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	Composite laminate design
Level (Credit points)	H (2)
Unit director	Dr. Mahdi Damghani

Unit description

This unit forms part of the Masters level Composites Curriculum. It provides learners having no/limited knowledge of composite structures with a general introduction to the basics and principles of composite laminate design.

Core subjects to be covered

1. Principles of laminate design and design of a composite piece
2. Design and analysis of composite beams
3. Design and analysis of sandwich composite structures
4. Bonded joints
5. Bolted joints
6. Good design practices and design “Rules of Thumb”

Statement of unit aims

The aims of this unit are to:

1. Provide the learners with principles of laminate stacking sequence design and laminate sizing under various loading scenarios.
2. Provide means of analysing and designing laminated composite beams.
3. Provide means of analysing and designing sandwich structures. The learners will also be exposed to damage mechanisms in sandwich panels and attaching sandwich structures.
4. Provide understanding of stress distribution and structural damage mechanisms in both bonded and bolted joint in composite structures.
5. Provide existing repair techniques for laminate composite structures.

Statement of learning outcomes

Learners will be able to:

1. Practically implement composite structures design/sizing and optimisation using hand methods.

Methods of teaching	6 lectorials (combination of lectures and tutorials).
Assessment details if required	Written assignment (85%), 20 minute assessed presentation (15%)
Timetable information	2 days of teaching in a block