MAHARAJA RANJIT SINGH PUNJAB TECHNICAL UNIVERSITY BATHINDA-151001 (PUNJAB), INDIA

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Department: **TEXTILE ENGINEERING**

GianiZail Singh Campus College of Engineering & Technology, MRSPTU

Program: B Tech Textile Engineering

COURSE ARTICULATION MATRIX (STUDY SCHEME: 2018)

Subject	S Code	Semester	Credit	Duration (Hrs)	L T P	COs	Statement	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
Fundamentals of Textile Machines and Processes	BTEXS1-301	3	3	45	3 0 0	CO1	Indentify the various application areas of textile materials	3	2			2							1			
						CO2	Demonstrate the process flow of fibres up to the finished product.	2	3	1									1			
						CO3	Elaborate the functioning of various textile machineries and their working process.		2												1	
						CO4	Apply knowledge of processes such as desizing, scouring, bleaching, dyeing, printing & finishing.	3	1		1		1	2	2				1	3		
Textile Fiber – I	BTEXS1-302	3	3	45	3 0 0	CO1	Understand the basics of textile fibres and their classifications.	3	2								1		2	1		

						CO2	Demonstrate Properties of Fibres and Polymers and correlate the structure and properties of fibers and polymers.	3	2		2						2		2	1	2	
						CO3	Explain the production properties and uses of major natural fibers.	3	2								2		2	1		
						CO4	Demonstrate basics of manmade fibres and production systems for manmade regenerated fibres fibers.	3	2								2		2	1		
Fabric Manufacturing- I	BTEXS1-303	3	4	60	3 1 0	CO1	specify the objectives of winding process and functions of various components of winding machine. Also do the necessary calculations on the machine.	3	2								2		1	3		
						CO2	Explain working of Warping and sizing processes and find out the production and Efficiency of these machines.	3	2								2		1	3		
						CO3	Describe working of different parts of Pirn winding and make all necessary calculations..	3	2								2		1	3		
						CO4	Discuss all looming operations especially Primary, Secondary and Auxiliary motions..	3	2								2		1	3		
Yarn manufacturing -I	BTEXS1-304	3	4	60	3 1 0	CO1	Understand the short and long staple spinning, objectives, construction and working of ginning, blowroom, carding and draw frame machines.	3	2	1					1	2	1		2	2		
						CO2	Study the technical features, various processes and parts of the machines.	3		1				1		2	1		2	2		
						CO3	Calculate speeds of the various machine moving parts, cleaning efficiency draft and production of the machines.	3	3		1		1	1	2	2	1		2	2	2	
						CO4	Demonstrate the modern developments in various spinning preparatory machines.	3					2		2	2	2		2	1		
Kinematics of Machines	BTEXS1-305	3	3	45	3 0 0	CO1	Application of various motions and linkage mechanism in textile machines.	2	1										1	2		
						CO2	Elaborate the significance of gears in textile operation.		2		2								1		1	
						CO3	Determine the function of brakes in machine process.					2	1									
						CO4	Identify the significance of different belts, ropes and chains specific to textile operation.						1	1					1		1	

Textile Fibers Lab. –I	BTEXS1-306	3	1	20	0 0 2	CO1	Identify various textile fibres by physical and chemical identification methods.	3	3		2		1			1	2		2	2	2	
						CO2	Analyse percentage fibre content in different blended fabrics.	3	3		2		1			1	2		2	2	2	
						CO3	Estimate the fibre/ filament fineness with the help of projection microscope.	3	3		2					1	2		2	2	2	
						CO4	Determine moisture regain, moisture content and maturity percentage in cotton fibres.	3	3		2		1			1	2		2	2	2	
Fabric Manufacturing- I Lab	BTEXS1-307	3	1	20	0 0 2	CO1	Demonstrate the informed working on the winding machine with all possible controlling of its operations .	3								2	1	3	1	3			
						CO2	Run pirn winding machine having understanding of various machine parts working .	3								2	1	3	1	3			
						CO3	Display skill in working on warping and sizing machines with satisfactory knowledge of various controlling parameters.	3								2	1	3	1	3			
						CO4	Have working knowhow of all primary motions of a loom	3								2	1	3	1	3			
Yarn manufacturing Lab-I	BTEXS1-308	3	1	20	0 0 2	CO1	Study the construction and working of various opener & cleaners used in blow room process.	3								2	2	1	2	2			
						CO2	Determine the trash content with the help of Shirley Trash analyser.	3	3		1			1		2	2	1	2	3	2		
						CO3	Explain the technical detail of carding machines, gearing mechanism, calculations, settings, maintenance and nep count.	3	3		1					2	2	1	2	3	2		
						CO4	Demonstrate the drafting mechanism, top roller weighting, draft calculations, effect of roller setting, maintenance and overhauling of draw frame machine	3	3		1					2	2	1	2	3	2		
Textile Fiber –II	BTEXS1-401	4	3	45	3 0 0	CO1	Knowledge about, Idea about fine structure of man-made fibres. Crystallinity, orientation and its effects on fibre properties	3	2							1	2		2	2	2		
						CO2	Demonstrate the various manmade fibres spinning methods such as melt spinning, dry spinning and wet spinning	3	2							1	2		2	2	1		
						CO3	demonstratefibre post spinning processes such as heat setting , drawing & stretching process.	3	2							1	2		2	2	1		

