UNIVERSITY OF MUMBAI



Syllabus

SEMESTER I & SEMESTER II

Program: M.Sc.

Course: Home Science

Branch III: Textile and Fashion Technology

(Credit Based Semester and Grading System with effect from the academic year 2016–2017)

Course Code	Title	Theory/ Practical	Internal Marks	Semester End Exam	Total Marks	Periods / week	Credits
PSHSIII101	Research Methods and Statistics I	Theory	40	60	100	4	4
PSHSIII102	Global Merchandising	Theory	40	60	100	4	4
PSHSIII103	Natural Fiber Science	Theory	40	60	100	4	4
PSHSIII104	Textile & Garment Finishing	Theory	40	60	100	4	4
PSHSIIIP101	Home Textiles - Designing & Product Development	Practical		50	50	4	2
PSHSIIIP102	Pattern Making, Grading and Garment Construction- Women's Wear	Practical		50	50	4	2
PSHSIIIP103	Value addition through Finishes - Textile and Garment	Practical		50	50	4	2
PSHSIIIP104	CAD- Textile & Fashion Illustration and Design Development	Practical		50	50	4	2
	TOTAL		160	440	600	32	24

The candidate is required to submit the certificate of completing One Year Diploma course in : "CAD, CAM and Computer Technologies in the Apparel Industry" before completion of M.Sc. (Home Science) course.

Course Code	Title	Periods/ week	Marks	Credits
PSHSIII101	RESEARCH METHODS AND STATISTICS I	4	100	4

- 1. To build in student's appreciation for high quality research in each of their specializations.
- 2. To introduce students to the skills needed in conducting a research in their specialization.
- 3. To introduce students to principles of good scientific writing.
- 4. To enable in students the skills in selecting, computing, interpreting and reporting statistics.

Course Cor	ntent	Lectures
UNIT I	a)What is a research? b) Objectivity and subjectivity in scientific inquiry: Premodernism, modernism, and postmodernism c) Steps in the research process d) Importance of research in general, and in each discipline e) Illustration of research in each of the three specialisations: Foods, Nutrition, and Dietetics; Human Development; and, Textile and Fashion Technology f) Qualitative versus quantitative research 1 B. The beginning steps in the research process . (a) Identifying broad areas of research in a discipline . (b) Identifying interest areas; using multiple search strategies . (c) Prioritising topics; specifying a topic; feasibility . (d) Review of literature/scholarly argument in support of study . (e) Specifying research objectives/hypotheses/questions	15
UNIT II	2 A. Variables (a) Definition (b) Characteristics (c) Types (d) Levels of measurement 2 B. Measurement (a) Conceptual definitions and operational definitions (b) Types of validity and reliability in quantitative research 2 C. Data entry in quantitative research (a) Codebook and mastersheet (b) Creating data files and data management	15
UNIT III	3.A. Introduction and overview to Statistics (a) Role of statistics in (quantitative) research (b) Definition/changing conceptions (c) Prerequisite concepts in mathematics (e.g., properties of the summation sign, basic algebra) 3 B. Descriptive Statistics for summarizing ratio level variables (a) Frequencies and percentages (b) Computing an average/measure of a central tendency Mean, median, mode(s) Contrasting the mean vs. median Computing an average when there are outliers or extreme values in the data set Robust measures of the center (5% trimmed mean; M estimators) Quartiles and percentiles (d) Computing a measure of variability or dispersion Why? (inadequacy of the mean) Minimum value and maximum value Range Interquartile range Variance and standard deviation (e) Discrete and continuous variables (f) Histograms and line graphs	15

UNIT IV	4 A. Descriptive Statistics for summarizing nominal, ordinal and interval level variables 4 B. Demonstration of computer software such as the Statistical Package for the Social Sciences (SPSS) (a) Data entry (b) Data Management (c) Descriptive Statistics 4. C. Probability: Foundation of Advanced/Inferential Statistics (a) Definition (b) Role of probability in research and statistics (c) Elementary concepts in probability Sample space, experiment, event/outcome/element of the sample space Equally likely outcomes and the uniform probability model Stabilization of the relative frequency	15
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Bhattacharyya, G.K. & Johnson, R. A. (1977). *Statistical concepts and methods*. NY: John Wiley. Dwiwedi, R. S. (1997). *Research methods in behavioral sciences*. Delhi: Macmillan India. Gravetter, F. J. & Waillnau, L. B. (2000). *Statistics for the behavioral sciences*. Belmont, CA: Wadsworth/Thomson Learning.

