M.Tech FT 1st, 2nd

wef - 2018-19

Department of Fashion Technology
Bhagat Phool Singh Mahila Vishwavidyalaya,
Khanpur Kalan (Sonepat), Haryana-131305
Office No. 01263-283126, www.bpswomenuniversity.ac.in

Course Curriculum and Scheme of Examination of Master of Technology in Fashion Technology (Functional Garments) First Semester

(w.e.f academic session 2018-19)

M.Tech. Fashion Technology (Functional Garments): 1st Semester

S. No.	Code	Course Title	Hrs/Week			Total Credits	Internal Marks	External Marks	Total Marks
			L	T	P				
Theory Papers									
1.	MT-FTL-101	Fashion Concepts	3	-	-	3	20	80	100
2.	MT-FTL-102	Garment Manufacturing Technology	3	-	-	3	20	80	100
3.		Elective-I	3	-	-	3	20	80	100
4.		Elective-II	3	-	-	3	20	80	100
5.	MT-RM-101	Research Methodology and IPR	2	-	0	2	10	40	50
6.		Audit Course 1	2	--	--	-	20*	80*	100*
Laboratory									
1.	MT-FTP-101	Garment Development Lab-I	-	-	4	2	10	40	50
2.	MT-FTP-102	Software Packages Lab	-	-	4	2	10	40	50
Total			**16**	**-**	**8**	**18**	**110**	**440**	**550**

Elective-1

1. MT-FTL-103: Traditional Textiles and Embroideries of India
2. MT-FTL-104: History of Costume

Elective-II

1. MT-FTL-105: Public Relations and Sales Promotion in Fashion
2. MT-FTL-106: Textile Dyeing and Printing

Audit course 1

1. MT-AU-101: English for Research Paper Writing —2
2. MT-AU-102: Sanskrit for Technical Knowledge
3. MT-AU-103: Value Education
4. MT-AU-104: Constitution of India

Note: * The marks will not be counted in total being audit course

18.7.18

Department of Fashion Technology
Bhagat Phool Singh Mahila Vishwavidyalaya,
Khanpur Kalan (Sonepat), Haryana-131305
Office No. 01263-283126, www.bpswomenuniversity.ac.in

Second Semester
(w.e.f academic session 2018-19)

M.Tech. Fashion Technology (Functional Garments): 2nd Semester									
S. No.	Code	Course Title	Hrs/Week			Total Credits	Internal Marks	External Marks	Total Marks
			L	T	P				
Theory Papers									
1.	MT-FTL-201	Advances in Apparel Technology	3	-	-	3	20	80	100
2.	MT-FTL-202	Fibre to Fabrics	3	-	-	3	20	80	100
3.		Elective-III	3	-	-	3	20	80	100
4.		Elective-IV	3	-	-	3	20	80	100
5.		Audit Course 2	2		0	0	20*	80*	100*
Laboratory									
1.	MT-FTP-201	Textile and Apparel Testing Lab	-	-	4	2	10	40	50
2.	MT-FTP-202	Garment Development Lab-II	-	-	4	2	10	40	50
3.	MT-FTP-203	Minor Project with seminar	-	-	4	2	10	40	50
Total			**14**	-	**12**	**18**	**110**	**440**	**550**

Elective-III

(1) MT-FTL-203: Functional Finishes of Garments
(2) MT-FTL-204: Functional Textiles and Garments

Elective –IV

(1) MT-FTL-205 : Apparel Testing and Quality Characterisation
(2) MT-FTL-206 : Fabrics Properties and Textile Designing

Audit course 2

(1) MT-AU-201: Disaster Management
(2) MT-AU-202: Pedagogy Studies
(3) MT-AU-203: Stress Management by Yoga
(4) MT-AU-204: Personality Development through Life Enlightenment Skills.

Note:

*** The marks will not be counted in total being audit course**

Department of Fashion Technology
Bhagat Phool Singh Mahila Vishwavidyalaya,
Khanpur Kalan (Sonepat), Haryana-131305
Office No. 01263-283126, www.bpswomenuniversity.ac.in

Third Semester
(w.e.f academic session 2018-19)

M.Tech. Fashion Technology (Functional Garments): 3rd Semester

S. No.	Code	Course Title	Hrs/Week			Total Credits	Internal Marks	External Marks	Total Marks
			L	T	P				
Theory Papers									
1.		Elective-V	3	-	-	3	20	80	100
2.		Open Elective	3	-	-	3	20	80	100
3.	MT-FTP-301	Dissertation phase-I	0	-	20	10	60	240	300
Total			06	-	20	16	100	400	500

Elective- V

1. MT-FTL-301: Managing the Supply chain
2. MT-FTL-302: Fashion Retail and Marketing

Open Elective

(1) MT-OE-301: Business Analytics
(2) MT-OE-302: Industrial Safety
(3) MT-OE-303: Operations Research
(4) MT-OE-304: Cost management of Engineering Projects
(5) MT-OE-305: Composite Materials
(6) MT-OE-306: Waste to Energy

Fourth Semester
(w.e.f academic session 2018-19)

M.Tech. Fashion Technology (Functional Garments): 4th Semester

S.No	Paper Code	Course Title	Hrs /week			Credits	Internal Marks	External Marks	Total Marks
			L	T	P				
1.	MT-FTP-401	Dissertation Phase -II	-	-	32	16	100	400	500
Total						16	100	400	500

Grand Total of Credits for the M.Tech. Fashion Technology (Functional Garments)			
S.No	Semester	Credits	Marks
1.	I	18	550
2.	II	18	550
3.	III	16	500
4.	IV	16	500
Total		68	2100
All end examinations (Theory & Practical) are of three hours duration			

Note 1:

1. The choice of students for any elective shall not be binding on the department to offer it. The department may also offer any other elective subject with the consent of Course coordinator/ Faculty.
2. Dissertation phase-I and Dissertation phase-II load will be counted as two hours per week for each concerned faculty.

