



**PSGR
Krishnammal College for Women**



DEPARTMENT OF COSTUME AND APPAREL DESIGN

PROGRAMME: M.Sc. FASHION AND APPAREL DESIGN

CHOICE BASED CREDIT SYSTEM (CBCS)&

LEARNING OUTCOMES- BASED CURRICULAR FRAMEWORK (LOCF)

(SEMESTER –I)

M.Sc. FASHION AND APPAREL DESIGN

2024-2026 Onwards

Batch2025-2027



PROGRAMME LEARNING OUTCOMES (PLO's)

After completion of the programme, the student will be able to

- **PLO1:** Understand diverse cultural influences and market demands of apparel industry
- **PLO2:** Create innovative functional and aesthetic apparels including accessories.
- **PLO3:** Design apparels with advance digital tools and technologies
- **PLO4:** Research and analyze textile and fashion trends
- **PLO5:** Apply knowledge and skill in the fashion field and entrepreneur.

PROGRAMME SPECIFIC OUTCOME (PSO's)

The students at the time of graduation

- **PSO1:** Graduates can function independently with their innovative and creative skills
- **PSO2:** Graduates will be able to meet the current Industries requirements
- **PSO3:** Graduates Can Undertake the research /projects sectors to new product development



**M.Sc. FASHION AND APPAREL DESIGN (2024-2026 BATCH & ONWARDS)
CHOICE BASED CREDIT SYSTEM (CBCS)&LEARNING OUTCOMES- BASED
CURRICULAR FRAMEWORK (LOCF)
(SEMESTER –I)**

Programme and Branch M.Sc. FAD											
Syllabus& Scheme of Examination 2025-2027 Batch & Onwards											
SEMESTER	Course Code	Title of the course	Course type	Instruction hours/week	Contact hours	Tutorial hours	Duration of Examination	Examination Marks			Credits
								CA	ESE	TOTAL	
I											
	MFD2401	Fashion Forecasting and Product Development	CC	4	58	2	3	25	75	100	4
	MFD2402	International Trade and Documentation	CC	4	58	2	3	25	75	100	4
	MFD2403	Apparel Production Planning and Control	CC	4	58	2	3	25	75	100	4
	MFD24P01	Creative Draping Lab	CC	6	90	-	4	25	75	100	3
	MFD24P02	Virtual Design Lab	CC	6	90	-	3	25	75	100	3
	MFD24P03	New Product Design Development – Functional Clothing Lab	CC	6	90	-	3	25	75	100	3
I-III	17MONL1	Online Course 1 #	ACC	-	-	-	-	-	-	-	Completion Certificate

CC-All Core Courses

ACC- Online course #

CA – Continuous Assessment **ESE** - End Semester Examination Gr-Grade

QUESTION PAPER PATTERN 24-26Batch

Question Paper Pattern and distribution of marks PG- Core and Allied- (First 3 Units)

CA Question from eac hunit comprising of

One question with a weightage of 2Marks	2 x 3 = 6
One question with a weightage of 5 Marks (Internal Choice at the same CLO level)	5 x 3 =15
One question with a weightage of 8 Marks (Internal Choice at the same CLO level)	8x3=24
Total	45 Marks

End Semester Examination–Question Paper Pattern and Distribution of Marks

PG-Core and Allied courses:

ESE Question Paper Pattern: 5x15=75Marks

Question from each unit comprising of

One question with a weightage of 2 Marks	2 x 5=10
One question with a weightage of 5 Marks (Internal Choice at the same CLO level)	5 x 5 =25
One question with a weightage of 8 Marks (Internal Choice at the same CLO level)	8 x 5 =40
Total	75 Marks

Continuous Internal Assessment Pattern

Theory

I Year UG / PG (23 Batch)

CIA Test	:	5 marks (Conducted for 45 marks after 50 days)
Model Exam	:	7 marks (Conducted for 75 marks after 85 days (Each Unit 15 Marks)
Seminar/Assignment/Quiz	:	5 marks
Class Participation	:	5 marks
Attendance	:	3 marks
Total		25 Marks

Practical

Lab Performance	:	7marks
Regularity	:	5marks
Model Exam	:	10marks
Attendance	:	3marks
Total	:	25 marks

ESE Practical Pattern

The End Semester Examination will be conducted for a maximum of 75 marks with a maximum 15 marks for the record and other submissions if any.

