

BSc (Hons) Textile Technology – E300

1. Objectives

The BSc (Hons) programme in Textile Technology aims to produce graduates with a thorough practical and theoretical knowledge of textile technology including clothing manufacture. Graduates can seek employment at various levels within the textile and associated industries, and as textile specialists within the clothing sector. Students also have the opportunity to develop managerial and IT skills, and creative technical aptitudes. In-house or industry-based research is a fundamental component of the programme.

2. General Entry Requirements

As per General Entry Requirements for admission to the University for Undergraduate Degrees.

3. Programme Requirements

Credit in Chemistry at SC/ 'O' Level.

At least 2 GCE 'A' Level Passes including Mathematics.

4. Minimum Credits Required for the Award

MODULES	Minimum Credits Required	
	Degree	Diploma (Any Level)
Humanities & Management	9	6
Basic Sciences & Mathematics	12	6
Technology & Engineering	14	8
Departmental	65	40
TOTAL	100	60

Note:

- Degree students should pass in all core modules.
- Industrial training must be completed satisfactorily for the award of the degree.

5. Programme Duration

	Normal (Years)	Maximum (Years)
BSc (Hons) Degree:	3	5
Diploma:	2	3

6. Credits per Year

Maximum 48 credits

Minimum 18 credits

7. Assessment

Each module can either be taught in semester 1 only or in semester 2 only or throughout the two semesters.

Assessment will be based on a written examination of 2 to 3-hour duration (normally a paper of 2 hour duration for modules carrying less or equal to 3.5 credits and a 3-hour paper for modules carrying five or more credits) and on continuous assessment done during the semester or year.

Written examinations for all modules, whether taught in semester 1 or in semester 2 or both, will be carried out at the end of the academic year (unless otherwise stated).

The continuous assessment will count for 10-40% of the overall percentage mark of the module(s), except for a Programme where the structure makes for other specific provision(s). Continuous assessment may be based on laboratory work, seminars and/or assignments and should include at least 1 class test.

There will be a compulsory class test for all modules taught in semester 1 at the end of semester 1 of the given academic year unless stated otherwise in the Programme Structure.

A minimum of at least 30% should be attained in each of continuous assessment and written examination, with an overall total of 40% for a candidate to pass a module. For modules being assessed jointly, a minimum of at least 30% should be attained in each of continuous assessment and written examination, with an overall total of 40% for a candidate to pass the two modules. Note that the marks for the two modules will be considered together and not the individual marks for each of the two modules.

Special examinations (e.g. class tests) will be arranged at the end of semester 1 or semester 2 for exchange students who have registered only for one semester. In case of yearly modules, credits will be assigned on a pro-rata basis.

Module MECH 1111(1) will be assessed solely on continuous assessment.

8. **GEMs**

Students are allowed to choose any elective module contained in GEMs list available at the Faculty's Office. However, the offer of the electives would be subject to the availability of resources and existence of a critical mass of demand for the modules. Students are requested to contact their Programme Coordinator before entering any module under the GEMs in their module registration form.

9. **List of Modules - BSc (Hons) Textile Technology**

CORE MODULES

Code	Module Name	Hrs/Wk L+P	Credits
Basic Sciences & Mathematics			
MATHS 1111(1)	Mathematics 1	D.E.	3
TXT 1213(1)	Textile Statistics	3+0	3
TXT 1023Y(1)	Textile Chemistry 1	3+0	6
			12
Humanities & Management			
COMS 1010(1)	Communication Skills	D.E.	3
Technology & Engineering			
CSE 1010e(1)	Introduction to Information Technology	O.E.	3

CSE 1020(1)	Computer Programming	2+2	3
MECH 1111(1)	Engineering Graphics 1 *	1+2	2
			8

Departmental

TXT 1013Y(1)	Textile Materials & Yarns	3+0	6
TXT 1033Y(1)	Fabric Manufacture 1	3+2	8
TXT 1223(1)	Clothing Technology	3+2	4
TXT 2013Y(3)	Clothing Design & Management	2+2	6
TXT 2023Y(3)	Textile Chemistry 2	3+2	8
TXT 2033Y(3)	Fabric Manufacture 2	3+2	8
TXT 2213(1)	Textile Engineering	3+0	3
TXT 3000(5)	Project	-	9
TXT 3013Y(5)	Textile Testing & Quality Assurance	3+1	7
TXT 1200	Industrial Training 1	8 weeks	0
TXT 2200	Industrial Training 2	8 weeks	0

