

UNIVERSITY OF DELHI



Department of Home Science

Faculty of Science

Post Graduate Programmes

Course Credit Structure-CBCS

2019

The **Department of Home Science** offers the following Post Graduate Programmes:

Masters Programmes in –

M.Sc. Food & Nutrition

M.Sc. Human Development & Childhood Studies

M.Sc. Development Communication & Extension

M.Sc. Resource Management & Design Application

M.Sc. Fabric & Apparel Science

Post Graduate Diploma Programmes in-

Post Graduate Diploma in Dietetics & Public Health Nutrition

Post Graduate Diploma in Health and Social Gerontology

PG Admission Eligibility

PART I Candidates seeking admission through entrance examination

8 A	M.Sc. course in Food & Nutrition:	Intake Capacity: 21
	B.Sc. (Hons.) in Home Science / B.Sc. (Pass) in Home Science / B.Sc (Hons.) in Food Technology: after (10+2)/ PGDDPHN (1 yr), from Delhi University or any other University whose Examination is recognized by the University of Delhi as equivalent and fulfill other conditions of eligibility. Should have passed Nutritional Biochemistry and any two subjects in the following areas: Food & Nutrition / Nutrition through the life cycle / Public Nutrition / Food Science and Processing / Diet therapy / Microbiology/ Nutrition for Adults and Elderly/ Nutrition for Children and Adolescents	ELIGIBILITY CONDITIONS 55% or above marks in aggregate in Home Science or Food Technology or equivalent grade points.
8 B	M.Sc. course in Human Development and Childhood Studies:	Intake Capacity: 11
	B.Sc. (Hons.) in Home Science / B.Sc. (Pass) in Home Science: after (10+2), from Delhi University or any other University whose Examination is recognized by the University of Delhi as equivalent and fulfill other conditions of eligibility. Should have passed any three subjects in the following areas: Introduction to Human Development / Socio-cultural Dimensions of family in India / Foundations of Human Development: Theories and Principles / Gender Empowerment and Justice / Human Development: Lifespan / Child Rights & Social Action	ELIGIBILITY CONDITIONS 55% or above marks in aggregate in Home Science or equivalent grade points.
8 C	M.Sc. course in Resource Management and Design Application:	Intake Capacity: 11
	B.Sc. (Hons.) in Home Science / B.Sc. (Pass) in Home Science: after (10+2) from Delhi University or any other University whose Examination is recognized by the University of Delhi as equivalent and fulfill other conditions of eligibility. Should have passed any three subjects in the following areas: Resource Management / Family Finance & Consumer Studies / Housing and Space Design / Ergonomic in Design Development /Interior Design and Decoration/ Entrepreneurship and Enterprise Management / Resources and Sustainable Development / Human Resource Management	ELIGIBILITY CONDITIONS 55% or above marks in aggregate in Home Science or equivalent grade points.

8 D	M.Sc. course in Development Communication and Extension:	Intake Capacity: 11
	B.Sc. (Hons.) in Home Science / B.Sc. (Pass) in Home Science: after (10+2) from Delhi University or any other University whose Examination is recognized by the University of Delhi as equivalent and fulfill other conditions of eligibility. Should have passed any three subjects in the following areas: Communication and Extension / Gender and Development / Media Systems / Mass Communication / Sustainable Development/ Training and Development/Extension Programme Design and Management/ Development Communication and Journalism / Training and Development	<i>ELIGIBILITY CONDITIONS</i> 55% or above marks in aggregate in Home Science or equivalent grade points.
8 E	M.Sc. course in Fabric and Apparel Science:	Intake Capacity: 19
	B.Sc. (Hons.) in Home Science / B.Sc. (Pass) in Home Science: after (10+2) from Delhi University or any other University whose Examination is recognized by the University of Delhi as equivalent and fulfill other conditions of eligibility. Should have passed any three subjects in the following areas: Fundamentals of Fabric and Apparel Science / Fabric Science / Indian Textile Heritage / Apparel Construction / Applied Textile Design / Dyeing and Printing / Design Concepts / Fashion Design Development / Fashion Studies	<i>ELIGIBILITY CONDITIONS</i> 55% or above marks in aggregate in Home Science or equivalent grade points.

PART II (FORM B) Candidates seeking admission on merit on the basis of marks obtained in the B.Sc. (Hons) Home Science, University of Delhi in the year in which admission is sought

7 A	M.Sc. course in Food & Nutrition:	Intake Capacity: 20
	B.Sc. (Hons.) in Home Science: Food & Nutrition (3 years course) after (10+2) from Delhi University only.	<i>ELIGIBILITY CONDITIONS</i> 60% or above marks in aggregate or equivalent grade points in Home Science (Hons.) with specialization in Food and Nutrition
7 B	M.Sc. course in Human Development and Childhood Studies:	Intake Capacity: 11
	B.Sc. (Hons.) in Home Science: Human Development (3 years course) after (10+2) from Delhi University only.	<i>ELIGIBILITY CONDITIONS</i> 60% or above marks in aggregate or equivalent grade points in Home Science (Hons.) with specialization in Human Development

7 C	M.Sc. course in Resource Management and Design Application:	Intake Capacity: 11
	B.Sc. (Hons.) in Home Science: Resource Management (3 years course) after (10+2) from Delhi University only.	<i>ELIGIBILITY CONDITIONS</i> 60% or above marks in aggregate or equivalent grade points in Home Science (Hons.) with specialization in Resource Management
7 D	M.Sc. course in Development Communication and Extension:	Intake Capacity: 11
	B.Sc. (Hons.) in Home Science: Communication and Extension (3 years course) after (10+2) from Delhi University only.	<i>ELIGIBILITY CONDITIONS</i> 60% or above marks in aggregate or equivalent grade points in Home Science (Hons.) with specialization in Communication and Extension
7 E	M.Sc. course in Fabric and Apparel Science:	Intake Capacity: 18
	B.Sc. (Hons.) in Home Science: Fabric and Apparel Science (3 years course) after (10+2) from Delhi University only.	<i>ELIGIBILITY CONDITIONS</i> 60% or above marks in aggregate or equivalent grade points in Home Science (Hons.) with specialization in Fabric and Apparel Science

Eligibility for reserved categories will be as per University guidelines.

For details concerning University guidelines visit www.du.ac.in

M.Sc. Fabric & Apparel Science
Department of Home Science
University of Delhi

Course Credit Structure-CBCS
2018

The department of home science offers master's programme in Fabric & Apparel Science. The programme equips the students with an understanding of design and technology in Fabric and Apparel along with an appreciation of our rich textile culture. The programme strives to build a cadre of professionals in the area of Fabric and Apparel Science. The courses are pitched at providing a strong theoretical base along with skill enhancement through hands-on training. The course aims to provide knowledge of the latest technological advances in textile and apparel sector as well as sensitize students towards the rich textile heritage, crafts and community. The curriculum provides experiential training to students for professional and career readiness with the right skill set needed in a competitive market scenario.

Programme Specific Objectives:

- To inculcate a close awareness of the current trends, new developments and technological change in textiles & clothing field
- To foster appreciation of the tradition and heritage of textiles of the past and draw inspiration for the present
- To provide depth, scope and professional competency through formal and informal education programmes for continued professional growth
- To equip individuals with the knowledge and skills necessary for creative, managerial and technical careers and entrepreneurship
- To contribute towards the economy of the country through research and development

Programme Specific Outcomes:

Students of Master's program in Fabric and Apparel Science, after graduation, will be able to:

- Understand the current processes and trends, new developments and technological changes in the field of textiles and apparel.
- Identify and appreciate the historic textiles and costumes of the world and draw inspiration for the present
- Apply creative, managerial and technical skills for careers and entrepreneurship in the field of apparel and textiles.
- Understand and apply tools and methods of research and statistics for conducting research in the subject area.
- Apply their knowledge and skills and reach out to the community for their capacity building.

COURSE CREDIT SCHEME

Total Credits: 100

Total No. of Core Papers: 15

Total No. of Electives: 05

Total No. of Open Electives: 01

Semester	Core Courses			Elective Course			Open Elective Course			Total Credits
	No. of papers	Credits (L+T/P)	Total Credits	No. of papers	Credits (L+T/P)	Total Credits	No. of papers	Credits (L+T/P)	Total Credits	
I	4	16L+4T/P	20							20
II	5	12L+12 T/P	24							24
III	5	8L+ 8P	16	2	8L+ 4P	12	1	4	4	32
IV	1	6	6	3	12L +6P	18				24
			66			30			4	100

*** Student must clear 100 credits.**

SEMESTER I				
Number of core courses	Credits in each core course			
Course	Theory	Practical	Tutorial	Credits
Core course 1 CC101: Research Methods	4			4
Core course 2 FASCC102: Advanced Fabric Science and Quality Control	4	2		6
Core course 3 FASCC103: Garment Manufacturing Technology	4	2		6
Core course 4 FASCC104: Historic Textiles	4			4
Total credits in core course	20			
Total credits in Semester I	20			
SEMESTER II				
Number of core courses	Credits in each core course			
Course	Theory	Practical	Tutorial	Credits
Core course 5 CC205: Statistics and Computer Applications	4	2		6
Core course 6 FASCC206: Textile Finishing and Evaluation	4	2		6
Core course 7 FASCC207: Advanced Computer Aided Design		4		4
Core course 8 FASCC208: Fashion Merchandise and Retail	4			4
Core course 9 Integrated Practical FASCC209: Advanced Pattern Making and Garment Construction		4		4
Total credits in core course	24			
Total credits in Semester II	24			

SEMESTER III				
Number of core courses	Credits in each core course			
Course	Theory	Practical	Tutorial	Credits
Core course 10 FASCC310: Historic Costume	4			4
Core course 11 FASCC311: Dyeing, Printing and Colour Measurement	4			4
Core course 12 Integrated Practical FASCC312: Dyeing, Printing and Colour Measurement		4		4
Core course 13 FASCC313: Internship		2		2
Core course 14 FASCC314: Dissertation I: Technical Writing and Seminar		2		2
Total credits in core course	16			
Number of elective courses	Credits in each Elective course			
Credits in each elective course	Theory	Practical	Tutorial	Credits
Elective course 1	4	2		6
Elective course 2	4	2		6
Total credits in elective courses	12			
Number of Open Electives	Credits in each open elective			
	Theory			Credits
Open Elective	4			4
Total credits in open elective	4			
Total credits in Semester III	32			

Elective Courses: Select any two of the following:

- FASEC31-Extension and Economic Empowerment
- FASEC32- Psychology of Fashion
- FASEC33- Women's Wear
- FASEC34- Sustainability in Textiles and Fashion Industry
- FASEC35-Marketing Management

Open Elective Courses for Semester III - Select any one of the following:

- FNOE31 : Community Nutrition Assessment
- HDCSOE31 : Parenting & High Risk Infants

- DCEOE31 : Communication Processes and Techniques
- RMDAOE31 : Entrepreneurship & Innovation
- FASOE31: Fabric Study

SEMESTER IV				
Number of core courses	Credits in each core course			
Course	Theory	Practical	Tutorial	Credits
Core course 15 FASCC414: Dissertation II /Experiential Learning Project		6		6
Total credits in core course	6			
Number of elective courses	Credits in each Elective course			
Credits in each elective course	Theory	Practical	Tutorial	Credits
Elective course 3	4	2		6
Elective course 4	4	2		6
Elective course 5	4	2		6
Total credits in elective courses	18			
Total credits in Semester IV	24			

Elective Courses: Select any three of the following:

- FASEC41-Children's Wear
- FASEC42-Functional Clothing
- FASEC43- Textiles for Home and Hospitality
- FASEC44- Technical Textiles
- FASEC45- Textile Conservation
- FASEC46- Fashion Communication
- FASEC47- Commercial Laundry Practices

SEMESTER I

CC101: RESEARCH METHODS THEORY

Marks : 100

Duration: 3 Hrs.

Course objectives:

To provide students understandings about the basic concepts, approaches and methods in conducting research thereby enabling them to appreciate and critique the nuances of designing a research study as well the ethical dimensions of conducting researches.

Course Learning Outcomes:

Student will be able to -

1. Demonstrate knowledge of the scientific method, purpose and approaches to research
2. Compare and contrast quantitative and qualitative research
3. Explain research design and the research cycle
4. Prepare key elements of a research proposal
5. Explain ethical principles, issues and procedures

CONTENTS

PERIODS

UNIT I: Purpose of research

10

- Definition, objectives and significance of research
- Types of research
- Scientific method: induction and deduction
- Research approaches: quantitative, qualitative and mixed
- Issues of relevance and cultural appropriateness

UNIT II: Principles of Research in quantitative and qualitative approaches

30

Research design

- Meaning and need of research design
- Components and types of research design
- Issues in design construction

Sampling, methods

- Concept of sampling, key differences in the two approaches
- Sampling methods, sample size and sampling error
- Selecting participants and contexts to examine social phenomenon

Data collection and analyses

- Methods and measurement: Measurement in research, scales and errors in measurement , reliability and validity of measurement tools
- Methods of data collection and types of data
- Immersion, deep engagement, triangulation and reflexivity in qualitative data collection
- Data management and quality control
- Transcription in qualitative data analyses
- Errors in inference – Bias and confounding, reliability and validity issues

- Ensuring reliability and validity in qualitative research

UNIT III : The Research Cycle

12

- Systematic literature review and referencing
- Formulating a research problem –Developing research questions and objectives, exploring research context/phenomenon
- Identifying variables, constructing hypotheses
- Deciding research approach and design
- Selection of sample/participants, choice of methods and analysis.
- Writing a research report-Styles and format.

UNIT IV: Values, Social Responsibility and Ethics in Research

8

- Ethical principles guiding research: from inception to completion and publication of research
- Ethical issues relating to research participants and the researcher
 - Rights, dignity, privacy and safety of participants
 - Informed consent, confidentiality anonymity of respondents, voluntary participation, harm avoidance
 - Conflicts of interest or bias, Use of inappropriate research methodology, Incorrect reporting, misuse of information

Teaching Plan:

Week 1: Definition, objectives and significance of research

Week 2: Types of research, Scientific method: induction and deduction

Week 3: Research approaches: quantitative, qualitative and mixed. Issues of relevance and cultural appropriateness

Week 4: Meaning and need of research design; types of research design, issues in design construction

Week 5: Concept of sampling, key differences in the two approaches, Selecting participants and contexts to examine social phenomenon

Week 6: Sampling methods, Sample size and sampling error

Week 7: Measurement in research, scales and errors in measurement, reliability and validity of measurement tools

Week 8: Methods of data collection and types of data, Immersion, deep engagement, triangulation and reflexivity in qualitative data collection

Week 9: Data management and quality control; Transcription in qualitative data analyses

Week 10: Errors in inference – Bias and confounding, reliability and validity issues; Ensuring reliability and validity in qualitative research

Week 11: Research Cycle and writing research report

Week 12: Ethics in Research

Facilitating the achievement of Course Learning Outcomes:

Unit No.	Course Learning Outcomes	Teaching and Learning Activity	Assessment Tasks
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1.	Demonstrate knowledge of the scientific method, purpose and approaches to research.	Unit transaction through power point presentations,	Assignments, Open book test
2.	Compare and contrast quantitative and qualitative research	Unit transaction through power point presentations and classroom discussion about review and critique of journal articles	Quizzes and objective test
3.	Explain research design and the research cycle	Unit transaction through power point presentations and classroom discussion using research case studies	Assignments, Open book test
4.	Prepare key elements of a research proposal	Unit transaction through power point presentations Students to develop a live research project in groups	Assignments, Open book test Assessment of live project
5	Explain ethical principles, issues and procedures	Unit transaction through power point presentations and classroom discussion about research proposals	Class assignments and quizzes

Suggested Readings:

- Aschengrau A, Seage III GR. (2014) *Essentials of Epidemiology in Public Health*. (Third Edition). Sudbury, MA: Jones & Bartlett.
- Bell, J. (1999). *Doing your research project: Guide for first time researchers in social sciences*. New Delhi: Viva Books.
- Bernard, H. R. (2000). *Social research methods: Qualitative and quantitative approaches*. Thousand Oaks, CA.: Sage.
- Blaxter, L. Hughes, C., & Tight, K. (1999). *How to research*. New Delhi: Viva Books.
- Bryman, A. (2008). *Social research method*. Oxford: Oxford University Press.
- Creswell, J. W. (2009). *Research design: Qualitative, quantitative, and mixed methods approaches*. Thousand Oaks, CA: Sage Publications.
- Denscombe, M. (1999). *The good research guide for small-scale social research projects*. New Delhi: Viva Publications.
- Denzin, N. and Lincoln, Y. (Eds.) 2005. *The Sage handbook of qualitative research*. London: Sage.
- Kerlinger, F. N, & Lee, H. B. (2000). *Foundations of behavioral research*. Belmont, Calif.: Wadsworth.
- Gordis L. (2013) *Epidemiology*. (Fifth Edition). Philadelphia, PA: Saunders Elsevier

- Miles, M. & Huberman, M. (1994). *Qualitative data analysis: An expanded sourcebook*. London: Sage.
- Rothman K. (2002) *Epidemiology – An Introduction*. New York. NY: Oxford University Press.

FASCC102: ADVANCED FABRIC SCIENCE AND QUALITY CONTROL THEORY

Marks: 100

Duration: 3 Hrs.

Course Objectives:

To provide students with the knowledge of the structure, production and properties of natural and synthetic fibers and to familiarize them with the various yarn and fabric production techniques. To learn about the various standards, quality marks and labels in textiles and to understand the process of assurance of quality in textiles.

Course Learning Outcomes:

Students will be able to-

1. Understand the structure and production techniques of various natural and manmade fibers and their physical properties.
2. Understand the various conventional and non-conventional techniques of yarn spinning.
3. Demonstrate an understanding of various types of fabric forming methods.
4. Gain understanding of quality parameters for fibre, yarn and fabrics.
5. Develop understanding of standards and regulations and quality control organization.
6. Acquire skills to inspect, manage and control quality in the textile industry.