Attendance component in CA

91-100% attendance : 3 Marks

81-90% attendance : 2 Marks

75-80% attendance : 1 Marks

COURSE CODE	COURSE NAME	Category	L	T	P	Credit
MFD2401	FASHION FORECASTING AND PRODUCT DEVELOPMENT	Theory	58	2	-	4

Preamble

This course explores the intricacies of fashion forecasting and design logics in apparel production and Market analysis

Course Learning Outcomes

On the successful completion of the course, students will be able to

CLO Number	CLO Statement	Knowledge Level
CLO1	Acquire knowledge on types, sources, processes and services of fashion forecasting	K1
CLO2	Explain the forecaster's and forecasting services role and decision making processes	K2
CLO3	Develop plans to engineer apparel products	K5
CLO4	Develop new products and evaluation of suitability function	K6
CLO5	Evaluate the economics underlying apparel products and projects	K6

Mapping with Programme Learning outcomes.

CLOs	PLO1	PLO2	PLO3	PLO4	PLO5
CLO1	S	S	S	S	S
CLO2	S	S	S	S	S
CLO3	M	S	S	S	S
CLO4	S	S	S	S	S
CLO5	S	M	M	S	S

S – Strong; M – Medium

Syllabus .

Unit I

11 Hours

Definition of forecasting - types of forecasting –process of research, colour research fashion research, customer profile research. Source of fashion forecasting information –forecasting agencies and their role in forecasting. Seasons and their impact on fashion. Compiling fashion forecasting information - forecasting agencies – forecasting magazines – websites – information in the forecasting publications. Fashion forecasting in Indian Scenario.

Unit II**12 Hours**

Fashion forecasting packages and magazines, specialist fashion forecasting companies – the role of forecaster in aiding fashion designers, developers and retailers- process of forecasting- decision making process-when to start forecasting for the selling season.

Unit III**12 Hours**

Design logic of apparel products - Classification of textile products, components, aesthetics and comfort of textile products, anthropometry, sizing, body scanning and fit analysis. Material, specification, properties and technology of constituent fibres, yarns, fabrics and apparels.

Unit IV**12 Hours**

Building of the first design ideas, planning to costing, line building, from spec to samples, production selling according to the seasons. Developing new product - Idea generation, idea screening, concept testing, business analysis, the product development process, group product development, research, test marketing, commercialization.

Unit V**11 Hours**

Evaluation of portfolio of products or projects –introduction and purpose of economic analysis – market potential – market demand – estimating sales –estimating cost and profit. Marketing analysis - advertising and media planning, fashion shows and other events, Industry tour and project. surveys and organizing of exhibitions.

Text Books:

S.NO	Name of the Authors	Title of the book	Publishers	Year and Edition
1.	Harold Carr & John Pomeroy	Fashion Design and Product development	Wiley India (P) Ltd	2009, 1 st edition
2.	Michael R. Solomen, Nancy J.Rabit	Consumer Behavior in Fashion	Pearson Education Inc.	2008, 2nd edition
3.	Kitty G. Dickerson	Inside the Fashion Business	Pentice hall	2002, 7th edition

Reference Books:

S.NO	Name of the Authors	Title of the book	Publishers	Year and Edition
1.	Evelyn Brannon L, Lorynn Divita	Fashion Forecasting	Bloomsbury Academic	2015, 4th edition
2.	Gini Stephens Frings	Fashion from Concept to Consumer	Pearson Education Inc.	2007, 9th Edition
3.	Peter Mc Claud	Past and Present Trends Fashion Technology	Abhishek Publications	2013

E-Journals:

- Journal of Textile and Apparel, Technology and Management

- Journal of Textile Engineering and Fashion Technology
- Fashion and Textiles
- Journal of Fashion Technology & Textile Engineering
- Textile World
- Trends in Textile Engineering & Fashion Technology
- The Textile Association

Name of the course	Fashion Forecasting and Product Development (Paper– I)
Name of the Faculty	Dr. Tryphena R
Participatory learning	40%
Experimental learning	30%
Problem based learning	30%

Pedagogy .

Lecture by chalk and talk, power point presentation, e-content, group discussion, assignment, quiz, peer learning, seminar.

Course Designer.

Dr.R.Radhika

COURSE CODE	COURSE NAME	Category	L	T	P	Credit
MFD2402	INTERNATIONAL TRADE AND DOCUMENT	Theory	58	2	-	4

Preamble

This course helps to gain insights into the multifaceted landscape of international trade, export procedures and promotional councils, and the intricate web of global commerce.