ELECTIVES

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Technology & Engineering

ELEC 1102(1)	Basic Electrical & Electronic Engineering	3+0	3
TXT 2223(3)	Electromechanics	3+0	3
MECH 3132(3)	Engineering Management 1	3+0	3
MECH 4163(5)	Operations Research 1	3+0	3

Humanities & Management

ACF 1000(1)	Accounting for Financial Decision Making	3+0	3
MGT 1111(1)	Organisation & Management	D.E.	3
MGT 1201(1)	Organisational Behaviour	D.E.	3
MGT 1200(1)	Introduction to Marketing	D.E.	3

Departmental

TXT 3113(3)	Yarn Production	3+0	3
TXT 3123(3)	Textile Processing & the Environment	3+0	3
TXT 3023Y(5)	Advanced Topics in Textiles	3+0	6

* To be assessed by continuous assessment only.

11. Programme Plan - BSc (Hons) Textile Technology

YEAR 1

Semester 1				Semester 2			
Code	Module Name	Hrs/Wk L+P	Credits	Code	Module Name	Hrs/Wk L+P	Credits
SEMESTER CORE MODULES							
MATH 1111(1)	Mathematics 1	D.E.	3	TXT 1213(1)	Textile Statistics	3+0	3
CSE 1010e(1)	Introduction to Information Technology	O.E.	3	CSE 1020(1)	Computer Programming	2+2	3
COMS 1010(1)	Communication Skills	D.E.	3	TXT 1223(1)	Clothing Technology	3+2	4
				TXT 1200	Industrial Training 1	8 wks	0
YEARLY CORE MODULES							
TXT 1013Y(1)	Textile Materials & Yarns					3+0	6
TXT 1023Y(1)	Textile Chemistry 1					3+0	6
TXT 1033Y(1)	Fabric Manufacture 1					3+2	8

YEAR 2

Semester 1				Semester 2			
Code	Module Name	Hrs/Wk L+P	Credits	Code	Module Name	Hrs/Wk L+P	Credits
SEMESTER CORE MODULES							
MECH 1111(1)	Engineering Graphics 1	1+2	2	TXT 2213(1)	Textile Engineering	3+0	3
				TXT 2200	Industrial Training 2	8 wks	0
YEARLY CORE MODULES							
TXT 2013Y(3)	Clothing Design & Management					2+2	6
TXT 2023Y(3)	Textile Chemistry 2					3+2	8
TXT 2033Y(3)	Fabric Manufacture 2					3+2	8
SEMESTER ELECTIVE MODULES							
MGT 1111(1)	Organisation & Management	D.E.	3	MGT 1200(1)	Introduction to Marketing	D.E.	3
ELEC 1102(1)	Basic Electrical & Electronic Engineering	3+0	3	TXT 2223(3)	Electromechanics	3+0	3

YEAR 3

Semester 1				Semester 2			
Code	Module Name	Hrs/Wk L+P	Credits	Code	Module Name	Hrs/Wk L+P	Credits
YEARLY CORE MODULES							
TXT 3000Y(5)	Project					-	9
TXT 3013Y(5)	Textile Testing & Quality Assurance					3+1	7
YEARLY ELECTIVE MODULE							
TXT 3023Y(5)	Advanced Topics in Textiles					3+0	6
SEMESTER ELECTIVE MODULES							
MECH 3132(3)	Engineering Management 1	3+0	3	MECH 4163(5)	Operations Research 1	3+0	3
TXT 3113(3)	Yarn Production	3+0	3	TXT 3123(3)	Textile Processing & The Environment	3+0	3
ACF 1000(1)	Accounting for Financial Decision Making	3+0	3	MGT 1201(1)	Organisational Behaviour	D.E.	3

- To be assessed by continuous assessment only.