Note 2:

1. The minimum passing marks for any subject (paper) shall be 40* % in the external examination and 40*% in the aggregate of internal and external examination of the subject. In case student (s) fails to acquire 40*% in the aggregate of internal and external of a subject (paper), she will be awarded re-appear in the external examination of that paper.
2. There will be no reappear in internal examination. Marks obtained in internal examination/ assessment shall be carried forwarded in case of re-appear (either less than 40% in external or less than 40% in aggregate of internal and external).
3. Weight age for internal assessment (examination):
   (a) Internal test — 10% of the total marks 100 ie 10 Marks
   (b) Assignment/Seminar/Quiz/Group Disc., etc — at 5% of the total marks 100 ie 05 Marks
   (c) Attendance — 5% of the total marks 100 ie 05 Marks

Less than 75%	00 Marks
75% and above and less than 80%	02 Marks
80% and above and less than 85%	03 Marks
85% and above	05 Marks

*Subjected to Univeristy rules and regulatioin

532
D-18

MT-FTL-101				FASHION CONCEPTS					
L	T	P	Credit	Duration of Exam:	Total Number of Lectures		Internal Marks	External Marks	Total Marks
3	0	0	3	3 hrs	48		20	80	100

COURSE OBJECTIVE

To familiarize students with different concepts of fashion and Design, trends, its scope and prospects.

Lecture with Breakup	No. of Lec.
Unit 1: Fashion terminology, cycle, influence, fashion: Introduction to fashion and apparel design. Origin of fashion, concept, analysis, trends and creations. Fashion Theories: Fashion of different eras, fashion promotion, style-fad-trends.	11
Unit 2: Fashion Design fundamentals: Basic concept of design, elements of art, of design: Definition of line shape, form size, space, texture and colour. Structural and decorative dress designing, creating varieties through designs. Principles of Design: Definition Harmony, Proportion, Balance, Rhythm, Emphasis, meaning types and application on apparel psychology of clothing.	14
Unit 3: Introduction to colours and their theories. Colour harmony and colour contrast, modification of colours. Principle of colour measurement. Effect of colours on garment construction. Arrangement of figures such as unit repeating design, the drop device, drop reverse design, etc.	14
Unit 4: Anatomy for designers: Effect of Human proportion and figure construction on garment construction. Methods of determining individual proportions. Aesthetic requirement of dress, sensory factors affecting aesthetics. Display of fashion materials: Definition and importance, source techniques and window display, classic fashion shows. Important fashion centers of the world and India.	9

COURSE OUTCOMES

On completion of the course the student should be able to

- To work and act on the different fashion elements and principles
- Understand the history of designers and their design contribution, biography etc.

References:

1. Erwin Model, "Clothing for Moderns", Mac Millan Publications, New York
2. Tate and Sharon Lee, "Inside fashion design", harper Publication Inc., U.Kng
3. Jacob solinger ,"Apparel manufacturing handbook" Wiley, John & Sons, 1980

MT-FTL-102				GARMENT MANUFACTURING TECHNOLOGY					
L	T	P	Credit	Duration of Exam:	Total Number of Lectures		Internal Marks	External Marks	Total Marks
3	0	0	3	3 hrs	48		20	80	100

COURSE OBJECTIVE

To impart knowledge regarding different cutting tools, their role in apparel manufacturing.

To introduce various terms and techniques related to sewing of garment. Such as various sewing machine parts, sewing thread, seam and stitch formation, seam finishes, pucker, etc

LECTURE WITH BREAKUP	NO. OF Lec.
Unit 1: Operation of apparel manufacturing unit, its various departments and their functionality. The planning, drawing, reproduction of the marker, requirement of marker planning, marker plan efficiency, methods of marker planning and use. The spreading of fabric to form a lay, requirement of spreading and different spreading method. Tracing and marking Terminology, Types of pattern.	11
Unit 2: Cutting: Objectives and methods of cutting. Aids and Tool equipment for cutting. History of Sewing; stages and evolution of sewing and sewing machineries. Sewing machinery - types of sewing machines and different bed type of sewing machines. Introduction to various Sewing machine parts, their functions and applications. Type of Feed mechanism. Sewing problems- problems of stitch formation, problem of pucker, problems of damaged to the fabric along stitch line, needle cutting index.	14
Unit 3: Needles: types of needles and parts of needle. Needle sizing: needle numbers, singer and metric system. Needle size and its relation to fabric and sewing quality requirements. Sewing threads: fibre types, and thread composition, thread finishes, thread sizing, thread package, thread cost, thread properties & seam performance.	14
Unit 4: Introduction, Classification and applications of different types of seams and stitches. Different type of seam finishes. Machine stitches and their classification. Blind stitch, chain stitch, double needle machine stitch, hemstitch, lettuce edging, lock stitch zigzag machine stitch, over edge machine stitch, purl edging, picot edging, safety stitch, scallop over edge, shirring stitch, etc.	9

COURSE OUTCOMES
On completion of the course the student should be able to
• To understand the marker planning, cutting and sewing.
• Understand the history of sewing machines and functioning of different parts of sewing machine.

References:

1. Tyler, "Carr and Latham's Technology of Clothing Manufacturing" Blackwell, Scientific Publications, 1988.
2. Ann Gioello,"Fashion product terms", Fairchild, 2nd Edition.
3. Jacob solinger ,"Apparel manufacturing handbook" Wiley, John & Sons, 1980
4. Jones, Richard M., "Apparel Industry", Blackwell, 2nd Edition .

526
D-18

MT-FTL-103				TRADITIONAL TEXTILES AND EMBROIDERIES OF INDIA					
L	T	P	Credit	Duration of Exam:	Total Number of Lectures		Internal Marks	External Marks	Total Marks
3	0	0	3	3 hrs	48		20	80	100

COURSE OBJECTIVE

Study of the above mentioned regional embroideries with reference to origin, technique, raw material, colours, motifs and layout.

