

COMPOSITES CURRICULUM - Unit Information

This unit forms part of the Masters level Composites Curriculum

Taught block title	Manufacturing Processes A	
Unit title	4.4 Prepreg and SMC processes/compression moulding	
Level (Credit points)	M (2)	
Unit director	Andrew Mills	
Unit description		
<p>This unit forms part of the Masters level Composites Curriculum. It introduces Learners to the well-established manufacturing process of matched tool compression moulding. The process is the predominant technique for high rate, thermoset matrix composite materials. Both pre-impregnated continuous reinforcement and chopped fibre moulding compound variants are covered</p>		
Core subjects to be covered		
Prepreg	SMC / CFSMC / CFMC	
<ol style="list-style-type: none"> 1. The process – Why it's done and main benefits 2. Process steps and illustrations 3. Lay-up b. Diaphragm forming option c. Pressing 4. Process features and benefits 5. Surface finish, snap cure systems, tooling & equipment, thickness tailoring issue 6. Application examples Nissan GTR boot, Alfa Guilia bonnet 7. Process and quality difficulties 8. Part design guidelines for the process 	<ol style="list-style-type: none"> 9. The process – Why it's done and main benefits 10. Process steps and illustrations 11. Charge placement b. Pressing 12. Process features and benefits 13. Surface finish, insert incorporation, tooling 14. Application examples BMW 7 Series C pillar, Lamborghini Huracan wing 15. Process variants – Prepreg CFSMC co-curing (hybrid moulding) 16. Process and quality difficulties 17. Part design guidelines for the process 	
Statement of unit aims		
<p>The aims of this unit are to:</p> <ol style="list-style-type: none"> 1. Provide Learners with an overview of the compression moulding processes 2. Identify the advantages and limitations of the processes 3. Identify process and quality difficulties 4. Provide the learners with information to support the design of composite products to be manufactured by compression moulding 5. Provide design advice applicable to the processes 		
Statement of learning outcomes		
<p>Learners will be able to:</p> <ol style="list-style-type: none"> 1. Understand compression moulding process techniques 2. Understand the advantages and disadvantages of compression moulding 3. Understand some of the issues involved in the selection and design of composites for manufacture by compression moulding 		
Methods of teaching	4 lectures, 1 lab class 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	