						CO4	In depth understanding about production, properties and end uses of major synthetic fibres and elementary idea about high performance fibres.	3	2				1			1	2		2	2	1	
Yarn manufacturing -II	BTEXS1-402	4	4	60	3 1 0	**CO1**	Demonstrate the importance, technical features, processes and machines used in short staple conventional and non-conventional spinning processes.	3	2	1			1	1	1	2	2		2	2		
						CO2	Understand the constructional details, working and design aspects of machine parts and mechanisms involved in comber, speed frame, ring frame and nonconventional spinning processes.	3	2	2			1			2	2		2	2		
						CO3	Assessment of various technical parameters related to comber, speed frame, ring frame and nonconventional spinning processes.	3	3		3		2	1	2	2	2		2	2	2	
						CO4	Demonstrate the norms and modern developments in comber, speed frame, ring frame etc.	3	2				1		2	2	2		3	1		
Fabric Manufacturing - II	BTEXS1-403	4	4	60	3 1 0	**CO1**	Describe basic motions of looms i.e. Shedding & Picking and their types.	3	2								2		1	3		
						CO2	Explain mechanism of Beat up motion of loom and associated componenets.	3	2								2		1	3		
						CO3	Describe associated technology of Let-off and Take-up mechanisms of a loom.	3	2								2		1	3		
						CO4	Explain the mechanisms of Stop motions and Warp protector fitted on a loom.	3	2								2		1	3		
Textile Chemical Processing –I	BTEXS1-404	4	4	60	3 1 0	**CO1**	Apply basic knowledge of chemical nature of fibres and processing chemicals to explain the processes of Singeing, desizing and scouring	3	1	1			2	2			1		1	3		
						CO2	Appreciate the technology of different bleaching and mercerization processes and assess the importance of various parameters affecting their efficiencies.	3	1	1			2	2			1		1	3		
						CO3	Recognize the importance of different process variables in influencing the performance of Heat setting and other mechanical finishing operations while developing through knowledge about their mechanisms.	3	1	1			2	2			1		1	3		
						CO4	Identify the role of chemicals used in functional finishes recipe which imparts the desired functionality to the fabrics and evaluate their influencing parameters	3	1	1			2	2			1		1	3		

Fabric Structure Analysis	BTEXS1-405	4	3	45	3 0 0	CO1	To apply knowledge for raw material requirement for a particular fabric design and its specifications	3	3												1	
						CO2	To analyse various weaves for their structure		3	3	1		2							1	2		
						CO3	To learn different weaves	2	3	3					1						1		
						CO4	To analyse the yarn and fabric parameters of various weaves design pattern		1	3										1		2	
Yarn Manufacturing Lab.-II	BTEXS1-406	4	1	20	0 0 2	CO1	Demonstrate the mechanism of a comber, effect of various organs functioning and estimation of noil percentage.	3	3					2		2	1	1	2	2	2	
						CO2	Explain the construction and working of a speed frame along with gearing, calculations and bobbin building mechanism.	3	3		1					2	1	1	2	2	2	
						CO3	Study the ring frame in terms of construction, working, gearing calculations.	3	3		1					2	1	1	2	2	2	
						CO4	Demonstrate the construction and working of new spinning methods: rotor spinning, friction spinning and air-jet spinning.	3	1		1					2	1	1	2	2	1	
Fabric Manufacturing- II Lab	BTEXS1-407	4	1	20	0 0 2	CO1	Demonstrate the mechanism of loom shedding & picking and working of associated parts.	3								2	1	3	1	3		
						CO2	Demonstrate the Beat-up mechanism along with working knowledge of sley eccentricity.	3								2	1	3	1	3		
						CO3	Experiment with Take-up and Let-off mechanisms of a loom.	3								2	1	3	1	3		
						CO4	Have working skill of weft fork, warp protector and warp stop motions.	3								2	1	3	1	3		
Textile Chemical Processing Lab.–I	BTEXS1-408	4	1	20	0 0 2	CO1	Get Skill of doing scouring of different fibres	3	2		2		2	2			3	1	1	3		
						CO2	Have Skill of doing scouring of blends of different fibres	3	2		2		2	2			3	1	1	3		
						CO3	obtain Skill of doing bleaching of different fibres and their blends	3	2		2		2	2			3	1	1	3		