Kerlinger, F. N. & Lee, H. B. (2000). *Foundations of behavioral research*. Orlando, Florida: Harcourt. Leong, F.T.L. & Austin, J. T. (Eds.) (1996). *The psychology research handbook*. New Delhi: Sage.

Course Code	Title	Periods/week	 Marks	Credits
PSHSIII102	GLOBAL MERCHANDISING	4	100	4

- Objectives:
 1. To provide knowledge of international trade.
 2. To impart knowledge of marketing and merchandising.

Course Co	Course Content	
Unit I	Information Technology for Merchandising i. Quick response business systems: ii. Customer driven systems (POS) iii.Universal product code (UPC) iv.E-commerce, (ERP), Enterprise Resource Planning v. Electronic data interchange (EDI) vi.Smart labels and Radio frequency identification vii. Time based competition, Agility, Partnering (external and internal)	
Unit II	Merchandising systems i. Business to business relationships-wholesaling, ii. Business to ultimate consumer transactions- retailing iii.Line planning: evaluating merchandising mix and forecasting offerings,	15
Unit III	Role & responsibilities of a merchandiser, Market Knowledge and four P's Market Segmentation i. Factors for segmentation: Demographic trends, psychographics, social force, government influences, economic trends ii. Market penetration and development iii.Product development and diversification Strategic Planning Definition, Marketing calendar, Line preview date, Critical path method, Line plan summary, Sales forecast, Shelf stock plan, Style status report, Order tracking Traditional & Contemporary line planning	15
Unit IV	Quality assurance i. Definition and importance of quality management ii. Consumers' perception of quality, company responsibility iii.Deming's 14 points, Juran's 10 steps to quality improvement, Sigma six strategy iv.Standards and specifications.	15

- v. Quality determinants (raw materials, pattern and fit, construction)
- vi. Quality and sampling procedures
- vii. Statistical Process Control (SPC)
- viii. Merchandise Checking procedures: Quantity checking and quality controllers, Marking merchandise, Loss prevention: Shoplifting, Deterrents and controls, Electronic Article Surveillance (EAS)

Merchandising perspectives on pricing

Income statements, Pricing and costing, Pricing Strategies, Pricing variables, Pricing relationships and strategic pricing, Components of pricing strategies,

Costing principles and strategies, Types of costing

References

Boyd, H. W. (1995) Marketing management: Strategic approach with a global orientation. Chicago: Irwin / Richard Irwin.

Davar, R. S. (1982) Modern marketing management. Bombay: Progressive.

Diamond, E. (2006) Fashion retailing: A multi-channel approach, New Jersey: Pearson/Prentice Hall.

Donnellan, J. (1999) Merchandising buying and management, New York: Fairchild Publications.

Ed. Hines, T. and Bruce, M. (2001) Fashion marketing. Oxford: Buttersworth Heinemann. Jackson, T. & Shaw,

D. (2001) Mastering fashion buying and merchandising management, New York: Palgrave.

Jarnow, J., Guereira, M. &Judelle, B. (1987). *Inside the fashion business*. (4thEd.). New York: MacMillan.

Kale, N. G. (1995). International marketing. Mumbai: Vipul Prakashan.

Kale, N. G. (1998). Fundamentals of marketing and finance. Mumbai: Manisha Prakashan.

Kotler, P. (1998) *Marketing management: analysis, planning, implementation and control.* (9thEd.). New Delhi: Prentice Hall.

Vaz, M. (1996) Export marketing. Mumbai: Manisha Prakashan.

.Course Code	Title	Periods/week	Marks	Credits
PSHSIII103	NATURAL FIBER SCIENCE	4	100	4

- 1. To study the morphology, chemical constitution and manufacturing processes of natural fibers.
- 2. To study physical and chemical properties and end uses of cellulosic and proteinic fibres.

