

Liverpool John Moores University

Title: CAD/CAM
Status: Definitive
Code: **6005TECH** (105317)
Version Start Date: 01-08-2016

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

Team	Leader
Ian Jenkinson	Y

Academic Level: FHEQ6
Credit Value: 24
Total Delivered Hours: 60
Total Learning Hours: 240
Private Study: 180

Delivery Options

Course typically offered: Standard Year Long

Component	Contact Hours
Lecture	20
Practical	40

Grading Basis: 40 %

Assessment Details

Category	Short Description	Description	Weighting (%)	Exam Duration
Essay	AS1	Cylindrical Component Production Exercise	50	
Essay	AS2	Prismatic Component Exercise	50	

Aims

The aim of this module is to explore current CAD/ CAM technologies and develop skills in the transformation and transfer of CAD data into CAM equipment. It will also enable students to gain a broader understanding of the practical application of a CAD / CAM systems and how to successfully implement CAD / CAM systems into a manufacturing company.

Learning Outcomes

After completing the module the student should be able to:

- 1 Transfer CAD data to a CAM system for future machining
- 2 Optimise the machining sequence of a range of component geometries with the aid of a CAM system
- 3 Transfer CAM part programmes to CNC machines and produce a range of components

Learning Outcomes of Assessments

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

CW	1	2	3
CW	1	2	3

Outline Syllabus

Data transfer:

CAD data and reference to engineering drawing information in terms of dimension, tolerances, datum points, surfaces and planes. Transfer methods, DYP, IGES, DXF file formats.

Cutter paths:

Tooling types, approach to cutting and cutting paths, tooling sequences to optimise cutting time and meet tolerances and surface finish requirements, tooling data files with calculated speeds and feeds in relation to component material, cutting direction, determining offsets. Clamping and work holding devices including programmed control clamping. The use of coolants.

CAM data:

Validation and verification of programme. Checking offsets; setting values determined using manual data input facilities; modify when required. Buffer storage of large CAM programmes, canned and repetitive cycles analysed and incorporated into the programme. Use of subroutines for pockets, profiles linked to main programme.

Learning Activities

A practical approach to this module will be adopted. A series of lectures and integrated practical laboratories will give the students the opportunity to experience the technology at first hand and generate evidence for that satisfy the learning outcomes. This will culminate in a structured CAD / CAM week, in both semesters, where students will focus on the development of their coursework.

Notes

The practical, hands-on approach of this module will give students the experience of using CAD/CAM technology to produce a range of engineered components and satisfy the learning outcomes. It focuses on the integration of the two technologies unlike ENRCT2014 Computer Aided Macining, which looks at the development of machined components from existing CAD data. This will culminate in a structured CAD / CAM week, in both semesters, where students will focus on the development of their coursework.