THE UNIVERSITY OF MANCHESTER
Programme Unit Specification

1. GENERAL INFORMATION

Title	Technical Textiles
Unit code	MATS30162
Credit rating	Materials (Textiles & Paper Group)
Level	3 (Year-F)
Semester(s)	2
Pre-requisite units	No specific units
Co-requisite units	None
School responsible	Materials
Member of staff responsible	Dr X Chen
Other staff involved	Dr P Potluri; Dr WR Kennon; Prof FJ Wortmann; Dr MA Wilding

2. AIMS

The primary aim of this unit is to introduce students to the world of research with the emphasis on developments in technical textiles. It is also designed to broaden students' knowledge and appreciation of the methodology underpinning major research programmes.

3. BRIEF DESCRIPTION OF THE UNIT

The unit is presented by a team of academic staff whose research expertise encompasses a wide range of technical areas. Students will be familiarised with various aspects of the development and application of technical textile products.

As the main aim is to introduce students to the world of research, the unit is likely to evolve, so that the specific topics covered may differ each academic year.

4. INTENDED LEARNING OUTCOMES *(include module-specific and contribution to programme)*

Category of outcome	*Depending on the specific topics covered, students should be able to demonstrate, for example:*
Knowledge and understanding	• a good understanding of the chemical composition, physical microstructure, physical & chemical properties and processing requirements of fibres, supported by the necessary background

	science relating to the structure and properties of materials; • a good understanding of the mechanical behaviour of textile materials, including performance-related properties such as degradation, durability and wear; • a good understanding of the functional behaviour upon which the selection of textile materials is based, and hence be able to identify appropriate manufacturing processes for specific textiles applications; • knowledge and understanding of textile assemblies and their technical potentials; • knowledge and understanding of the classification, structure, properties, processing routes and end-uses of high performance fibres; • knowledge and understanding of the mechanisms whereby fibrous products can deteriorate through wear, fracture and fatigue; and ways in which these effects can be assessed and mitigated; • knowledge and understanding of factors contributing to the comfort afforded by clothing, specifically as regards the management of moisture;
Intellectual skills	• the knowledge and analytical skills necessary to engineer and create new textiles for technical end uses; • the ability to express mathematical and technological information with clarity, logic and accuracy; • original thinking in the analysis and evaluation of textile materials & structures, and their applications;
Practical skills	• an ability to identify and employ appropriate sources of information;
Transferable skills and personal qualities	• the ability to communicate effectively in writing.

5. LEARNING AND TEACHING PROCESSES (*methods of delivery*)

The unit is delivered as a series of lectures. Each contributing staff-member provides approximately four hours.

6. ASSESSMENT

Assessment task	Length	Weighting within unit (if relevant)
Written examination paper. Answer 3 from 5 questions	 90 min.	100%

Date of current version	21st January, 2010