Course Con	ntent	Periods
Unit I	Cellulose fibers- Chemistry a) Chemistry of cellulose: Chemical composition and constitution b) Reactivity of different hydroxyl groups, Hydrolysis and oxidation of cellulose, estimation of the extent of degradation	15
Unit II	Natural Cellulosic fibres- Physics Morphology, fine structure, properties, and varieties of cellulosic fibers including Indian varieties. a) Cotton b) Jutec) Flax	15
Unit III	Proteinic fibers a) Chemistry of proteins- chemical composition and constitution of proteins, functional groups, properties conferred by the nature of substituent b) Morphology and histology of wool and silk, types of bonds present in wool (including Indian varieties) and silk, Indian variety of wool and silk, properties	15
Unit IV	Ecological concerns in manufacturing and processing of natural fibers Recent developments in natural fibers	15

References

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Wynne, A. (1997). Textiles-The Motivate Series, London: Macmillan Education Ltd.

Course Code	Title	Periods/week	Marks	Credits
PSHSIII104	TEXTILE AND GARMENT FINISHING	4	100	4

- 1. To study about the chemicals used in textile finishing, along with the essential properties of raw materials used in their manufacture and application.
- 2. To study the recent developments in various finishing processes.

Course Content		Periods
Unit I	Introduction to and classification of textile auxiliaries, concept of water surface activity, hydrophilic and lyophilic balance. Chemical finishing processes	15
Unit II	Cationic, anionic and nonionic surfactants, soaps.	15
Unit III	Current textile garment finishing in use: Softening finish, stiffening finish, easy care / durable press finish, water repellent and water proof finish, soil release finish, non slip finish, finishing with enzymes. Various chemicals and method used in obtaining these finishes, their mode and mechanism of reaction, effect on various fabric and fabric properties. Eco concerns of the finishes.	15
Unit IV	Current textile garment finishing in use: Flame retardant finish, anti-static finish, anti-pilling finish, UV protection finish, antimicrobial and anti fungal finish Various chemicals and method used in obtaining these finishes, their mode and mechanism of reaction, effect on various fabric and fabric properties. Eco concerns of the finishes. Future trends in chemical finishing	15

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Course Code	Title	Periods/week	Marks	Credits
PSHSIIIP101	HOME TEXTILES- DESIGNING AND PRODUCT DEVELOPMENT	4	50	2

- 1. To acquaint students to advance techniques of pattern making for different products and styles of home madeups.
- 2. To adapt constructed blocks to the given patterns and grading according to different sizes.
- 3. To familiarize students with various techniques of finishing.
- 4. To acquaint students with the skill of handling different materials and patterns.
- 5. Identification, analysis and selection of different types of fabrics for particular end-uses.
- 6. Layout of drafts on fabric and its cutting

Course Content			
Unit I	Unit I Drafting of various made-ups- for bedroom, living room, kitchen, bathroom		
Unit II	Construction of Bedroom & living room products- classification of oriental and contemporary rugs, Floor covering, Bed linen, carpets, curtains, bedlinen, its availability in the market, Use & care of floor coverings, curtains, bed linen etc Making products using hand and machine embroidery using old and new material	15	
Unit III	Construction of kitchen and bathroom products- Table Linen & Bath Linen, Kitchen towels & napkins, Different types of fabric used, Different sizes, Use & care of table and bath linen, Making products using hand and machine embroidery using old and new material	15	

Portfolio Presentation

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.Course Code	Title	Periods/week	Marks	.Credits
PSHSIIIP102	PATTERN MAKING, GRADING AND GARMENT CONSTRUCTION – WOMEN'S WEAR	4	.50	2

- 1. To acquaint students to advance techniques of pattern making for different styles of clothing for women.
- 2. To adapt constructed blocks to the given patterns and grading according to different sizes.
- 3. To familiarize students with various techniques of apparel making.
- 4. To acquaint students with the skill of handling different materials and patterns.
- 5. Identification, analysis and selection of different types of fabrics for particular end-uses.
- 6. Layout of drafts on fabric and its cutting