LECTURE WITH BREAKUP	NO. OF Lec.
Unit-I- Introduction to traditional embroidered textiles from different regions of India. Categorization of embroidery styles on the basis of region: **(a)** North India: Kashida from Kashmir, Phulkari from Punjab, Chamba Rumal from Himachal Pradesh. **(b)** Western India: Embroidery from Gujarat, Parsi embroidery **(c)** Central India: Chikankari from Uttar Pradesh, Patti ka Kaam from Uttar Pradesh, Zardozi from Uttar Pradesh.**(d)** Southern India: Kasuti from Karnataka, Lambadi embroidery from Andhra Pradesh **(e)** Eastern India: Kantha from West Bengal, Sujani from Bihar, Pipli appliqué from Orissa.	11
Unit–2: Introduction to traditional resist-dyed textiles from different regions of India. Categorisation of ikat styles on the basis of region: Patola from Gujarat, Bandhas from Odisha, Pochampalli & Telia Rumal from Andhra Pradesh. Categorization of tie-dyed textiles on the basis of region: Bandhani from Gujarat, Bandhej & Leheriya from Rajasthan.	14
Unit–3: Introduction to traditional block printed textiles from different regions of India. Categorization of block printing styles on the basis of region: Bagru prints from Rajasthan, Sanganer prints from Rajasthan, Kalamkari from Andhra Pradesh.	14
Unit–4: Introduction to traditional hand-woven textiles from different regions of India. Categorisation of weaving styles on the basis of end product: (a) Saris- Benaras Brocades, Bauchari, Jamdani, Paithani, Kanjeevaram, Chanderi, Maheshwari.(b) Shawls- Kashmir shawl, Kullu & Kinnaur, Wraps of North-east (c) Floor coverings- Carpets, Durries.	9

COURSE OUTCOMES

On completion of the course the student should be able to:-

- To understand the embroidery of India.
- Learn about the textile of India.

References:

1. Lynton Linda, " The Sari", Thames & Hadson.
2. Anand M.R., "Textiles & Embroideries of India " Marg Publication Bombay, 1965.
3. Naik Shailaja D, " Traditional Embroderies of India" APH Publisher Corporation, New Delhi, 1996.
4. Chattopadhyay K, " Indian Embroidery", Wiley Eastern Ltd., New Delhi, 1977.

MT-FTL-104				HISTORY OF COSTUME					
L	T	P	Credit	Duration of Exam:	Total Number of Lectures		Internal Marks	External Marks	Total Marks
3	0	0	3	3 hrs	48		20	80	100

COURSE OBJECTIVE

To familiarise students with history of costumes in Indian and western civilizations.

LECTURE WITH BREAKUP	NO. OF Lec.
Unit 1: Indus Valley Civilization:- (a)Women's Costumes-dresses, jewellery, hairstyles, footwear (b)Men's costumes - dresses, jewellery, hairstyles, footwear Mauryan and Sunga Period:-(a) Women's Costumes-dresses, jewellery, hairstyles, footwear (b) Men's costumes - dresses, jewellery, hairstyles, footwear Kushan Period:-(a) Women's Costumes-dresses, jewellery, hairstyles, footwear (b) Men's costumes - dresses, jewellery, hairstyles, footwear	11
Unit 2: Gandhara Period:- (a)Women's Costumes-dresses, jewellery, hairstyles, footwear (b)Men's costumes - dresses, jewellery, hairstyles, footwear Gupta Period:-(a) Women's Costumes-dresses, jewellery, hairstyles, footwear (b)Men's costumes - dresses, jewellery, hairstyles, footwear Mughal Period(a)Women's Costumes-dresses, jewellery, hairstyles, footwear (b)Men's costumes - dresses, jewellery, hairstyles, footwear	14
Unit 3 Egyptian costumes:- (a) Women's costumes – Dresses, jewellery, hairstyles, footwear b) Men's costumes – Dresses, Jewellery, Greek Costumes:- (a) Women's costumes – Dresses, jewellery, hairstyles, footwear b) Men's costumes – Dresses, Jewellery Roman Period:- (a) Women's costumes – Dresses, jewellery, hairstyles, footwear b) Men's costumes- Dresses, Jewellery, hairstyles, footwear	14
Unit 4: Byzantine Period:-(a) Women's costumes – Dresses, Jewellery, hairstyles, footwear b)Men's costumes– Dresses, Jwellery, hairstyle, footwear Victorian period:- (a) Women's costumes – Dresses, jewellery, hairstyles, footwear b) Men's costumes– Dresses, Jewellery, hairstyle, footwear French Revolution:- (a) Women's costumes – Dresses, jewellery, hairstyles, footwear b) Men's costumes– Dresses, Jewellery, hairstyle, footwear	9

COURSE OUTCOMES

On completion of the course the student should be able to

- Learn about the history of costume of Indian and Western Civilizations and its prospective.

References:

1. Erwin Model, "Clothing for Moderns", Mac Millan Publications, New York
2. Tate and Sharon Lee, "Inside fashion design", harper Publication Inc., U.Kng

9

529
D-18

MT-FTL-105				PUBLIC RELATIONS AND SALES PROMOTION IN FASHION					
L	T	P	Credit	Duration of Exam:	Total Number of Lectures		Internal Marks	External Marks	Total Marks
3	0	0	3	3 hrs	48		20	80	100

COURSE OBJECTIVE
To familiarize the students with sales techniques and public relations issues in fashion industries.

LECTURE WITH BREAKUP	NO. OF Lec.
UNIT 1: Fashion categories: clothing categories: styling, price ranges and size ranges for men's, women's and kids wear; store management; fashion advertising and promotion; material management and presentation skills. Visual Merchandising operations in Store-contents and its significance.	10
UNIT 2: Introduction, Role and importance of sales promotion; Strengths and Limitations of Sales Promotion; Difference between Sales Promotion and Advertising; Tools and Techniques of Consumer Sales Promotion; Trade Promotions; Organising Sales Promotion Campaign	14
UNIT 3: Tools of sales promotion- samples point of purchase, displays & demonstrations, exhibitions & fashion shows, sales contests & games of chance and skill, lotteries gifts offers, premium and free goods, price packs, rebates patronage rewards.Factors affecting sales promotion.	14
UNIT 4: Public relations-Meaning, features, growing importance, role in marketing, similarities in publicity and public relations, Major tools of Public Relations- News, speeches, special events, handouts, and leaflets, audio-visual public service activities, miscellaneous tools, Ethical and legal aspects of sales promotion and public relations.	10

COURSE OUTCOMES
On completion of the course the student should be able to
• Understand and implement the techniques of sales promotion and Public relation activities.