						CO4	Acquire Skill of doing finishing of cotton fibres	3	2		2		2	2			3	1	1	3		
Fabric Structure Analysis Lab	BTEXS1-409	4	1	20	0 0 2	**CO1**	Determine different types of fabric samples to understand characteristics	2	2	2									1			
						CO2	Predict different types of simple weaves and their derivatives.				2									2		
						CO3	Demonstrate different types of compound weaves and their derivatives.		3	3	1								1		2	
						CO4	Analyse weave and colour effect		3										1		2	
Properties of Fiber	BTEXS1-501	5	4	60	3 1 0	**CO1**	Analysefibre structure data and moisture dependent fibre characteristics	3	2							1	2		2	2	2	
						CO2	Demonstrate the response of fibre towards tensile loading under different practical situation	3	2							1	2		2	2	1	
						CO3	Model viscoelastic behaviour and interpret rigidity and dynamic loading fibre character	3	2							1	2		2	2	1	
						CO4	Apply knowledge of optical, frictional, static and thermal properties in solving real life problems	3	2				2			1	2		2	2	1	
Fabric Manufacturing- III	BTEXS1-502	5	3	45	3 0 0	**CO1**	Discuss features, construction, working of different dobbies arrangement.	3	2								2		1	3		
						CO2	Explain Construction & working of different Jacquards and Design development with card punching	3	2								2		1	3		
						CO3	Describe working of mechanisms fitted on automatic looms like automatic package changing, multiple box motions etc.	3	2								2		1	3		
						CO4	Describe design features, construction, working of different mechanisms of automatic shuttle looms	3	2								2		1	3		
Non-Woven	BTEXS1-503	5	3	45	3 0 0	**CO1**	Classify the Nonwovens and Prepare technical data sheet of each sector of Nonwovens and Compile the fibres used, technology applied in manufacturing of Nonwovens.	3	2								2		1	3		

						CO2	Describe the processes involved in web formation technologies in Nonwovens.	3	2								2		1	3		
						CO3	Appreciate the technical features of various mechanical and thermal bonding techniques used in Nonwocvens.	3	2								2		1	3		
						CO4	Comprehend the effect of various chemical bonding agents and finishing processes designed for Non-woven fabrics.	3	2								2		1	3		
Textile Testing-I	BTEXS1-504	5	4	60	3 1 0	CO1	Apply knowledge of sampling techniques and its significance.	3	1										1	3		
						CO2	Demonstrate the technical significance of fibre and yarn properties.	2											1	2	3	
						CO3	Analyse and interpret results of fibre and yarn properties.	3	3	3	2	2							1			
						CO4	Analyse moisture and its importance in textile materials.		3	3	2	2							1		2	
Textile Chemical Processing –II	BTEXS1-505	5	4	60	3 1 0	CO1	Explain the concept of colour and various colour theories and apply it in assessing the colour value of any dyed material.	3	1	1			2	2			1		1	3		
						CO2	Apply the understanding of theories of dyeing to analyze the dye-fibre interactions occurring in different fibres.	3	1	1			2	2			1		1	3		
						CO3	Implement the information of dyeing behavior of individual fibres in blend dyeing and its problems and in understanding the working of dyeing machines and dye identification procedures.	3	1	1			2	2			1		1	3		
						CO4	Acquire Know-how of printing technology and appreciate the mechanism of different printing methods and printing after-treatments.	3	1	1			2	2			1		1	3		
Textile Testing Lab.-I	BTEXS1-506	5	1	20	0 0 2	CO1	Evaluate properties of fibres e.g. length, strength, Micronaire, maturity etc.	3	2		3								1	2	2	
						CO2	Investigate properties of yarn e.g. strength, mass irregularity, hairiness.				3	2							1	3		
						CO3	Analyse yarn appearance by visual examination.	2	2										1			

