Module specification

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Module Code	ENG494
Module Title	Introduction to CAD (Computer Aided Design)
Level	4
Credit value	10
Faculty	FAST
HECoS Code	100050
Cost Code	GAME

Programmes in which module to be offered

Programme title	Is the module core or option for this programme
Standalone module aligned to BEng Aeronautical Engineering for QA and assessment purposes	Option

Pre-requisites

The students must have basic computer skills.

Breakdown of module hours

Learning and teaching hours	18 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	**18 hrs**
Placement / work based learning	0 hrs
Guided independent study	82 hrs
Module duration (total hours)	**100 hrs**

Module aims

The module provides integration of the subject areas of 2D and 3D computer aided design. At the end of the module the student will be knowledgeable in basic to advanced part creation and modification, assembly creation and drafting. It will support the student to acquire a Certification SolidWorks Associate (CSWA).

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

1	Produce 3D solid parts using standard CAD techniques such as extrudes or revolves from defined sketches.
2	Create an assembly of the 3D parts, constraining them using the mate tool.
3	Create an engineering 2D technical drawing from a 3D CAD model which can be made in an engineering workshop.

Assessment

Indicative Assessment Tasks:
This section outlines the type of assessment task the student will be expected to complete as part of the module. More details will be made available in the relevant academic year module handbook.

Assessment 1 –

The assessment will be MCQs. The questions will focus on retrieving information from a model, part or drawing the student has created in CAD from an exercise they have undertaken during the course. The completion of these MCQs will validate the technical properties from their CAD submission files.

Assessment number	Learning Outcomes to be met	Type of assessment	Weighting (%)
1	1, 2, 3	In-class test	100%

Derogations

None

Learning and Teaching Strategies

A series of workshop style lectures with student-led seminars and small group activities. Directed learning using library and internet resources will be facilitated using Moodle and MS Teams. This module will also follow the ALF (Active Learning Framework) guidelines, which will include alternative methods of assessment and a blended approach to delivery, with some theory and software sessions being delivered online (depending on requirements and student experience).

Indicative Syllabus Outline

- Drafting, sketching, extrude boss, extrude cut, modification of key dimensions, revolve boss, circular pattern, sketch offset, assembly creation, mates, and modification.

Indicative Bibliography:

Please note the essential reads and other indicative reading are subject to annual review and update. Please ensure correct referencing format is being followed as per University Harvard Referencing Guidance.

Essential Reads

K. Plantenberg (2023)*, A Hands-On Introduction to SOLIDWORKS 2023: Text and Video Instruction*, SDC Publications

Other indicative reading

W. Howard (2022), *Introduction to Solid Modeling Using Solidworks 2022*, McGraw-Hill Companies

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.

Core Attributes

Engaged
Enterprising
Creative
Ethical

Key Attitudes

Commitment
Curiosity
Resilience
Confidence
Adaptability

Practical Skillsets

Digital Fluency
Organisation
Critical Thinking