

# Computer Aided Manufacturing

## Module Information

2022.01, Approved

### Summary Information

Module Code	5508NCCG
Formal Module Title	Computer Aided Manufacturing
Owning School	Engineering
Career	Undergraduate
Credits	20
Academic level	FHEQ Level 5
Grading Schema	40

### Teaching Responsibility

LJMU Schools involved in Delivery
LJMU Partner Taught

### Partner Teaching Institution

Institution Name
Nelson and Colne College Group

### Learning Methods

Learning Method Type	Hours
Lecture	48
Practical	12

### Module Offering(s)

Display Name	Location	Start Month	Duration Number Duration Unit
APR-PAR	PAR	April	12 Weeks
JAN-PAR	PAR	January	12 Weeks

SEP-PAR	PAR	September	12 Weeks
SEP_NS-PAR	PAR	September (Non-standard start date)	12 Weeks

## Aims and Outcomes

Aims	This module will introduce students to various manufacturing/machining scenarios. These encompass manufacture of automotive, aerospace and engineering components. It will cover manufacturing methods and techniques currently used within these application sectors.
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**After completing the module the student should be able to:**

### Learning Outcomes

Code	Number	Description
MLO1	1	Create, modify and document a CAD model suitable for CAM processing.
MLO2	2	Select or specify suitable equipment (e.g. machine tools, cutting tools, work-holding devices, additive manufacturing) to enable the manufacture of a specified product.
MLO3	3	Produce a machining / manufacturing plan to produce a component to a specified brief using CAD/CAM techniques
MLO4	4	Manufacture a component to a specified brief using CAD/CAM techniques

## Module Content

Outline Syllabus	Inputs: CAD model, material specifications, tooling data, spindle speeds and feed rate data calculations Outputs: CAM files, program code and coordinates, manufacturing sequences, tooling requirements, auxiliary data Programming methods: CAD/CAM, manual programming, conversational programming Component set-up: zero datum setting, tool set-up and offsets, axis of movements Work-holding: machine vice, chuck, fixtures, clamping, jigs Tooling: milling cutters, lathe tools, drills, specialist tooling, tool holders, tool turrets and carousel Import solid model: set-up, model feature and geometry identification, stock size, material Manufacturing simulation: operations, pockets, slots, profiling, holes, tool and work change positions, tool sizes and IDs, speeds and feeds, cutter path simulations, program editing CNC machine types: machining centres, turning centres, MCUs e.g. Fanuc, Siemens, and Heidenhain Data transfer: structured data between CAD and CAM, file types, transfer to CNC machine Inspection: manual inspection, automated inspection, stages of inspection throughout manufacturing process
Module Overview	
Additional Information	

## Assessments

Assignment Category	Assessment Name	Weight	Exam/Test Length (hours)	Module Learning Outcome Mapping
Report	Assignment	100	0	MLO2, MLO3, MLO4
Competency	NCC Group Pass/Fail			MLO1

## Module Contacts

### Module Leader

Contact Name	Applies to all offerings	Offerings
Christian Matthews	Yes	N/A

### Partner Module Team

Contact Name	Applies to all offerings	Offerings
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