Course Con	tent	Periods
Unit I	 A. Basic Block Construction (a) Adult's Basic Block, Sleeve, Torso block (b) Displacements of darts Concealments of darts (c) Drafting of yokes, gathers, pleats for upper and lower garments, collars (Shirt, Reversible, Shawl, Danton, Chinese) B. Drafting of sleeves (Dolman, Raglan, Kimono, Magyar) C. Drafting and adapting patterns (along with draft instructions and markings) using anthropometric measurements and grading of upper block D. Drafting and adapting patterns (along with draft instructions and markings) using anthropometric measurements and grading of lower block 	15
Unit II	Upper Garments: Choli, Kurta/Angarakha, Partywear/Western Outfit- any two	15
Unit III	Lower Garments: Chudidar, Designer salwar, Skirts/trousers/culottes- any two	15

- Construction of the above garments using plackets (Kurta/double shirt placket/continuous Kurta), collars
 (Reversible/Chinese/ Shawl and Danton, yokes (T-/ U-/Straight) and gussets (simple/ sleeve/ strip), pockets
 (side seam pocket/velt pocket/ bound pocket/ front pant pocket) zips (with seam/ invisible zip/ zip with fly).
- Portfolio Presentation

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.Course Code	Title	Periods/week	Marks	Credits
PSHSIIIP103	VALUE ADDITION THROUGH FINISHES- TEXTILE AND GARMENT	4	50	2

- 1. To experiment with the chemicals used in textile finishing, along with the essential properties of raw materials used in their manufacture and application.
- 2. To experiment with the chemicals used in denim washing, along with the essential properties of raw materials used in their manufacture and application.
- 3. To experiment with the recent chemicals and methods used in various finishing processes.
- 4. To experiment with chemicals and methods used in various fabrics for textile finishing
- 5. Portfolio & Journal

Course Content		Periods
Unit I	Value addition through chemical finishes- functional- softening, antimicrobial, hydrophilic, water proof, soil release, etc. using environmental friendly chemicals and reagents on various fabric types	15
Unit II	Value addition through chemical finishes- denim washing using environmental friendly chemicals and reagents on various fabric types	15
Unit III	Testing and evaluation of above finishes relevant to each	15

Portfolio/Journal Presentation

References

Charan K. (1980). *Technology of laundry and toilet soaps*. New Delhi: S. B. Publications. Davidson A. and Milwidsky B. M. (1978). *Synthetic detergent*. Bombay: The Book Center. Hall A. J. (1986). *Textile finishing*. London: American Elsevier. Nallankilli G. and Jayaprakashan S. (1997). *Textile finishing*. Kamarpalayam: S. S. M. Publications Reevco W. A., Orake G. K. and Perkins R. M. (1974). *Fire resistant textiles: handbook*. Westpost: Technomic. Schindler, W.D. and Hauser, P.J. (2000). *Chemical finishing of textiles*. England: Woodhead Publishing Ltd. Shenai V. A. (1980). *Chemistry of textile auxiliaries*. *Vol V*. Bombay: Sevak. Srivastava S. B., Gupta R. K. and Gupta R. (1980). *Household Detergents and Industrial Surfactants*. New Delhi: Small Business.

.Course Code	Title	Periods/week	Marks	Credits
PSHSIIIP104	CAD- TEXTILE & FASHION ILLUSTRATION AND DESIGN DEVELOPMENT	4	50	2

- 1. To enhance the creative skills of drawing, sketching and rendering colours for designing prints, weaves, knits, garments and accessories based on themes.
- 2. The above ensembles to include designs in sleeves, collars, necklines, bodices, bifurcated wear, outer wear
- 3. To familiarize students with design process
- 4. Portfolio & Journal

Course Content		Periods
Unit I	Design Development for rotary and digital printing of textile designs for apparel and home furnishings- Inspiration, Forecast boards, Technical drawings and Presentation of Design sheets using CAD Demonstrations of printing software's in computer applications	15
Unit II	Design Development for weave and knit designs for apparel and home furnishings- Inspiration, Forecast boards, Technical drawings and Presentation of Design sheets using CAD Demonstrations of weave and knit designing software's in computer applications	15
Unit III	Design development for women's, men's and kids apparel and accessries- Inspiration, Forecast boards, Technical drawings and Presentation of Design sheets using CAD Demonstrations of apparel designing software's in computer applications	15