						CO4	Apply statistical technique in the test result.	2	2		2	3							1		3	
Textile Chemical Processing Lab.–II	BTEXS1-507	5	1	20	0 0 2	**CO1**	Acquire Skill of dyeing of cotton material with various classes of dyes	3	2		2		2	2			3	1	1	3		
						CO2	Get Skill of dyeing of proteinicfibres with various classes of dyes	3	2		2		2	2			3	1	1	3		
						CO3	Have Skill of dyeing of synthetic fibresfibres with different classes of dyes	3	2		2		2	2			3	1	1	3		
						CO4	Gain Skill of printing cotton material with block printing method under different styles	3	2		2		2	2			3	1	1	3		
Fabric Manufacturing- III Lab	BTEXS1-508	5	1	20	0 0 2	**CO1**	Demonstrate the working of let-off and take up mechanisms of shuttleless weaving machines.	3								2	1	3	1	3		
						CO2	Demonstrate the working knowledge of Weft insertion mechanisms of Air jet and Rapier weaving machines.	3								2	1	3	1	3		
						CO3	Experiment with Selvedge formation, temple and pirn changing mechanisms of shuttleless weaving machines.	3								2	1	3	1	3		
						CO4	Have working skill of weft fork, multiple box mechanisms and identify the fabric faults	3								2	1	3	1	3		
Theory of Textile Structure	BTEXS1-601	6	4	60	3 1 0	**CO1**	Apply knowledge of yarn structures in relation to predict properties.	3	2		2		1						1	1		
						CO2	Able to explain the effect of yarn structure on mechanical properties.	3	2	1	2								1	1	2	
						CO3	Apply different models to explain yarn structure.			3		1	1						1			
						CO4	To establish relationship between fabric structural parameters vis-a vis properties.		1	1	2								1	3	1	
Process Control in Textiles	BTEXS1-602	6	4	60	3 1 0	**CO1**	Apply the role of process parameters on product quality.	3														
						CO2	Analyse the process of choosing process parameters at preparatory and ring spinning stages.		3		2									2		

						CO3	Apply process management in weaving preparatory to optimize quality.			1		3									3	
						CO4	Apply process management in weaving with respect to fabric production, inspection, and machine audit.		3			2				2			1			
Knitting Technology	BTEXS1-603	6	4	60	3 1 0	CO1	Appreciate the potentiality of knitting vis-a-vis weaving technology	3	2								2		1	3		
						CO2	Demonstrate various weft knitted structures, and working of different parts of their machines	3	2								2		1	3		
						CO3	Have an idea about the designing potential of different warp knitting machines	3	2								2		1	3		
						CO4	Design knitted fabrics based on its basic structural elements and necessary mathematical calculations	3	2								2		1	3		
Textile Testing-II	BTEXS1-604	6	4	60	3 1 0	CO1	Learn the significance of yarn and fabric properties	3	1										1	3		
						CO2	Able to explain factors affecting fabric and garment properties	2											1	2	3	
						CO3	Analysefibre, yarn properties and interpret the results by applying statistical techniques	3	3	3	2	2							1			
						CO4	Apply statistical techniques to interpret fabric properties		3	3	2	2							1		2	
Quality Management in Textile Industry	BTEXS1-605	6	4	60	3 1 0	CO1	Orient the thinking and demonstrate understanding in line with TQM concepts	2	2			3							1		1	
						CO2	Apply procedures of statistics related to frequency distribution and hypothesis testing	3	3	2	2	2								2		
						CO3	Analyze problems related with discrete functions and ranking data		3	2	2	2										
						CO4	Develop and analyze control charts and ANOVA & Regression techniques for decision making		2		2	2							2	1	2	
Knitting Technolo	BTEXS1-606	6	1	20	0 0 2	CO1	Study of design and working of different parts of circular knitting machines namely plain, rib and interlock	3								2	1	3	1	3		