CONTENTS

PERIODS

Unit I: Fibre: Structure and Properties

16

- Natural fibers- Cotton, Bast fibers, Silk, Wool
- Man-made fibers- Rayon, Acetate, Nylons, Aramids, Polyester, Acrylic, Modacrylic, Olefins, Elastomeric, Carbon fiber, Glass fiber
- Relationship of polymer structure to physical properties of fibres and fibre quality: Tensile strength, Moisture, Thermal, Optical and Electrical

Unit II: Yarn: Production and Properties

6

- Conventional and non-conventional spinning methods
- Yarn properties and their implications on quality: Fineness, Evenness, Yarn count, Yarn crimp, Yarn twist

Unit III: Fabric Construction

18

- Weaving
 - Yarn preparation for weaving

- Types of Loom
- Weaving operations
- Design interpretation and representation- draft and peg plan
- Knitting
 - Yarn preparation for knitting
 - Knitting process and machines
 - Knit fabric stitches
 - Knitted fabric classification: Warp and Weft knits
 - Techniques for knitwear production- fully-cut, fully-fashioned and integral.
- Non-woven
 - Production of non-woven
 - Types of non-woven fabrics and their properties
 - Application in various sectors- apparel and industrial
- Fabric Properties and Quality
 - Performance properties – Strength, Dimensional Stability, Drape, Abrasion Resistance, Pilling, Creasing, Bending and Flammability
 - Fabric defects- Woven and Knitted

UNIT IV: Quality Control in Textiles: Concept, organizations, standards and regulations

4

- Concept and scope of quality in fabrics and apparel
- Organisations: AATCC, ISO, ASTM, INDA, BIS and GINTEX
- Eco-mark, Silk mark, Wool mark, Handloom mark
- Care labels, Fibre ID label, Environment labels

UNIT V: Inspecting and managing quality

4

- Fabric Inspection procedure
- Tools for managing quality

Suggested Readings:

- Bhardwaj, S.K. and Mehta, P.V. (1998) *Managing Quality in the Apparel Industry*, New Delhi, New Age International
- Booth, J. E. (1982) *Principle of Textile Testing*, Meanness Butter worth scientific, London
- Brackenbury, T. (2005). *Knitting Clothing Technology*, Blackwell Science Publishers
- Eric, O. (1975). *Spun Yarn Technology*, Butterworth Publication.
- Gohl, E. P. G. and Vilensky, L. D. (1983) *Textile science*. Melbourne: Longman Cheshire.
- Hearle, J.W.S. and Paters, P.H. (1975) *The Physical Testing of Textile Fibres*, The Textile Institute Heinmann
- Horrock A.R. and Anand, S.C. (2000). *Handbook of Technical Textiles*, Cambridge: Woodhead Publishing.
- Kadolph, S.J. (1998) *Quality Assurance of Textiles and Apparel*, Fairchild publication

- Kothari, V.K., Behera, B.K. (1996) Quality Control in Textiles and Apparel Industry A&B, Delhi, Department of Textile Technology
- Rastogi, D. and Chopra, S. (Ed) (2017) *Textile science*, India: Orient Black Swan Publishing Limited.
- Saville, B.P. (2000) Physical Testing of Textiles, Textiles Institute
- Schwartz, P. (1979) *Fabric Forming Systems*, School of Textiles, North Carolina State University.
- Sekhri S. (2016) *Textbook of Fabric Science: Fundamentals to Finishing*, 2E, Delhi: PHI Learning Private Ltd.
- Spencer, D.J. (2005) *Knitting Technology: A Comprehensive Handbook and Practical Guide*, 4th ed. Cambridge: Woodhead Publishing.
- Stamper, Anita A. (2005) Linda B Donnell, Evaluating Apparel Quality, 2nd ed., Fairchild Publication
- Trotman, E. R. (1984) *Dyeing and Chemical Technology of Fibers*, Sixth Edition, England: Charles Griffin and Company Ltd.

Teaching Plan:

Week 1: Structure and properties of cotton, bast fibers, silk, wool

Week 2: Structure and properties of rayon, acetate, nylon and polyester and acrylic

Week 3: Structure and properties of olefins, elastomers, carbon and glass fibers

Week 4: Study of physical properties and their relation to polymer structure: Tensile strength, moisture, thermal, optical and electrical properties

Week 5: Yarn spinning: Conventional methods of spinning, Nonconventional methods of spinning

Week 6: Yarn properties, Yarn preparation for weaving, Types of looms

Week 7: Weaving operation, Draft and Peg plan

Week 8: Yarn preparation for knitting, knitting process and machines

Week 9: Types of knit stitches, warp and weft knits, Knitwear production- fully-cut, fully-fashioned and integral

Week 10: Production, properties and applications of non wovens

Week11: Quality Control in Textiles: Concept, organizations, standards and regulations

Week 12: Inspecting and managing quality;

Facilitating the Achievement of Course Learning Outcomes

Unit No.	Course Learning Outcomes	Teaching and Learning Activity	Assessment Tasks
1.	Understand the structure and production techniques of various natural and manmade fibers and their physical properties To gain understanding of quality	Unit transaction through power point presentations, videos, visit to NITRA, other textile testing labs such	Quizzes, Assignment Report of the visits and their presentation

	parameters for fibre, yarn and fabrics	as Bureau Veritas.	
2.	Understand the various conventional and non-conventional techniques of yarn spinning To gain understanding of quality parameters for fibre, yarn and fabrics	Unit transaction through power point presentations, relevant videos of spinning processes, visit to IIT, selected spinning mills in Delhi-NCR	Quizzes, Assignment Report of the visits and their presentation
3.	Demonstrate an understanding of various types of fabric forming methods To gain understanding of quality parameters for fibre, yarn and fabrics	Unit transaction through power point presentations, relevant videos of fabric forming systems, visit to selected Knitting units, IIT for weaving and types of looms	Quizzes, Assignment Report of the visits and their presentation
4.	Develop understanding of standards and regulations and quality control organization.	Presentation, group discussion and team work.	Projects, Quizzes, reports and presentations, individually and/or in groups.
5	Acquire skills to inspect, manage and control quality in the textile industry.	Unit transaction through power presentation, videos and fabric samples and Industrial visits	Case study, projects, reports and presentations, individually and/or in groups.

**FASCC102: ADVANCED FABRIC SCIENCE AND QUALITY CONTROL
PRACTICAL**

Marks: 50

Duration: 3 Hrs.

Course Objectives:

To impart the knowledge about the physical properties of textiles and their testing procedures and to develop an understanding of the principals involved in testing of performance and colour fastness properties of textile fabrics.

Course Learning Outcomes:

Students will be able to-

1. Apply the knowledge about various testing procedures at yarn stage and relate it to fabric performance properties.
2. Relate the principles of fabric testing procedures with the functional, performance, aesthetic and comfort properties of textiles and fabrics.

CONTENTS**PERIODS****Unit I: Identification of Blend Components****8**

- Terewool
- Terecot

Unit II: Yarn Testing**12**

- Yarn count
- Yarn Crimp
- Twist per inch

Unit III: Fabric Testing**28**

- Tensile strength
- Tear strength
- Bursting strength
- Fabric drape
- Bending length
- Crease recovery
- Abrasion resistance

Suggested Readings:

- Booth, J. E. (1964) *Principle of textile testing an introduction to physical methods of testing textile fibers, yarns, and fabrics*. 2nd Edition. London: Meanness Butterbroths.
- Hearle J.W.S. & Peters R.H. (1975). *The Physical Testing of Textile Fibers*. Heinmann : The Textile Institute.
- Saville, P. B. (1999) *Physical testing of textiles*. Cambridg: Woodhead Publishing Limited.
- Skinkle, J.H. (1940) *Textile Testing*. New York: Chemical Publishing Co. Inc. Brooklyn.

**FASCC103: GARMENT MANUFACTURING TECHNOLOGY
THEORY****Marks: 100****Duration: 3 Hrs.****Course Objectives:**

The students will be able to familiarize with the functioning of the garment industry, its various processes and technical parameters in garment production. It will enhance awareness of sewn

product, machinery and equipment and prepare the students for work around the garment industry.

Course Learning Outcomes:

1. Knowledge of garment industry, structure and functioning
2. Knowledge related to processes before, during and after production
3. Familiarity with various machines, tools and equipment used in garment industry
4. Understand various materials and components of garment production

CONTENTS	PERIODS
UNIT I: Garment Industry	10
<ul style="list-style-type: none"> • Overview of the garment industry • Main sectors of the garment industry • Standards and specifications • Production capacity • Time and motion study- Introduction, effect of time and motion study on productivity in garment sector • Work-in-progress 	
UNIT II: Pre-production Processes	10
<ul style="list-style-type: none"> • Recording measurements • Pattern making • Sampling • Fabric development and sourcing • Production planning & control • Preparation of specification sheet/Tech-pack 	
UNIT III: In-Production processes, Machines, Equipment and Work-aids	16
<ul style="list-style-type: none"> • Marker-making- planning, production, efficiency, methods of making • Spreading of fabric- requirements, methods, nature of fabric packages • Cutting – objective, methods and tools • Preparation before cutting- fusing, ticketing and bundling- purposes and types • Fusing- advantages, requirements, processes, equipment, methods and quality control • Stitch types-suitability and usage • Seam types-suitability and usage • Types of sewing machines- Basic lock stitch, chain stitch and over lock machines (Parts, function and sewing defects and remedies) • Special purpose machines- blind stitch, bar tack, button sewing and button holes • Types of sewing Needles • Types of sewing Threads • Feed system in sewing machines • Feed Dogs • Machine beds • Machine tables • Work chairs 	

- Bundle clamps
- Stackers
- Various machine attachments
- Handling various specialty fabrics
- Alternative methods of joining material: welding and moulding

UNIT IV: Post-production processes

12

- Evaluating the quality and fit of various garment components; sleeves, collars, cuffs, plackets, darts, seams, pleats, gathers, flares tucks, fasteners, belts, yokes, pockets and neckline, waistbands, fasteners, hemlines, slits, vents, darts and pleats.
- Garment finishing-Thread trimming, stain removal, cleaning, dry-cleaning, pressing, checking, folding and packing, shipment inspection
- Warehousing- handling equipment, storage equipment, packaging equipment, transportation issues

Suggested Readings:

- Brown, Patty and Rice Janett (1998) Ready to Wear Apparel Analysis(2nd Edition), Prentice Hall.
- Carr, H and Latham, B (1984) The Technology of Clothing Manufacture, Blackwell Scientific Publication.
- Cooklin. G., (2000) Introduction to Clothing Manufacture, Blackwell Scientific Publication.
- Glock And Kuntz, (1995) Apparel Manufacturing – Sewn Product Analysis.
- NITRA TABLETS, (2006) NITRA.
- Stamper, Sharp and Donnell, (1991), Evaluating Apparel Quality (2nd edition), Fairchild publications

Teaching Plan:

Week 1: Overview of the garment industry, main sectors of the garment industry and standards and specifications

Week 2: Production capacity, Time and motion study- Effect of time and motion study on productivity in garment sector

Week 3: Work-in-progress, pattern making processes in the industry

Week 4: Sampling, fabric development and sourcing

Week 5: Production planning & control, preparation of specification sheet/Tech-pack

Week 6: Marker-making- planning, production, efficiency, methods of making, spreading of fabric- requirements, methods, nature of fabric packages

Week 7: Cutting – objective, methods and tools, preparation before cutting- fusing, ticketing and bundling- purposes and types, Fusing- advantages, requirements, processes and equipment, methods and quality control

Week 8: Stitch types-suitability and usage; Seam types-suitability and usage, types of sewing machines- Basic lock stitch, chain stitch and over lock machines- (Parts, function and sewing defects and remedies)

Week 9: Special purpose machines- blind stitch, bar tack, button sewing and button holes types of sewing needles, threads, feed system in sewing machines, feed dogs, machine beds, machine tables, work chairs, bundle clamps, stackers, Various machine attachments; Handling various speciality fabrics; Alternative methods of joining material: welding and moulding

Week 10: Evaluating apparel quality- garment components

Week 11: Garment finishing -Thread trimming, stain removal, cleaning, dry-cleaning, pressing, checking, folding & packing, shipment inspection,

Week 12: Warehousing- handling equipment, storage equipment, packaging equipment, transportation issues

Facilitating the Achievement of Course Learning Outcomes:

Unit No.	Course Learning Outcomes	Teaching and Learning Activity	Assessment Tasks
1.	Knowledge of garment industry, structure and functioning	Powerpoint presentation	Test/Quiz
2.	Knowledge related to processes before, during and after production	Powerpoint presentation, industrial visits	Visit Reports
3.	Familiarity with various, machines, tools and equipment used in garment industry	Powerpoint presentation, industrial visits	Visit Reports
4.	Acquaintance with materials such as: Fabrics, threads, needles and components such as: seams stiches, sleeves, cuffs collars and plackets etc.	Powerpoint presentation, industrial visits, industrial fairs visit	Assignment/ visit reports

FASCC103: GARMENT MANUFACTURING TECHNOLOGY PRACTICAL

Marks: 50

Duration: 3 Hrs

Course Objectives:

To develop skills in design and development for making patterns for garment using flat pattern method, grading them to different sizes and learning the processes involved in construction of garments for women. To also successfully cut and sew a whole garment.

Course Learning Outcomes:

1. Measure and record measurements accurately
2. Style read a design and break it down into various components
3. Develop relevant patterns for a garment design
4. Judge fit of basic garments
5. Successfully sew basic fitted garments

CONTENTS

PERIODS

UNIT I: Basic patterns

8

- Drafting basic blocks- bodice, sleeve, skirt

UNIT II: Style creation through flat pattern making

20

- Creating styles in bodices (dart manipulation)
- Creating variations in sleeves (set-in sleeve variations and all-in one sleeves)
- Creating variations in collars (peter-pan variations, mandarin and basic shawl collar)
- Creating styles in skirts (A-line, basic flared, gathered)
- Creating patterns for other garment components: pockets, plackets, waistbands, belts, slits, vents, frills ruffles godets, gussets, peplums

Unit III: Marker planning, cutting and garment construction processes

20

- Construction of samples of plackets and pockets(Patch pocket and Inseam pocket)
- Marker plan for any one dress in at least three sizes
- Construction of the following- Saree blouse, bodices with various sleeves and collars variation and plackets, fitted skirt with waistband

Suggested Readings:

- Armstrong, Helen Joseph., (2013). *Draping for Apparel Design*, 3rd Edition, ISBN-13:9781609012403, Publisher: Bloomsbury Academic.
- Armstrong, Helen Joseph. (2000). *Pattern Making for Fashion Design*, 4thed.
- Pearson Crawford Connie Amaden. (1989). *The Art of Fashion draping*, 2nded. New York: Education Ptc. Ltd. Fairchild Publications.
- Jaffe Hilde and Nuric Relic. (1993) *Draping for Fashion Design*, New Jersey: Fashion Institute of Technology.

**FASCC104: HISTORIC TEXTILES
THEORY**

Marks: 100

Duration: 3 Hrs.

Course Objective:

The course aims to create awareness and foster appreciation of textile techniques and developments in the world that describes the history of human acumen.

Course Learning Outcomes:

1. Understand key techniques in the textile history and apply these to the identification of textiles
2. Understand the beginnings of the textile industry in ancient civilizations.
3. Recognize and appreciate the design effects in textile masterpieces of the world.
4. Analyze the social, cultural milieu and technological advancements as communicated by textiles
5. Gain awareness of art movements

CONTENTS

PERIODS

UNIT 1 : Development of tools and techniques of production with respect to different civilizations and nations	8
<ul style="list-style-type: none"> • Felt and bark cloth • Plaiting and basketry • Spinning • Weaving • Tapestry and rug weaving • Knitting • Netting knotting and crochet • Embroidery • Dyeing and printing 	
UNIT II: Beginnings of the textile industry in ancient civilizations	10
<ul style="list-style-type: none"> • Mesopotamia • Egypt • Persia • Greece • Rome • China • India 	
UNIT III: Study of master pieces of world textiles Part I: Structural designs	12
(With respect to history, construction techniques, styles colors, motifs and centre of production)	
<ul style="list-style-type: none"> • Brocades (China, India, Persia, Byzantium, Spain, Italy and France) • Tapestries (Greece, Coptic, Europe, Peru) • Carpets and flooring (middle and Far East) • Shawls (India, England, France) • Laces (Europe) • Linen damasks (Ireland and Belgium) 	
UNIT IV: Study of master pieces of world textiles Part II: Applied design	12
(With respect to history, construction techniques, styles colors, motifs and centre of production)	
<ul style="list-style-type: none"> • Resist dyed fabrics (India, Indonesia and Japan) • Printed textiles (India, France and England) • Embroideries (China, Persia and England) 	

UNIT V: Art and Craft Movements

6

- Influence of Art Movements on textile design
- Art Deco, Art Nouveau, Bauhaus, Cubism, Futurism, Fauvism

Suggested Readings:

- Annemarie Seiler- Baldinger (1979) *Classification of Textile Techniques*, Ahmedabad, India, Calico Museum of India.
- Gillow John and Sentence Bryan (1999) *World Textiles*, London, Thames And Hudson
- Ginsburg, Madeleine (Ed)(1993) *Illustrated history Of Textiles*, London Studio Edition.
- Harris, Jennifer (Ed)(1993)*Textiles- 5000 Years*, London, British Museum Press.
- Lewis,E.(1953) *Romance Of Textile*, New York,, The McMillan Company

Teaching Plan:

Week 1: Development of tools and techniques of production of the following with respect to different civilizations and nations - Felt and bark cloth, Plaiting and basketry, Spinning and Weaving

Week 2: Development of tools and techniques of production of the following with respect to different civilizations and nations. Tapestry and rug weaving, Knitting, Netting, Knotting and Crochet, Embroidery and Dyeing and Printing

Week 3, 4, 5 : Beginnings of the textile industry in ancient civilizations- Mesopotamia, Egypt and Persia , Greece, Rome, China and India

Week 6:Study of Master pieces of World textiles Part I: Structural Design (With respect to history, construction techniques, styles, colors, motifs and center of production) BrocadesofChina, India, Persia, Byzantium, Spain, Italy and France

Week 7: Tapestries of Greece, Coptic, Europe, Peru

Week 8: Carpets and flooring of Middle and Far East

Week 9 : Shawls of India, England, France, Laces of Europe, Linen damasks of Ireland and Belgium

Week 10: Study of master pieces of world textiles part II: Applied Design, Resist dyed fabrics of India, Indonesia and Japan, Printed textiles of India, France and England

Week 12: Embroideries of China, Persia and England and Study of Art and Craft Movements - Influence of Art Movements on textile design and types- Art Deco, Art Nouveau, Bauhaus, Cubism, Futurism, Fauvism

Facilitating the Achievement of Course Learning Outcomes:

Unit No.	Course Learning Outcomes	Teaching and Learning Activity	Assessment Tasks
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1.	Understand key techniques in the textile history and apply these to the identification of textiles	Power point presentation and lecture and videos	Test, Assignment
2	Understand the beginnings of the textile industry in ancient civilizations.	Power point presentation and lectures	Quiz, Assignments
3	Study of master pieces of world textiles - Structural designs	Power point presentation and lecture, Visit to museum	Presentations, Test, Report of visit
4.	Study of master pieces of world textiles - Applied science	Power point presentation and lecture, Visit to museum	Report of visit, Presentations
5	Art and Craft Movements	Power point presentation and lecture	Test, Assignment

SEMESTER II

**CC205: STATISTICS AND COMPUTER APPLICATIONS
THEORY**

Marks: 100

Duration: 3 Hrs.