Course Learning Outcomes.

On the successful completion of the course, students will be able to

CLO Number	CLO Statement	Knowledge Level
CLO1	Understand international trade theories and concepts	K1
CLO2	Explain the regulatory requirements, including customs procedures and import/export restrictions, that impact international trade	K2
CLO3	Demonstrate proficiency in preparing and processing essential trade documents.	K3
CLO4	Understand the role of promotional councils and financial institutions in facilitating international trade transactions.	K3
CLO5	Evaluate the significance of regional trade agreements and their effects on participating countries.	K6

Mapping with Programme Learning outcomes.

CLOs	PLO1	PLO2	PLO3	PLO4	PLO5
CLO1	S	S	M	S	S
CLO2	S	M	M	S	S
CLO3	S	S	M	S	S
CLO4	S	S	M	S	S
CLO5	S	M	M	S	S

S – Strong; M – Medium

Syllabus .

Unit I

11 Hours

Need for international trade–features–advantages–problems of foreign trade.

International trade documents - regulatory frame work – foreign trade documents – regulatory and commercial documents –letter of credit–contract terms and export documents-GRI standards in the apparel industry-Impact and certification.

Unit II**12 Hours**

WTO - globalization – EXIM policy – regional trade agreements – current trends in international trade. Export order execution - steps in export procedure, risks involved in documentation procedure, customs clearance. Export risk management, export barriers-tariff and non tariff barriers.

Unit III**11 Hours**

Export procedures-getting established as an exporter-entering in to export contract-execution-post shipment procedures –export promotion measures –incentive and facilities to exporters. Import procedures - import process – customs clearance for imports –role of custom and exercise in international trade.

Unit IV**12 Hours**

Multi fiber agreement and bilateral textile agreements signed by India with importing quota countries. Government of India's export entitlement policy on garment exports. Export firm nature of export firm, setting up of an export firm, export licensing, registration formalities –registrations with RBI, EPC, DGFT, commodity boards, income tax and customs authorities.

Unit V**12 Hours**

Role of export promotional councils, commodity boards, ECGC, role of commercial banks, establishment & significance of SEZ & EPZ, availing concessions and incentives under various export promotion schemes, duty drawback, subsidies. Trade blocs: Effects of trade blocs on world trade, major trade blocs– EU, ASEAN and NAFTA

Text Books :

S.NO	Name of the Authors	Title of the book	Publishers	Year and Edition
1.	Aseem Kumar	Export and import management	Excel Books	2007, 1 st edition
2.	Francis Cherunilam	International Trade and Export Management	Himalaya publishing house	2008, 21 st revised edition
3.	Bala Gopal	Export Management	Himalayan Publications	2016 1 st edition

Reference Books:

S.NO	Name of the Authors	Title of the book	Publishers	Year and Edition
1.	Darlie O. Koshy	Garment Exports	Prentice 'Hall	2006
2.	Sudhir Kochhar	Export Import Procedures and Documentation,	Gullybaba Publishing House	2012
3.	Agarwal Raj	Indian Foreign Trade	Excel Books	2002, 1 st Edition

E – Journals :

- Fashion and Textiles
- The Textile Association
- Trends in Textile Engineering & Fashion Technology
- Textile World

Name of the course	International Trade and Documentation
Name of the Faculty	Dr. S. Thamarai Selvi
Participatory learning	30%
Experimental learning	30%
Problem based learning	40%

Pedagogy .

Lecture by chalk and talk, power point presentation, e-content, group discussion, assignment, quiz, peer learning, seminar, demonstration.

Course Designer.

Dr.R.Radhika

COURSE CODE	COURSE NAME	Category	L	T	P	Credit
MFD2403	APPAREL PRODUCTION PLANNING AND CONTROL	Theory	58	2	-	4

Preamble

This course provides a holistic understanding of apparel manufacturing, emphasizing efficiency, quality, and emerging advancements

Course Learning Outcomes

On the successful completion of the course, students will be able to

CLO Number	CLO Statement	Knowledge Level
CLO1	Understand the basic techniques of production control in apparel industry.	K2
CLO2	Describe the pre-production functions and product development process.	K2
CLO3	Identify the production systems for apparel industry based on style and quantity of merchandise.	K3
CLO4	Determine the capacity planning and line balancing techniques to achieve balanced production.	K4
CLO5	Prepare the flow process grids and scheduling charts for production control and explain the cut order planning and control forms for apparel industry.	K5

Mapping with Programme Learning outcomes.

