COMPOSITES CURRICULUM - Unit Information

This unit forms part of the Masters level Composites Curriculum developed by Bristol and Plymouth Universities.

Taught block title	Materials
Unit title	Dry fabrics and prepregs
Level (Credit points)	M (2)
Unit director	Kevin Potter

Unit description

This unit forms part of the Masters level Composites Curriculum. It introduces learners to the processes used in the manufacture of both dry and preimpregnated reinforcements and how the processes used in the manufacture of reinforcements impact on other aspects of composites manufacturing

Core subjects to be covered

1. Introduction, background and history
2. Weaving processes for reinforcements
3. Weave structure types 2D
4. Weave structure types tailored 2D
5. Weave structure types 3D
6. Simulation of textile structures
7. Stitching and tufting
8. Non-crimped fabric processes
9. Braiding processes
10. Tailored fibre placement processes
11. Felts and other non-wovens
12. Aligned discontinuous reinforcements
13. Binder application processes
14. Prepreg manufacture process
15. Solvent methods
16. Film methods
17. Interlayered prepreg
18. Characteristics of prepregs under mechanical load
19. Reinforcement selection process

Statement of unit aims

The aims of the unit are to:

1. Provide learners with an overview of manufacturing processes for dry and impregnated reinforcements
2. Give learners an understanding of the range of reinforcement options available
3. Provide learners with an overview of how to select reinforcements for particular structures

Statement of learning outcomes

Learners will be able to:

1. Demonstrate an understanding of the range of reinforcement types commercially available
2. Understand how the reinforcements are manufactured and how those processes may impact on composites manufacturing processes
3. Understand how materials are selected for the manufacture of specific products

Methods of teaching	8 lectures, 1 lab classes and demonstrations, 1 class exercise
Assessment details if required	Written assignment (85%), 20 minute assessed presentation (15%)
Timetable information	2 days of teaching in a block