Course Objectives:

To understand the basic concepts, theories and methods in statistics, learn basic statistical procedures for research and understand applications of statistical techniques for analysis and interpretation

Course Learning Outcomes:

Student will be able to-

1. Differentiate between the qualitative and quantitative methods of analysis of data
2. Suitably apply data reduction strategies and illustrate data using various graphical methods
3. Use appropriate parametric and non parametric statistical tests
4. Draw conclusions and interpretations from the analysis of data using various statistical softwares

CONTENTS

PERIODS

UNIT I: Introduction to statistics

4

- Basic principles and concepts in statistics
- Orientation to qualitative and quantitative research procedures
- Measurement and computation- Scales of measurement, Reliability and validity

UNIT II: Organisation and presentation of data

10

- Qualitative and quantitative data- Coding & data reduction strategies
- Organisation of Data: Frequency distributions vs. thematic analysis
- Percentage, percentile ranking and frequencies
- Univariate, bivariate and multivariate tables
- Graphic representation: Graphs, diagrams and charts

UNIT III: Descriptive Statistics

6

- Applications of descriptive statistics
- Measures of Central tendency and Variability

UNIT IV: Probability and normal distribution

12

- Basic principles and applications of probability
- Normal curve
- Characteristics of distributions: Skewness, kurtosis
- Testing hypotheses: Levels of significance and p values
- Errors in hypothesis testing: Type I, Type II
- Sampling distribution
- Standard scores, calculation and application

UNIT V: Statistical tests

12

- Concept of parametric and non-parametric tests, statistical tests and level of measurement
- Parametric tests of difference: T test, ANOVA and post hoc analysis of significance
- Parametric tests of association: Pearson's product moment r
- Non-parametric tests of difference: Mann-Whitney, Sign, Median, and Kruskal-Wallis
- Non-parametric tests of association: Spearman's r
- Chi-square test
- Regression and its applications
- Tests for ascertaining reliability of instruments

UNIT VI: Analysis and interpretation

4

- Guidelines for selecting an appropriate test
- Interpreting results- Statistical inference
- Research Conclusion and recommendations

Suggested Readings:

- Agresti, A. & Franklin C.A. (2009) *Statistics: The Art and Science of Learning from Data* (Second Edition) Boston, MA: Pearson Prentice Hall, ISBN 978-0-13-513199-2
- Bernard, H.R. (2000). *Social Research Methods: Qualitative and Quantitative Approaches*. Thousand Oaks, CA: Sage.
- Black, J.A. and Champion, D.J. (1976). *Methods and Issues in Social Research*. New York: John Wiley and Sons.
- Blaxter, L., Hughes, C, and Tight, K. (1999). *How to Research*. New Delhi: Viva books.
- Diez, D. M., Barr, C. D., Cetinkaya-Rundel M. (2015). *OpenIntro Statistics*:((Third Edition). CreateSpace Independent Publishing Platform. ISBN-10: 194345003X, ISBN-13: 978-1943450039 <http://www.openintro.org/stat/textbook.php>.
- Elmes, D.G., Kanowitz, B.H. and Roediger, H.L. (1989). *Research Methods in Psychology* (Third Edition). New York: West Publishing Company.
- Fowler, F.J. (1988). *Survey Research Methods. Applied Social Research Methods Series, Vol. 1*. Newbury Park, CA: Sage.
- Greene, S. and Hogan, D. (Eds.). (2005). *Researching Children's Experiences: Methods and Approaches*. London: Sage.
- Gordis L. (2013) *Epidemiology*. (Fifth Edition). Philadelphia, PA: Saunders Elsevier,
- Minium, E. W., King, B. M., & Bear, G. (1995/2004). *Statistical Reasoning for Psychology and Education*. New York: Wiley and Sons.
- Muijs, D. (2004). *Doing Quantitative Research in Education with SPSS*. London: Sage.

Teaching plan:

Week 1: Basic principles and concepts in statistics, Orientation to qualitative and quantitative research procedures, Scales of measurement, Reliability and validity

Week 2: Qualitative and quantitative data- Coding and data reduction strategies, Organisation of Data: Frequency distributions vs. thematic analysis

Week 3: Percentage, percentile ranking and frequencies, Univariate, bivariate and multivariate tables

Week 4: Graphic representation: Graphs, diagrams and charts, Applications of descriptive statistics

Week 5: Measures of Central tendency and Variability

Week 6: Basic principles and applications of probability ,Normal curve

Week 7: Characteristics of distributions: Skewness, kurtosis,Testing hypotheses: Levels of significance and p values

Week 8: Errors in hypothesis testing: Type I, Type II,sampling distribution standard scores, calculation and application

Week 9: Concept of parametric and non-parametric tests, statistical tests and level of Measurement, Parametric tests of difference: T test, ANOVA and post hoc analysis of significance

Week 10: Parametric tests of association: Pearson’s product moment r, Non-parametric tests of difference: Mann-Whitney, Sign, Median, and Kruskal-Wallis

Week 11: Non-parametric tests of association: Spearman’s r,Chi-square test,Regression and its applications,Tests for ascertaining reliability of instruments

Week 12: Guidelines for selecting an appropriate test, Interpreting results- Statistical inference, Research Conclusion and recommendations

Facilitating the achievement of Course Learning Outcomes:

Unit No.	Course Learning Outcomes	Teaching and Learning Activity	Assessment Tasks
1.	Understand the basic concepts, theories and methods in statistics and Differentiate between the qualitative and quantitative methods of analysis of data	Unit transaction through power point presentations,	Assignments, Open book test
2.	Suitably apply data reduction strategies and illustrate data using various graphical methods	Unit transaction through power point presentations and classroom discussion	Quizzes and objective test
3.	Learn basic statistical procedures for research	Unit transaction through power point presentations and classroom discussion	Assignments, Open book test
4.	Learn basic statistical procedures for research	Unit transaction through power point presentations and classroom discussion	Assignments, Open book test
5	Use appropriate parametric and non-parametric statistical tests	Unit transaction through power point presentations and classroom discussion	Class assignments and quizzes
6	Draw conclusions and interpretations from the analysis of data	Unit transaction through power point presentations and classroom discussion	Assignments, Open book test

**CC205: STATISTICS AND COMPUTER APPLICATIONS
PRACTICAL**

Marks: 50

Duration: 3 Hrs.

Course Objectives:

To understand the basic concepts, theories and methods in statistics, learn basic statistical procedures for research and understand applications of statistical techniques for analysis and interpretation

Course Learning outcomes:

Student will be able to-

1. Identification of various types of data measurement tools/tests/procedures and understanding the concept of standardisation and reliability and validity.
2. Application of various data reduction and coding methods on quantitative and qualitative data.
3. To be able to organise the data and effectively use appropriate quantitative and qualitative statistical softwares for analysis of data
4. Draw conclusions and interpretations from the analysed data and write reports.

Teaching plan:

Week 1, 2 and 3 - Review of Measurement tools/tests/procedures: Standardisation, Reliability, Validity

Week 4 and 5 - Data reduction strategies and Coding of quantitative and qualitative data

Week 6, 7, 8 and 9 - Analysis of data using appropriate statistical software (, Qualitative and quantitative open source software)

Week 10 - Data Visualization

Week 11 and 12 - Data Interpretation and report writing

Facilitating the achievement of Course Learning Outcomes:

Unit No.	Course Learning Outcomes	Teaching and Learning Activity	Assessment Tasks
1	Week 1 & 2 Identification of various types of data measurement tools/tests/procedures and understanding the concept of standardisation and reliability and validity	Standard tools/test methods and procedures will be reviewed to understand concepts of reliability and validity	Standardised tools will be given to students and activities will be planned to understand the concept of standardisation and determination of reliability and validity
2	Week 3 Introduction to computer tools and software in statistical analysis	Open source and other software for quantitative and qualitative data	Students gets familiarized with basic functions and tools of any statistical

		analysis will be reviewed and students will be made familiar about their use	software
3	Week 4 and 5 Application of various data reduction and coding methods on quantitative and qualitative data.	Data collected using standard measurement tools will be organised using appropriate data reduction strategies and coded	Data organisation through spread sheets – manually and using computers. Display of data using graphical representation methods. Data is collected, coded and formulates tables using appropriate software
4	Week 6,7 8 and 9 To be able to organise the data and effectively use appropriate quantitative and qualitative statistical softwares for analysis of data	Data analysis using suitable quantitative and qualitative software	Assignments to be planned using statistical software for Data entry and its analysis. Use of statistical test for analysis
5	Week 10, 11 and 12 Draw conclusions and interpretations from the analysed data and write reports	Data interpretation and Report writing	Assignments on interpretation of the analysed data Statistical conclusion and Research conclusion

**FASCC206: TEXTILE FINISHING AND EVALUATION
THEORY**

Marks: 100

Duration: 3 Hrs.

Course Objectives:

To course aims to impart knowledge and understanding of the chemistry, mechanism and application process of various textile finishes. It aims to enhance the awareness of future trends in textile finishing.

Course Learning Outcomes:

1. Understand the methods of application of finishes on different textile substrates
2. Describe the preparatory finishes for various fabrics.

3. Understand the chemistry and mechanism of action of application of various finishes.
4. Gain awareness of new advancements in the area of finishing.

CONTENTS	PERIODS
UNIT I: Chemical Properties of Textile Fibres	4
<ul style="list-style-type: none"> • Effect of acids, alkalis, reducing and oxidizing agents, Effect of microorganism, sunlight, etc. 	
UNIT II: Application of Finishes	6
<ul style="list-style-type: none"> • Methods of application- practices and suitability • Requirement for different substrates 	
UNIT III: Finishes - Preparatory Processes	10
<ul style="list-style-type: none"> • Cellulosic- desizing, scouring, bleaching, mercerization • Protein- degumming, weighting, dewaxing, scouring, bleaching, carbonising, milling • Man-made- scouring, bleaching, heat setting 	
UNIT IV: Finishes –Aesthetic	12
Chemistry, method of application and evaluation	
<ul style="list-style-type: none"> • Softening and stiffening finishes • Optical brightening agents • Enzymatic finishes- bio-polishing, stone wash, sand wash etc. • Special calendaring • Special effect finishes (Sueding, Peaching, Artificial leather finish) 	
UNIT V: Finishes – Functional	12
Chemistry, method of application and evaluation	
<ul style="list-style-type: none"> • Water repellent finishes • Soil and stain repellent finishes • Setting finishes (Sanforisation, crabbing, heat setting) • Anti-crease/ durable press finishes • Anti-static finishes • Flame retardant finishes • Anti-microbial finishes • Moth proofing • UV protective finishes • Super hydrophobic finish-Lotus leaf effect • Coating and lamination 	
UNIT VI: Innovations in Textile Finishing	4
<ul style="list-style-type: none"> • Ecological concerns and eco-friendly processing of textiles • Microencapsulation • Nanotechnology in field of textile finishing • New developments 	

Suggested Readings:

- Marsh, J.T. (1979) *An Introduction to Textile Finishing*, Bombay: B.I. Publications.
- Rastogi, D. and Chopra, S. (Eds.) (2017) *Textile Science*, India: Orient Black Swan Publishing Limited.
- Rouette, H.K. (2001) *Encyclopedia of Textile Finishing*, Volumes 1 to 3, Berlin: Springer.
- Schindler, W.D. and Hauser, P.J. (2004) *Chemical Finishing of Textiles*, The TextileInstitute, England: Woodhead Publishing Ltd.
- Trotman, E. R. (1984) *Dyeing and Chemical Technology of Fibers*, Sixth Edition, England: Charles Griffin and Company Ltd.
- Sekhri S., (2016) *Textbook of Fabric Science: Fundamentals to Finishing*, 2E, Delhi: PHI Learning, Private Ltd.
- Vigo, T. L. (1994) *Textile Processing and Properties, Preparation, Dyeing, Finishing and Performance*, Amsterdam: Elsevier Science B.V.

Teaching Plan:

Week 1: Chemical Properties of fibres, Methods of application of textile finishes

Week 2: Requirement of different substrates for finish application

Week 3: Preparatory finishes for cellulosic fibers

Week 4: Preparatory finishes for protein fibers

Week 5: Preparatory finishes for man-made fibers, Softening finish

Week 6: Softening finish, stiffening finishes, Optical brightening agents

Week 7: Enzymatic finishing, Special Calendaring

Week 8: Sueding, Peaching, Artificial leather, Water repellent finishes

Week 9: Soil and stain repellent finishes, Setting finishes, Durable press finishes

Week 10: Anti-static finishes, Flame retardant finishes, Anti-microbial finishes

Week 11: Moth proofing, UV protective finishes, Super hydrophobic finish, Coating and lamination

Week 12: Innovations in textile finishing

Facilitating the Achievement of Course Learning Outcomes:

Unit No.	Course Learning Outcomes	Teaching and Learning Activity	Assessment Tasks
1.	Chemical Properties of textile fibres	Unit transaction through audio-visual presentations, videos etc.	Quizzes, assignments, Open book tests
2.	Understand the methods of application of finishes on different textile substrates	Unit transaction through audio-visual presentations, videos etc.	Quizzes, assignments, Open book tests
3.	Describe the preparatory finishes for various fabrics	Unit transaction through audio-visual presentations, videos, Industrial visits.	Quizzes, assignments, Visit reports.
4.	Understand the chemistry and mechanism of action of application of various finishes	Unit transaction through projected visual explanations, fabric samples	Assignments, Open book tests, Quizzes

5.	Understand the chemistry and mechanism of action of application of various finishes	Unit transaction through projected visual explanations, fabric samples	Assignments, Open book tests, Quizzes
6.	Gain awareness of new advancements in the area of finishing.	Unit transaction through projected visual explanations, fabric samples, Industrial visits, Market surveys.	Assignments, Market survey reports

FASCC206: TEXTILE FINISHING AND EVALUATION PRACTICAL

Marks: 50

Duration: 3 Hrs.

Course Objectives:

To enable the students to successfully apply various textile finishes on different fabrics and to evaluate the effect of these finishes application on fabric properties.

Course Learning Outcomes:

1. Apply various textile finishes.
2. Evaluate the effectiveness of a textile finishing process.

CONTENTS

PERIODS

UNIT I: Application of Preparatory finishes on cellulose **34**

- Evaluation of fabrics desized with various desizing methods/agents in terms of weight loss, absorption time and wettability and appearance.
- Evaluation of fabrics scoured with various scouring methods/ agents in terms of absorption time and wettability.
- Application of various bleaching agents on different fibers and their evaluation in terms of whiteness index and strength.
- Mercerisation of cellulosic fabrics with and without tension and their evaluation in terms of dimensional stability, strength, luster and dyeability.

UNIT II: Application of finishes that alter Handle **4**

- Application of softening agents on fabrics and their evaluation in terms of bending length
- Application of stiffening agents on fabrics and their evaluation in terms of bending length.

UNIT III: Application of Functional finishes **10**

- Application of various flame retarding agents and their evaluation in terms of flaming time and char length.
- Application of suitable water repellent and oil repellent finishes on different fibers and their evaluation in terms of wettability, water and oil repellency.
- Application of anti-creasing finishes and evaluation of their efficacy in terms of crease recovery angle, tensile strength and tear strength.
- Application of Chlorination finish on wool and its effect on dimensional stability and dyeability.

Suggested Readings:

- Marsh, J.T. (1979) *An Introduction to Textile Finishing*, Bombay: B.I. Publications
- Rouette, H.K. (2001) *Encyclopedia of Textile Finishing*, Volumes 1 to 3, Berlin: Springer
- Schindler, W.D. and Hauser, P.J. (2004) *Chemical Finishing of Textiles*, The TextileInstitute, England: Woodhead Publishing Ltd.
- Trotman, E. R. (1984) *Dyeing and Chemical Technology of Fibers*, Sixth Edition,England: Charles Griffin and Company Ltd.
- Vigo, T. L. (1994) *Textile Processing and Properties, Preparation, Dyeing, Finishing and Performance*, Amsterdam: Elsevier Science B.V.

FASCC207: ADVANCED COMPUTER AIDED DESIGN**PRACTICAL****Maximum Marks: 100****Duration: 6 Hrs.****Course Objectives:**

The course aims to develop creative skills for sketching and textile design through Computer software.

Course Learning Outcomes:

1. Understand the fundamentals of design process
2. Acquire skills in drawing, editing and transformation through CorelDraw/Illustrator
3. Acquire skills in creating textile design through Adobe Photoshop
4. Use software to undertake design projects

CONTENTS**PERIODS****Unit I: Understanding of Design Process****24**

- Define problem- Client requirements
- Background Research
- Brainstorm solutions - Mind maps
- Choose solutions
- Develop work- Mood boards, Colour Board and their relations
- Selection of a theme and Develop Theme-board using cutting and pasting techniques

Unit II: Illustration through CAD - CorelDraw**36**

- Drawing, editing and transformation
- Colour, pattern, textures
- Project- Create theme based sketches with tech packs

Unit IV: Textile Design through CAD- Photoshop**36**

- Motif development and placements
- Stylizing to natural, abstract, geometric and ornamental forms
- Borders, all over, Engineered patterns

- Colour ways
- Project- Create prints based on Art movements

Teaching Plan:

Week 1: Introduction to design process, Mind maps,

Week 2: Theme board and Mood board

Week 3: Project 1

Week 4: Introduction of Corel Draw and its tools

Week 5: Sketching of fashion figure

Week 6: Dressing up and Rendering

Week7: Project 2

Week 8: Introduction to Adobe Photoshop Sketching of live object, Big n small Enlargement reduction

Week 9: Stylising motifs, placements, Borders, all over patterns and engineered designs

Week 10: Conceptualizing theme and Designing and developing designs for apparel and textile

Week 11: Project 3

Week 12: Portfolio development and presentation

Facilitating the Achievement of Course Learning Outcomes:

Unit No.	Course Learning Outcomes	Teaching and Learning Activity	Assessment Tasks
1.	Understanding of design process	Presentations Discussion	Developing theme boards Use pictures, materials available in nature, man-made materials to create a theme board Project 1
2.	Acquire skills in drawing, editing and transformation through CorelDraw/ Illustrator	Using software - CorelDraw	Sketches, Rendering, Tech packs, Project 2
3.	Acquire skills to conceptualize design and create through Adobe Photoshop	Demonstration of tools for Motif development enlargement, placements	Exercises on creation of borders, all over and engineered designs
4.	Use software to undertake design projects	Presentations and discussions	Project 3

Suggested Readings:

- Aspelund. K. (2014) *Design Process*, Fairchild - Bloomsbury Publication, 3rd Edition
- Duggal , (2000) *V. A General Guide to Computer Aided Design and Drafting* , Mailmax Publications, New York
- Grosicki, Z.J. (1989) *Advanced Textile Design (4th Ed)* - Watson's, London, Newness Butterworths
- Meller S and Eiffer. J (1991) *Textile Design*, London, Thames and Hudson
- Roojen PV (2002) *Art Nouveau Designs*, The Pepin Press- Agile Rabbit Editions, Singapore
- Wilson Eva (1994) *8000 Years of Ornament*, London, the British Museum Press
- <https://www.coreldraw.com/en/pages/800382.htm>, Corel Draw Tutorials
- <https://helpx.adobe.com/photoshop/tutorials.html>, Adobe Photoshop Tutorials
- <https://helpx.adobe.com/illustrator/tutorials.html>, Adobe Illustrator Tutorials

FASCC208: FASHION MERCHANDISE AND RETAIL THEORY

Marks: 100

Duration: 3 Hrs.

Course Objectives:

The course aims to facilitate understanding of the concepts of Merchandising and Retailing. It provides a comprehensive insight into the principles of merchandise management, assortment planning and various components of a retail store.

Course Learning Outcomes:

1. Knowledge of merchandising activities in a retail setup
2. Manage stakeholders involved in retailing

CONTENTS

PERIODS

UNIT I: Introduction to Fashion Retailing

8

- Retail environment and trends
- Global impact of retail
- Types of retailers
- Retail location
- Site selection and trade area analysis

UNIT II: Retail Promotion

8

- Tools of promotion-Advertising, Sales promotion, personal selling
- Classification and dynamics of fashion consumer
- Customer Relationship Management

UNIT III: Managing Merchandise Assortments

10

- Merchandise management planning

- Category Life Cycle
- Developing an assortment plan
- Setting inventory and product availability levels
- Merchandise planning systems
- Allocating merchandise to stores

UNIT IV: Buying Merchandise

8

- Types of brands- National or Private labels
- Buying in brands- meeting and negotiating with vendors
- Tips for effective negotiating
- Legal and ethical issues
- Buying private label merchandise

UNIT V: Retail Pricing

8

- Considerations in setting price
- Legal and ethical issues
- Setting retail prices
- Initial Mark-up and maintained Mark-up
- Pricing strategies

UNIT VI: Store Management

6

- Store Layout and design
- Visual Merchandising

Suggested Readings:

- Clark J. (2014) *Fashion Merchandising Principles and practice*, Suffolk: Lavenham press ltd.
- Diamond, J., Diamond, E. and Litt, S.D. (2006) *Fashion Retailing- A Multi- Channel Approach*: Bloomsbury Publishing Inc.
- Jain, J.N. and Singh, P.P. (2007) *Modern Marketing Management- Principles and Techniques*. New Delhi: Regal Publications.
- Kotler, P., Keller, K.L., Koshy, A. and Jha, M. (2012) *Marketing Management 14th ed.*: Pearson.
- Kunz, I. and Grace 3rd ed. (2009) *Merchandising*, New York: Fairchild publications, Inc.
- Levy, M., Weitz, B.A. and Pandit, A. (2008) *Retailing Management*, Delhi: Tata McGraw Hill Education Private Limited.
- Pegler, M. (2006) *Visual Merchandising and Display*, New York: Fairchild Publications Inc.
- Posner, H. (2015) *Marketing Fashion –Strategy, Branding and promotion*, 2nd ed., Laurence King Publishing.