References:

1. Vijay Barotia. Marketing Management, Mangal Deep Publication, 2001
2. J. Jarnow and K. G. Dickerson. Inside the Fashion Business, Prentice Hall, 1997
3. Laine Stone, Jean A Samples. Fashion Merchandising, Mcgraw Hill Books, 1985
4. S. H. H. Kazmi and Satish K Batra, Advertising & Sales Promotion, Excel Books, New Delhi, 20
5. George E Belch and Michel A Belch, Advertising & Promotion, McGraw Hill, Singapore, 1998.
6. Julian Cummings, Sales Promotion, Kogan Page, London 1998.
7. E.Betch and Michael. Advertising and Promotion, McGraw Hill, 2003

MT-FTL-106				TEXTILE DYEING AND PRINTING					
L	T	P	Credit	Duration of Exam:	Total Number of Lectures	-	Internal Marks	External Marks	Total Marks
3	0	0	3	3 hrs	48		20	80	100

COURSE OBJECTIVE
Objectives: To introduce the students with preparatory wet processing and concept of dyeing with relevant machines and procedure.
To familiarise the students with printing, printing paste ingredients, printing methods and styles.

LECTURE WITH BREAKUP	NO. OF Lec.
Unit1: Elementary knowledge and Process line for pretreatment. Natural and added impurities in greige cotton fabrics. Overview of sinzing, desizing, scouring, bleaching, merserisation operations with their objective, principal, general recipe, drawbacks and advantages. Introduction to heat setting. Pretreatment processing of wool and silk textiles. Introductory idea of machines used in preparatory wet processing.	11
Unit 2: Classification of dyes and pigment. Concept of dyeing operatioin. Introductory idea of dyeing of cellulosics and protein fibres with suitable dyes. Dyeing concept of synthetic textile materials such as Polyester, Nylon. Dyeing of denim using Indigo dye. Overview of dyeing machinery.	13
Unit 3: Introduction of printing. Different methods of printing such as block, roller and screen printing. Construction and working mechanism, drawback and advantage of each method. Transfer Printing: Types, mechanism of transfer in each type and machineries. Printing Paste: Constituent and characteristics of print paste, classification and mechanism and working of thickeners.	11
Unit 4: Printing Styles: Direct, discharge and resist styles of printing on textiles. Brief concept of printing of cellulosics with direct, reactive and vat dyes; proteineous with acid dyes and synthetic textiles with disperse dye. Printing with Pigments. Printing after treatments. Special effects like – Batik, Tie and dye, crimp style, etc. Advancement in printing technology and applications.	13

COURSE OUTCOMES
On completion of the course the student should be able to
Understand about preparatory wet processing and its requirement.
Various types of dyes, their properties and applications
Understand various types of printing methods, style, Printing paste and procedure of printing.

References:

1. Gohl E P G and Vilensky L D, "Textile Science", CBS Publishers.
2. Chakarverty J N, "Fundamental and practices in colouration of textiles", Woodhead Publishing India Pvt Ltd, 2008
3. Trotman E R, "Textile Scouring and Bleaching", Griffin, 1968.
4. Shenai VA, "Technology of Bleaching & Mercerising", Sevak Pub., Mumbai.
5. Gulrajani M L, "Chemical Processing of Silk".
6. Shenai V A,"Technology of Dyeing", Sevak Pub., Mumbai.

7. Trotman E R, "Dyeing and Chemical Technology of Textile Fibres", B.I. Publications Pvt. Ltd.
8. Hall David M, Chemical testing of textiles: a laboratory manual, Dept of Textile Engineering, Auburn University, 1981
9. VA Shenai,"Technology of printing", Sevak Pub. Mumbai.
10. Clarke, "An introduction to textile printing", CBS Pub Delhi.
11. R B Chavan ,"Textile Printing", Second annual Symposium.
12. Leslie W C Mile, Textile Printing, 2 Revised edition, Amer Assn of Textile, 2003.

530
D-18

MT-RM-101				RESEARCH METHODOLOGY AND IPR					
L	T	P	Credit	Duration of Exam:	Total Number of Lectures		Internal Marks	External Marks	Total Marks
2	0	0	2	2hrs	32		10	40	50

Common amongst all braches of FET.

COURSE OUTCOMES

On completion of the course the student should be able to

- Understand research problem formulation.
- Analyze research related information
- Follow research ethics
- Understand that today's world is controlled by Computer, Information Technology, but tomorrow world will be ruled by ideas, concept, and creativity.
- Understanding that when IPR would take such important place in growth of individuals & nation, it is needless to emphasis the need of information about Intellectual Property Right to be promoted among students in general & engineering in particular.
  Understand that IPR protection provides an incentive to inventors for further research work and investment in R & D, which leads to creation of new and better products, and in turn brings about, economic growth and social benefits

References:

1. Stuart Melville and Wayne Goddard, "Research methodology: an introduction for science & engineering students'"
2. Wayne Goddard and Stuart Melville, "Research Methodology: An Introduction"
3. Ranjit Kumar, 2 nd Edition , "Research Methodology: A Step by Step Guide for beginners"
4. Halbert, "Resisting Intellectual Property", Taylor & Francis Ltd ,2007.
5. Mayall , "Industrial Design", McGraw Hill, 1992.
6. Niebel , "Product Design", McGraw Hill, 1974.
7. Asimov, "Introduction to Design", Prentice Hall, 1962.
8. Robert P. Merges, Peter S. Menell, Mark A. Lemley, " Intellectual Property in New Technological Age", 2016.
9. T. Ramappa, "Intellectual Property Rights Under WTO", S. Chand, 2008

MT-FTP-101				Garment Development Lab-I					
L	T	P	Credit	Duration of Exam:	Total Number of Lectures		Internal Marks	External Marks	Total Marks
0	0	4	2	2 hrs	32		10	40	50

Introduction and application of different aids, tools and equipment required in garment construction. Flat pattern technique: drafting, developing pattern. Drafting of child basic and adult bodic blocks. Drafting of collars and sleeves.

Preparation and construction of different types of seams, necklines, plackets, pockets, pleats and tucks. Dart manipulation and their applications.

MT-FTP-102				Software Packages Lab					
L	T	P	Credit	Duration of Exam:	Total Number of Lectures		Internal Marks	External Marks	Total Marks
0	0	4	2	2 hrs	32		10	40	50

Study and application of tools and software packages related to the topic and discipline of the study and department. Pattern making, grading and marker making and designing software's in Fashion and Technology.

1246
M-19

MT-FTL-201				ADVANCES IN APPAREL TECHNOLOGY					
L	T	P	Credit	Duration of Exam:	Total Number of Lectures		Internal Marks	External Marks	Total Marks
3	0	0	3	3 hrs	48		20	80	100

COURSE OBJECTIVE

To familiarise students with the various advancements in different processes of apparel manufacturing.