CLOs	PLO1	PLO2	PLO3	PLO4	PLO5
CLO1	S	S	S	S	S
CLO2	S	S	S	S	S
CLO3	S	M	S	M	S
CLO4	S	M	S	S	S
CLO5	S	S	S	M	S

S – Strong; M – Medium

Syllabus

Unit I

12 Hours

Apparel Manufacturing Industry-Nature and Scope. Major functions of apparel manufacturing Engineering and Management functions. Material flow in apparel industry. Introduction to core concepts of apparel production, evolution of apparel production processes mass production concepts and standardization of sizing. Various production systems practiced in India and their application for different apparel products, emerging trends in apparel production processes.

Unit II

12 Hours

Production Planning and control-objectives, levels, functions and strategies. Production control-objectives, importance and functions. Role of production planning and control department in apparel industry. Productivity-concept, measuring productivity and characteristics. Pre-production functions – product acceptance, steps from prototype to production model, order requirements. Work study - Definition, purpose, techniques of work study. Procedure of work study-Pre and post production.

Unit III

12 Hours

Spreading, cutting and sewing-Apparel production processes - Introduction to garment cutting, marker planning, efficiency of marker, methods of marker planning, and spreading of the fabric to form a lay, spreading requirements, methods of spreading, objectives of cutting, and methods of cutting. Automation in spreading, cutting and sewing. Robotics for 3D sewing operations. Stitches and classification, seam and seam classification, seam and seam stitch defect analysis.

Unit IV

11 Hours

Finishing, quality checking and packing-apparel finishing importance of garment pressing and finishing, types of garments, pressing of garments and specialty garment finishes. Quality checking - inspection, interactive bar coding, needle detection. Packaging and warehousing - types of packing and packing materials, quality specification, merchandise packing and shipping packing, intra transport, warehousing. Computerized storage systems, automation in material handling

Unit V

11 Hours

Capacity planning and innovative trends-Determination of machinery requirements for a new factory, calculation of labour requirements, application of line balancing techniques, balance control. Advanced tools and equipment in industrial engineering. Innovative trends and challenges in apparel production - IT applications in capturing motion economy and time measurement, lowering energy consumption and minimizing environmental impact

Text Books:

S.No	Name of the Authors	Title of the book	Publishers	Year and Edition
1.	Chuter A J	Introduction to Clothing Production Management	Blackwell Publishing	1995, 2 nd edition
2.	K. Sukumar & G.S.Sivakumar	Apparel Quality Control for Garment /Apparel Technology	S.S.M.I.T.T, Students Co - operative Stores Ltd	2007
3.	Seema Kapoor	Apparel Manufacturing Technology	Sonali Publications	2012, 1 st edition

Reference Books:

S.N O	Name of the Authors	Title of the book	Publishers	Year and Edition
1.	K. Shridhara Bhat	Production and operations management	Himalaya publishing house	2011, 1 st edition
2.	K. Sukumar & G. S. Sivakumar	Garment Technology	S.S.M.Institute of Textile Technology & Polytechnic College	2008, 1 st edition
3.	Gordana Colovic	Management of Technology System in Garment Industry	Woodhead Publishing	2010, 1st edition
4.	I. R. Mutusamy & V. Ilango	Technology of fabric manufacture -	S.S.M.I.T.T, Students co - operatives stores ltd	2007

E-Journals

- Autex Research Journal
- Fashion and Textiles
- Industrial Textile
- Journal of Engineered Fibers and Fabrics

- Journal of Fashion Technology & Textile Engineering
- Journal of Textile and Apparel, Technology and Management
- Textile World
- Trends in Textile Engineering & Fashion Technology
- Journal of Textile Engineering and Fashion Technology

Name of the course	Apparel Production Planning and Control
Name of the Faculty	Dr.Tryphena R
Participatory learning	40%
Experimental learning	27%
Problem based learning	33%

Pedagogy

Lecture by chalk and talk, power point presentation, e-content, group discussion, assignment,quiz, peer learning, seminar.

Course Designer

Dr.R.Radhika

COURSE CODE	COURSE NAME	Category	L	T	P	Credit
MFD24P01	CREATIVE DRAPING LAB	Practical		-	90	3

Preamble

This course analyse and understand the fabric structures, to translate draping concepts and various draping techniques into silhouettes forms.