Teaching Plan:

Week 1: Global Trends in Retail environment and Types of retailers

Week 2: Retail location, Site selection and trade area analysis

Week 3: Retail Promotion - Advertising, Sales promotion and Personal selling

Week 4: Customer Relationship Management and fashion consumer

Week 5: Merchandise management planning

- Week 6:** Assortment planning and allocation
- Week 7:** Buying systems, national and private labels
- Week 8:** Negotiation with buyers
- Week 9:** Retail Pricing- Setting retail prices
- Week 10:** Pricing strategies
- Week 11:** Store Layout, design and Visual Merchandising
- Week 12:** Presentations

Facilitating the Achievement of Course Learning Outcomes:

Unit No.	Course Learning Outcomes	Teaching and Learning Activity	Assessment Tasks
1.	Understanding global trends in retailing Importance of retail location and considerations in site selection	Lecture mode	Assessment will cover both theoretical and practical aspects of learning
2.	Understanding the use and characteristics of various tools of promotion	Lecture and videos	Report on Promotion strategy of any prominent Apparel/textile brand
3.	Understanding merchandise planning systems and assortment planning	Lecture mode and visit to various retail formats	Projects, reports and/or presentation
4.	Understanding various buying systems- national and private label Merchandise	Lecture	Quiz
5.	Understanding considerations in price setting and various pricing strategies	Lecture	Assessment will cover both theoretical and practical aspects of learning
6.	Understanding the concept of store design, store layout and visual merchandising	Lecture mode Visit to various retail set-ups Presentations	Presentation by students on Visual merchandising-Case study of an outlet Formative and summative feedback to the students

**FASCC209: ADVANCED PATTERN MAKING AND GARMENT CONSTRUCTION
PRACTICAL**

Marks: 100

Duration: 6 Hrs.

Course Objectives:

To develop skills in methods of draping fabric to obtain patterns for different styles of bodices, skirts and dresses with bodice skirt combinations and dresses without waistline seams, along with the developing and constructional knowledge of collars and sleeves and various other garment components.

Course Learning Outcomes:

1. Style read a given design and prepare the body-form and fabric for the same.
2. Create basic blocks like, bodice, skirt and torso using draping method.
3. Develop styles in bodice and skirts
4. Successfully sew dresses for self

CONTENTS**PERIODS****UNIT I: Preparatory Steps for Draping****8**

- Preparing the body-form
- Tools and supplies
- Calculating the fabric requirements
- Fabric preparation
- Terminology

UNIT II: Pattern Development**56**

- Draping the basic bodice
- Developing styles in bodice patterns
- Developing collar patterns using flat pattern method and draping(peter-pan variations on altered necklines, sailors, one- piece stand and fall,two piece stand and fall Flat shawl collar)
- Developing sleeves (shirtmaker, bishop, raglan, saddler, drop-shoulder)
- Draping a basic skirt block
- Developing styles in skirt patterns through flat pattern and draping(adding pleats, flares, yokes, panels, circularity, asymmetry, wrap-overs)
- Developing the torso length block using flat pattern method (fitted, semi fitted and boxy)
- Adapting torso block to foundation dresses : A-line dress, flared dress, princess-line, panelled and tent
- Incorporating more design detail : pockets, plackets, waistbands, belts, slits, vents, frills ruffles godets, gussets, peplums)

UNIT III: Garment Construction**32**

- Converting draped patterns to commercial patterns on paper
- Grading the patterns
- Samples of pockets(single welt and double welt pocket)
- Designing and Construction of any styled skirt, skirt top and a dress with collar, sleeves, pocket and additional components to create design interest (for self or body-form)

Suggested Readings:

- Armstrong, Helen Joseph. (2000) *Pattern Making for Fashion Design, 4thed.*
- Pearson Crawford Connie Amaden. (1989) *The Art of Fashion draping, 2nded.* New York: Education Ptc. Ltd. Fairchild Publications.
- Jaffe Hilde and Nuric Relic. (1993) *Draping for Fashion Design*, New Jersey: Fashion Institute of Technology.

SEMESTER III

**FASCC310: HISTORIC COSTUME
THEORY**

Marks: 100

Duration: 3 Hrs.

Course Objectives:

The course aims to provide a deep insight into the development of costume from the ancient times to the 19th century, considering socio-cultural and technological changes. It would facilitate an understanding of the styles and special features in costume through the ages.

Course Learning Outcomes:

1. Understand the evolution of western costume.
2. Gain awareness of different styles and special features in costume through the ages.
3. Draw inspiration from the long established styles for designing.

CONTENTS

PERIODS

UNIT 1: Importance of World Textiles and Costume in Historical Perspective	6
<ul style="list-style-type: none">• Sources of information<ul style="list-style-type: none">○ Archaeological discoveries○ Ancient literature, chronicle and archival records○ Museums, art galleries, inventories of churches and palaces• The origin of dress• Costume through the ages - inspiration for designing and styling	
UNIT II: Costume in Early Civilizations	12
<ul style="list-style-type: none">• Costumes in the ancient world (300BC- 300 AD)<ul style="list-style-type: none">○ Mesopotamia, Egypt, Crete, Greece, Rome, India	
UNIT III: The Middle Ages	12
<ul style="list-style-type: none">• India• Byzantium, Coptic• The feudal ages (900 AD- 1300AD)• The late middle ages (1300AD-1500AD)	
UNIT IV: Costume in 15th to 16th century	10
<ul style="list-style-type: none">• Renaissance: Italy, France, England• India: Mughal period	
UNIT V: Costume in 17th to 19th century	20
<ul style="list-style-type: none">• Baroque and Rococo periods<ul style="list-style-type: none">○ France and England• French revolution and thereafter (1790 AD-1900 AD)<ul style="list-style-type: none">○ The Directoire and Empire period (1790AD-1820AD)○ The Romantic period (1820A.D-1850AD)○ The Crinoline period (1850 AD- 1869AD)	

- The Bustle period (1870 AD-1900 AD)

Suggested Readings:

- Alkazi, R. (1983) *Ancient Indian Costume*, Art Heritage Books.
- Black, J. A. and Garland M. (1978) *A History of Fashion*, London: Orbis Publishing Ltd.
- Cumming, V. (2004) *Understanding Fashion History*, London: Batsford.
- Lester, K.M. (1956) *Historic Costume*, Illinois: Chas A Bennett Co. Inc.
- Peacock, J. (2007) *The Chronicle of Western Costume*, Thames and Hudson.
- Tortora, P. G. and Marcketti, S. B. (2015) *Survey of Historic Costume*, Fairchild Books.

Teaching Plan:

Week 1: Importance of world textiles and costume in historical perspective, Sources of information, The origin of dress

Week 2: Costume – inspiration for styling, theatre, films. Costumes in the ancient world (300BC- 300 AD) Mesopotamia, Egypt, Crete

Week 3: Greece, Rome, India

Week 4: The Middle Ages Byzantium, Coptic, India

Week 5: The feudal ages (900 AD- 1300AD), The late middle ages (1300AD-1500AD)

Week 6: The Renaissance (15th -16th century) –Italy, France

Week 7: Renaissance(15th -16th century) – England, India- Mughal period

Week 8: Costume in 17th to 19th century, Baroque and Rococo periods

Week 9: French Revolution and thereafter (1790 AD-1900 AD)

Week 10: The Directoire and Empire period (1790AD-1820AD)

Week 11: The Romantic period (1820A.D-1850AD), Crinoline period (1850 AD- 1869AD)

Week 12: The Crinoline period (1850 AD- 1869AD), The Bustle period (1870 AD-1900 AD)

Facilitating the Achievement of Course Learning Outcomes:

Unit No.	Course Learning Outcomes	Teaching and Learning Activity	Assessment Tasks
1.	Learn the importance of world textiles and costume in historical perspective	Power point presentation, lecture and visit to museum	Assignment, Report of the visit
2.	Understand Costume in early civilizations	Power point presentation, lecture, visit to museum and short clippings of relevant films	Assignment, Test, Report of the visit
3.	Describe the costume of the Middle Ages	Power point presentation, relevant videos, lecture	Quizzes, Assignment, Presentations
4.	Understand the costumeduring Mughal period and Renaissance	Power point presentation, relevant videos and lecture, visit to museum	Report of visit, Assignment, Test
5.	Compare styles and features in Costume of 17 th to 19 th century	Power point presentation, relevant videos and short clippings of relevant films, lecture	Open book test, Quizzes, Presentations

**FASCC311: DYEING, PRINTING AND COLOUR MEASUREMENT
THEORY**

Marks: 100

Duration: 3 Hrs.

Course Objectives:

To provide the students understanding of the concept of colour and its measurement. To provide the knowledge and understanding of the theories, mechanism and use of various dyes and auxiliaries for dyeing and printing of textile substrates.

Course Learning Outcomes:

1. Understand the concept of colour and its measurement techniques.
2. Describe the process of dyeing of various fibers with different dyes.
3. Understand the mechanism of dyeing with different dyes.
4. Describe the methods and styles of printing.

CONTENTS

PERIODS

UNIT I: Colour Specification and Measurement

4

- Colour theory, Colour strength, Optical density, K/S, L a*b*, L c*h* values, Metamerism
- Computer color matching system

UNIT II: Dyeing

16

- Dye-fiber interaction
- Role of fiber structure in dyeing
- Application of dyes on various substrates
 - Mechanism of dyeing for various dye-fiber systems
 - Effect of dyeing parameters and auxiliaries
 - Dyeing of blends
- Dyeing defects

UNIT III: Dyeing Machines

5

- Machines used for dyeing at the cottage and industrial level for fiber, yarn and fabric

UNIT IV: Chemistry and use of dyeing and printing auxiliaries

4

- Water, wetting agents, electrolytes, solvents, dispersing agents, oxidizing and reducing agents, cationic fixing agents, sequestering agents, retarding agents, carriers, hygroscopic agents, stabilizers, discharging agents etc.
- Thickening agents- natural, modified and synthetic

UNIT V: Printing

16

- Methods of printing: Printing with block, roller, screen (flat bed, rotary), transfer, digital, flock, laser
- New developments in printing machines
- Styles of printing
 - Direct style, dyed style, resist or reserve style, discharge style
 - Application of various classes of dyes on different fibers

- Finishing and after treatment of printed goods
- Printing defects

UNIT VI: Color fastness of dyed and printed goods

3

- Effect of washing, perspiration, crocking, light, dry-cleaning and bleaches

Suggested Readings:

- Aspland J. R., (1997) *Textile Dyeing and Colouration*, NC: AATCC.
- Clarke, W. (1977) *An Introduction to Textile Printing*, London: Butterworth and Co. Ltd.
- Rastogi, D. and Chopra, S.(Eds.) (2017)*Textile science*, India: Orient Black Swan Publishing Limited
- Miles, L.W.C. (1994) *Textile Printing*, 2nd ed., West Yorkshire: Society of Dyers and Colorists, England.
- Shenai, V.A. (1987) *Chemistry of Dyes and Principles of Dyeing*, Vol II, Bombay:Sevak Publications.
- Shore, John (Ed) (1990) *Colorants and Auxiliaries: Organic Chemistry and Application Properties*, Vol. 1 & 2, West Yorkshire: Society of Dyers and Colorists, England.
- Trotman, E. R. (1984) *Dyeing and Chemical Technology of fibers*, Sixth edition,England:Charles Griffin and Company Ltd.

Teaching Plan:

Week 1: Color specification and measurement

Week 2: Dye fiber interaction, Role of fiber structure in dyeing, Mechanism of dyeing for various dye-fiber systems, Effect of dyeing parameters and auxiliaries, Dyeing of blends

Week 3: Application of dyes on various substrates: Direct, Reactive Azoic

Week 4: Application of dyes on various substrates: Sulphur, Vat, Acid

Week 5: Application of dyes on various substrates: Basic, Mordant, Disperse

Week 6: Dyeing of blends, Mass colouration, Dyeing defects

Week 7: Dyeing machines, Dyeing auxiliaries

Week 8: Methods of printing: Block and Roller

Week 9: Screen printing-flatbed, rotary, Transfer, digital, flock, laser printing, new developments

Week 10: Styles of printing: Direct style, Resist or Reserve style

Week11: Discharge style, Dyed style

Week 12: Finishing and after treatment of printed goods, Printing defects, Printing auxiliaries

Week 13: Color fastness of dyed and printed goods-Effect of washing, perspiration, crocking, light, dry-cleaning and bleaches

Facilitating the Achievement of Course Learning Outcomes:

Unit No.	Course Learning Outcomes	Teaching and Learning Activity	Assessment Tasks
1.	Student will be able to understand the concept of colour and its measurement techniques	<ul style="list-style-type: none"> • Lectures, Powerpoint presentation • Visit to IIT Delhi/ 	<ul style="list-style-type: none"> • Report of visits • Periodical quizzes

- Effect of dyeing parameters and their evaluation using spectrophotometer

UNIT III: Printing in different styles using suitable dyes **48**

- Direct style: direct, reactive, azoic, vat, acid, printing with pigments
- Discharge style
- Resist style
- Transfer printing.

UNIT IV: Colour fastness assessment **8**

- Wash fastness assessment
- Light fastness assessment
- Crock fastness assessment
- Perspiration fastness

Suggested Readings:

- Aspland J. R., (1997) *Textile Dyeing and Colouration*, NC: AATCC.
- Clarke, W. (1977) *An Introduction to Textile Printing*, London: Butterworth and Co. Ltd
- Duff, D.G. and Sinclair, R.F. (eds.) (1989), *Gile's Laboratory Course in Dyeing, 4th Edition*, West Yorkshire: Society of Dyers and Colourists, England.
- Miles, L.W.C. (1994) *Textile Printing*, 2nd ed., West Yorkshire: Society of Dyers and Colourists, England.
- Rastogi, D. and Chopra, S.(Eds.) (2017) *Textile science*, India: Orient Black Swan Publishing Limited.
- Shenai, V.A. (1987) *Chemistry of Dyes and Principles of Dyeing*, Vol II, Bombay:Sevak Publications.
- Shore, John (Ed) (1990) *Colorants and Auxiliaries: Organic Chemistry and Application Properties*, Vol. 1 & 2, West Yorkshire: Society of Dyers and Colorists.
- Trotman, E. R. (1984) *Dyeing and Chemical Technology of fibers*, Sixth edition, England: Charles Griffin and Company Ltd.

FASCC313: INTERNSHIP, TECHNICAL WRITING & SEMINAR

(To be assessed by a Board of Three teachers)

Marks: 50

Course Objectives:

To gain hands-on experience of working in various settings linked with issues in Fabric & Apparel Science.

Description:

The student will be required to undergo a field placement for a total duration of 4-6 weeks in their chosen area of interest after the Semester II and prior to Semester III. Depending on the interest of the students the setting may be export houses, buying houses, research organizations, testing labs, museums, conservation organizations, designers and many more.

Institutions/organizations chosen should be of good professional standing. The student must participate in the on-going activities of the agency/ establishment, acquire skills and knowledge, gather information and prepare a report to be presented in the department after the completion of the placement period.

FASCC314:DISSERTATION- I: TECHNICAL WRITING & SEMINAR
(Seminar to be assessed by three teachers)
(Technical writing to be assessed by Continuous Evaluation)

Marks : 50

Course Objectives:

To understand the nuances of scientific writing and develop skills in collation and presentation of scientific information along with learning the process of developing a research proposal/ project proposal

Course Learning Outcomes:

Student will be able to -

1. Demonstrate knowledge of scientific writing method and styles
2. Develop a research design on a topic relevant to their field
3. Prepare a systematic literature review on a select topic
4. Present a seminar of the literature review

The practical will have three components. Based on option of students for either dissertation or project work, due emphasis will be provided.

A) Research design / Project proposal 12

- Under the guidance of supervisor allocated prepare a research design / project proposal

B) Skills in Technical Writing 24

- Learn the nuances of select technical writing styles/ guides
- Analyze technical posters of researches in the fields
- Analyze dissertations, research reports and project evaluation reports and their presentations

C) Review of Literature & Seminar 12

- Prepare a literature review on a select topic using an approved style guide
- Conduct Plagiarism check of document prepared
- Present an oral seminar on the topic

Suggested Readings:

- Alley, M. (2018) *The Craft of Scientific Writing*. New York: Springer.
- Bernard, H.R. (2000). *Social Research Methods: Qualitative and Quantitative Approaches*. Thousand Oaks, CA: Sage
- Black, J.A. and Champion, D.J. (1976). *Methods and Issues in Social Research*. New York: John Wiley and Sons.
- Blaxter, L., Hughes, C, and Tight, K. (1999). *How to Research*. New Delhi: Viva books.

- Blum, D., Knudson M., and Henig, R. M. (2005) *Field Guide for Science Writers: The Official Guide of the National Association of Science Writers*. USA; Oxford University Press.
<http://www.nasw.org/field-guide>
- Elmes, D.G., Kanowitz, B.H. and Roediger, H.L. (1989). *Research Methods in Psychology* (Third Edition). New York: West Publishing Company.
- Katz, M. (2009) *From Research to Manuscript: A Guide to Scientific Writing (2nd Ed)*. New York : Springer
- <http://www.apastyle.org/>
- <http://www.citethisforme.com/guides>

FASEC31: EXTENSION AND ECONOMIC EMPOWERMENT THEORY

Marks: 100

Duration: 3 Hrs.

Course Objectives:

The course aims to bring about the understanding of a rapidly growing informal sector, different forms of work and challenges of the workers.

