Additive Manufacturing Processes

Module Information

2022.01, Approved

Summary Information

Module Code	7113MECH
Formal Module Title	Additive Manufacturing Processes
Owning School	Engineering
Career	Postgraduate Taught
Credits	20
Academic level	FHEQ Level 7
Grading Schema	50

Teaching Responsibility

LJMU Schools involved in Delivery
Engineering

Learning Methods

Learning Method Type	Hours
Lecture	11
Online	11
Practical	9
Tutorial	11

Module Offering(s)

Display Name	Location	Start Month	Duration Number Duration Unit
SEP-CTY	CTY	September	12 Weeks

Aims and Outcomes

Aims	To enable students to understand additive manufacturing processes, particularly those that contribute to the concept of “high value manufacturing”.

After completing the module the student should be able to:

Learning Outcomes

Code	Number	Description
MLO1	1	Recognise a range of additive manufacturing processes and identify relevant processes to consider for a particular application.
MLO2	2	Analyse and estimate process parameters for processing a given application.
MLO3	3	Critically examine the practical and commercial constraints and benefits of adopting an additive manufacturing approach.
MLO4	4	Design for additive manufacture.

Module Content

Outline Syllabus	The list below provides an indicative list of topics that may be covered in this module. Introduction to the seven types of additive manufacture (AM)Stereolithography / VAT PhotopolymerisationFused deposition modellingSheet lamination, Binder jetting, material jettingMarkForged MetalX, Sintering, MIM comparisonReview of lasers and laser processing of materialsLaser welding/cutting/Powder bed fusion: selective laser melting, electron beam meltingBlown powder laser directed Case studies from industryDesign for AM Powder metallurgyMetallurgy of AMMechanical properties of AM materialFatigue and defectsMulti material AMFuture of AM, industry 4.0Commercial considerations, choosing a system
Module Overview	The module will enable you to understand additive manufacturing processes, particularly those that contribute to the concept of "high value manufacturing".
Additional Information	The module will provide students with an in depth understanding of additive manufacturing (AM) processes.

Assessments

Assignment Category	Assessment Name	Weight	Exam/Test Length (hours)	Module Learning Outcome Mapping
Centralised Exam	Examination	70	2	MLO1, MLO2, MLO3
Portfolio	Portfolio	30	0	MLO1, MLO2, MLO3, MLO4

Module Contacts

Module Leader

Contact Name	Applies to all offerings	Offerings
Tahsin Opoz	Yes	N/A

Partner Module Team

Contact Name	Applies to all offerings	Offerings