Course Learning Outcomes

On the successful completion of the course, students will be able to

CLO Number	CLO Statement	Knowledge Level
CLO1	Apply intermediate draping techniques to create complex garment components.	K2
CLO2	Demonstrate proficiency in basic draping methods	K3
CLO3	Analyze and experiment with asymmetrical draping techniques.	K3
CLO4	Integrate unconventional materials and found objects into draping projects.	K5
CLO5	Reorganize draping with other design elements, with various design embellishments and surface embellishments.	K6

Mapping with Programme Learning outcomes

CLOs	PLO1	PLO2	PLO3	PLO4	PLO5
CLO1	M	M	S	M	S
CLO2	M	S	S	S	S
CLO3	S	M	S	S	S
CLO4	S	S	S	S	S
CLO5	S	S	S	M	S

S – Strong; M – Medium

Syllabus .

1. Effect of fabric on forms for skirts - Type of fabric -Wovens, knits, Non wovens, non-textile- leather, paper, fusion of materials **6 Hours**
2. Weight of fabric - light weight, medium weight and heavy weight. **6 Hours**
3. Effect of fabric on forms for skirts - Types of silhouettes - bell and balloon, circle and triangle. **10 Hours**
4. Intermediate draping - Skirts- Kilt and pegged, Dirndl, yoke with flare and flounces. **18 Hours**
5. Intermediate draping - Blouses –Bustier, peasant with in corporation of collar and sleeve by draping technique. **13 Hours**
6. Intermediate draping - Blouses –Gibson girl with in corporation of collar and sleeve by draping technique. **10 Hours**
7. Intermediate draping - Pants -Harem, hakama and wide leg pants. **9 Hours**
8. Advanced draping - Asymmetrical and biased drapes. Gowns - Shift and empire **18 Hours**

Text Books :

S.No	Name of the Authors	Title of the book	Publishers	Year and Edition
1.	Kamal Khurana	Draping and Pattern Making	Sonali Publications	2012,5 th edition
2.	Manmeet Sodhia	Advanced Drafting and Draping	Kalyani Publishers	2014 edition
3.	Draping For Apparel Design	Armstrong	Bloomsbury Publishing India Private Limited; 3rd edition	2013,3rd edition

Reference Books

S.No	Name of the Authors	Title of the book	Publishers	Year and Edition
1.	Hisako Sato	Drape Drape2: Now in English	Laurence King Publishing	2012, 2 nd edition
2.	Karolyn Kiisel	Draping the complete course	Laurence King Publishing.	2020, 2 nd edition
3.	Connie Amaden-Crawford,	Art of fashion draping	Fairchild Books	2004,3 rd edition

E Journals:

- Fashion Studies
- Trends in Textile Engineering & Fashion Technology
- Textile World

Name of the course	Creative Draping Lab
Name of the Faculty	Dr.Tryphena R
Participatory learning	20%
Experimental learning	60 %
Problem based learning	20%

Pedagogy .

Lecture by chalk and talk, power point presentation, e-content, group discussion, peer learning, demonstration.

Course Designer.

Dr.R.Radhika

COURSE CODE	COURSE NAME	Category	L	T	P	Credit
MFD24P02	VIRTUAL DESIGN LAB	Practical	-	-	90	3

Preamble

To develop the knowledge on creativity and technology converge to create digital experiences in the dynamic domain of virtual design for apparel industry.

Course Learning Outcomes

On the successful completion of the course, students will be able to

CLO NUMBER	CLO Statement	CLO LEVEL
CLO1	Identify with practical application in fabric woven design using both draft view and 3D representation techniques.	K1
CLO2	Apply design principles and techniques to develop original silhouette concepts and innovation into the design process.	K3
CLO3	Experiment the efficiency and productivity of fabric lay operations using performance metrics.	K3
CLO4	Analyse the efficiency and effectiveness of tech pack creation processes, identifying opportunities, optimizing and reducing time-to-market.	K4
CLO5	Generate the impact of accurate and well-organized spec sheets on overall product development timelines, manufacturing efficiency, and product quality.	K5