Course Learning Outcomes:

Students will be able to:

1. Understand the scope of formal and informal economy
2. Acquire knowledge on types of work and the stakeholders in the informal economy in textiles and apparel industry
3. Critically analyse the case studies of different developing countries in the informal apparel sector
4. Gain insight into the development of laws, policies and programme
5. Acquire skills and knowledge in designing extension programs

CONTENTS

PERIODS

UNIT I: Informal Economy in Textile and Apparel Industry

16

- Understanding formal and informal economies
- Concept, Meaning, History, Importance and Status of Informal economy in India
- Terminologies used in Informal textiles sector
- Needs and forms of different types of work
- Stakeholders in the garment, handloom and handicrafts industry

UNIT II: Occupational Groups in Informal Textiles Sector

12

- Needs and types of workers including home based weavers, embroiderers and printers
- Issues and Challenges faced by the workers- rights, wages, productivity, security, health
- Case studies

UNIT III: Laws, Policies and Programmes for Informal sector

8

- Understanding Laws and policies
- Role of Government, NGOs and Institutions
- Programme Outcomes

UNIT IV: Designing Extension Programs

12

- Principles of Programme planning
- Programme planning models
- Steps in Planning, Monitoring and Evaluation

Suggested Readings:

- Jean-Pierre Cling (Editor), Stéphane Lagrée (Editor), Mireille Razafindrakoto (Editor), François Roubaud (Editor) 2014. *The Informal Economy in Developing Countries* 1st Edition, Routledge Studies in Development Economics
- Isabelle Hillenkamp (Editor), Frédéric Lapeyre (Editor), Andreia Lemaître (Editor) 2013. *Securing Livelihoods: Informal Economy Practices and Institutions*, OUP Oxford
- Mukherjee, D. 2009. *Informal Sector In Indian Economy: The Way Ahead*
- Vij, J. Khanna A. and Srivastava P. (2017) *Informal Economy in India: Setting the framework for formalisation*, FICCI and Konrad Adenauer Stiftung, Delhi
- Saunders, R.P. (2015). *Implementation Monitoring and Process Evaluation*, New Delhi: Sage
- Publications.
- [www.unesco.org/new/fileadmin/ Building skills in Informal Sector](http://www.unesco.org/new/fileadmin/Building%20skills%20in%20Informal%20Sector)
- www.undp.org/content/.../india/.../estimating_informal_employment_poverty

Teaching Plan:

Week 1: Understanding formal and informal economies

Week 2: Concept, Meaning, History and Importance and status of Informal economy in India

Week 3: Terminologies used in Informal textiles sector, Needs and forms of different types of work

Week 4: Stakeholders in the garment, handloom and handicrafts industry

Week 5: Needs and types of workers including home based weavers, embroiderers and printers

Week 6: Issues and Challenges faced by the workers

Week 7: Case Studies

Week 8: Laws, Policies and Programme

Week 9: Outcomes

Week 10: Principles of programme planning, models

Week 11: Monitoring

Week 12: Evaluation

Facilitating the achievement of Course Learning Outcomes:

Unit No.	Course Learning Outcomes	Teaching and Learning Activity	Assessment Tasks
1.	Understand the scope of formal and informal economy	Class discussions and lectures	Test, Assignment
2	Acquire knowledge on types of work and the stakeholders in the informal economy in textiles and apparel industry	Class discussions presentation and videos	Review case studies, Participation in group discussions
3	Critically analyse the case studies of different developing countries in the informal apparel sector	Discussion on selected reports, presentation	Review case studies, Participation in group discussions, Analysis of reports
4	Gain insight into the development of laws, policies and programme	Class discussions and lectures	Quiz, Open book assessment
5	Acquire skills and knowledge in designing extension programs	Discussion on selected reports, presentation	Participation in group discussions, Analysis of reports

**FASEC31: EXTENSION AND ECONOMIC EMPOWERMENT
PRACTICAL****Marks: 50****Duration: 3 Hrs.****Course Objectives:**

To supplement understanding of informal economy for effective intervention programmes for workers in garment, handloom and handicraft industry.

Course Learning Outcomes:

1. Understand the structure and needs of employment units
2. Understand the problems faced by the workers in the informal economy
3. Plan and organise capacity building programmes for workers

CONTENTS	PERIODS
1. Visits to unorganised unit	8
2. Conduct interviews and case studies of workers of informal apparel sector	8
3. Plan an economic empowerment program with home based craft workers	16
4. Plan and organise a capacity building program for a group of informal sector workers in-	16
a. Skill Development	
b. Improving workplace equipment and utilities	
c. Social protection.	
d. Rights and responsibilities	

Suggested Readings:

- [www.unesco.org/new/fileadmin/ Building skills in Informal Sector](http://www.unesco.org/new/fileadmin/Building%20skills%20in%20Informal%20Sector)
- www.undp.org/content/.../india/.../estimating_informal_employment_poverty

**FASEC32: PSYCHOLOGY OF FASHION
THEORY**

Marks: 100

Duration: 3 Hrs.

Course Objectives:

The course aims to elaborate role of fashion and clothing in communication of cultural practices which enables to understand the functions of a garment and to explore meaning of fashion and clothing for designer, wearer or onlooker.

Course Learning Outcomes:

1. Understanding ways in which fashion and clothing can be perceived
2. Listing various functions of a garment
3. Analyzing role of clothing as a sign

CONTENTS	PERIODS
UNIT I: Fashion, Clothing, Communication and Culture	6
• Definitions of fashion, style, clothing and dress	
• Fashion art and design	
• Fashion, clothing and communication	
• Fashion, clothing and culture	
UNIT II: Fashion Theory	14
• Functions of fashion and clothing	
○ Material functions (Protection, modesty and concealment, immodesty and attraction)	
○ Cultural functions (Communication, individualistic expression, social worth or status, definition of social role, economic worth or status, political symbol, religious and social ritual, recreation etc.)	
• Recent investigations of fashion process	

UNIT III: Fashion, Clothing and Meaning

14

- Meaning as external to garment/ensemble/image (the designer, wearer or spectator, authorities)
- Meaning as internal to garment/ensemble/image
- Semiological account of meaning (the sign, denotation and connotation, syntagm and paradigm)

UNIT IV: Current Developments, Issues and Trends in Fashion and Clothing Behavior Researches

8

- Dress influencing impression of others
- Effect of dress on others' behavior
- Dress affecting our self- perception, self-esteem and behavior
- Appearance and social stratification

UNIT V: Virtual Dressing

6

- Dress and body through virtual view and virtual fit.
- Dress and perception of virtual 3D self images: comfort with body scanning
- Imaginary self in virtual world
- Creating and using virtual dresses

Suggested Readings:

- Barnard, M. (2008) (re-printed) *Fashion as Communication*, Routledge publication, Francis & Taylor group, ISBN978-0-415-26017-6.
- Kaiser, S. (1996) *The Social Psychology of Dress: Symbolic Appearances in Context*, Fairchild books, New York.
- Workman, J., and Freeburg, B. (2009) *Dress and Society*, Fairchild books, New York.

Teaching Plan:

Week 1: Definitions of fashion, style, clothing and dress, Fashion art and design

Week 2: Fashion, clothing and communication, Fashion, clothing and culture

Week 3: Functions of fashion and clothing: Material functions (Protection, modesty and concealment, immodesty and attraction)

Week 4&5: Functions of fashion and Clothing: Cultural functions (Communication, individualistic expression, social worth or status, definition of social role, economic worth or status, political symbol, religious and social ritual, recreation etc.)

Week 6:Recent investigations of fashion process

Week 7:Meaning as external to garment/ensemble/image (the designer, wearer or spectator, authorities)

Week 8:Meaning as internal to garment/ensemble/image

Week 9: Semiological account of meaning (the sign, denotation and connotation, syntagm and paradigm)

Week 10: Dress influencing impression of others, Affect of dress on others' behavior

Week 11: Dress affecting our self- perception, self-esteem and behavior, Appearance and social stratification, Virtual dressing

Week 12: Virtual derssing

Facilitating the Achievement of Course Learning Outcomes:

Unit No.	Course Learning Outcomes	Teaching and Learning Activity	Assessment Tasks
1.	Understanding role of Fashion and Clothing as a mode of communication.	Lecture and class discussion	Assignment
2.	Exploring functions of Fashion and Clothing	Class discussions with projected pictures depicting variety of clothing styles	Assignment
3.	Understand meaning of Fashion and clothing	Lecture and Class Discussion	Review of Recent papers related to the topic
4.	Exposure to current developments, issues and trends in fashion and clothing behaviour researches	Lecture and presentations	Project
5.	Gain awareness about virtual dressing	Lecture, class discussion, presentations	Review of recent papers, Quizzes

**FASEC32: PSYCHOLOGY OF FASHION
PRACTICAL**

Marks: 50

Duration: 3 Hrs.

Course Objectives:

To learn designing through computer software.

Course Learning Outcomes:

1. Understand the basics of CAD and software
2. Acquire skills in drawing garment components in CAD
3. Translate the designs (dressing up)and textures using computer software

CONTENTS

PERIODS

UNIT I: Basics of Computer Aided Design

8

- Introduction to Software
- Introduction about the Toolbox

UNIT II: Drawing in CAD

24

- Figure drawing –Female Croqui
- Garment Components-Collar, Sleeves, Skirts, Trousers, Dresses etc.

- Dressing up fashion figures
- Accessories

UNIT III: Design Effects/Textures

16

- Applying various texture and effects
- Illusion effects – created by fashion details, elements of design, color, texture
- Development of Prints

Suggested Readings:

- Allen, A. and Seaman, J. (1996) *Fashion Drawing -The Basic Principles*, London, B. T. BatsfordLtd..
- Drudi, E. and Paci,T.(2001) *Figure drawing for fashion design*, Amsterdam, The Pepin Press
- Corel Draw Tutorials

FASEC33: WOMEN’S WEAR THEORY

Marks: 100

Duration: 3 Hrs.

Course Objectives:

It aims to gain an understanding and knowledge of the industry involved in women’s wear sector. Also, to trace the development of fashion industry (ready to wear and couture) through the 20th century. The course will help to develop skills in designing, pattern making and construction of advanced styles in garment making techniques for women’s wear and critical fit evaluation.

Course Learning Outcomes:

1. Understand the market involved in women’s wear
2. Comprehend the evolution of fashion industry and would be aware of different styles and special features of 20th century costumes
3. Understand the woman’s body with respect to design selection of fabrics, garments and accessories
4. Develop popular garment styles for upper and lower garments for women and critical eye for fit evaluation.
5. Independently design a line for women’s fashion wear

CONTENTS

PERIODS

UNIT I: Review of Contemporary Fashion

10

- Women’s Costume in the 20th century
- Development of fashion industry
 - Couture
 - Ready to wear
- Fashion centers

UNIT II: Women's Wear Market **8**

- Market economics of women apparel
- Categories in Women's Wear
- Women body type and sizes
- Styles and Silhouettes of Garments for different age groups
- Selection and sourcing of fabrics and trims
- Fashion Accessories for Women
- National and International brands for Women Wear

UNIT III: Drafting and Pattern Making **12**

- Identifying and recording measurements for various garments
- Drafts for upper garments: Straight kurta, Kalidar kurta, A-line, Skirt top
- Drafts for lower garments: Salwar, Churidar, Trouser, Palazzos
- Torso foundation: Boxy, Semi-fitted and Fitted
- Styles of dresses without waistline: Princess-line, Empire-line and Tent foundation
- Stylizing various components of a garment- sleeves, collars, plackets, pockets, vents & slits, peplum, godets, gussets

UNIT IV: Fit **6**

- Evaluating Fit of a basic blocks and garments- bodice, skirt, torso block, semi fitted dress, A-line dress
- Evaluating fit of various components of a garment
- Correcting fit and Pattern alteration
- Completing the commercial paper pattern

UNIT V: Designing for Women's Wear **12**

- Designing a line- Sources of fashion inspiration, Fashion seasons, Study of fashion forecast- styles colours, textures, accessories
- Role of a designer, Role of a producer/ manufacturer, jobber and merchandiser
- Sourcing (market levels)
- Retailers
- Consumers

Suggested Readings:

- Abling, B. and Maggio K. (2008) *Integrating Draping, Drafting and Drawing*, ISBN: 9781563674860, Fairchild books.
- Aldrich, W. (2008) *Metric Pattern Cutting for Women's Wear*, ISBN 10: 1405175672 / ISBN 13: 9781405175678, Wiley Blackwell Publication.
- Brown, P. and Rice, J. (2014) *Ready to Wear Apparel Analysis*, Fourth Edition. Pearson Education, India

- Crawford. C.A. (2018), *The Art of Fashion Draping*, ISBN: 9781501330292, Fairchild books.
- DiMarco, S. (2010) *Draping Basics*, ISBN: 9781563677366, Fairchild books.
- Frings,G.S.(2007) *FASHION From concept to consumer 9th ed.*, ISBN—10:0131590332/ ISBN-13: 978-0131590335, Pearson education Inc.
- Liechty, E.G., Pottberg D.N., Rasband, J., (2016) *Fitting and Pattern Alteration: A multi-method approach to the art of style selection, fitting, and alteration*, 3rd Edition, ISBN-13: 978-1628929720 / ISBN-10: 1628929723, Fairchild Publication.
- Shoben, M.M. and Ward, J.P. (2000) *Pattern Cutting and Making Up Volume 2*, Revised Edition, LCFS Fashion Media
- Tate,S.L. and Edwards, M.S.(2003) *Inside Fashion design*, 5thed.,ISBN—10:0130453688/ISBN-13: 978-0130453662, Pearson education Inc.

Teaching Plan:

Week 1: Review of contemporary fashion: Women’s Costume in the 20th century

Week 2: Development of fashion industry (Couture and Ready to wear)

Week 3: Fashion centers

Week 4: Women’s wear market: Market economics of women apparel, Categories in Women’s Wear, Women body type and sizes Styles and Silhouettes of Garments for different age groups

Week 5: Selection and sourcing of fabrics and trims, Fashion Accessories for Women, National and International brands for Women Wear

Week 6, 7 & 8: Drafting and Pattern making: Identifying and recording measurements for various garments. Drafts for upper garments: Straight Kurta, Kalidar Kurta, A-line, Skirt top, Drafts for lower garments: Salwar, Churidar, Trouser, Palazzos, Torso foundation: Boxy, Semi-fitted and Fitted, Styles of dresses without waistline: Princess-line, Empire-line and Tent foundation

Week 9: Stylizing various components of a garment- sleeves, collars, plackets, pockets, vents & slits, peplum, godets, gussets

Week 10: Fit: Evaluating Fit of a basic blocks and garments- bodice, skirt, torso block, semi fitted dress, A-line dress, Evaluating fit of various components of a garment Correcting fit and Pattern alteration, completing the commercial paper pattern

Week 11: Designing for women’s wear: Designing a line, Sources of fashion inspiration, Fashion seasons, Study of fashion forecast- styles colours, textures, accessories

Week 12: Role of a designer, Role of a producer/ manufacturer, jobber and merchandiser, sourcing (market levels), Retailers, Consumers.

Facilitating the Achievement of Course Learning Outcomes:

Unit No.	Course Learning Outcomes	Teaching and Learning Activity	Assessment Tasks
1.	Students would be able to	Relevant online material	PowerPoint

	understand the evolution of fashion industry and would be aware of different styles and special features of 20 th century costumes	available such as Videos, movies etc, Discussion, presentation	presentation by students
2.	Student will be able to understand the market involved in women's wear	Discussion, presentation and visit to malls and market place	Project work
3.	Student will be able to understand the woman's body with respect to design selection of fabrics, garments and accessories	Lecture, discussion and presentation	Assignment
4.	Student will be able to develop popular garment styles in upper and lower garments for women	Discussion	Presentation
5.	Student will be able to develop a critical eye for fit evaluation of the above learnt garments	Discussion, presentation and demonstration	Assignment
6.	Student will be able to independently design a line for women's fashion wear	Discussion	Project work

**FASEC33: WOMEN'S WEAR
PRACTICAL**

Marks: 50

Duration: 3Hrs.

Course Objectives:

It will develop a keen eye for design and development of patterns for styles in women's fashion wear. It will also enable the student to successfully bring out a line collection as a part of the team theme

Course Learning Outcomes:

1. Think and develop a portfolio of dresses for women based on a selected theme.
2. Able to make patterns for the selected dresses out of the portfolio
3. Construct any two selected dresses in keeping with the theme
4. Show case their work as a class/ team effort

CONTENTS

PERIODS

UNIT I: Designing for Women's Wear

12

- Designing an upper and lower garment based on a theme

- Sketching of dresses based on a theme for a portfolio

UNIT II: Pattern Making **16**

- Developing patterns for two of the above selected designs

UNIT III: Garment Construction **20**

- Construction and presentation of two term garments comprising of upper/lower garment and a dress without a waistline for formal or casual wear

Suggested Readings:

- Abling, B., Maggio K. (2008)*Integrating Draping, Drafting and Drawing*, ISBN: 9781563674860, Fairchild books.
- Aldrich, W., (2008), *Metric Pattern Cutting for Women's Wear*, ISBN 10: 1405175672 / ISBN 13: 9781405175678, Wiley Blackwell Publication.
- Brown, P., Rice, J.(2014) *Ready to Wear Apparel Analysis*, Fourth Edition. Pearson Education, India
- Crawford. C.A., (2018)*The Art of Fashion Draping*, ISBN: 9781501330292, Fairchild books.
- DiMarco, S., (2010)*Draping Basics*, ISBN: 9781563677366, Fairchild books.
- Liechty, E.G., Pottberg D.N., Rasband, J., (2016)*Fitting and Pattern Alteration: A multi-method approach to the art of style selection, fitting, and alteration*, 3rd Edition, ISBN-13: 978-1628929720 / ISBN-10: 1628929723, Fairchild Publication.
- Shoben, M.M., Ward, J.P. (2000) *Pattern Cutting and Making Up Volume 2*, Revised Edition, LCFS Fashion Media

**FASEC34: SUSTAINABILITY IN TEXTILES AND FASHION INDUSTRY
THEORY**

Marks: 100

Duration: 3 Hrs.

Course Objective:

The course aims to introduce the concept of sustainability in various stages of textile and apparel production, understanding of the environmental issues in textile supply chain and familiarity with guidelines and regulations that support sustainable textile production practices

Course Learning Outcomes:

1. An understanding of the textile supply chain, associated sustainability issues and the effect of industrial revolution on current fashion scenario
2. Knowledge of social economic and environmental aspects of sustainability; various methods of sustainability analysis
3. An understanding of life cycle thinking, Circular economy, Corporate Social Responsibility, Sustainable design, Green supply chain,
4. Familiarity with regulations and standards promoting sustainability in textile supply chain, EMS, GRI, Eco-labeling, GOTS and various voluntary organizations and campaigns

CONTENTS

PERIODS

UNIT I: Fashion Industry and Environmental Issues

12

- Types of textile fibers; the textile value chain and associated processes, environmental issues associated with various textiles: natural and manmade fibres
- Factors influencing environmental impacts in textile supply chain: energy (electricity and fossil fuels), water use, water pollution, chemicals, dyes, auxiliaries, waste, air, noise
- Industrial revolution: evolution of fashion through first, second, third and fourth industrial revolution; fast fashion, overconsumption, sweatshops

UNIT II: Sustainability: Definition, its Various Aspects and Methods of Assessment 12

- Definition of Sustainability, the triple bottom framework: social, economic, environmental perspectives of sustainability
- Terminology in sustainability: environmental sustainability: ecology and ecological balance, circles of sustainability
- Sustainability analysis: Life Cycle Assessment, Life Cycle Costing, Social LCA
- Carbon footprint
- Water footprint
- Higg Index

UNIT III: Approaches to Achieve Sustainability in Business 12

- Circular economy, R's of waste management: reduce, reuse, recycle, refuse, repurpose, recover, rethink
- Eco friendly textile processing and waste minimization
- Sustainable fibres: Regenerated fibres, fibers from waste material and bioengineered fibers
- Corporate Social Responsibility
- Workers and community safety: use of safe dyes and auxiliaries, safe chemical handling practices
- Sustainable design
- Role of supply chain management on sustainability in textile value chain: green supply chain

UNIT IV: Regulations and Standards for Sustainable Practices 12

- Environmental Management System: ISO 14000 Certification and standards
- Global Reporting Initiative
- Fair-trade, Organic standard
- Eco-labeling, Global Organic Textile Standard
- Voluntary organizations and campaigns: ZDHC, SAC, OEKOTEX, Detox Campaign, Revolution Blue Sign

Suggested Readings:

- Andrews, E.S. et al. (2009) *Guidelines for Social Life Cycle Assessment of Products*, Published by United Nations Environment Program
- Blackburn, R.S. (2005) *Biodegradable and Sustainable Fibres*: Woodhead Publishing Series in Textiles, ISBN-10: 185573916X, ISBN-13: 978-1855739161
- Blackburn, R.S. (2009) *Sustainable Textiles: Lifecycle and Environmental Impact*: Woodhead Publishing Series in Textiles, ISBN: 9781845694531.
- Fletcher, K (2012), *Fashion and Sustainability: Design for Change*: Laurence King Publishing, ISBN-10: 1856697541, ISBN- 13: 978-1856697545