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M.Sc. (HOME SCIENCE) BRANCH III : TEXTILE AND FASHION TECHNOLOGY SEMESTER II

Course Code	Title	Theory/ Practical	Internal Marks	Semester End Exam	Total Marks	Periods / week	Credits
PSHSIII201	Research Methods and Statistics II	Theory	40	60	100	4	4
PSHSIII202	Global Marketing and Entrepreneurship	Theory	40	60	100	4	4
PSHSIII203	Regenerated and Synthetic Fiber Science	Theory	40	60	100	4	4
PSHSIII204	Technical Textiles	Theory	40	60	100	4	4
PSHSIIIP201	Accessory Making and Product Development	Practical		50	50	4	2
PSHSIIIP202	Pattern Making, Grading and Garment Construction- Men's Wear	Practical		50	50	4	2
PSHSIIIP203	Value addition through Dyeing and Printing	Practical		50	50	4	2
PSHSIIIP204	Fashion Photography and Visual Merchandizing	Practical		50	50	4	2
	TOTAL		160	440	600	32	24

The candidate is required to submit the certificate of completing One Year Diploma course in : "CAD, CAM and Computer Technologies in the Apparel Industry" before completion of M.Sc. (Home Science) course.

Course Code	Title	Periods/ week	Marks	Credits
PSHSIII201	RESEARCH METHODS AND STATISTICS II	4	.100	4

- 1. To help students develop the skills needed in conducting a research in their specialisation.
- 2. To promote academic, research and professional ethics in students.
- 3. To introduce students to principles of good scientific writing.
- 4. To enable in students the skills in selecting, computing, interpreting and reporting statistics.

Course C	ontent	Periods
	1 A. Sampling techniques in quantitative research	
	. (a) Sampling methods in current use/examples from current research	
	. (b) Issues with regard to sampling techniques	
	I B. Research designs in quantitative research	
Unit I	Distinguishing between the following research designs; and, selecting research designs	15
	that are congruent with one's research purpose.	
	. (a) Longitudinal versus cross-sectional	
	. (b) Experimental versus quasi-experimental versus correlational	
	. (c) Exploratory versus descriptive versus explanatory	
	2 A. Qualitative research methods	
	(a) Ideology/worldview of the qualitative researcher	
	(b) Research designs in qualitative research	
	(c) Sampling techniques in qualitative research	
	(d) Data collection methods in qualitative research	
	(e) Data analytic strategies in qualitative research	
	(f) Reporting of results in qualitative research	
	2B. Scientific writing	
TT *4 TT	. (a) Distinguishing scientific writing from popular and literary writing styles	1.5
Unit II	. (b) Characteristics/principles of scientific writing	15
	. (c) Examples of good scientific writing	
	. (d) Writing a research proposal	
	. (e) Reporting statistical findings in text	
	2 C. Ethics	
	. (a) In academia	
	. (b) In research in general	
	. (c) In research with human subjects	
	. (d) In research with animal subjects	
	3 A. Other concepts needed for the use of advanced/inferential statistics	
	(a) Types of distribution	
	Frequency distribution	
	Normal distribution	
	Probability distribution	
	Sampling distribution	
 Unit III	(b) Type I and type II errors	15
Cilit III	(c) (c) Central limit theorem	13
	(d) Point estimation vs. interval estimation	
	(e) Standard error (and confidence intervals)	
	(f) Parametric and nonparametric methods	
	3 B. Using an advanced statistical method (steps in using an advanced statistical	
	method)	
	4 A. To study statistics that allows us to contrast phenomena	
	(a) Univariate chi-square test	
	(b) Bivariate chi-square test (c) t- or z- test for contrasting two independent groups (d)	
	Paired t-test (e) ANOVA	
Unit IV	4 B. To study statistics that allows us to examine relationships between variables	15
	(a) Bivariate chi-square test	
	(b) Product-moment correlation coefficient 4 C. Ethics in the use of statistics (e.g., the	
	importance of test assumptions, the number of statistical tests in a research and levels of	
	significance)	

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Course Code	Title	Periods/ week	 Marks	Credits
PSHSIII202	GLOBAL MARKETING AND ENTREPRENEURSHIP	4	100	4

- Objectives
 1. To equip students with the knowledge of the fashion world.
 2. To provide knowledge of international trade.
 3. To impart knowledge of marketing and merchandising.
 4. To enhance entrepreneur skills.

