Liverpool John Moores University

Title:	Materials and Manufacturing
Status:	Definitive
Code:	**4002AMCPD** (126476)
Version Start Date:	01-08-2019
Owning School/Faculty:	Maritime and Mechanical Engineering
Teaching School/Faculty:	Maritime and Mechanical Engineering

Team	Leader
James Ren	Y

Academic Level:	FHEQ4	**Credit Value:**	10	**Total Delivered Hours:**	20
Total Learning Hours:	100	**Private Study:**	80		

Delivery Options
Course typically offered: Summer

Component	Contact Hours
Online	12
Tutorial	8

Grading Basis: 40 %

Assessment Details

Category	Short Description	Description	Weighting (%)	Exam Duration
Test	AS1	VLE Tests	100	

Aims

The module covers a variety of processing methods for manufactured components. Understanding is then developed further by application to a work related learning project.

Learning Outcomes

After completing the module the student should be able to:

1	Apply a knowledge of metal casting, forming and removal processes to the manufacture of a component.
2	Apply a knowledge of polymer and composite processing methods to the manufacture of a component.

Learning Outcomes of Assessments

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

VLE Test	1	2

Outline Syllabus

Materials

Manufacturing
Metal materials and processing
Classification of materials processing methods: forming, shaping, and processing.
Casting processes: Fluid flow and solidification; casting mould design; prevention of casting defects.
Metal cutting processes: Milling, turning and grinding theory, preparation of data and tool selection.
Overview of forging, cold working of metals, additive manufacturing, and multi-stage process chain.

Processing of plastics and composites
Fundamentals of moulding processes of plastics and composites.
Injection moulding, compression moulding, blow moulding, vacuum forming
Rapid prototyping and 3D printing methods
Mould design

Learning Activities

Online lectures, tutorials, work-related learning

Notes

This is a single module CPD - programme code 36249.

This module covers the essential elements of manufacturing technology. The students will develop a good understanding of processing methods for different groups of materials. This knowledge will then be developed further by application to a work related learning project.

Candidates applying for the module must hold the prerequisite relevant engineering

qualifications at Level 3 totalling at least 90 credits. In addition, many will already have a HE level qualification and may use this CPD module to extend or update their existing skill set.

Intake entry point for study onto the CPD module will occur in summer.
The CPD module will not have any formal PSRB accreditation.
Subject benchmark statement - Aligns to Engineering Council UK SPEC
The module is a CPD version based on part of 4505MTC, which is part of the Advanced Manufacturing BEng.

The module will be delivered by remote study of on-line lecture content. Delivery of the module is intended to last approximately 12 weeks.

Learners are allocated a personal tutor, who may be drawn on to deal with any support requirements they may have. This support is delivered virtually using online virtual tutorial sessions.

Formative assessment will be facilitated through tutorial feedback, plus through engagement with online study material and assessment tasks.

The programme is assessed and run in line with the Academic Framework (https://www.ljmu.ac.uk/about-us/public-information/academic-qualityandregulations/academic-framework).

The methods for improving the quality and standards of learning are as follows:
- Continuous Monitoring and Enhancement
- Liaison and feedback from the students
- Reports from the External Examiner
- Programme team ensuring the module reflects the values of the current teaching and learning strategy
- Module/Programme Leader updating knowledge and skills to ensure these remain current and relevant.

As the content of this CPD is derived from the Advanced Manufacturing BEng, it will share the same external examiner as that programme.