						CO2	Study of working of flat bed knitting machines	3								2	1	3	1	3		
						CO3	Study on effect of construction parameters on properties of knitted fabrics	3								2	1	3	1	3		
						CO4	Analyse knitted fabric constructions and designs	3								2	1	3	1	3		
Textile Testing Lab.-II	BTEXS1-607	6	1	20	0 0 2	CO1	Predict the behavior of yarn by fault analysis.	3	2		3								1	2	2	
						CO2	Analyze the various mechanical properties of fabrics e.g. Tensile, Bursting, Tearing and Abrasion.				3	2							1	3		
						CO3	Demonstrate the serviceability characteristics of fabrics.	2	2										1			
						CO4	Predict the handle properties of fabrics.	2	2		2	3							1		3	
Non Conventional Yarn Manufacture	BTEXS1-701	7	3	45	3 0 0	CO1	Understand the basics of non-conventional spinning systems.	2	2				2			2	2	2	3	2	1	
						CO2	Explain the working principle of various non-conventional, various operations and raw material requirements.	3	2	2			1		2	2	2	2	3	2	1	
						CO3	Describe structure and properties of non-conventional spun yarn with respect to ring spun yarn.	3	2	2			2		2	2	2	2	3	2	2	
						CO4	Understand the areas of end use of non-conventional spun yarns.	2	2	2			2		2	2	3	2	2	2	1	
Garment Manufacturing Technology	BTEXS1-702	7	4	60	3 1 0	CO1	Comprehend the overall structure and status of garment manufacturing industry.	3	2								2		1	3		
						CO2	Understand relevant aspects of garment manufacturing process.	3	2								2		1	3		
						CO3	Understand the important areas of fabric properties related to garment production.	3	2								2		1	3		
						CO4	Know the concepts of fabric and garment comfort.	3	2								2		1	3		

Apparel Merchandising and Management	BTEXS1-703	7	3	45	3 0 0	CO1	The scope, nature, importance and functions of merchandising.										2	3	1	3		
						CO2	Exercising planning and control tools, executing planning action plan and preparation of PPM file.										2	3	1		3	
						CO3	Costing and pricing formula and strategies, fabric consumption calculation and development of costing sheet.										2	3	1		3	
						CO4	Selection and management of vendor for sourcing and various import/ export documentation										2	3	1		3	
Advances in Fabric Structure	BTEXS1-711	7	4	60	3 1 0	CO1	Interpret and make weaving plans of backed, Gauze & Leno fabrics along with understanding of their manufacturing and properties	3	3													1	
						CO2	Make Weave Plan and design of double, Extra warp and Extra weft figuring fabrics.		3	3	1		2						1	2		
						CO3	Design & Explain warp and weft pile, velveteen and tapestry fabrics, their manufacturing scheme and properties.	2	3	3					1					1		
						CO4	Explain design, manufacture and uses of damask, brocades and spool and gripper axminster carpets		1	3									1		2	
Texturing Technology	BTEXS1-712	7	4	60	3 1 0	CO1	Know the basics of texturizing.	3	2							1	2		2	2	2	
						CO2	Illustrate scientific principles and manufacturing methods of textured yarns.	3	2							1	2		2	2	1	
						CO3	Analyze structure and properties of textured yarns.	3	2				1			1	2		2	2	1	
						CO4	Evaluate scientifically the properties of textured yarns	3	2				2			1	2		2	2	1	
Post Spinning Operation	BTEXS1-713	7	4	60	3 1 0	CO1	Understand about importance and objectives of post spinning operations.	2	2							1	2		1	1		
						CO2	Detailed understanding about drawing & stretching and draw warping of manmade fibres.	3	2							1	2		1	1	2	
						CO3	Explain various heat setting operations, mechanism, parameters and heat setting conditions of various manmade fibres.	3	2							1	2		1	1	2	