Course Con	ntent	Periods
Unit I	Language of fashion and textile design i. Definition and nature of Fashion Business ii. Principles of Fashion iii.Terminology: Style, Fashion (high and mass fashion), Design, Taste, Classic, Fad, Trend, any others iv.Components of Fashion/Design Elements & Principles: v. Fashion Cycle vi.Movement and Theories of fashion vii. Fashion forecast and fashion shows Leading international designers and their labels Organization and operation of the fashion business: Women's wear, menswear, children's wear, fashion accessories, home fashions	15
Unit II	Merchandise planning, buying and control. i. Merchandise distribution ii. Service quality, servicing customers in on-site and offsite ventures iii.Personal Selling: Characteristics of sales associate, Sales presentation Advertising and promotion i. Classifications of Fashion advertisements ii. Media iii.Promotional programs and Publicity iv. Off-site retailing: E-tailing Advantages v. Process (creating a web-site Design development and web-site specifications) vi. Classification of E-tailers vii. Catalogs	15
Unit III	Market Research i. Basic, Applied (consumer, product, market analysis) ii. Consumer research: Demographics and psychographics iii.Product research: preferred product design and characteristics iv. Market analysis: long range and short range forecasting Fashion research i. Fashion trend research ii. Color research iii.Fabric and trim research iv. Line plan & styling direction. v. Nature of retailing research and the research process Data Collection i. Methods for data collection ii. Focus groups, Mall intercepts consumer panels, mail & telephone surveys, point of sale data, corporate sales records, Web sites. iii.Industry information sources: Trade shows, trade publications Fashion Retailing i. Definition of retailing terms ii. Types of retailing and multichannel fashion retailing iii.Understanding fashion consumers and their buying behavior. iv.Consumer behavior and assessment theories	15

		l .
	v. Concept of decision making Self concept theory	
	vi.Consumer analysis	
	vii. Customer Response (CRS)	
	viii. In-store shopping behavior: Situational factors, Shopper's intentions,	
	stock situations (in-stock, stock-out, customer service), purchase	
	decisions (current sales, potential sales, lost sales)	
	Supply chain management in fashion and textiles	
	i. Concepts and principles of SCM: short interval scheduling (SIS), inventory	
	carrying costs, supply chain for soft goods. What are supply chains,	
	definitions	
	ii. Information and technology in supply chain management: SCM	
	enabling technologies: EDI, EPOS, item coding, EFT, activity based costing,	
	etc. The applications of the information and technology for the SCM in the	15
	fashion industry.	
	iii.Marketing sourcing and logistics decisions decisions	
	iv. Pricing considerations: Competition, merchandise characteristics,	
	International sourcing process: Research, Initial orders, L/C documents,	
	follow-up, final quality inspection, Shipping documentation	
	Visual Merchandising	
	i. Environments of Visual presentations: Windows and interiors	
	ii. Designing and fixturing for retail environment	
	iii.Designing the interiors space	
	iv. Trends in retail environment design	
	Entrepreneurship	
UNIT IV	i. Definition, Entrepreneurial skills	15
	ii. Realities, profiles of leading retail entrepreneurs	
	iii.Starting your own business	
	iv. Planning capital and environment influences.	
	Ecology, ethics and green issues	
	i. Business ethics and social responsibility,	
	Ethics in retailing	

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Course Code	Title	Periods/ week	Mark s	Credits
PSHSIII203	REGENERATED AND SYNTHETIC FIBRE SCIENCE	4	100	4

- 1. To study the morphology, chemical constitution and manufacturing processes synthetic fibers.
- 2. To study physical and chemical properties and end uses of proteinic and synthetic fibers.
- 3. To acquaint students with recent developments in the field of fibers.

