	12

Grading Basis: 40 %

Assessment Details

Category	Short Description	Description	Weighting (%)	Exam Duration
Exam	AS1	Examination	70	2
Essay	AS2	Analysis of an Advanced Manufacturing Process	30	

Aims

To enable students to understand advanced manufacturing processes, particularly those that contribute to the concept of "high value manufacturing".

Learning Outcomes

After completing the module the student should be able to:

- 1 Select a suitable advanced manufacturing process in response to a need in high value manufacturing
- 2 Analyse and estimate process parameters for processing a given application
- 3 Critically examine the case for the adoption of an advanced manufacturing process.

Learning Outcomes of Assessments

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

Examination	1	2	3
Analysis of an Advanced Man Pr	1	2	3

Outline Syllabus

High Value Manufacturing and Advanced Manufacturing Processes
Cosworth casting process and casting automation
High Efficiency Grinding
Laser Processes
Non-conventional machining (laser, water-jet, plasma, EDM and laser drilling)
Rapid Prototyping and 3D printing of polymers
Additive Manufacturing of metal components
Moulding of plastics and advances in mould tools
CFRP Manufacturing processes
Superplastic forming
Micromanufacturing

Learning Activities

Lectures, tutorial and practicals

Notes

The module will provide students with an in depth understanding of structural integrity and the assessment of materials and structures under load.