LECTURE WITH BREAKUP	NO. OF Lec.
Unit 1: Innovation in seams, stitches, sewing thread, needles, marker, planning and cutting technology	11
Unit 2: Understanding the need and use of various construction types for sewing machinery in regards to quality and performance improvement and ease to operate. Advancement in sewing Machinery: Directive for operating special purpose sewing machinery. Various bed types of machine and their applications in manufacturing processes: Flat Bed, large area Raised Bed, DNLS m/c, Over Lock m/c, Flat Lock m/c, Multi thread Chain Stitch m/c, Blind stitch machine and their developments.	14
Unit 3 Various types of feed mechanisms, their suitability for different fabrics and construction of components and their contribution towards quality and productivity. Application of programmable machines in garment industries. Developments and automation in garment manufacturing machines and industries. .	14
Unit 4: Scientific approach in sewing techniques. Ergonomic concepts and application in the sewing room. Introduction of time targets and quality aspects. Practical approach to achieve targets. Understanding of different shaped sewing lines in actual garments, Material Handling, Postural Techniques, Work Study, Working Time Arrangement, Shift Work, Motion Economy, anthropometric, Basic Sewing Patterns, Convex sewing pattern, Curved sewing pattern, Angular sewing pattern, etc	9

COURSE OUTCOMES

On completion of the course the student should be able to

- Understand the levels of advancements in different manufacturing processes of apparel production.

References:

1. Knitted Clothing Technology, Brackenburry

2. The Technology of Clothing Manufacture, Harold Carr,Barbara Latham

3. Introduction to Clothing Manufacture, Gerry Cooklin

MT-FTL-202				FIBRE TO FABRICS					
L	T	P	Credit	Duration of Exam:	Total Number of Lectures		Internal Marks	External Marks	Total Marks
3	0	0	3	3 hrs	48		20	80	100

COURSE OBJECTIVE
To familiarise students with various fibres, chractersistics and their applications
To familiarise students with yarn and fabric manufacturing processes

LECTURE WITH BREAKUP	NO. OF Lec.
Unit 1: Introduction to fibres, their classification, important fibre properties. Natural fibres such as cotton, wool, silk, their physical & chemical properties and applications. General definition of man made or manufactured fibres, introduction to general principles of spinning. Regenerated fibres: ie Viscose, manufacturing concept, physical & chemical properties and applications.	12
Unit 2: Synthetic fibres: nylon 6 and 66, polyester, acrylic, Lycra, brief overview of manufacturing, properties and applications. High performance fibres: Introduction, their properties and applications.	12
Unit 3: Overview of Ring Spinning, Objectives of blow room, carding, combing, draw frame, speed frame and ring frame, Rotor yarn, textured yarns, types and uses, Overview of woolen and worsted yarn, Sewing Threads: basic requirements, fibres used, types and properties, thread finishes, thread selection.	11
Unit 4: Introduction to various fabric manufacturing methods like weaving, knitting, and nonwoven , product range and applications. Sequence of woven fabric manufacture, Primary, secondary and auxiliary motions for weaving, Warp, weft, crimp, cover etc. Warp and weft knitting, wales and courses, knitting cams and needles, loop formation during knitting, Web forming and bonding methods for nonwovens, dry laid, spun laid and spun laid nonwovens, needle punching, spun bonding, belt blowing and hydro-entangling processes.	13

COURSE OUTCOMES
On completion of the course the student should be able
• To learn about various fibres, their charactersistics
• To understand basic mechanisms of spinning and fabric manufacturing

References:

1. Vaidya A A, "Production of Synthetic Fibres", 1st Ed., Prentice Hall of India, New Delhi,1988.
2. Gupta V B and Kothari V K, "Manufactured Fibre Technology", 1st Ed., Chapman and Hall, London, 1997
3. Mark H F, Atlas S M and Cernia E, "Man Made Fibre Science and Technology", Vol. 1, 2, 3, 1st Ed., Willey Inter Science Publishers, New York, 1967.
4. Macintyre J E, "Synthetic Fibres", Woodhead Fibre Science Series, UK, 2003.
5. Fourne F, "Synthetic Fibres: Machines and Equipment, Manufacture, Properties", Hanser Publisher, Munich, 1999.
6. Comdex Fashion Design; Fashion Concepts: Vol -I by Dr. Navneet Kaur, dreamtech press, 2010
7. Salhotra K R, "Spinning of Man Made Fibres and Blends on Cotton Spinning System",The Textile Association, Mumbai, 1989
8. Sara J. Kadolph, "Textiles", Prentice Hall, 10th edition 2007
9. Bernard P. Corbman, "Textile Fibres to Fabric" McGrawhill Publications, 6th Edition 1983
10. Penny Walsh, " The yarn book", A & C black publisher
11. Weaving mechanism by Marks and Robinson (Textile Institute).
12. Weaving: Conversion of Yarn to Fabric by Lord and Mohamed.
13. Woven cloth construction by Robinson.

MT-FTL-203				FUNCTIONAL FINISHES OF GARMENTS					
L	T	P	Credit	Duration of Exam:	Total Number of Lectures		Internal Marks	External Marks	Total Marks
3	0	0	3	3 hrs	48		20	80	100

COURSE OBJECTIVE

To introduced various functional finishes, their application in textile and garment industries.

Emphasis is given on understanding of various finishes and applications along with sustainability issues instead of detail chemistry.

LECTURE WITH BREAKUP	NO. OF Lec.
Unit 1: Introduction to textile finishing. Aim and scope. Classification of finishes. Concept of permanent and temporary finishes. Various finishes in industrial practices such as raising and shearing, drying. Calendering - its types, construction and function of various calendering m/cs. Sanforizing – method and mechanism. Brief concept of finishing of wool: Crabbing, decatising, milling, shrink finishing, etc.	10
Unit 2: General chemical finishes like softening, organdy finish. Heat setting of synthetic fibres, concept and required machines. Introduction and preliminary concepts of specialty finishes such as durable press finish to textile and garments, anti-crease finish. Water repellent and water proof finish: concept, mechanism and their application.	13
Unit 3: Flame-proof and flame-retardant finish: concept, mechanism and their application. Introduction and preliminary concepts of specialty finishes such as Soil and oil repellent finish, anti-static finish, Antimicrobial finish.	12
Unit 4: Brief introduction and application of UV protective finishes, nanofinish, ultrasound, Laser, plasma Technology in textiles. Concept of Sustainability and its emphasis in textiles and apparel sector. Introduction to enzymes and their applications in finishing of textiles and garments. Finishing of denim: stone wash, enzyme wash, etc. enzyme wash and some other specialty finishes.	13

COURSE OUTCOMES

On completion of the course the student should be able to

Understand about various finishes for the textile and garments.

