

Module specification

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Refer to the module guidance notes for completion of each section of the specification.

Module code	ENG4AR
Module title	Engineering Computer Applications
Level	4
Credit value	20
Faculty	FAST
Module Leader	Dr M. Jones
HECoS Code	100160
Cost Code	GAME

Programmes in which module to be offered

Programme title	Is the module core or option for this programme
HNC Mechanical Technology	Option

Pre-requisites

L3 Computer Aided Manufacturing (or similar).

Breakdown of module hours

Learning and teaching hours	60 hrs
Placement tutor support	0 hrs
Supervised learning e.g. practical classes, workshops	0 hrs
Project supervision (level 6 projects and dissertation modules only)	0 hrs
Total active learning and teaching hours	60 hrs
Placement / work based learning	0 hrs
Guided independent study	140 hrs
Module duration (total hours)	200 hrs

For office use only	
Initial approval date	6 July 2021
With effect from date	September 2021

For office use only	
Date and details of revision	6 July 2021, revalidated
Version number	Version 1

Module aims

To develop knowledge and understanding of computers applied to assist in specification analysis, design, manufacturing and launch of a product. To apply industry-standard CAE software to become more IT literate and more competent in activities such as file handling

Module Learning Outcomes - at the end of this module, students will be able to:

1	Define basic concepts, elements and hardware requirements of CAE.
2	Investigate and analyse CAE in design applications.
3	Investigate and analyse CAE in manufacturing applications.

Assessment

Indicative Assessment Tasks:
 Assessment is 100% in-course.

Assessment One: Outcome 1, 2 would be assessed by student producing a portfolio of short reports include written overview of design process, some research using journals, textbooks and the internet, and CAD practical exercises with implemented British Standards (2000 words).

Assessment Two: Outcome 3 would be assessed by the student producing a report of overview of manufacturing processes (included Rapid Prototyping), and practical exercises of machining simulation (2000 words).

Assessment number	Learning Outcomes to be met	Type of assessment	Weighting (%)
1	1, 2	Portfolio	50%
2	3	Coursework	50%

Derogations

None.

Learning and Teaching Strategies

The major learning strategy is practical-based learning in the CAD laboratory. Occasional lectures and demonstrations are used to disseminate theory and to demonstrate the more complex software.

A portfolio to include a written overview and practical work on outcomes, but some research using journals, textbooks and the internet will be carried out.

Indicative Syllabus Outline

Basic concepts

Elements of CAE, the product development process, computer hardware, CAE case studies.

Computer Aided design

System management; 2D design, limits, creating and editing drawings, blocks, layers, dimensioning; British Standards, 3D design, rendering, plotting, introduction to solid modelling

Computer Integrated Manufacture

Design for CNC, computer simulation of manufacturing systems. Use of Rapid prototyping system.

Indicative Bibliography:

Please note the essential reads and other indicative reading are subject to annual review and update.

Essential Reads

Hansen L. (2020) Autodesk Inventor 2021, Stephen Schroff

Redwood B. (2017) The 3D Printing Handbook: Technologies, design and applications, 3D Hubs B.V.

Simmons H., Maguire D., Phelps N. (2020) Manual of Engineering Drawing to British and International Standards 5th ed., Butterworth Heinemann

Other indicative reading

McMahon, C., Browne, J. (1999) CAD/CAM, Principles, Practice and Manufacturing Management, 2nd ed., Addison-Wesley

Hannan, R. (1997) Computer Integrated Manufacture From Concepts to Realisation. Addison-Wesley.

Employability skills – the Glyndŵr Graduate

Each module and programme is designed to cover core Glyndŵr Graduate Attributes with the aim that each Graduate will leave Glyndŵr having achieved key employability skills as part of their study. The following attributes will be covered within this module either through the content or as part of the assessment. The programme is designed to cover all attributes and each module may cover different areas. [Click here to read more about the Glyndwr Graduate attributes](#)

Core Attributes

Engaged
Creative
Ethical

Key Attitudes

Curiosity
Confidence
Adaptability

Practical Skillsets

Digital Fluency
Critical Thinking
Communication