

Composites Curriculum – Unit information

Taught block title	Materials
Unit title	Polymer melt viscosity and chemorheology, cure and degradation
Level (Credit points)	
Unit director	Alex Skordos
Unit description	
<p>This unit focuses on polymeric matrices and their behaviour during manufacturing operations. The coverage includes physical and chemical aspects of material behaviour, materials state transitions taking place during processing, quantitative models and characterisation methods.</p>	
Core subjects to be covered	
<ol style="list-style-type: none"> 1. Cure of thermosets 2. Crystallisation of thermoplastics 3. Rheology of thermoplastic matrices 4. Rheology of thermosetting matrices 5. Rheological modelling 6. Cure kinetics 7. Glass transition temperature development 8. Degradation of polymers 9. Material state maps 	
Statement of unit aims	
<p>The aims of this unit are to:</p> <ol style="list-style-type: none"> 1. Provide Learners with knowledge of polymer material behaviour during the manufacturing of composites 2. Present the main approaches for characterising material behaviour 3. Provide the tools for quantitative analysis of the phenomena governing material behaviour 	
Statement of learning outcomes	
<p>Learners will be able to:</p> <ol style="list-style-type: none"> 1. Understand the physical and chemical transformation polymers undergo during their processing 2. Use quantitative methods to analyse and predict material behaviour 3. Link polymer behaviour with composites processing 	
Methods of teaching	6 lectures, 6 computer based tutorials, 2 Lab demos
Assessment details if required	Written assessment (100%)
Timetable information	2 days teaching in a block