Course Content		Periods
Unit I	Regenerated cellulosic fibers a) Raw materials, manufacturing process, physical and chemical properties of regenerated fibers.(viscose rayon, cuprammonium rayon, polynosic fibers, high tenacity viscose, modal and lyocell) b) Chemically modified cellulose (primary and secondary acetate rayon)	15
Unit II	Synthetic fibres Synthesis of raw material, Manufacturing process, properties, uses and modification of various synthetic fibers a) Nylon 6, nylon 66 b) Polyester c) Acrylic	
Unit III	Other synthetic fibres a) Modacrylic b) PVC, PVA, Elastomeric carbon, glass Blends currently used.	15
UnitIV	Ecological concerns in manufacturing and processing of regenerated and synthetic fibers. Recent developments in regenerated and synthetic fibers	15

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Course Code	Title	Periods/week	Marks	Credits
PSHSIII204	TECHNICAL TEXTILES	4	100	4

- Objectives
 To study about the various technical textiles, along with the essential properties of raw materials used in their manufacture and application.
 To study the recent developments in technical textiles

Course Content		Periods
Unit I	Medical Textiles 1) Introduction to healthcare and medical textile devices. a. Polymers used in Medical applications (Alginate, Chitosan, Silk, PLA, PGA, Carboxymethyl cellulose, Cellulose acetate, Polyurethane, Polyester, Polypropylene etc) 2) Design criteria & fabrication of Medical textile products: with special focus on Knitting, Braiding, 3D weaving, nonwoven techniques, spacer fabric, composites, Hydrogel, Rapid prototyping, Electrospinning. 3) Interaction of cells on Polymeric textile structures (integrin recognition, cellular signaling process, gene expression, immune rejection, correlations with fabric structure and properties). 4) Broad general classification of Medical Textiles. 5) Non-implantable materials (existing products, limitations, future direction) . Wound-dressing, related hydrogel and composite products. Bandages:Simple, Lightsupport, Compression, Orthopedic bandages. 6) Gauges. 7) Healthcare and Hygiene Products. Applications of hollow fibres for protein purification, drug delivery, biosensor. Implantable biomedical devices (existing products, limitations, future direction) 8) Vasculargrafts(knitting,nonwoven, electrospinning) 9) Sutures(mono/multifilament,braided) 10) Heartvalves(knitting) 11) Hernia mesh (knitted, nonwoven) 12) Extra-corporeal materials (existing products, limitations, future direction) 13) Cartilage (nonwoven, 3D weaving) 14) Skin(nonwoven, weaving) 15) Liver (rapid prototyping) 16) Kidney, Urinarybladder(nonwoven, 3D weaving) 17) Tendons, Ligaments (Silk filaments, braiding) 18) Cornea(Electrospinning,hydrogel composite) 19) Soluble factor release (Drug, Growth factor Delivery), Enzyme (Matrix metalloprotease, proteases etc) attachment on fibrous materials. 20) Adhesive, anti-adhesive patches for Surgical application. 21) Phase change polymers & their healthcare applications. 22) Coating & finishing technologies for medical textiles. 23) Characterizing tests, Evaluation of commercial medical textiles products, International and National Standar	15

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	knobbing.	
	26) Warp and weft knitted spacer fabrics - production,	
	properties and applications	
	27) Ku-knit and multi-knit 3D structures. Struto and wave	
	maker techniques for producing 3D nonwoven	
	Applications of 3D Nonwovens.	
	28) Production of 3D braided structures.	
	29) Type of composites and application areas of textile based composites.	
	30) Textile reinforcement materials in different types of	
	composites.	
	31) One, two and three dimensional reinforcements and	
	matrix materials for composites.	
	32) Production and properties of performs.	
	33) Production of rigid composites.	
	34) Properties and uses of rigid composites.	
Unit II	Automotive Textiles	15
	Application of textiles in automobiles.	
	Requirements and design for pneumatic tyres	
	Safety devices like air bags and Seatbelts in automobiles.	
	Noise, vibration and heat insulation components in automobiles.	
	Seating fabric characteristics for automobiles.	
Unit III	Sports Textiles	15
	Sports clothing and Equipment-Scope and classification.	
	Design of sports active wear.	
	Design of sports active wear.	
	Knitted structures in active sportswear.	
	Waterproof breathable materials.	
	Textile components of sports shoes.	
	Sport surfaces and Equipment.	
	Textiles for Packaging	
	Textiles in food packaging.	
	Fabrics for bags and luggage.	
	Flexible Intermediate Bulk Packing.	
Unit IV	Textiles for Packaging	15
	Textiles in food packaging.	
	Fabrics for bags and luggage.	
	Flexible Intermediate Bulk Packing.	

