

## COMPOSITES CURRICULUM - Unit Information

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

<b>Taught block title</b>	Manufacturing Processes A	
<b>Unit title</b>	Resin infusion processes	
<b>Level (Credit points)</b>	H (2)	
<b>Unit director</b>	Professor John Summerscales	
<b>Unit description</b>		
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 manufacture of fibre-reinforced composites by infusion processes.		
<b>Core subjects to be covered</b>		
1. The RTM- infusion- prepreg continuum. 2. Vacuum integrity of mould tools. 3. Process and consumable materials. 4. Reusable "consumables". 5. RIFT1: in-plane flow parallel to the layers of reinforcement. 6. RIFT2: through-plane flow from a flow medium or scored core (SCRIMP/VARTM).	7. RIFT3: resin film infusion (RFI). 8. RIFT4: partially pre-impregnated materials. 9. Double diaphragm infusion techniques. 10. In-mould gel-coating. 11. Infusion of large structures. 12. Process monitoring and control. 13. Simulation software (LIMS/PAM-RTM/Polyworx)	
<b>Statement of unit aims</b>		
The aims of this unit are to:		
<ol style="list-style-type: none"> <li>1. Give Learners an understanding of the continuum of processes from RTM through infusion to prepregging.</li> <li>2. Provide Learners with an overview of the specific variations of infusion processes.</li> <li>3. Give Learners the tools to optimise infusion manufacturing processes.</li> </ol>		
<b>Statement of learning outcomes</b>		
Learners will be able to:		
<ol style="list-style-type: none"> <li>1. Provide a clear overview of the range of infusion manufacturing processes</li> <li>2. Establish an appropriate manufacturing system for infusion of different composites aligned to the specific requirements of the consumer.</li> <li>3. Understand the issues constraining the use of infusion to meet specific performance parameters.</li> </ol>		
<b>Methods of teaching</b>	7 lectures, 2 lab classes and demonstrations, 1 class exercise	
<b>Assessment details if required</b>	Written assignment (85%), 20 minute assessed presentation (15%)	
<b>Timetable information</b>	2 days of teaching in a block	