Mapping with Programme Learning outcomes

CLOs	PLO1	PLO2	PLO3	PLO4	PLO5
CLO1	S	M	S	S	S
CLO2	S	M	S	S	S
CLO3	S	M	S	S	S
CLO4	S	M	S	S	S
CLO5	S	M	S	S	S

S – Strong; M – Medium

Syllabus

1. Fabric woven design using draft view and 2D representation. **5 Hours**
2. Motif's development -Symmetrical/Asymmetrical, Balanced/Unbalanced repeat (arrangements) 3/4 drop, 1/2 drop H/V, 1/3 drop H/V - 5 designs. **10 Hours**
3. Label designing and Logo designing for apparel based on theme. **5 Hours**
4. Design and development silhouettes for Kids- Party Wear. **10 Hours**
5. Design and development silhouettes for Women/Men - Official Wear. **10 Hours**
6. Design and patterns development for Kids and Women / Men with marker plan **20 Hours**
7. Create a tech pack for kids wear, Women's wear /Men's wear -
Pattern making, Grading and Marker planning. **20 Hours**
- 8 Create spec sheet for Kids /Women /Men wear - Ethnic wear. **10 Hours**

Reference Book

S.NO	Name of the Authors	Title of the book	Publishers	Year and Edition
1.	The Secretary, Central Board of Secondary Education, Shiksha Kendra, 2, Community Centre	Modern Heavy Neck Designs on Transparent Sheets	Fashion & Arts Communications	2007, 1 st edition
2.	Elisabetta Kuky Drudi	Figure Drawing for Fashion Design	Pepin Press Design Books	2002, 2 nd edition

3.	Meenakshi Narang	Fashion Technology Hand Book	Asia Pacific business Press Inc	2003,1st, edition
----	------------------	------------------------------	---------------------------------	-------------------

E – Journals

- Art and Design Review
- Fashion and Textiles
- Textile World
- The Textile Association
- Trends in Textile Engineering & Fashion Technology

Name of the course	Virtual Design Lab
Name of the Faculty	Mrs. M.Malini Devi
Participatory learning	20%
Experimental learning	70 %
Problem based learning	10%

Pedagogy.

Lecture by chalk and talk, power point presentation, e-content, group discussion, assignment, quiz, peer learning, seminar, demonstration.

Course Designer

Dr.R.Radhika

COURSE CODE	COURSE NAME	Category	L	T	P	Credit
MFD24P03	NEW PRODUCT DESIGN DEVELOPMENT – FUNCTIONAL CLOTHING LAB	Practical	-	-	90	3

Preamble

This course explores the details of design development and product marketing across various industries and shaping the future of functional and specialized apparel sectors

Course Learning Outcomes

On the successful completion of the course, students will be able to

CLO Number	CLO Statement	Knowledge Level
CLO1	Describe the design principles and development processes	K2
CLO2	Interpret specialized fabrics, features, and construction techniques suitable for work environments.	K3
CLO3	Discriminate product development process for raw material to finish the product.	K4
CLO4	Create innovative designs for functional wear that blend functionality, comfort, and professionalism	K5
CLO5	Asses the adaptive features and user-centered design principles for specialized apparel.	K6

Mapping with Programme outcomes.

CLOs	PLO1	PLO2	PLO3	PLO4	PLO5
CLO1	S	S	S	S	S
CLO2	S	M	S	S	S
CLO3	S	S	S	S	S
CLO4	S	M	S	S	S
CLO5	S	S	S	S	S

S – Strong; M – Medium

Syllabus

1. Design development – Industrial corporate wear **5 Hours**
2. Prototype development and marketing – Industrial corporate wear **5 Hours**
3. Design development – Protective/medical work wear **10 Hours**
4. Prototype development and marketing – Protective/medical work wear **10 Hours**
5. Design development – Military uniform **10 Hours**
6. Prototype development and marketing – Military uniform **10 Hours**
7. Design development – Sportswear and Prototype development and marketing - Sportswear **20 Hours**
8. Design development – Clothing for special needs and Prototype development and marketing – clothing for special needs **20 Hours**

Design development includes:	• Theme/ Topic selection • Purpose/ use of design • Research/ Review of literature • Flat sketch development • Selection of fabric, colours, trims and accessories
Product development and marketing includes:	• Proto type/ model development • Preparation of mood board and client board • Preparation of look book/ promotional design • Development of business plan • Pricing and Marketing strategy

Text Books:

S.NO	Name of the Authors	Title of the book	Publishers	Year and Edition
1	M.G. Mahaderan	Dictionary of Textiles	Abhishek Publications	2012, 1 ST edition
2	Singh	Fabric Studies	Kalyani Publishing	2009
3	Dr. Neelima	Fashion and Textile Design	Sonali Publications	2009 1 ST edition

Reference Books:

S.NO	Name of the Authors	Title of the book	Publishers	Year and Edition
1.	Manmeet Sodhia	Design Studies	Kalyani Publishing	2015 1 ST edition
2.	Usha Kulshrestha& Radha Kashyap	Clothing Behavior	Pointer Publishers	2007
3.	Kamal Khurana	Fabrics for fashion and textile design	Sonali publications	2012 1 ST edition

E – Journals:

- Autex Research Journal
- Fashion and Textiles
- International Journal of Textile Science
- Journal of Fashion Technology and Textile Engineering
- Journal of Textile and Apparel, Technology and Management
- Journal of Textile Engineering and Fashion Technology
- Textile World
- Textiles
- Technical Textile

Name of the course	New Product Design Development Functional Clothing Lab
--------------------	--

L	Name of the Faculty	Dr.Tryphena R
e	Participatory learning	20%
	Experimental learning	70 %
	Problem based learning	10%

Pedagogy.

Lecture by chalk and talk, power point presentation, e-content, group discussion, assignment, quiz, peer learning, seminar, demonstration.

Course Designer

Dr.R.Radhika



PSGR
Krishnammal College for Women



Affiliated to Bharathiar University \ Autonomous \ College of Excellence \ Accredited with A++ Grade \ Ranked 9th in NIRF

DEPARTMENT OF COSTUME AND APPAREL DESIGN

CHOICE BASED CREDIT SYSTEM (CBCS)&

LEARNING OUTCOMES- BASED CURRICULUM FRAMEWORK (LOCF)

M.Sc. FASHION AND APPAREL DESIGN

2025-2027 Batch

(SEMESTER –II)



PROGRAMME LEARNING OUTCOMES (PLO's)

After completion of the programme, the student will be able to

- **PLO1:** Understand diverse cultural influences and market demands of apparel industry
- **PLO2:** Create innovative functional and aesthetic apparels including accessories.
- **PLO3:** Design apparels with advance digital tools and technologies
- **PLO4:** Research and analyze textile and fashion trends
- **PLO5:** Apply knowledge and skill in the field of fashion and entrepreneurship.

PROGRAMME SPECIFIC OUTCOMES (PSO's)

The students at the time of graduation

- **PSO1:** Graduates can function independently with their innovative and creative skills.
- **PSO2:** Graduates will be able to meet the current Industrial requirements.
- **PSO3:** Graduates Can Undertake the research /projects sectors to new product development.



M.Sc. FASHION AND APPAREL DESIGN
CHOICE BASED CREDIT SYSTEM (CBCS) &
LEARNING OUTCOMES - BASED CURRICULUM FRAMEWORK (LOCF)
SCHEME & SYLLABUS OF EXAMINATION
2025-2027 BATCH
SEMESTER II

Sem	Course Code	Title of the Course	Course type	Instruction Hours/week	Contact hours	Tutorial Hours	Duration of Examination	Examination Marks			Credits
								CA	ESE	TOTAL	
II	MFD2504	Technical Textiles and its application	CC	5	73	2	3	25	75	100	4
	MFD25CE	Foundation for Product Development	CC	-	45	-	-	100	-	100	3
	MFD2506	Apparel Manufacturing Machinery	CC	5	73	2	3	25	75	100	4
	MFD25P04	Woven Design and Development lab	CC	5	75	-	3	25	75	100	3
	MFD25P05	Accessories for Fashion Ensemble	CC	5	75	-	3	25	75	100	3
	MFD25E01 / MFD25E02 / MFD25E03	Global Marketing and Sourcing Strategies / Sports and Smart Textiles / Sustainable Apparel Design and Development	DSE	3	43	2	3	25	75	100	3

	MFD24A1	Fashion Retail Management	GC	4	60	-	3	-	100	100	4
I-III	17MONL1	Online Course 1	ACC	-	-	-	-	-	-	-	-

CC - Core Courses

GC - IDC **Interdisciplinary Course**

DSE- Discipline specific elective

CA - Continuous Assessment

ESE - End Semester Examination

Gr- Grade

ACC - **Online Course 1**

Job Oriented Course:

Students can opt for Job-Oriented Courses (JOC) offered by various departments at our college, focusing on skill development and industry-relevant training to enhance career opportunities.