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Course Code	Title	Periods/week	Marks	Credits
PSHSIIIP201	ACCESSORY MAKING AND PRODUCT DEVELOPMENT	4	50	2

- 1. To study about the accessories, along with the essential properties of raw materials used in their manufacture and application.
- 2. To study the recent developments in various accessories.

Course Cont	tent	Periods
Unit I	Head Gears, Stoles/scarfs & Belts- Traditional & Contemporary, brands, labels, designers Designing and making, value addition through colouration, embroidery, other techniques using different materials and methods	15
Unit II	Bags & Footwear- Traditional & Contemporary, brands, labels, designers Designing and making, value addition through colouration, embroidery, other techniques using different materials and methods	15
Unit III	Jewelry, Watches- Traditional & Contemporary, brands, labels, designers Designing and making, value addition through colouration, embroidery, other techniques using different materials and methods	15

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PATTERN MAKING, GRADING & GARMENT CONSTRUCTION- MEN'S WEAR

Course Code	Title	Periods/week	Marks	Credits
PSHSIIIP202	PATTERN MAKING, GRADING & GARMENT CONSTRUCTION-MEN'SWEAR	4	50	2

Objectives

- 1. To acquaint students to advance techniques of designing and pattern making for different styles of clothing for men.
- 2. To adapt constructed blocks to the given patterns and grading according to different sizes.
- 3. To familiarize students with special techniques of apparel making.
- 4. To acquaint students with the art of handling different materials and patterns.
- 5. Identification, analysis and selection of different types of fabrics for particular end-uses.
- 6. Layout of drafts on fabric and its cutting
- 7. Finishing and Packaging
- 8. Portfolio Presentation

Course Conte	nt	Periods
Unit I	1) Basic Block Construction (a) Adult's Basic Block, Sleeve, (b)Torso block (c) Drafting of yokes, gathers, pleats for upper and lower garments, collars (Shirt, Reversible, Shawl, Rever, Danton, Chinese) 2) Drafting of sleeves 3) Drafting and adapting patterns (along with draft instructions and markings) using anthropometric measurements and grading of upper block 4) Drafting and adapting patterns (along with draft instructions and markings) using anthropometric measurements and grading of lower block	15
Unit II	Upper Garments: Shirt Kurta/Sherwani, Partywear/Western Outfit- any two	15
Unit III	Lower Garments: Trouser, Chudidar, shrts/culottes- any two To include packets, zip attachment etc	15

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Course Code	Title	Periods/week	Marks	Credits
PSHSIIIP203	VALUE ADDITION THROUGH DYEING AND PRINTING	4	100	2

- 1. To study about the dyes, pigments and chemicals used in textile colouration, along with the essential properties of raw materials used in their manufacture and application.
- 2. To study the recent developments in various dyeing and printing processes.

Course Conte	nt	Periods
Unit I	Introduction to and classification of dyes and pigments, Dyeing and Printing Auxiliaries	15
Unit II	Fashion effects through dyeing. Testing of the same Eco friendly materials and methods. Future trends in dyeing	15
Unit III	Fashion effects through printing- block, screen, digital etcsingle and mix methods. Testing of the same. Eco friendly materials and methods. Future trends in printing	15

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Course Code	Title	Periods/week	Marks	Credits
PSHSIIIP204	FASHION PHOTOGRAPHY AND VISUAL MERCHANDIZING	4	50	2

- 1. To enhance the creative skills of photography.
- 2. To expose students to various methods of visual merchandizing
- 3. Portfolio

Course Content		Periods
Unit I	Various principles and methods of effective fashion photography for various marketing end uses- online and brick and mortar Demonstrations of photography and videography editing software's in computer applications	15
Unit II	Various principles and methods of effective videography for various marketing end uses- online and brick and mortar Demonstrations of photography and videography editing software's in computer applications	15
Unit III	Various principles and methods of effective visual merchandizing for various marketing end uses- online and brick and mortar. Demonstrations of photography and videography editing software's in computer applications	15

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