

Liverpool John Moores University

Title: Design and Manufacture
Status: Definitive
Code: **5106MAN** (122218)
Version Start Date: 01-08-2021

Owning School/Faculty: Engineering
Teaching School/Faculty: Engineering

Team	Leader
Tahsin Opoz	Y

Academic Level: FHEQ5
Credit Value: 20
Total Delivered Hours: 33
Total Learning Hours: 200
Private Study: 167

Delivery Options

Course typically offered: Semester 1

Component	Contact Hours
Lecture	11
Practical	11
Tutorial	11

Grading Basis: 40 %

Assessment Details

Category	Short Description	Description	Weighting (%)	Exam Duration
Report	AS1	Coursework - Design (CAD) based assignment	40	
Report	AS2	Coursework - CAM/lab based assignment	60	

Aims

The aim of this module is to give students an opportunity to experience the process of carrying out a design to manufacture project. It integrates the two subject areas of computer-aided design and computer-aided manufacture (CAD/CAM).

Learning Outcomes

After completing the module the student should be able to:

- 1 Undertake a systematic design procedure to progress a design from the brief to a solution
- 2 Appraise a design solution and prepare for its manufacture
- 3 Use CAD/CAM systems during the design process and to prove manufacture
- 4 Produce components with the aid of computer assisted manufacture, to specification using safe working practices

Learning Outcomes of Assessments

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

CAD based assignment	1	2
CAM/lab assignment	3	4

Outline Syllabus

Design process: conceptual, embodiment and final design stages

Machining processes: Turning and milling, cutting tool selection, determination of machining parameters.

Applying tolerances and dimensions.

3D CAD modelling; CAD/CAM data transfer; computer assisted part programming; cutter path simulation; computer aided machining and inspection.

Learning Activities

A practical, hands-on approach to learning is adopted. Case studies of examples of the theory in practice will be provided. Tutorial sessions will be used to focus upon the theoretical aspects of the module.

Notes

The module aims to build on and apply the skills developed in the level 4 Engineering Practice module and enable students to apply a systematic approach to the design process.

In this module, the knowledge learning outcomes are K2.