Understand about the basic value addition finishes, their mechanism and applications in textiles and garments.

Understand about specialty finishes and their application in value addition.

Suggested Text Books & References:

1. Gohl E P G and Vilensky LD, "Textile Science", CBS Publishers
2. An Introduction to Textile Finishing, JT Marsh
3. Textile Finishing, VA Shenai
4. Fundamental and practices in colouration of textiles, J N Chakarverty

MT-FTL-204				FUNCTIONAL TEXTILES & GARMENTS					
L	T	P	Credit	Duration of Exam:	Total Number of Lectures		Internal Marks	External Marks	Total Marks
3	0	0	3	3 hrs	48		20	80	100

COURSE OBJECTIVE
To familiarize the students with technical textiles and their applications.
To understand about functional aspects of textiles and their use in functional garments.

LECTURE WITH BREAKUP	NO. OF Lec.
Unit 1: Introduction of functional garment and their applications. Classification of technical textile. Medical Textiles: application of various polymers and textile materials in medical field such as surgical product, sterilization, wound care, etc. Sports Textile: Requirement, different fibres used, their application in sports.	11
Unit 2: Protective clothing - Brief idea about different type of protective clothing, General requirement of protective clothing. Over view and applications of Cut resistant fabric, Chemical protective clothing (CPC), Ballistic Protective clothing - different fibres and fabrics, Thermal Protective Clothing (TPC)	14
Unit 3: Smart and intelligent textiles- Passive and active functionality. Smart Electronic Clothing – Requirements, processing of conductive yarn, application in defence. Multifunctional textiles with incorporated electronics for integrated communication, music, health monitoring, defence support functions, Over view of phase change materials and their applications, waterproof breathable fabrics and their applications.	13
Unit 4: Environmentally sensitive textiles – over view of photochromic, thermochromic (Chameleonic), etc fabrics and their applications to textiles. Nanotechnology in apparels - Introduction and Definition of Nanotechnology. Applicatoins of nanotechnology in the field of textiles and apparels. Applications of High performance fibres in Functional textiles.	10

COURSE OUTCOMES
On completion of the course the student should be able to
Understand about various aspects of technical textiles ie medical textiles, protective textiles, sport textiles, etc and their applications in functional garments.

References:

1. Textiles in sport, Edited by R Shishoo, Woodhead Publisher.
2. Wearable electronics and photonics, Edited by X M Tao, Woodhead Publisher.
3. Wellington Sears handbook of Industrial Textiles, S Adanur, Woodhead Publisher
4. Handbook of technical textiles, Edited by A R Horrocks and S C Anand, UK.
5. Nanofibres and nanotechnology in textiles, Edited by P Brown and K Stevens, Woodhead Publisher.
6. Nanofunctional textiles and their application, Edited by Y Li, Woodhead Publisher.
7. Smart textile for medical and healthcare, Edited by L Van Langenhove, Woodhead Publisher.

MT-FTL-205				APPAREL TESTING AND QUALITY CHARACTERISATION				
L	T	P	Credit	Duration of Exam:	Total Number of Lectures		Internal Marks	External Marks	Total Marks
3	0	0	3	3 hrs	48		20	80	100

COURSE OBJECTIVE

- To familiarise students with testing concepts, instruments and standards
- To familiarise students with quality evaluation approaches in garment industry

LECTURE WITH BREAKUP	NO. OF Lec.
Unit 1: Introduction: Aim and scope of testing, Sample and Population, Sampling techniques. Fibre, yarn and fabric testing concepts, instruments and applications. Fabric comfort properties: water-vapour transmission through fabrics, Wicking properties, Air permeability and wettability. Fabric composition testing, fabric chemical testing	11
Unit 2: Overview of low stress mechanical properties, FAST, Kawabatta Evaluation System. Analysis of KES, FAST data. Garment testing concepts, instruments and applications: dimensions, seam strength, seam slippage, adhesion between interlining and fabric, shrinkage, zippers, buttons, snap fasteners and other general garment properties. Needle cutting/yarn severance	14
Unit 3 Testing of specially designed fabrics and finishes: Flame resistance, Water repellency, etc. Computer colour matching: concept of colour measurement and applications. Different fastness (light, washing, perspiration, sublimation, chlorine, etc.) properties and their evaluation.	14
Unit 4: International quality parameters and various standards such as AATCC, SDC, ASTM, etc. Salient features of different testing protocols for apparels, various essential standards and regulations associated with quality evaluation of apparels, safety aspects of 15hildren's apparel, quality program of clothing sector, the role of retailer, agent, vendor and laboratory.	9

COURSE OUTCOMES

On completion of the course the student should be able to

- To learn about scope of testing and quality assessment of fibres, yarn, fabrics and apparels
- To learn about international standards, quality evaluation approaches in garment industry

References:

1. Physical Testing of Textiles, Woodhead Publishing Ltd, Cambridge, 2002, Saville B P
2. Testing and Quality Management, Ed. V. K. Kothari, IAFL Publications, New Delhi, 1999, V. K. Kothari.
3. Principles of Textile Testing", CBS Publishers and Distributors, New Delhi, 1999, Booth J E.
4. Textile Testing, SSM Institute of Textile Technology, Angappan P & Gopalakrishnan R,Komarapalayam, 2002.
5. Apparel quality Control, V.K. Mehta
6. Basu A, "Textile Testing", SITRA Coimbatore, 2002.

MT-FTL-206				FABRICS PROPERTIES AND TEXTILE DESIGNING					
L	T	P	Credit	Duration of Exam:	Total Number of Lectures		Internal Marks	External Marks	Total Marks
3	0	0	3	3 hrs	48		20	80	100

COURSE OBJECTIVE
To familiarise students with fabric formation technologies, woven and knitted fabric properties.
To familiarise students with woven and knitted designing techniques.