- Jain, C. (2016) *Simplifying Corporate Sustainability – A guide to implementing Sustainable Practices in Textile Industry*: Createspace Independent Pub. ISBN 978-981-11-0386-5
- Gardetti, M.A., Torres, A.L. and Gardetti, M.A.(2013) *Sustainability in Fashion and Textiles*, Greenleaf Publishing Limited,ISBN 978-1-906093-78-5 (hbk)
- ISO - Central Secretariat, 2009. Environmental management: The ISO 14000 family of International Standards. Published by International Standards Organisation

Teaching Plan:

Week 1: Types of textile fibers; the textile value chain and associated processes, environmental issues associated with various textiles: natural and manmade fibres

Week 2: Factors influencing environmental impacts in textile supply chain : energy (electricity and fossil fuels), water use, water pollution, chemicals, dyes, auxiliaries, waste, air, noise

Week 3: Industrial revolution: Evolution of fashion through first, second, third and fourth industrial revolution; fast fashion, overconsumption, sweatshops

Week 4: Definition of Sustainability, The triple bottom framework: social, economic and environmental perspectives of sustainability, Terminology in sustainability: Environmental Sustainability: Ecology and Ecological Balance, Circles of sustainability

Week 5: Sustainability analysis: Life Cycle Assessment, Life Cycle Costing, Social LCA

Week 6: Carbon footprint, Water footprint, Higg Index

Week 7: Circular economy, R’s of waste management: reduce, reuse, recycle, refuse, repurpose, recover, rethink; eco-friendly textile processing and waste minimization

Week 8: Corporate Social Responsibility; workers and community safety; use of safe dyes and auxiliaries, safe chemical handling practices

Week 9: Sustainable design; Role of supply chain management on sustainability in textile value chain: green supply chain

Week 10: Environmental Management System: ISO 14000 Certification and standards

Week 11: Global Reporting Initiative, Fair-trade, Organic standard, Eco-labeling, Global Organic Textile Standard

Week 12: Voluntary organizations and campaigns: ZDHC, SAC, OEKOTEX, Detox Campaign, Revolution Blue Sig

Facilitating the Achievement of Course Learning Outcomes:

Unit No.	Course Learning Outcomes	Teaching and Learning Activity	Assessment Tasks
1.	An understanding of the textile supply chain, associated sustainability issues and the effect of industrial revolution on current fashion scenario	Lecture mode, Presentation	Quiz/test
2.	Knowledge of social economic and environmental aspects of sustainability; sustainability analysis	Lecture mode, Presentation	Quiz/test
3.	An understanding of life cycle thinking, Circular economy, Corporate Social Responsibility, Sustainable design,	Lecture mode, Presentation	Tasks will include projects, reports

	Green supply chain,		and presentation
4.	Familiarity with regulations and standards promoting sustainability in textile supply chain, EMS, GRI, Eco-labeling, GOTS and various voluntary organizations and campaigns	Lecture mode and presentation	Tasks will include projects, reports and presentation

**FASEC34: SUSTAINABILITY IN TEXTILES AND FASHION INDUSTRY
PRACTICAL**

Marks: 50

Duration: 3 Hrs.

Course Objectives:

To enable an understanding of the concept of sustainability and life cycle assessment and analyzing various environmental indicators; such as: energy, carbon footprint and water footprint and to apply the concept of recycling and reusing material for textile/ apparel production.

Course Learning Outcomes:

1. Ability to develop process flow charts and collect data
2. Analyze energy, water and carbon footprint of a textile process
3. Learning of dye effluent removal and testing of biodegradability of fibres
4. Familiarity with sustainable brands, sustainable textiles and their application in product development

CONTENTS

PERIODS

UNIT I: Life Cycle Assessment

20

- Concept of “Cradle to Grave”, developing a process flow chart, data collection
- Assessment of energy consumption of a textile product
- Assessment of carbon footprint of a textile product
- Assessment of water footprint of a textile product

UNIT II: Understanding and Enhancing Textile Sustainability

8

- Removal of dye effluent using natural material
- Extraction of fiber from agro waste residues

UNIT III: Case Studies

4

- Case studies of brands addressing sustainability in different ways

UNIT IV: Product Development from Sustainable Materials

16

- Product development using textile waste and thermoset resins
- Application of recycled/reused material in fashion

Suggested Readings:

- Blackburn, R.S. (2005) *Biodegradable and Sustainable Fibres*: Woodhead Publishing Series in Textiles, ISBN-10: 185573916X, ISBN-13: 978-1855739161

- Blackburn, R.S. (2009) *Sustainable Textiles: Lifecycle and Environmental Impact*: Woodhead Publishing Series in Textiles, ISBN: 9781845694
- Gordon J. F. Hill C. (2014), *Sustainable Fashion: Past, Present and Future*, Bloomsberry Academic Publications, New York
- Muthu S. (2017), *Sustainable fibres and Textiles*, ISBN: 9780081020418, Woodhead Publishing

FASEC35: MARKETING MANAGEMENT THEORY

Marks: 100

Duration: 3 Hrs.

Course Objective:

To enable the students to understand the importance and scope of marketing in a dynamic environment as well as the consumer behaviour through market research and to gain insights into the 4P s of marketing.

Course Learning Outcomes:

1. Understand the dynamics of market environment
2. Comprehend the concepts of consumer behavior, marketing research and sales forecasting
3. Knowledge regarding the process of new product development and Branding and Pricing strategies
4. Skill to deliver the customer value through integrated marketing communication strategy
5. Design customer driven marketing mix strategy

CONTENTS

PERIODS

UNIT I: Introduction to Marketing Management

4

- Importance and scope of Marketing
- Company Orientation towards Market place
- Adapting to new economy

UNIT II: Understanding Market Place and Consumers

10

- Analysing marketing environment
- Market segmentation and targeting
- Marketing research and sales forecasting
- Consumer Behaviour Analysis
 - Factor Influencing consumer Behaviour
 - Type of buying decision behavior
 - Buying decision process

UNIT III: Product Planning and Development

10

- Product line, Product mix and Product classification
- New Product Development
- Product life cycle and strategies
- Product positioning and Differentiation strategies
- Branding Strategies

UNIT IV: Pricing **8**

- New Product Pricing strategies
- Product mix pricing strategies
- Pricing adjustment strategies
- Price changes

UNIT V: Marketing Communication **8**

- Integrated marketing communication strategy
- Managing mass communications
- Development and managing advertising programs
- Sales promotion and public relations and personal selling
- Direct & online marketing: Building direct customer relationships

UNIT VI: Marketing Channels: Delivering Customer Value **8**

- Nature and importance of marketing channels
- Channel behavior and organization
- Channel Design Decisions
- Channel Management Decisions
- Marketing logistics and supply chain Management

Suggested Readings:

- Kotler, P., Keller, K.L., Koshy, A. and Jha, M. (2012). *Marketing Management 14thed.*: Pearson education Inc., ISBN 98-81-317-6716-0.
- Robbins, P.S. and Dcenzo,A.D. (2005). *Fundamentals of management- essential concepts and Applications 5thed.* : Pearson education Inc, Dorling kindersley (India) pvt. ltd., ISBN 81-317-0151-3
- Belch,E.G. and Belch, A.M. (2003). *Advertising and Promotion- An integrated marketing communications perspective 6th ed.*: Tata McGraw-Hill publishing company ltd., ISBN 13:978-0-07-058194-4, ISBN 10:0-07-058194-0
- Poloian, G.L.(2009). *Multichannel Retailing* : Fairchild Books-New York, ISBN 978-1-56367-630-7
- Robbins, P.S. and Coulter, M.(2008). *Management 9th ed.*: Prentice Hall India pvt. ltd., ISBN 81-203-3497-7
- L'Etang, J. (2008) *Public relations- Concepts, practice and critique*: Sage publications ltd., ISBN 978-1-4129-3047-5 ISBN 978-1-4129-3048-2 (pbk).

Teaching Plan:

Week 1: Introduction to marketing- Scope, importance, company orientation and adapting to new economy, Marketing Environment- Micro and macro factors

Week 2: Marketing research and Sales Forecasting

Week 3: Consumer behavior

Week 4: New product development and branding strategies

Week 5: Product life cycle and strategies

Week 6: Positioning and differentiation strategies

Week 7: Price setting strategies

Week 8: Price adjustments and change

Week 9: Integrated mass communication strategy mix

Week 10: Direct and online marketing

Week 11: Marketing channels- design and management

Week 12: Marketing logistics and supply chain management, Presentation by students

Facilitating the Achievement of Course Learning Outcomes:

Unit No.	Course Learning Outcomes	Teaching and Learning Activity	Assessment Tasks
1.	Understanding the importance and scope of marketing	Lecture mode and Group discussion	Presentation by students- relevant articles from Newspaper, magazine, online material etc.
2.	-Understanding the dynamics of market environment and to comprehend the concepts of marketing research and sales forecasting	Lecture mode and relevant video lectures by eminent marketers	Assignment
3.	Have knowledge regarding the process of new product development and Branding strategies	Lecture mode, video presentations and slide shows of various brands	Assignment /presentation related to product life cycle oriented marketing strategies of any apparel or textile brand in various phases of PLC
4.	Understanding price setting and price adjustment strategies	Lecture mode	Assessment will cover both theoretical and practical aspects of learning- Quiz, test etc.
5.	Understanding integrated marketing communication mix	Lecture mode for theoretical component & promotional videos of various brands; Group discussions to understand competitive strategies	Presentation on promotional strategy of any brand/ retail outlet / company/ group of companies by students
6.	Have knowledge of distribution logistics and supply chain Management	Classroom teaching, field visits and special lectures by professionals in the field to understand the importance of creating customer value.	Field visit report

**FASEC35: MARKETING MANAGEMENT
PRACTICAL**

Marks: 50

Duration: 3 Hrs

Course Objectives:

To give students the opportunity to analyse and evaluate the operation of the 4P s of marketing in the real marketplace and enable them to perform market segmentation, targeting and competitive positioning.

Course Learning Outcomes:

1. Analyse the role of marketing within the firm and society.
2. Develop an understanding of the four basic variables in the marketing mix: product, price, promotion and distribution.
3. Skill to design an integrated marketing communication strategy
4. Exercise analytical, communication and presentation skills through the use of technological aids.

CONTENTS

PERIODS

UNIT I: Analysis of Demographics of Indian market	8
UNIT II: Lifestyle segmentation (VALS) in fashion industry	4
UNIT III: Idea generation for a New product	4
UNIT IV: Brand study	8
• Effect of brand image/store image on consumer preference,	
• Impact of brand awareness on consumer/brand loyalty: A study of any branded apparel/fashion item	
• Relation between brand extension, brand personality and consumer acceptance	
• Identify factors influencing brand switching in any sector/merchandise category	
UNIT V: Comparative study of pricing strategies adopted by prominent apparel retail outlets	4
UNIT VI: Study of new retail formats and marketing channels	4
UNIT VII:	8
Promotion	
• Examine influence of promotion such as effect of advertising on consumer behavior, price sensitivity etc.	
• Developing a communication strategy for a hypothetical brand promotion for both traditional and social media	
• Design a Promotional calendar for a brand/event	
UNIT VIII: Case study of an apparel brand/ outlet: report and presentation	8

FASOE31: FABRIC STUDY THEORY

Marks: 100

Duration: 3 Hrs.

Course Objectives:

To course aims to deliver a preliminary understanding of the fabric components and enhance the learner's awareness of various commercially available fabrics along with an understanding of their properties and end uses.

Course Learning Outcomes:

1. Understand the components of a textile fabric.
2. Identify the various commercially available fabrics.
3. Appropriately select fabrics based on their properties, cost and recommended end uses.

CONTENTS

PERIODS

UNIT I: Components of Fabric Structure

3

- Fibers and yarns
- Methods of construction
- Fabric finishing- dyeing, printing, aesthetic and functional finishes

UNIT II: Commercially Important Woven Fabrics: Identification, Properties and End Uses

13

- Cotton and other Cellulosic Fiber Fabrics
 - Light weight fabrics- Mulmul, Voile, Organdy, etc.
 - Medium weight fabrics- Cambric, poplin, Cotton, Rubia, Denim, Seer-sucker, Eyelash doobby, Shiffli, Jute, Linen, etc.
 - Heavy weight fabrics- Canvas, Casement, Gabardine, Damask, Corduroy, Velvet, Terry
- Silk and Wool fiber fabrics
 - Light weight fabrics- Silk Crepe, De'chine, Georgette, Chiffon, Organza
 - Medium/Heavy weight fabrics- Flat silk, Satin, Tafetta, Dupion, Shantung, Raw silk, Tussar silk, Tweed, Wool twill, etc.
- Man-made fiber and blended fabrics- Art silk, Lizzy-Bizzy, Tery-voil, Semi-crepe, Moss crepe, Artificial chiffon, Artificial georgette, Terecot, Poly-satin, Lycra, Cotton Lycra, Viscose Lycra, Modal, Viscose, etc.

UNIT III: Commercially Important Knitted and Non-Woven Fabrics: Identification, Properties and End Uses

4

- Knitted Fabrics- Knitted Terry, Jersey, Rib Knit, Interlock knit, Pique, Velour, Scuba, Fleece,
- Non-wovens- Different types and weights
- Others- Leatherette, Suede

UNIT IV: Traditional Indian Fabrics: Identification, Characteristics and End Uses

4

- Embroideries- Kantha, Phulkari, Chikankari, Kasuti, Kutch, etc.
- Woven fabrics- Brocades, Jamdani, Baluchari, Chanderi, Maheshwari, Kanjeevaram, etc.
- Dyed, Printed fabrics- Bandhani, Kalamkari, Ikats, Patola, Dabu prints, Ajarakh prints, etc.

Suggested Readings:

- Corbman P. B. (1989) *Textiles- Fiber to Fabric*, 6th edition, Mc Graw Hill, New York.
- Chisti, Rta, Kapur and Jain, Rahul (2000) *Handcrafted Indian Textiles- Tradition and Beyond*, Roli Books Pvt. Ltd., New Delhi.
- Gillow, John and Barnard, Nicholas (1994) *Traditional Indian Textiles*, Thames and Hudson Ltd., 30, Bloomsbury Street, London WC 1B 3 QP, London.
- Hollen N., Saddler J., Langford A.L., Kadolph S.J. (1988) *Textiles*, 6th Edition, Macmillan publishing Company New York, USA
- Joseph, M.L. (1988) *Essentials of Textiles*, 6th Edition, Florida: Holt, Rinehart and Winston Inc.
- Pizzoto's J.J. *Fabric Science*, 11th Edition, New York: Fairchild Publication.
- D. Rastogi (Ed.) and S. Chopra (Ed.) (2017) *Textile Science*, India: Orient Black Swan.
- Sekhri S. (2011) *Textbook of Fabric Science: Fundamentals to Finishing*, Delhi:PHI Learning.
- Tholia A. (2013) *Understanding Fabrics- A practical Approach*, 2nd edition, Sarv International.
- Wingate, Isabel B. (1949) *Textile Fabrics and Their Selection*, New York: Prentice Hall

Teaching Plan:

Week 1: Components of fabric structure: Fibers, construction techniques

Week 2: Components of fabric structure: Dyeing, Printing, Finishing

Week 3: Woven Fabrics- Light-weight cotton fabrics, Medium weight cotton fabrics

Week 4: Woven Fabrics- Medium weight cotton fabrics

Week 5: Woven Fabrics- Heavy weight cotton fabrics

Week 6: Woven Fabrics- Light-weight silk fabrics

Week 7: Woven Fabrics- Medium and heavy weight silk/wool fabrics

Week 8: Woven Fabrics- Man-made fiber and blended fabrics

Week 9: Knitted Fabrics

Week10: Non-woven and other fabrics

Week 11: Traditional Indian fabrics- embroidered, woven

Week 12: Traditional Indian fabrics- woven, dyed, printed

Facilitating the achievement of Course Learning Outcomes:

Unit No.	Course Learning Outcomes	Teaching and Learning Activity	Assessment Tasks
1	Understand the components of a textile fabric.	Unit transaction through audio-visual presentations, videos, lecture-demonstrations	Quizzes, assignments
2	Identify the various commercially available woven fabrics and appropriately select fabrics based on their	Unit transaction through audio-visual presentations, Market visits, Sample analysis	Quizzes, assignments, Market surveys, Market visit reports, Swatch files

	properties, cost and recommended end uses.		
3	Identify the various commercially available knitted and non-woven fabrics and appropriately select fabrics based on their properties, cost and recommended end uses.	Unit transaction through projected visual explanations, fabric samples.	Swatch files, Swatch analysis, market analysis, Market survey reports.
4	Identify the various traditional textiles appropriately select fabrics based on their characteristics, cost and recommended end uses.	Unit transaction through projected visual explanations, fabric sample analysis.	Assignments, swatch collections, Comparative market surveys.

SEMESTER IV

FASCC415: DISSERTATION II / EXPERIENTIAL LEARNING PROJECT

(External Board, Viva and Internal Evaluation)

Marks: 150

Course Objectives:

To develop skills in conducting a research study/ working in a project and learn the process of writing a dissertation/ project report

Course Learning Outcomes:

Student will be able to -

1. Know the practical aspects of, collecting data/ project work
2. Evaluate, select and use appropriate strategies for reduction, analysis and presentation of data collected during research process/ project work
3. Suitably illustrate data/ insights using various graphical and other methods.
4. Prepare a dissertation document/ project report based on research process/ project work done.

Students will be given an option of doing either

A) Dissertation or B) Project work in a chosen area congruent to their discipline/ field of study.

The work will be an original effort.

FASEC41: CHILDREN'S WEAR THEORY

Marks: 100

Duration: 3Hrs.

Course Objectives:

The course aims to prepare the student to take up a specialized learning about the types of children's wear in the industry and about designing successfully garments for children keeping in mind their special requirements.

Course Learning Outcomes:

1. Learn about the children's garment industry
2. Learns specific requirements for children's wear designing
3. Prepare patterns and construct theme based children's garments
4. Prepare students to be able to work in garment industry

CONTENTS

PERIODS

UNIT I: Children's Garment Industry

12

- Children's clothing industry
- Law's specifications world-wide
- Factors affecting selection of clothes for children- age, sex, body type, family financial status, geographical location and weather, parental occupation, family social status, child's socializing needs & occasion
- Age wise categorization for requirement for children's clothing,

- Garment categories -Inner wear, outer wear, outer-outer wear, baby layette,
- Sizing – boy’s sizes, girls sizes
- Accessories

UNIT II: Design Requirements **12**

- Designing for children of various age groups
- Selection of suitable fabrics and trimmings for various garments
 - Measurement charts for children
 - Developing a line for particular segment
 - Study of forecast for children’s wear
- Design illustration for children’s clothing (flat sketch and 3-D)

UNIT III: Drafting and Pattern Making **16**

- Terminology
- Drafting children’s bodice block, sleeve block, collars, skirt, shorts and trousers
- Adapting basic patterns to various styles for tops and blouses, skirts, dresses, capes and hoods for girls and various styles for upper and lower garments for boys
- Adapting to combination garments like rompers, jumpsuits, overalls
- Developing layout plans for various fabric types

UNIT IV: Construction Sequences **8**

- Steps in construction of the following garment components:-
- Collars
- Sleeve
- Pockets
- Belts
- Steps in completing the following garments:
 - Girls frocks (various styles)
 - Girls skirts
 - Girls tops
 - Boys shirts
 - Night suits
 - Trousers/ shorts
 - Jackets

Suggested Readings:

- Aldrich, W. (2009) *Metric Pattern Cutting for Children’s Wear and Babywear*, 4th Edition, Wiley Blackwell Publication.
- Brown, P., and Rice, J., (2014) *Ready to Wear Apparel Analysis*, Fourth Edition. Pearson Education India
- Crim, C.H. (2014) *Pattern Making for Kid’s Clothes: All you need to know about Designing, Adapting, and Customizing Sewing Patterns for Children’s Clothing*, Barnes & Nobles
- Donnanno, A. (2018) *Fashion Patternmaking Techniques for Children’s Clothing*, Promo Press publication..

