

COMPOSITES CURRICULUM - Unit Information

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

Taught block title	Core Block	
Unit title	Manufacturing of composite products	
Level (Credit points)	H (2)	
Unit director	Professor Kevin Potter	
Unit description		
This unit forms part of the Masters level Composites Curriculum. It builds on the unit "Introduction to Composites" and "Composites Constituents" to provide Learners with a good understanding of the methodologies used in the manufacture of composite products.		
Core subjects to be covered		
1. Drafting practices and ply direction control rosettes	11. Prepreg processes, preparation for moulding	12. Prepreg processes, vacuum bag and autoclave,
2. Mapping reinforcements to required geometries	13. Prepreg processes, compression moulding	14. Prepreg processes, cure.
3. Reinforcement deformation	15. Dry fibre processes, pultrusion and filament winding	16. Dry fibre processes, rigid tool variants of resin infusion
4. Drape models and conformability	17. Dry fibre processes, flexible tool variants	18. Tooling materials and tool design
5. Reinforcement preparation, nesting	19. Demoulding and post moulding non-destructive inspection	20. Machining and finishing processes
6. Process availability and process selection		
7. Manufacturing instructions		
8. Prepreg processes, manual reinforcement lay-up		
9. Prepreg processes, automated reinforcement lay-up		
10. Prepreg processes, consolidation		
Statement of unit aims		
The aims of this unit are to:		
1. Provide Learners with an overview of the processes used in the manufacture of composite products		
2. Give learners an understanding of the range of materials and process options		
3. Give learners the tools to compare processes and chose the most appropriate manufacturing routes		
4. Provide the learners with an understanding of methods to control the manufacturing processes		
Statement of learning outcomes		
Learners will be able to:		
1. Provide a clear overview of composites manufacturing and control processes		
2. Understand the positive and negative aspects of each suite of processes and how these impact on design and development of composite products		
3. Understand some of the issues and methodologies involved in the manufacture of robust, high quality and defect-free composite products		
Methods of teaching	7 lectures, 2 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	