Module specification

When printed this becomes an uncontrolled document. Please access the Module Directory for the most up to date version by clicking on the following link: Module directory

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

Module code	ENG4AQ
Module title	Introduction to Composites - Practical
Level	4
Credit value	10
Faculty	FAST
Module Leader	Martyn Jones
HECoS Code	101217
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(Hons) Aerospace and Mechanical Engineering	Stand-alone

Pre-requisites

N/A

Breakdown of module hours

Learning and teaching hours	12 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	**12** hrs
Placement / work based learning	0 hrs
Guided independent study	88 hrs
Module duration (total hours)	100 hrs

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Initial approval date	03/03/21
With effect from date	01/06/21

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Date and details of revision	
Version number	1

Module aims

This short course aims to:

- give an overview of the H&S requirements in fabricating a composite lay up
- create a symmetric and quasi isotropic CFRP panel
- perform a tensile test on a number CFRP samples and understand the type of failure in the experiment

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

1	Explain the Health and Safety requirements and implications when working with fibre reinforced composites
2	Describe the fabrication process required for a good quality panel made from preimpregnated composite material
3	Explain the results produced during a tensile test of a fibre reinforced polymer sample.

Assessment

Indicative Assessment Tasks:

Students will be asked to demonstrate their knowledge and understanding of the learning outcomes via a multi-choice question paper

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

- The module will be delivered through a combination of formal lectures, tutorials, practical demonstrations and student workshops. All of the material delivered formally will be made available to participants through MOODLE or other sharing platforms

Indicative Syllabus Outline

1. Understand the reason for quality control in making CFRP panels
2. Overview of stacking sequences used in the fabrication of a CFRP panel
3. The different test methods required in QA control of composites
4. How composite material properties are ascertained via mechanical tests
5. Introduction to the H&S implications in fabricating composites
6. Introduction to the different fabrication methods of composites

Indicative Bibliography:

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

Essential Reads

Callister, W.D. (2020) Material Science and Engineering An introduction, Wiley (New York).

Other indicative reading

Potter, K. (1997) An introduction to composite products, design, development and manufacture, Chapman & Hall.

Hull, D. and Clyne, T.W. (1996) An introduction to composite materials. 2nd ed. Cambridge:

Cambridge University Press.

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

Key Attitudes
Commitment
Confidence
Curiosity
Resilient
Adaptability

Practical Skillsets
Critical Thinking
Leadership & Team working
Communication