LECTURE WITH BREAKUP	NO. OF Lec.
Unit 1: Fabric formation technologies, Fabric properties-dimensional & structural, Mechanical, Comfort related properties, Low stress mechanical properties, properties related to aesthetic significance, other physical properties relevant to end use, Influence of fibres, yarn charcterstics and fabric construction parameter on clothing comfort.	11
Unit 2: Concept of fabric designing through fabric structure, Importance of fabric structure, Basic Weaves: Plain, Twill, Sateen weaves, Theirs derivatives and ornamentation, Draft and Peg-plan for all simple weave. Other decorative weaves like Diamond, Mockleno, Corkscrew, Honey Comb, Huck-a-back, etc	14
Unit 3 knitting, comparison of knitting and weaving technology, Classification of knitting. Difference between woven and knitted fabric properties.,Characteristics of warp knit and weft knit structure.knitting elements: knitting needles, sinkers, cam systems, etc. Knitting cycles,Weft knitting: properties and uses of basic weft knitted structures- Plain, Rib, Interlock and Purl.	14
Unit 4: Fundamental Stitches: Knit, Tuck and float stitches and their uses. Ornamentation of knitted fabrics. Concept of loop length, production calculation, Calculations for Tightness factor, fabric cover, stitch density, areal density and knitting machine production.	9

COURSE OUTCOMES
On completion of the course the student should be able to
• To learn about fabric formation techniques
• To learn about woven and knitted fabric properties
• To design and ornamentation in woven and knitted structures

References:

1. Handbook of weaving; Sabit Adanur, Technomic Publishing Company, Inc, U.S.A
2. Fabric structure and design, Gokarneshan N, New Age International, N Delhi.
3. Knitting Technology, Azgaonkar, Universal Publishing Corp.

MT-FTP-201				Textile and Apparel Testing Lab					
L	T	P	Credit	Duration of Exam:	Total Number of Lectures		Internal Marks	External Marks	Total Marks
0	0	4	2	2 hrs	32		10	40	50

Applications of chemicals, dyes and functional finishes to make speciality garments and their evaluation. Fabric composition testing. Fabric shrinkage, Air-permeability, Limited Oxygen Index (LOI), flammability test, Water absorbency, Water repellency, Hydrostatic water proof test, Abrasion Resistance: flat and flex, Pilling resistance.
Fabric composition testing, fabric chemical testing, testing for fabric comfort
Determination light, washing, perspiration, sublimation, chlorine, etc. fastness properties of dyed samples.
Seam strength, Seam Slippage, Adhesion between interlining and fabric, shrinkage, zippers, buttons, snap fasteners and other general garment properties.

MT-FTP-202				Garment Development Lab-II					
L	T	P	Credit	Duration of Exam:	Total Number of Lectures		Internal Marks	External Marks	Total Marks
0	0	4	2	2 hrs	32		10	40	50

Construction of garment of children, men and women wear.
Techniques of draping and grading, their applications in dress construction. Line balancing system. Practice of pattern making and construction of selected kids, ladies and gents wear. Preparation functional/Speciality garment.

MT-FTP-203				Minor Project With Seminar					
L	T	P	Credit	Duration of Exam:	Total Number of Lectures		Internal Marks	External Marks	Total Marks
0	0	4	2	2 hrs	32		10	40	50

Course Outcomes:
At the end of this course, students will be able to

- Understand of contemporary / emerging technology for various processes and systems.
- Share knowledge effectively in oral and written form and formulate documents.

Syllabus Contents:

The students are required to search / gather the material / information on a specific a topic
Comprehend it and present / discuss in the class.

MT-FTL-301				MANAGING THE SUPPLY CHAIN					
L	T	P	Credit	Duration of Exam:	Total Number of Lectures		Internal Marks	External Marks	Total Marks
3	0	0	3	3 hrs	48		20	80	100

COURSE OBJECTIVE
To familiarise students with the various concepts of supply chain, latest techniques and processes leading to process improvement in manufacturing.

LECTURE WITH BREAKUP	NO. OF Lec.
Unit 1: Supply Chain, Supply Chain Concepts: flow of materials, Wastes in the pipeline, flow of Information, Supply Chain Drivers, Supply chain Management: Concept, frame work and need for study.	11
Unit 2: Planning & Managing Inventories in a Supply Chain: Safety Inventory , Benchmarking the supply chai Quick Response, Vendor Managed Inventory(VMI), Postponement, Just in Time & QR Logistics, Introduction to Apparel / Textile Supply Chain, Distribution & Procurement and various Procurement Channels in Supply Chain.	14
Unit 3 Reverse supply chain(RSC), difference with forward supply chain, cost considerations involved , industries participation, factors leading to application of concept of RSC in specific industries and its restricted application, benefits, cost effectiveness of RSC.	14
Unit 4: Supply chain in apparels, Introduction to sampling, Understanding quality procedures in sampling and sample development, different stages of samples and their requirements From Proto to Shipment sample Proto, fit, Size set, Pre production, TOP, Sealer, important Industry Inputs .	9

COURSE OUTCOMES
On completion of the course the student should be able to
• Learn and implemement different techniques of Supply Chain leading to overall process improvement in any organisation.

References:

1. Logistics & supply Chain Management: Strategies for Reducing Cost and Improving service - Martin Christopher
2. Supply Chain Management: Strategy, Planning and Operation - Sunil Chopra.
3. Partnership Sourcing: An Integrated Supply Chain Management Approach - Douglas Macbeth

MT-FTL-302				FASHION RETAIL AND MARKETING					
L	T	P	Credit	Duration of Exam:	Total Number of Lectures		Internal Marks	External Marks	Total Marks
3	0	0	3	3 hrs	48		20	80	100

COURSE OBJECTIVE

To familiarise students with various management principles and role of Retail in Modern Market.

LECTURE WITH BREAKUP	NO. OF Lec.
Unit 1: Marketing- Definition, core concepts of marketing, marketing management - process, marketing concepts- different approaches, marketing mix- P's of Marketing.	10
Unit 2: Retail marketing– nature, concept and importance, objectives of retail marketing, retail marketing mix, key elements of retail mix, various modes of fashion retail promotions. Influence of promotion on the business, limitations.	14
Unit 3 Fashion Marketing-fashion marketer, influencing factors. Sources of fashion marketing, promotion of fashion marketing and various techniques. Market Segmentation & Targeting. Differentiation & Positioning, Competitors Analysis.	14
Unit 4: Product Development-Product, product line, product development, need for product development, types of product development, steps of product development, product life cycle, product development in apparel industry-need, organizations involved in PD-buyer, buying office, manufacturer.	10

COURSE OUTCOMES

On completion of the course the student should be able to

- Understand the management concepts and Retail fundamentals.