12. Outline Syllabus

ACF 1000(1) - ACCOUNTING FOR FINANCIAL DECISION MAKING

The Role of Accounting Information; Recording and Summarising Transactions; Accounting Concepts & Preparing Final Accounts; Adjustments to Final Accounts; Capital v/s Revenue Expenditure; Bank Reconciliation Statement; Accounting Ratios; Accounting for Internal Decision Making Techniques; Elements of Cost; Costing Methods & Techniques; Decision Making Techniques; Accounting for Manufacturers; Budgets.

COMS 1010(1) - COMMUNICATION SKILLS

Writing skills, non-verbal communication, modes of speech delivery and presentation aids, speeches, perception and listening skills, business and technical writing.

CSE 1010e(1) - INTRODUCTION TO INFORMATION TECHNOLOGY

IT and Computers; Stepping in the Computer; Input and Output Devices; Secondary Storage; Programming; Systems Software; Applications Software; Systems Development; Computer Networks; The internet; Computer Security; Software Utilities; Issues and Trends in IT.

CSE 1020(1) - COMPUTER PROGRAMMING

Basic types; arithmetic & logical operators and expressions; decision and loop structures; arrays (one-dimensional and two-dimensional); functions; value and reference parameters; files: creation, opening, writing, closing; introduction to structures data types.

ELEC 1102(1) - BASIC ELECTRICAL & ELECTRONICS ENGINEERING

Current Electricity, Network Theorems, Magnetism & Electromagnetic Induction. Semiconductors, Diode, Transistors, Opamp, Control & Feedback Systems.

MATHS 1111(1) - MATHEMATICS 1

Calculus of one and several variables. Polar coordinates. Complex numbers. Hyperbolic functions. Limits. Ordinary differential equations.

MECH 1111(1) - ENGINEERING GRAPHICS I

Introduction to Drawing Office Practice, BS 308, etc; Geometrical constructions; Blending of curves; Linkages, Locus, Ellipse, cycloid, epicycloid, etc; Introduction to development (Prisms, cylinders, etc); Orthographic Projection (systems of projection); Dimensioning and Tolerancing; Sections and sectional views. Introduction to isometric projection; Standard Parts (Threading, Fasteners, etc); Assembly Drawing.

MECH 3202(3) - ENGINEERING MANAGEMENT 1

Introduction to the Production and Operations Management; Decision Analysis; Capacity Planning; Process Selection and Facility Layout; Location Planning and Analysis; Introduction to Quality; Introduction to Inventory Management: Requirements of an effective Inventory Management System; EOQ & EBQ models, Reorder levels, Quantity Discounts; Materials Requirement Planning; Project Management.

MECH 4163(5) - OPERATIONS RESEARCH 1

Linear Programming Techniques, Forecasting Techniques, Decision & Utility, Theory, Advanced Inventory model, JIT Systems, Scheduling of Manufacturing & Service Systems, Queuing Theory, Network Models.

MGT 1111(1) - ORGANISATION AND MANAGEMENT

Introduction to Management. The evolution of Management. Managerial roles and functions. Planning. Decision-making. Organising. Motivation, Leadership, Controlling.

MGT 1200(1) - INTRODUCTION TO MARKETING

Understanding marketing, The Marketing Environment, Information Systems & Marketing Research, Customer Buying Behaviour, Segmentation, Target Marketing & Positioning, The Marketing Mix: Product, Price, Place, Promotion). Strategic Planning.

MGT 1201(1) - ORGANISATIONAL BEHAVIOUR

Overview of organisational behaviour. Managerial work, skills and functions. The individual in organisations: ability, skills, perception and attitudes. The individual: personality, job satisfaction. Learning and behaviour modification. Motivation: theories and practice. Leadership. Organisational structure and culture. Work groups and work teams. Work design: Re-engineering, productivity, TQM. Communication, power and politics. Social responsibility and ethics in OB.

TXT 1013Y(1) - TEXTILE MATERIALS & YARNS

Fibres: nature, origins, production, structure, properties and end-uses. Identification of fibres. Cotton blowroom systems. Intermediate feed systems. Comparison of carding machines for different yarn production systems. Preparatory processes for wool. Wool blending. Basics of ring and open-end spinning.

