Module Title	Computation
Module Code	MATS 10071
School(s) responsible	Materials (Textiles & Paper Group)
Member of staff responsible	Dr WR Kennon
Other staff involved	
Credit rating	10
Level	3 (Year-1)
Methods of delivery	Lectures, individual and class-centred problem-based learning, practical interactive programming sessions.
Lecture hours	12
Tutorial hours	6
Practical work hours	18
Private study	64 hours
Total study hours	100
Aims	It is intended that students should be confident in their use of the digital computer. They should be capable of analysing problems and organising them in a form suitable for solution using a computer program. Efforts are made to foster an understanding of the interaction between the program software and the hardware of the micro-computer. Students should develop a disciplined approach to the writing of programs in Visual Basic.Net and should be able to create individual, original solutions to practical problems encountered in textile engineering.
Module-specific Learning Outcomes	On completion of this module, students will have: • a general understanding and a good working command of the operation of a powerful modern computer language; • the ability to analyse technical problems and plan their explication so that they might submit to solution using techniques pertinent to use on a high-speed computer; • experience of working both individually and as part of a group to address demanding technical problems. The ability to work with an up-to-date language on modern computer hardware and use the machine to solve demanding problems; • experience of participation within a group which requires communication using technical terms and specialist computer concepts in the discussion of problems and in the devising of algorithms. Students also learn to work within specific time constraints in the completion of project work.
Contribution to Assessed Programme Learning Outcomes A. Academic knowledge	TA9
B. Intellectual skills	TB1, TB2, TB5
C. Subject practical skills	TC5, TC10
D. Transferable skills & personal qualities	TD1, TD2, TD3, TD4
Pre-requisites	None
Co-requisites	None
Dependent modules	None - Although the background knowledge and competence are useful in business programming and form a useful foundation for the study of Electrotechnics and Mechatronics.

Syllabus	• The digital computer. Computer programs and languages. • The Visual Basic.Net working environment. • Simple programming in Visual Basic. • Objects, Properties, Methods and Events. • The visual interface. • VB.Net conventions • Working with number and the arithmetic operators. • Commenting. • Variables and operator precedence. • Literal strings. • The conditional construct. Relational operators. • Problem analysis and program synthesis. • The determinate loop construct. • The indeterminate loop construct. • VB.Net built-in functions. • The Sub procedure. • Program structure. • The Function procedure. • Advanced print formatting. • Single dimensional array variables. Multi-dimensional arrays. • Form-level declaration. • Further problem analysis and program design. • Language translation. • The OLE container control. Linking and embedding of objects.
Reading list/Resources	• McBride, P.K.; Introductory Visual Basic.Net; Thomson Learning, 2005, ISBN: 0-8264-5590-5 • Jones, P.; Visual Basic.Net; Thomson Learning, 2003 ISBN: 1-84480-098-9 • Kennon, W.R.; Introduction to Programming in Visual Basic; Althurst Press, 2005. • Schneider, D.I.; An Introduction to Programming Using Visual Basic 6.0; Prentice Hall, ISBN 0-13-936428-5. • Wright, P.; Programming Visual Basic 6.0, Wrox Press, 2001. • Teach Yourself Visual Basic 6.0 in 21 Days; Gurewich and Gurewich; Sams Publishing. • Knuth, D.E.;Fundamental Algorithms - The Art of Computer Programming; Addison-Wesley. • Lewin, D.; Theory and Design of Digital Computers; Thomas Nelson & Sons. ISBN 0-17-761014-X. • http://www.homeandlearn.co.uk/NET/vbNet.html • http://www.developerfusion.co.uk/vbnet/ • http://www.quecorp.com/sevb6 • http://www.microsoft.com/vb6 • http://www.vbhelper.com • http://www.planetsourcecode.com
Assessment methods and relative weightings	Unseen examination - 50% Original computer project work - 50%
Date of last revision of module specification	21/09/07