- Liechty, E.G., Pottberg D.N., and Rasband, J. (2016) *Fitting and Pattern Alteration: A multi-method approach to the art of style selection, fitting, and alteration*, 3rd Edition, ISBN-13: 978-1628929720 / ISBN-10: 1628929723, Fairchild Publication.
- Shoben, M.M., and Ward, J.P., (2000) *Pattern Cutting and Making Up Volume 2*, Revised Edition, LCFS Fashion Media

Teaching Plan:

Week 1: Study of children’s clothing industry and rules and specifications, Factors affecting selection of clothes for children- age, sex, and body-type

Week 2: Factors affecting selection of clothes for children- family financial status, geographical location and weather, parental occupation, family social status, child’s socializing needs & occasion

Week 3: Age wise categorization for requirement for children’s clothing, Garment categories- Inner wear, outer wear, outer-outer wear, baby layette, sizing – boy’s sizes, girl’s sizes and Accessories

Week 4: Designing for children of various age groups. Selection of suitable fabrics and trimmings for various garments. Measurement charts for children

Week 5: Developing a line for particular segment. Study of forecast for children’s wear; Design illustration for children’s clothing (flat sketch and 3-D)

Week 6: Design illustration for children’s clothing (flat sketch and 3-D)

Week 7: Drafting of basic blocks

Week 8: Adapting basic patterns to various styles for tops and blouses, skirts, dresses for girls

Week 9: Adapting basic patterns to various styles for upper and lower garments for boys and combination garments.

Week 10: Developing layout plans for various fabric types

Week 11: Steps in construction of the following garment components- collars, sleeve, pockets, belts

Week 12: Steps in completing the following garments: girls frocks (various style), girls skirts, girls tops, boys shirts, night suits, trousers/ shorts, jackets

Facilitating the Achievement of Course Learning Outcomes:

Unit No.	Course Learning Outcomes	Teaching and Learning Activity	Assessment Tasks
1.	Learn about the children’s garment industry	Discussion, presentation and visit to the market	Assignment
2.	Learns specific requirements for children’s wear designing	Lecture	Assignment
3.	Prepare patterns and construct theme based children’s garments	Discussion and demonstration	Project work
4.	To prepare students to be able to work in garment industry	Discussion and group activity	Evaluation of a team task to be given

**FASEC41: CHILDREN'S WEAR
PRACTICAL**

Marks: 50

Duration: 3 Hrs.

Course Objectives:

It aims to learn about styles suitable for children and to be able to have a comprehensive knowledge about selection of fabrics and development of patterns for selected styles for children. Also to have a working knowledge of construction processes in garment assembly for children

Course Learning Outcomes:

- Assess the suitability of fabric to styles for children
- Make a flat sketch of styles for children's garments.
- Create patterns for the selected styles of garments
- Place patterns on fabric, cut and sew the garments from a selected range

CONTENTS

PERIODS

UNIT I: Understanding Styles for Children Garments

12

- Develop a fabric portfolio suitable for children's wear
- Design and create a portfolio with Flat and 3D sketching of children's garment (Theme based)

UNIT II: Pattern Making for Children's Clothes

20

- Develop drafts for children's bodice, sleeve and skirt block
- Collars for children
- Sleeve variations for children
- Other garment components
- Adapting basic patterns to various styles of garments

UNIT III: Laying, Cutting and Sewing

16

- Suggest and prepare a pattern layout for the above
- Construct three garments from the selected range.

Suggested Readings:

- Aldrich, W., (2009) *Metric Pattern Cutting for Children's Wear and Babywear*, 4th Edition, Wiley Blackwell Publication.
- Brown, P., Rice, J. (2014) *Ready to Wear Apparel Analysis*, Second Edition. Pearson Education India
- Crim, C.H. (2014) *Pattern Making for Kid's Clothes: All you need to know about Designing, Adapting, and Customizing Sewing Patterns for Children's Clothing*. Barnes & Nobles
- Donnanno, A. (2018), *Fashion Patternmaking Techniques for Children's Clothing*, Promo Press publication.
- Liechty, E.G., Pottberg D.N., and Rasband, J., (2016), *Fitting and Pattern Alteration: A multi-method approach to the art of style selection, fitting, and alteration*, 3rd Edition, ISBN-13: 978-1628929720 / ISBN-10: 1628929723, Fairchild Publication.

- Shoben, M.M., and Ward, J.P. (2000) *Pattern Cutting and Making Up Volume 2*, Revised Edition. LCFS Fashion Media

**FASEC42: FUNCTIONAL CLOTHING
THEORY**

Marks: 100

Duration: 3 Hrs.

Course Objectives:

The course aims to understand required features in clothes for specific end uses which impart knowledge about ways to incorporate desired features in a garment and to know special garment construction procedures for functional clothing.

Course Learning Outcomes:

1. Understand the importance of functional clothing that is user centric
2. Identify desired features in a garment for specific end use and design garment in accordance
3. List the required accessories and garment construction steps required in production of functional clothing

CONTENTS

PERIODS

UNIT I: User Centered Design

4

- Conducting research
- Defining problem
- Design strategies

UNIT II: Providing Mobility in Clothing

12

- Expansion of clothing during movement
- Increased mobility in clothing
- Fit and movement

UNIT III: Protective Clothing

12

- Clothing system for thermal protection
- Impact –protective clothing
- Protective clothing design for radiation hazard

UNIT IV: Clothing to Enhance and Augment Body Functions

12

- Clothing for sensory perception
- Clothing for high visibility
- Clothing for physical strength enhancement
- Clothing for protection from water
- Clothing for special need
- Smart textile

UNIT V: Product Development and Garment Production

8

- Heat sealing
- Thermal welding

- Moulding and heat shaping
- Fastening system

Suggested Readings:

- Hayes, S.G., and Venkatraman,P. (2017) *Material and Technology for Sportswear and Performance Apparel*, CRC Press.
- Song, G. (ed.) (2011) *Improving Comfort in Clothing*, Woodhead Publishing.
- Watkins, S.M., and Dune, L.E. (2015) *Functional Clothing Design, from Sportswear to Spacesuit*, Fairchild Books, New York.

Teaching Plan:

Week 1: User centered design

Week 2: Providing mobility in clothing: Expansion of clothing during movement

Week 3: Increased mobility in clothing

Week 4: Fit and movement

Week 5: Protective Clothing: Clothing system for thermal protection

Week 6: Impact protective clothing

Week 7: Protective clothing design for radiation hazard

Week 8: Clothing to enhance and augment body functions: Clothing for sensory perception, Clothing for high visibility

Week 9: Clothing for physical strength enhancement, Clothing for protection from water

Week 10: Clothing for special need, Smart textile

Week 11: Product development and garment production: Heat sealing, Thermal welding, Moulding and heat shaping

Week 12: Fastening systems

Facilitating the Achievement of Course Learning Outcomes:

Unit No.	Course Learning Outcomes	Teaching and Learning Activity	Assessment Tasks
1.	Understanding Importance of user centric functional clothing	Lecture and case study	Review of recent product launches or papers involving functional clothing
2.	Learning about required features in the garment for enhanced mobility	Lecture and presentation	Identification of commercial products available and their analysis
3.	Exploring features to be incorporated in protective clothing	Lecture and case study	Assignment of recent innovations in this area
4.	Gathering information regarding clothing to enhance body functions	Lecture and presentation	Review of latest work done in this area.
5.	Learning garment production processes for functional clothing	Lecture and visit to fairs and manufac- turing units	Project work

FASEC42: FUNCTIONAL CLOTHING PRACTICAL

Marks: 50

Duration: 3 Hrs.

Course Objectives:

To identify desired features to be incorporated in a garment for specific end use and learn special garment construction procedures used for functional clothing.

Course Learning Outcomes:

1. Identify desired features in a garment for specific end use and design garment in accordance.
2. Construct prototype of functional clothing using appropriate garment construction procedures and accessories.

CONTENTS

PERIODS

UNIT I: Designing and developing patterns for garments with increased freedom of movement for a specific end use. **12**

UNIT II: Identifying desirable features for a temperature controlled garment and designing a suitable gear (Gear for fire fighters/suit for cold weather) **12**

UNIT III: Designing and developing patterns of clothing for people with special needs -For physical disability, specific medical condition, etc. **12**

UNIT IV: Construction of one of the above designed garment with appropriate method of garment construction and using best suited fasteners. **12**

Suggested Readings:

- Hayes, S.G., and Venkatraman, P. (2017) *Material and Technology for Sportswear and Performance Apparel*, CRC Press.
- Song, G. (ed.) (2011) *Improving Comfort in Clothing*, Woodhead Publishing.
- Watkins, S.M., and Dune, L.E. (2015) *Functional Clothing Design, from Sportswear to Spacesuit*, Fairchild Books, New York.

FASEC43: TEXTILES FOR HOME AND HOSPITALITY THEORY

Marks: 100

Duration: 3 Hrs.

Course Objectives:

The aim is to acquire knowledge of history and use of textiles in home and hospitality sector and to gain knowledge regarding the selection criteria and care of various classes of textiles used in home and hospitality. It will also help to study the latest fashion trends and high performance materials in textiles used for home and hospitality.

Course Learning Outcomes:

1. Recall the salient features of various period styles of furnishings.
2. Classify the textiles used for home & hospitality and describe their selection criteria.

3. Explain the role of emerging trends in fashion and technology used in textiles for home and hospitality.
4. Discuss the growing market for home & hospitality and the major production centers in India.

CONTENTS

PERIODS

UNIT I: Introduction to Textiles Used in Home and Hospitality **10**

- Textiles used in home and various sectors of hospitality like hospitals, modes of travelling (airlines, railways, automobiles etc.), restaurants and hotels
- Period styles in home furnishings
- Classification of textiles for home and hospitality (hard and soft): upholstery fabrics, window textiles, bed linen and other bed textiles, bathroom textiles, kitchen and table linen, floor coverings-rugs and carpets

UNIT II: Selection, Use, Care, Storage and Maintenance **18**

- Various parameters for selecting textiles for home and hospitality (types, standard sizes, construction, performance, durability, aesthetics, price range etc.)
- Informative labelling and Packaging
- Government regulations and standards
- Maintenance of various product categories at domestic and commercial levels

UNIT III: Influence of Fashion and Technology **10**

- Contemporary fashion trends in textiles for home and hospitality and forecast for the future
- Factors affecting selection of design (end use, size and type of room, type of arrangement, type of furniture, geographical location etc.)
- Designers, Brands and Outlets dealing with furnishings
- Innovations in technology, high performance materials and use of finishes to enhance functionality
- Sustainable and eco-friendly practices in textiles used for home and hospitality

UNIT IV: Manufacturing and Production Capacity of Textiles for Home and Hospitality **10**

- Textiles for home and hospitality: Global Vs Indian market
- Growing domestic market and major production centers
- Present status of the industry and areas for improvement

Suggested Readings:

- Das, Subrata (2010) *Performance of Home Textiles*, New Delhi, Woodland Publishing India Pvt Ltd
- Howes, Karen (1997) *Making the Most of Bedrooms*, London, Conran Octopus
- Lebeau, Caroline (2004) *Fabrics- the Decorative Art of Textiles*, London, Thames and Hudson
- Neiswand, Nonie (1998) *Bedrooms and Bathrooms*, London, Conran Octopus

- Ranall, Charles T. (2002) *Encyclopedia of Window Fashions*, California, Randall International
- Wingate, Isabel B. (1949) *Textile Fabrics and Their Selection*, New York, Prentice Hall

Teaching Plan:

Week 1: Textiles used in home and various sectors of hospitality

Week 2: Period styles in home furnishings

Week 3: Classification of textiles for home and hospitality

Week 4: Various parameters for selecting textiles for home and hospitality

Week 5: Informative labelling and Packaging, Government regulations and standards

Week 6: Maintenance of various product categories at domestic and commercial levels

Week 7: Contemporary fashion trends, forecast, factors affecting selection of design

Week 8: Designers, Brands and Outlets dealing with furnishings

Week 9: Innovations in technology, sustainable and eco-friendly practices

Week 10: Textiles for home and hospitality: Global Vs Indian market

Week 11: Growing domestic market and major production centres

Week 12: Present status of the industry and areas for improvement

Facilitating the Achievement of Course Learning Outcomes:

Unit No.	Course Learning Outcomes	Teaching and Learning Activity	Assessment Tasks
1	Recall the salient features of various period styles of furnishings.	Lecture/ PPT	Quiz for assessing the level of understanding
2	Classify the textiles used for home & hospitality and describe their selection criteria.	Lecture/ PPT / Group discussion	Class test
3	Explain the role of emerging trends in fashion and technology used in textiles for home and hospitality	Lecture / PPT / Group discussion	Assignment on review of latest developments from journals and magazines
4	Discuss the growing market for home & hospitality and the major production centres in India.	Lecture / Group discussion	Presentations by students on major production centres

**FASEC43: TEXTILES FOR HOME AND HOSPITALITY
PRACTICAL**

Marks: 50

Duration: 3 Hrs.

Course Objectives:

It will help to acquire knowledge on selection parameters and different types of design details and fabrics used for interiors and to develop an understanding of the emerging trends in textiles used for interiors.

Course Learning Outcomes:

1. Analyze the range of textile products used for home & hospitality available in the market.
2. Apply the understanding of future forecast and advanced technology in designing interiors for different room types.

CONTENTS

PERIODS

UNIT I: Selection of Textiles Used in Home and Hospitality **20**

- Market survey of different categories of textiles used in home and hospitality (types, standard sizes, construction, performance, durability, aesthetics, price range etc.)
- Comparison of different brands (local / reputed) with respect to informative labelling and product packaging
- Compilation of swatches/ pictures of different fabrics used for interiors (woven, knit, non-woven, other methods of construction crochet, braiding, nets, laces etc.)

UNIT II: Contemporary Trends in Textiles Used for Home and Hospitality **28**

- Analysis of latest forecast trends
- Report on famous designers and key players (brands / outlets) dealing with furnishings
- Design exercises
- Planning fabric decorations for different room types based on end use, size and type of room, type of arrangement, type of furniture, geographical location etc.

Suggested Readings:

- Das, Subrata (2010) *Performance of Home Textiles*, New Delhi, Woodland Publishing India Pvt Ltd
- Howes, Karen (1997) *Making the Most of Bedrooms*, London, Conran Octopus
- Lebeau, Caroline (2004) *Fabrics- the Decorative Art of Textiles*, London, Thames and Hudson
- Neiswand, Nonie (1998) *Bedrooms and Bathrooms*, London, Conran Octopus
- Ranall, Charles T. (2002) *Encyclopedia of Window Fashions*, California, Randall International
- Wingate, Isabel B. (1949) *Textile Fabrics and Their Selection*, New York, Prentice Hall

FASEC44: TECHNICAL TEXTILES THEORY

Marks: 100

Duration: 3 Hrs.

Course Objectives:

The course aims to understand the concept of technical textiles and its applications in various areas like construction, healthcare, transport etc. which develop skills in the critical selection and creative use of textile materials in various areas.

Course Learning Outcomes:

1. Understand the properties and performance of a range of technical textiles.
2. Analyze appropriate uses for a variety of fabrics, yarns and fibres in various areas like construction, healthcare, transport etc.
3. Generate and develop creative ideas for the use of technical textiles.

CONTENTS

PERIODS

UNIT I: An Overview of Technical Textiles

8

- Definition and Scope
- Application areas
- Technical fiber, yarn and fabrics
- Textile reinforced composite materials

UNIT II: Technical Textile Sectors, their Structures, Requirements and End Uses

32

- Industrial textiles
- Filtration textiles
- Geo textiles
- Medical and healthcare textiles
- Agricultural textiles
- Protective textiles
- Automotive textiles

UNIT III: Other Applications and Future Trends

8

- Marine
- Industrial
- Military
- Energy Harvesting
- Sports

Suggested Readings:

- Anand, S.C., Kennedy, J F., MirafTAB, M., and Rajendran, S. (2005) *Medical Textiles and Biomaterials for Healthcare*, Woodhead Publishing Series in Textiles.
- Bartels, V. (2011) *Handbook of Medical Textiles*, 1st Edition, Woodhead Publishing Series in Textiles.

- Bunsell, A. R. (2009) *Handbook of Tensile Properties of Textile and Technical Fibres*, 1st Edition, Woodhead Publishing Series in Textiles.
- Chapman, R. (2012) *Smart Textiles for Protection*, Woodhead Publishing Series in Textiles.
- Horrocks, R. and Anand, S. C. (2015) *Handbook of Technical Textiles*, second edition, volume 1: technical textile processes, The Textile Institute, Woodhead Publishing.
- Horrocks, R. and Anand, S. C. (2016) *Handbook of Technical Textiles*, second edition, volume 2: technical textile applications, The Textile Institute, Woodhead Publishing.
- Langenhove, L.V. (2007) *Smart Textiles for Medicine and Healthcare: Materials, Systems and Applications*, Woodhead Publishing Series in Textiles, 1st Edition.
- Tao, X. (2001) *Smart Fibres, Fabrics and Clothing: Fundamentals and Applications*, Woodhead Publishing Series in Textiles.

Teaching Plan:

Week 1: Definition and Scope, Application areas

Week 2: Technical Fiber, Yarn and Fabrics, Textile reinforced composite materials

Week 3: Industrial textiles

Week 4: Waterproof breathable fabrics,

Week 5: Filtration textiles,

Week 6: Geo textiles, Medical

Week 7: Healthcare textiles

Week 8: Agricultural textiles

Week 9: Protective textiles

Week 10: Automotive textiles

Week 11: Marine, Industrial, Military,

Week 12: Energy Harvesting, Sports, Future trends

Facilitating the Achievement of Course Learning Outcomes:

Unit No.	Course Learning Outcomes	Teaching and Learning Activity	Assessment Tasks
1.	Basic understanding of technical textiles and its application	Presentation, group discussion	Review of recent product launches or papers involving technical textiles.

2.	Understanding of waterproof breathable fabrics, dust collection and fabric collection, use of nanofibers, yarn types and fabric constructions in filtration, functions of geotextiles, selection of fibers for geotextiles and their manufacturing, protection issues and developments in protective textile materials, fibers used for healthcare, protective textiles, textiles materials used in automotive and agriculture	Presentation, group discussion and team work	Tasks may include: projects, journals, reports and presentations, individually and/or in groups.
3.	Understanding of other application of technical textiles like in marine, military, sports and leisure	Lecture and presentation	Review of latest work done and future trends in this area.

FASEC44: TECHNICAL TEXTILES PRACTICAL

Marks: 50

Duration: 3 Hrs.

Course Objectives:

To acquire knowledge about different type of industrial textiles available in market and develop an understanding of the principles involved in performance of technical textile fabrics.

Course Learning Outcomes:

1. Understand about the properties and performance of technical textiles.
2. Develop practical knowledge for the use of technical textiles.