TXT 1023Y(1) - TEXTILE CHEMISTRY 1

The Electronic Theory, Chemical Bonding and Intermolecular Forces, Energy Changes of Solution Systems, Endo-Exothermic Reactions, Acid-Base Reactions; Reduction and Oxidation Processes, Equilibria and Factors affecting Equilibria, Reaction Rates. Organic Chemistry.

Water for wet processing of textiles. Dye chemistry. Dyeing terms and definitions. Dyeing machinery. Basic Colour Science.

TXT 1033Y(1) - FABRIC MANUFACTURE 1

Fundamentals of the conversion of yarns into knitted fabrics. Basic knitting actions. Knitting elements and cams. Knitted fabric structure. Relationships between fabric design and construction with properties and performance of end product. Yarn Preparation for weaving. Basic mechanisms for shuttle looms. Basic fabric structures and geometry. Fabric quality.

TXT 1200 - INDUSTRIAL TRAINING I**TXT 1213(1) - TEXTILE STATISTICS**

Presentation of data. Probability. Common Probability Distributions. Sampling Distributions. Estimation. Hypothesis Testing. Linear Regression. Illustrate Application of Methods with Examples Drawn from the Textile Industry.

TXT 1223(1) - CLOTHING TECHNOLOGY

Pattern construction. Fabric usage. Seams and stitches. Sewing machinery. Garment assembly. Pressing and fusing technology.

TXT 2013Y(3) - CLOTHING DESIGN & MANAGEMENT

Method study. Line balancing. Organisation of clothing production. Quality management. Costing. Students will be required to construct a garment under the supervision of a member of staff. A technical report should accompany the finished garment.

Clothing management topics will be covered prior to the start of the design project.

TXT 2023Y(3) - TEXTILE CHEMISTRY 2

Preparatory processes and dyeing of cotton & protein fibres. Dyeing of man-made fibres and blends. Textile Finishing. Printing.

TXT 2033Y(3) - FABRIC MANUFACTURE 2

Weft knitting machines. Dimensional stability of knitted structures. Spirality. Geometry of plain knitted Fabrics. Fully fashioned garment manufacture. Fabric faults: recognition, rectification and prevention. Yarns for weft knitting. Knitting machine performance.

Automated yarn preparatory processes. Shuttleless weft insertion methods. Complex shedding methods. CAD and CAM systems. Warp, weft and cloth control mechanisms. Fabric faults: recognition, rectification and prevention.

TXT 2200 - INDUSTRIAL TRAINING II**TXT 2213(1) - TEXTILE ENGINEERING**

Steam utilisation. Air conditioning. Machine and plant maintenance.

TXT 2223(3) - ELECTROMECHANICS

Circuit analysis. Transformers. D.C. and A.C. machines. Synchronous machines.

TXT 3000Y(5) - PROJECT**TXT 3013Y(5) - TEXTILE TESTING & QUALITY ASSURANCE**

Moisture measurement and control. Testing of fibre, yarn and fabric properties. Tensile strength tests. Yarn evenness, hairiness and friction. Flammability testing.

Quality Gurus and Quality Concepts. Quality Standards. Quality Circles. Quality Costing. Statistical Quality Control: control charts, process capability analysis.

TXT 3023Y(5) - ADVANCED TOPICS IN TEXTILES

Surface chemistry: contact angles & wetting. Adsorption isotherms. Donnan equilibrium. Thermodynamics: first and second laws. Physico-mechanical and physico-chemical aspects of dyeing and printing. Theoretical models for dyeing systems.

Individual needle selection. CAD/CAM systems in knitting. Latest developments in knitting. Introduction to warp knitting.

Multiphase weaving. Pile fabrics and carpets. Recent developments in weaving. Non-woven technology. Textured yarn technology. New spinning technologies.

TXT 3113(3) - YARN PRODUCTION

Combing systems. Drafting systems. Methods of twist insertion. Effect of twist on yarn and fabric properties. Tow to top conversion. Cutting and breaking systems.

TXT 3123(3) - TEXTILE PROCESSING & THE ENVIRONMENT

Characterisation of textile effluent. Toxicity of textile chemicals. Methods of effluent treatment. Disposal of effluents. Reuse of water in wet processing. Solid waste management & recycling. Cleaner production technologies.