References:

1. John Graham, Mary C. Gilly, Philip R. Cateora, International Marketing, Mc Graw Hill, 2008.
2. Frings," Fashion from Concept to Consumer 7th Edition", Pearson.
3. Mike Easey,"Fashion marketing", Om Publication.

MT-FTP-301				Dissertation Phase – I					
L	T	P	Credit	Duration of Exam:	Total Number of Lectures		Internal Marks	External Marks	Total Marks
0	0	20	10				60	240	300

Course Outcomes:

At the end of this course, students will be able to

- Ability to synthesize knowledge and skills previously gained and applied to an in-depth Study and execution of new technical problem.
- Capable to select from different methodologies, methods and forms of analysis to Produce a suitable research design, and justify their design.
- Ability to present the findings of their technical solution in a written report.
- Presenting the work in International/ National conference or reputed journals.

Syllabus Contents:

The dissertation / project topic should be selected / chosen to ensure the satisfaction of the urgent need to establish a direct link between education, national development and productivity and thus reduce the gap between the world of work and the world of study. The dissertation should have the following

- Relevance to social needs of society
- Relevance to value addition to existing facilities in the institute
- Relevance to industry need
- Problems of national importance
- Research and development in various domain

The student should complete the following:

- Literature survey Problem Definition
- Motivation for study and Objectives
- Preliminary design / feasibility / modular approaches
- Implementation and Verification
- Report and presentation

The dissertation stage II is based on a report prepared by the students on dissertation allotted to them. It may be based on:

- Experimental verification / Proof of concept.
- Current issues in Textile and Garment industry, Sustainability
- The viva-voce examination will be based on the above report and work.

Guidelines for Dissertation Phase – I

- As per the AICTE directives, the dissertation is a yearlong activity, to be carried out and evaluated in two phases i.e. Phase – I: July to December and Phase – II: January to June.
- The dissertation may be carried out preferably in-house i.e. department's laboratories and centers OR in industry allotted through department's T & P coordinator.
- After multiple interactions with guide and based on comprehensive literature survey, the student shall identify the domain and define dissertation objectives. The referred literature should preferably include IEEE/IET/IETE/Springer/Science Direct/ACM journals or in the areas of Textiles, garments, environment, polymers, etc. In case of

Industry sponsored projects, the relevant application notes, while papers, product catalogues should be referred and reported.

- Student is expected to detail out specifications, methodology, resources required, critical issues involved in design and implementation and phase wise work distribution, and submit the proposal within a month from the date of registration.
- Phase – I deliverables: A document report comprising of summary of literature survey, detailed objectives, project specifications, paper and/or computer aided design, proof of concept/functionality, part results, A record of continuous progress.
- Phase – I evaluation: A committee comprising of guides of respective specialization shall assess the progress/performance of the student based on report, presentation and Q & A. In case of unsatisfactory performance, committee may recommend repeating the Phase-I work.
- During phase – II, student is expected to exert on design, development and testing of the proposed work as per the schedule. Accomplished results/contributions/innovations should be published in terms of research papers in reputed journals and reviewed focused conferences OR IP/Patents.
- Phase – II deliverables: A dissertation report as per the specified format, developed system in the form of hardware and/or software, A record of continuous progress.
- Phase – II evaluation: Guide along with appointed external examiner shall assess the progress/performance of the student based on report, presentation and Q & A. In case of unsatisfactory performance, committee may recommend for extension or repeating the work.

Every student will carry out dissertation under the supervision of a faculty. The student will submit a synopsis of thesis topic at the beginning of the semester. The Departmental committee shall examine the request for dissertation from each student and fix in advance:

a. An internal guide (a faculty members of the university)
b. Area of dissertation
c. The name and dissertation of an external guide, if any.

Every student will be required to present two seminar talks, first at the beginning within one month of the Dissertation (Phase-I) to present the scope of the work and to finalize the topic, and second towards the end of the semester, presenting the work carried out by him/her in the semester. The committee constituted will screen both the presentations so as to award the sessional as prescribed in ordinance.

MT-FTP-401				Dissertation Phase – II					
L	T	P	Credit	Duration of Exam:	Total Number of Lectures		Internal Marks	External Marks	Total Marks
0	0	32	16				100	400	500

Course Outcomes:

At the end of this course, students will be able to

- Ability to synthesize knowledge and skills previously gained and applied to an in-depth study and execution of new technical problem.
- Capable to select from different methodologies, methods and forms of analysis to produce a suitable research design, and justify their design.
- Ability to present the findings of their technical solution in a written report.
- Presenting the work in International/ National conference or reputed journals.

Syllabus Contents:

The dissertation / project topic should be selected / chosen to ensure the satisfaction of the urgent need to establish a direct link between education, national development and productivity and thus reduce the gap between the world of work and the world of study. The dissertation should have the following

- Relevance to social needs of society
- Relevance to value addition to existing facilities in the institute
- Relevance to industry need
- Problems of national importance
- Research and development in various domain

The student should complete the following:

- Literature survey Problem Definition
- Motivation for study and Objectives
- Preliminary design / feasibility / modular approaches
- Implementation and Verification
- Report and presentation

The dissertation stage II is based on a report prepared by the students on dissertation allotted to them. It may be based on:

- Experimental verification / Proof of concept.
- Design, fabrication, testing of Communication System.
- The viva-voce examination will be based on the above report and work.

Guidelines for Dissertation Phase – II

- As per the AICTE directives, the dissertation is a yearlong activity, to be carried out and evaluated in two phases i.e. Phase – I: July to December and Phase – II: January to June.
- The dissertation may be carried out preferably in-house i.e. department's laboratories and centers OR in industry allotted through department's T & P coordinator.
- After multiple interactions with guide and based on comprehensive literature survey, the student shall identify the domain and define dissertation objectives. The referred literature should preferably include IEEE/IET/IETE/Springer/Science Direct/ACM journals in the areas of fibre, textile, garments, polymers, environment, sustainability, etc.