CONTENTS

PERIODS

UNIT I: Fabric Sourcing of Various Industrial Textile Fabrics;

8

- Coated fabric
- Foam fabric
- Fused
- Nonwoven
- Laminated
- Other fabrics used for geo-textiles, filtration, automotive, medical textiles, etc.

UNIT II: Geometrical Parameters of Various Industrial Textile Fabrics;

24

- Fibre content
- Fabric weight
- Fabric Thickness
- Thread count
- Yarn count
- Yarn type
- Type of weave

UNIT III: Field Visits	8
UNIT IV: Project on any one area of technical textile	8

Suggested Readings:

- Booth, J. E (1968) *Principle of Textile Testing*, Chemical Publishing Corporation.
- Grover, E.B and Hamley, D.S (2011) *Handbook of Textile Testing and Quality Control* Wiley India Pvt Ltd
- Hearle, J.W.S. and Peters R.H. (1975) *The Physical Testing of Textile Fibres*, The Textile Institute, Heinmann.
- Saville. B.P. (1999) *Physical Testing of Textiles*, Woodhead Publishing Limited
- Skinkle, J. H (1949) *Textile Testing*, Chemical Publishing Co. Inc. Brooklyn, New York.

**FASEC45: TEXTILE CONSERVATION
THEORY**

Marks: 100

Duration: 3 Hrs.

Course Objectives:

The course aims to provide theoretical knowledge and a range of practical experience which enables to contribute to the understanding and preservation of culturally significant textile artefacts.

Course Learning Outcomes:

1. Understand the importance of textile collection management
2. Recognize agents of deterioration of textiles on analysis
3. Analyze and suggest correct collection maintenance practices and undertake curative conservation

CONTENTS

PERIODS

UNIT I: Introduction to Textile Collection Management	8
<ul style="list-style-type: none"> • Textiles – Definition, description and purpose • Terminology • Museums and Collections • Ethics in Conservation 	
UNIT II: Nature of Materials and Agents of Deterioration	16
<ul style="list-style-type: none"> • Nature of Material and techniques • Agents of Deterioration – Natural and Man-made • Preventive Conservation and Curative Conservation 	
UNIT III: Collection Maintenance	12
<ul style="list-style-type: none"> • Workspace and Equipment and safety • Materials and supplies • Basic Handling • Cleaning 	

- Dealing special problems

UNIT IV: Storage and Display

12

- General requirements for storage
- Storage systems
- Methods and materials
- General requirements for display
- Exhibition planning
- Mounting methods
- Documentation
- Risk management

Suggested Readings:

- King, Rosalie Rasso (1985) *Textile Identification- Conservation and Preservation*, New Jersey, Noyes Publications
- Landi, Sheila (1985) *The Textile Conservator's Manual*, London, Butterworths and Co.
- Mc Lean Catherine C. and Cannel, Patricia, (Eds) (1986) *Textile Conservation*, The Conservation Center, Los Angeles County Museum of Art
- Schweppe Helmut (1987) *Practical Information for Identification of Early Synthetic Dyes*, Washington DC, Conservation Analytical Laboratory, Smithsonian Institute
- *Science for conservators, Crafts Council Conservation Teaching Series,---An Introduction to materials*, 1983- Cleaning, 1984- Adhesives and coatings

Teaching Plan:

Week 1:Importance of collection management, Terminology

Week 2: Museums, collections and Ethics

Week 3:Nature of Materials - Fibers and properties

Week 4: Fabric construction, finishes and dyes

Week 5: Agents of Deterioration – Natural and Man-made, damages

Week 6: Preventive and Curative conservation, Materials and Restoration

Week 7:Collection Maintenance - Materials, Handling, Transportation and Safety measures

Week 8:Cleaning - Mechanical, Wet

Week 9: Special Problems

Week 10: Storage - Requirements, Systems and methods and materials

Week11: Display- Requirements, Exhibition planning, Methods

Week 12: Documentation and Risk Management

Facilitating the Achievement of Course Learning Outcomes:

Unit No.	Course Learning Outcomes	Teaching and Learning Activity	Assessment Tasks
1.	Understand the importance of textile collection management	Unit transaction through lectures, audio-visual presentations, videos and museum visit	Quizzes, assignments, Visit to museum and report
2.	Recognize agents of deterioration of textiles on analysis	Unit transaction through audio-visual presentations, videos	Quizzes, assignments, Analysis of condition of textile collection
3.	Analyze and suggest correct collection maintenance practices	Unit transaction through projected visual explanations, textile samples	Assignments, Open book tests, Quizzes, visits

**FASEC45: TEXTILE CONSERVATION
PRACTICAL**

Marks: 50

Duration: 3 Hrs.

Course Objectives:

To examine and analyze museum environment and textile collections for damages and provide solutions for restoration and cleaning of heritage textiles.

Course Learning Outcomes:

1. Examine museum environment
2. Analyze and document textile collection damages and provide preventive conservation solutions
3. Undertake restoration and cleaning activities for textile artefacts
4. Plan textile collection storage and exhibitions

CONTENTS

PERIODS

UNIT I: Museum Study and Environmental Factors

6

- Museum visit
- Survey of external and internal environmental factors of any selected museum
- Analysis of environmental conditions in work area

UNIT II: Examination, Analysis and Documentation

6

- Examination of textiles- fibers, weave, type of textile based on technique of manufacture
- Analysis of documentation procedures of collection in college, sample documentation

UNIT III: Cleaning and Restoration **6**

- Cleaning methods- mechanical and solvent
- Restoration methods for stabilization of objects- darning, patching, lining samples

UNIT IV: Scientific Analysis **6**

- Ageing Simulations
- Thin Layer Chromatography

UNIT V: Storage and Display Techniques **24**

- Hands on- flat, rolled and framed storage for textiles
- Hands on- box and hanging storage for costumes
- Special techniques for special items
- Textile and Costume display techniques
- Exhibition planning

Suggested Readings:

- King, Rosalie Rasso (1985) *Textile Identification- Conservation and Preservation*, New Jersey, Noyes Publications
- Landi, Sheila (1985) *The Textile Conservator's Manual*, London, Butterworths and Co.
- Mc Lean Catherine C. and Cannel, Patricia, (Ed.) (1986) *Textile Conservation*, The Conservation Center, Los Angeles County Museum of Art
- Mary M. Brooks, Dinah Eastop (2011), *Changing Views of Textile Conservation*, Getty Publications, Los Angeles
- Schewpe Helmut (1987) *Practical Information for Identification of Early Synthetic Dyes*, Washington DC, Conservation Analytical Laboratory, Smithsonian Institute
- *Science for conservators, Crafts Council Conservation Teaching Series,---An Introduction to materials*, 1983- Cleaning, 1984- Adhesives and coatings
- Mary M. Brooks, Dinah Eastop Getty Publications, 2011

**FASEC46: FASHION COMMUNICATION
THEORY**

Marks: 100

Duration: 3 Hrs.

Course Objectives:

The course aims at giving an overview of the fundamentals of global fashion and to equip students with the knowledge and understanding of the components of communication design.

Course Learning Outcomes:

1. Understand fundamentals of global fashion
2. Comprehend basics of graphic design
3. Learn elements of fashion photography, styling and visual merchandising
4. Examine and analyze use of varied media for communication and promotion

CONTENTS

PERIODS

UNIT I: Fashion Basics

4

- Fashion seasons, cycles
- Fashion forecasting
- Fashion brands and identity
- International and national fashion designers, their philosophies and design

UNIT II: Graphic Design **8**

- Design process and orientation
- Letter forms
- Anatomy of Type
- Logo design
- Basics of Grids and layouts

UNIT III: Photography **10**

- Introduction to the arts and aesthetics of photography
- Introduction to Fashion Photography
- Handling camera (types and parts), exposure and focus modes
 - The exposure triangle
 - Depth of Field
- Lighting Basics- Axis of light, White Balance, Lighting Ratio and Incident Vs Studio Light
- Working with natural and artificial light
- Basic understanding of editing photographs
 - Retouching on Photoshop
 - Color Grading, selective color, selection tools, filters

UNIT IV: Styling **4**

- Study of body shapes and proportion
- Color Analysis
- Personality: Personal style and expression
- Personal and Commercial styling

UNIT V: Visual merchandising **10**

- Definition and purpose
- Line, Composition, Color and Balance
- Elements of Design
- Light and lighting
- Types of display and display settings
- Display and Light Fixtures
- Retail store exteriors and interiors

UNIT VI: Fashion and Media **12**

- Communication design for brands/producer and consumer
- Historical and contemporary perspective
- Fashion Journalism
- Fashion, beauty and luxury publishing
- Fashion advertising and PR

- Ethics in journalism

Suggested Readings:

- Pegler, M. Martin (2006) *Visual Merchandising*, Fairchild Publications Inc., New York
- Greenwood, G. L. (2012) *Fashion Marketing Communications*, John Wiley and Sons
- Jay, Phyllida (2015) *Fashion India*, Thames and Hudson, London.
- Posner, Harriet (2011) *Marketing Fashion*, Lawrence King Publishing, China
- Jade, L. (2012) *Fashion Photography 101, A Complete Course for the New Fashion Photographers*, Hachette UK

Teaching Plan:

Week 1: Fundamentals of fashion, theories, seasons, Fashion forecasting, cultures, subcultures, National and international fashion designers

Week 2: Design process and orientation: basic techniques for design development through a process of observation, study, exploration, ideation, and perception, Letter forms

Week 3: Typography & logo design, Anatomy of Type, Basics of grids and layouts

Week 4: Introduction to the arts and aesthetics of photography, Introduction to Fashion Photography, Handling camera, exposure and focus modes

Week 5: The exposure triangle, Depth of Field, Lighting Basics- Axis of light, White Balance, Lighting Ratio and Incident Vs Studio Light, Working with natural and artificial light

Week 6: Basic understanding of editing photographs, Retouching on Photoshop/ Lightroom, Color Grading, selective color, selection tools, filters

Week 7: Understanding of various kinds of figure types, proportions, Understanding of various kinds of face shapes, Color analysis on the basis of skin, hair and eye color and color suggestions, Identification of various kinds of personal styles and characteristics

Week 8: Definition and purpose of Visual Merchandising, Line, composition, Color and balance, Elements of Design, Light and lighting

Week 9: Types of display and display settings, Display and Light Fixtures, Retail store exteriors and interiors

Week 10: Understanding of communication design and process, Historical and contemporary perspective

Week 11: Fashion Journalism, Fashion, beauty and luxury publishing

Week 12: Fashion advertising and PR, Ethics in journalism

Facilitating the Achievement of Course Learning Outcomes:

Unit No.	Course Learning Outcomes	Teaching and Learning Activity	Assessment Tasks
1.	Students will be able to develop an understanding of the fundamentals of fashion and lifestyle	Power point presentation and lecture Workshop by designers	Quiz Group discussion assessment
2.	The unit aims to develop visual and design vocabulary in	Power point presentation and lecture	Assignment

	students	Group discussion	
3	It aims to develop visual skills through photography to communicate fashion.	Visits to galleries, museums, and the studios of successful working photographers. Photo review with expert mentors	Documentation of the visit
4	It will enable students to understand styling (personal and commercial) depending on various body shapes and personality	Power point presentation and lecture	Quiz Assignment
5	Students will be able to develop a good understanding of the key Visual Merchandising principles And will be able to use color, lighting and graphics in displays	Guest lecture Power point presentation Visit to retail store	Document report
6	Students will develop observation and understanding of the basics of the electronic, print and social media. It aims to develop writing skills and visual skills to communicate fashion.	Demonstrations Guest lecture Visit to fashion media	Documentation Assignment Quiz

FASEC46: FASHION COMMUNICATION PRACTICAL

Marks: 50

Duration: 3 Hrs.

Course Objectives:

The course aims to familiarize students with current trends of the fashion and lifestyle business and equip them to plan and develop media solutions for a brand/retail set up

Course Learning Outcomes:

1. Comprehend trend analysis of apparel and accessories
2. Design graphics in terms of typography and logo, for a retail set up
3. Style as per the body and face shape and its photographic presentation
4. Create floor lay out plans and window display for a retail set up
5. Develop media report for print, electronic and digital media

CONTENTS

PERIODS

UNIT 1: Fashion Basics

4

- Study and documentation of trend analysis of international designers focusing on signature style, sources of inspiration and design language

UNIT II: Graphic Design **8**

- Create various kinds of typecases
- Develop type cases, different grids and layout
- Logo design

UNIT III: Photography and Styling **12**

- Study of editorial photography and its analysis
- Basic exercises on handling of camera and under different lights
- Determine various kinds of body shapes and face shapes and give suitable suggestions in terms of clothing, accessories for styling.
- Color analysis
- Style a model inspired by any subculture/ personal style and take different kinds of imagery (portfolio photography)

UNIT IV: Visual Merchandising **8**

- Development of various kinds of retail floor layout
- Development of Window Display

UNIT V: Fashion and Media **16**

- Identify and develop media solutions for a fashion brand, focusing on logo design and advertisement for a retail set up
- Fashion reporting for print media: magazines/newspaper
- Fashion reporting for electronic media
- Fashion reporting for digital and social media

Suggested Readings:

- Greenwood, G. L.(2012) *Fashion Marketing Communications*, John Wiley and Sons
- Jade, L.(2012) *Fashion Photography 101, A Complete Course for the New Fashion Photographers*, Hachette UK
- Jay, Phyllida (2015) *Fashion India*, Thames and Hudson, London.
- Pegler, M. Martin (2006) *Visual Merchandising*, Fairchild Publications Inc., New York
- Posner, Harriet (2011) *Marketing Fashion*, Lawrence King Publishing, China

**FASEC47: COMMERCIAL LAUNDRY PRACTICES
THEORY**

Marks: 100

Duration: 3Hrs.

Course Objectives:

To familiarize student with commercial laundry practices in hospitality industry and impart knowledge about the various reagents used for commercial laundry.

Course learning Outcomes:

Students will be able to

1. Acquire knowledge of various chemicals and reagents used in Commercial laundry
2. Understand the steps and processes involved in commercial laundry

CONTENTS**PERIODS****Unit I: Introduction to Laundry Chemistry****15**

- Concept of pH, acid and bases
- Water- Water Chemistry, Hardness, Total dissolved solids, Presence of Chlorine, Iron
- Water Softeners, Soil Emulsifiers, Phosphates, Chelating agents
- Bleaches
- Enzyme technology
- Stain removal chemistry and procedure
- Detergent Chemistry
- Dry-cleaning Solvents
- Finishes- softeners, starches, Anti microbial finish
- Types of fibres and fabrics used in hotels and hospitals

Unit II: Introduction to Laundry Process**15**

- Different methods of cleaning
- Steps in washing: Sorting, Loading, Flushing, Washing/Breaking, Suds operation, Bleaching/
Use of enzymes, Rinsing, Antichlor treatment, Souring
- Finishing-Application of Softeners or Starches
- Water extraction, Drying
- Ironing
- Washing machine, Hydro extractor, Dryers, Pressing equipments
- Factors affecting cleaning efficiency and costing.

Unit III: Laundry Process in Hotels and Hospitals**13**

- Importance of laundry department in Hospitality industry
- Linen category and treatment in hospitals – soiled, infected, foul etc.
- Laundry work flow in hospitals and hotels
- Hygienically clean textiles

Unit IV: Environmental Issues and Sustainability**5**

- Chemical environmental issues in laundry industry
- Biodegradable surfactants, solvents and softeners
- Green product technology, ozone laundry

- Water and energy conservation-reuse of water

Suggested Readings:

- Andrews, S. (2013). *Hotel housekeeping: A training manual*. Tata McGraw-Hill Education. New Delhi
- Hickman, A. & Sargeant, B. (2012). *Laundry linen and guests' clothes: Trainee manual*. Alan Maguire (Ed.). Retrieved from TM_Laundry_linen_&_guests_clothes_310812.docx
- Hickman, A. & Sargeant, B. (2012). *Maintain and operate an industrial laundry: Trainee manual*. Alan Maguire (Ed.). Retrieved from TM_Maintain_&_operate_an_ind_laundry_310812.docx
- Sogaard, S. (2014). *Laundry operations*. Laundry Logics aps, Ronne, DK.

Teaching Plan:

Week 1- Introduction to Laundry Chemistry

- Concept of pH, acid and bases
- Water- Water Chemistry, Hardness, Total dissolved solids, Presence of Chlorine, Iron

Week 2-Water Softeners, Soil Emulsifiers, Phosphates, Chelating agents

- Bleaches
- Enzyme technology
- Stain removal chemistry and procedure

Week 3-Detergent Chemistry

- Dry-cleaning Solvents

Week 4-Finishes- softeners, starches, Anti-microbial finish

- Types of fibres and fabrics used in hotels and hospitals

Week 5- Introduction to Laundry Process

- Different methods of cleaning

Week 6- Steps in washing: Sorting, Loading, Flushing, Washing/Breaking, Suds operation, Bleaching/ Use of enzymes, Rinsing, Antichlor treatment, Souring

Week 7- Finishing-Application of Softeners or Starches

- Water extraction, Drying

Week 8- Ironing

- Washing machine, Hydro extractor, Dryers, Pressing equipments
- Factors affecting cleaning efficiency and costing.

Week 9 Laundry Process in Hotels and Hospitals

- Importance of laundry department in Hospitality industry
- Linen category and treatment in hospitals – soiled, infected, foul etc.

Week 10- Laundry work flow in hospitals and hotels

- Hygienically clean textiles

Week 11- Environmental Issues and Sustainability

- Chemical environmental issues in laundry industry

- Biodegradable surfactants, solvents and softeners

Week 12- Green product technology, ozone laundry

- Water and energy conservation-reuse of water

Facilitating the Achievement of Course Learning Outcomes:

Unit No.	Course Learning Outcomes	Teaching and Learning Activity	Assessment Tasks
1.	To Understand the Laundry Chemistry	Lectures and presentation	Assignments and test
2.	To know the various Laundry Process involved	Lectures and presentation	Assignments and test
3.	Be familiar of the Laundry Process in Hotels and Hospitals	Lectures and presentation, visits	Case study and report
4.	Environmental Issues and Sustainability	Lectures and presentation	Assignments and test

**FASEC47: COMMERCIAL LAUNDRY PRACTICES
PRACTICAL**

Course Objective:

To familiarize student with commercial laundry practice in hospitality industry.

To impart the knowledge about the various commercial reagents available in market and their efficiency.

Course learning Outcomes:

Student will apply the knowledge of testing procedure for commercial reagents used in laundry

CONTENT

PERIODS

UNIT I: Determination of quality of water: hardness titration, Alkalinity, Chlorine and oxygen tests	4
UNIT II: Stain removal	1
UNIT III: Evaluation of detergents used for commercial laundry	1
UNIT IV: Evaluation of bleaching agents used commercially	1
UNIT V: Evaluation of different starches, softener and anti-microbial finishes	3
UNIT VI: Visits to laundry setups in: Hotels and Hospitals	2

Suggested Readings:

- Andrews, S. (2013). *Hotel housekeeping: A training manual*. New Delhi: Tata McGraw-Hill Education.

- Carr C M. (1995). *Chemistry of the textile industry*. London: Blackie Academic & Professional.
- Hickman, A. & Sargeant, B. (2012). *Laundry linen and guests' clothes: Trainee manual*. Alan Maguire (Ed.). Retrieved from TM_Laundry_linen_&_guests_clothes_310812.docx
- Hickman, A. & Sargeant, B. (2012). *Maintain and operate an industrial laundry: Trainee manual*. Alan Maguire (Ed.). Retrieved from TM_Maintain_&_operate_an_ind_laundry_310812.docx.
- Sogaard, S. (2015). *Laundry operations*. Ronne, DK: .Laundry Logics