						CO4	Demonstrate the texturising process in detail such as importance, methods and factors affecting in texturing process.	3	2							1	2		1	1	2	
Process Control in Textile Chemical Processing	BTEXS1-721	7	3	45	3 0 0	**CO1**	Identify Different process parameters involved and optimisation of these parameter in pre-treatment of textile fabrics.		3	2			2	2			2		2		3	
						CO2	Work out with Optimised parameters for dyeing, printing of different styles and finishing of different fibres.		3	2			2	2			2		2		3	
						CO3	Analyse the effects on quality due to impure chemicals, faulty fabrics and machine handling along with methods of assessing processed products			3			1	1			2	1	3	3		
						CO4	Appreciate Standardisation of instrument/ machineries besides analysis of colour for checking impurity percentage.			3			1	1			2	1	3		1	
Marketing & Financial Management in Textiles	BTEXS1-722	7	3	45	3 0 0	**CO1**	The concept, system and process of selling, marketing and market research.				1						2	3	1	1		
						CO2	The concept and process of consumer and buying behaviour and role of advertising and sales promotion in textile.				1						2	3	1	1		
						CO3	Ideas, objectives and functions of financial management.				1						2	3	1	1		
						CO4	Various concepts of financial management like working capital, structure of capital and budgeting.				1						2	3	1	1		
Entrepreneurship development and management in Textile	BTEXS1-723	7	3	45	3 0 0	**CO1**	Needs, process, benefits and support systems available for entrepreneurship development,				1						2	3	1	1		
						CO2	Preparation of project report for establishment of a small enterprise,				1						2	3	1	1		
						CO3	Basics of marketing and production management,				1						2	3	1	1		
						CO4	Preliminary ideas about human resource and financial management.				1						2	3	1	1		
Mechanics of Textile Process	BTEXS1-801	8	4	60	3 1 0	**CO1**	Analysis of opening, cleaning operation and blowroom performance.	2	3										1	2	1	
						CO2	To identify various carding functions along with study of hook formation and degree of disorder.		3			1							1			

						CO3	To analyse roller drafting, various functions of roving frame and ring frame.		3			1	1										
						CO4	Analysis of mathematical modelling of shedding, picking, checking and beat- up mechanisms.						1										3	
Mill Planning & Management	BTEXS1-802	8	3	45	3 0 0	CO1	Understand basics of mill planning and management, forms and structure of business organizations.		2				1	1	1	3	2	3	2	2	1	
						CO2	To decide and explain the mill location, factory layout and various aspects of factory buildings.		2	2			2	1	1	2	2	3	2	2	1	
						CO3	Understand, analyse the problems and implement the solution related to material handling, air conditioning and lighting.		2	2			2	2	2	2	2	3	2	2	1	
						CO4	Know the importance of working environment and pollution control and process of product cost calculation.		2	2			3	3	2	2	2	3	2	2	1	
Technical Textiles	BTEXS1-811	8	4	60	3 1 0	CO1	Analyse technical textiles, its importance and uses.	2	2				1						1		1	
						CO2	Explain the twelve sectors of technical textiles and suitable products.							2					1	2		
						CO3	Demonstrate various applications of technical textiles in the field like filtration, medical and protective.	2		3			2	2					1		3	
						CO4	Illustrate the fabric properties and requirements for military applications, geotextiles			1			1	3		3			1	2	3	
Advancement in Manmade Fibers	BTEXS1-812	8	4	60	3 1 0	CO1	Understand development of fibre structure man-made fibre during man-made fibre spinning.	2	2							1	2		2	2	1	
						CO2	Explain the high-speed melt spinning, melt spinning of hollow, multicomponent, ultrafine and nanofibres.	3	2							1	2		2	2	1	
						CO3	Apply spin finish on manmade fibres and textured yarns.	3	2							1	2		2	2	1	
						CO4	Describe the technology of drawing and heat setting of synthetic fibres and produce melt spun yarn.	3	2							1	2		2	2	1	
High Performa	BTEXS1-	8	4	60	3 1 0	CO1	Understand the basics of polymerization, spinning of aromatic polyamides, high molecular weight polyester, rigid rod and ladder polymers.	3	2							1	2		2	2	1	

						CO2	Describe the production process of high-performance fibres and specialty fibres.	3	2							1	2		2	2	1	
						CO3	Explain structure and properties of high-performance fibres and specialty fibres.	3	2							1	2		2	2	1	
						CO4	Know the applications areas of high-performance fibres and specialty fibres	3	2							1	2		2	2	1	
						CO2																
						CO3																
						CO4																

Enter Correction levels 1, 2 or 3 as defined below:

1. Slight (Low) - upto 30% 2. Moderate (Medium) – above 30% and upto70% 3. Substantial (High) – above 70%