QUESTION PAPER PATTERN 25-27Batch

Question Paper Pattern and distribution of marks PG- Core and Allied- (First 3 Units)

CA Question from each unit comprising of

One question with a weightage of 2Marks	2 x 3 = 6
One question with a weightage of 5 Marks (Internal Choice at the same CLO level)	5 x 3 =15
One question with a weightage of 8 Marks (Internal Choice at the same CLO level)	8x3=24
Total	45 Marks

End Semester Examination–Question Paper Pattern and Distribution of Marks

PG-Core and Allied courses:

ESE Question Paper Pattern: 5x15=75Marks

Question from each unit comprising of

One question with a weightage of 2 Marks	2 x 5=10
One question with a weightage of 5 Marks (Internal Choice at the same CLO level)	5 x 5 =25
One question with a weightage of 8 Marks (Internal Choice at the same CLO level)	8 x 5 =40
Total	75 Marks

Continuous Internal Assessment Pattern

Theory

I Year UG / PG (23 Batch)

CIA Test	:	5 marks (Conducted for 45 marks after 50 days)
Model Exam	:	7 marks (Conducted for 75 marks after 85 days (Each Unit 15 Marks)
Seminar/Assignment/Quiz	:	5 marks
Class Participation	:	5 marks
Attendance	:	3 marks
Total		25 Marks

Practical

Lab Performance	:	7marks
Regularity	:	5marks
Model Exam	:	10marks
Attendance	:	3marks
Total	:	25 marks

ESE Practical Pattern

The End Semester Examination will be conducted for a maximum of 75 marks with a maximum 15 marks for the record and other submissions if any.

Attendance component in CA

91-100% attendance: 3 Marks

81-90% attendance : 2 Marks

75-80% attendance : 1 Marks

MAPPING OF PLOS WITH CLOS

COURSE	PROGRAMME LEARNING OUTCOMES				
	PLO1	PL02	PL03	PLO4	PLO5
	COURSE CODE MFD2504				
CLO1	S	S	M	S	S
CLO2	S	S	S	S	S
CLO3	M	S	S	S	S
CLO4	M	M	M	S	S
CLO5	S	S	S	S	S
	COURSE CODE MFD2506				
CLO1	S	S	S	S	S
CLO2	S	M	S	S	S
CLO3	S	S	S	S	S
CLO4	M	M	M	M	M
CLO5	S	S	S	S	M
	COURSE CODE MFD25P04				
CLO1	M	S	S	S	S
CLO2	M	S	S	S	S
CLO3	S	S	S	S	S
CLO4	S	S	S	S	S
CLO5	S	S	S	S	S
	COURSE CODE MFD25P05				
CLO1	S	S	S	S	S
CLO2	S	S	S	M	S
CLO3	S	M	S	S	S
CLO4	S	S	M	S	S
CLO5	S	S	S	S	S
	COURSE CODE MFD25E01				
CLO1	S	S	S	S	S
CLO2	S	M	S	M	S
CLO3	S	S	M	S	M
CLO4	S	S	S	S	S
CLO5	S	M	S	S	S

	COURSE CODE MFD25E02				
CLO1	M	M	S	S	S
CLO2	M	M	S	S	S
CLO3	M	S	S	S	S
CLO4	M	S	S	S	S
	COURSE CODE MFD25E03				
CLO1	S	S	M	S	S
CLO2	S	S	S	S	S
CLO3	M	S	S	S	S
CLO4	M	M	M	S	S
CLO5	S	S	S	S	S
	COURSE CODE MFD24A1				
CLO1	S	S	S	S	S
CLO2	S	M	S	S	S
CLO3	S	S	S	S	S
CLO4	M	M	M	M	M
CLO5	S	S	S	S	M

COURSE CODE	COURSE TITLE	Category	L	T	P	Credit
MFD2504	TECHNICAL TEXTILES AND ITS APPLICATION	Theory	73	2	-	4

Preamble

- This course introduces key concepts of fibers and materials used in technical textiles and its applications for diverse industries

Prerequisite

- Fundamental knowledge in Textile Insights

Course Learning Outcomes

On the successful completion of the course, students will be able to

CLO Number	CLO Statement	Knowledge Level
CLO1	Understand the basics of technical textiles, and their scope, in the relative fields	K2
CLO2	Analyze the properties and uses of technical textiles.	K2
CLO3	Explore the different types of technical textiles and their applications.	K3
CLO4	Assess the specific role of technical textiles in the industrial sector.	K4
CLO5	Explore recent advancements and innovations in technical textiles.	K4

Mapping with Programme Learning Outcomes

CLOs	PLO1	PLO2	PLO3	PLO4	PLO5
CLO1	S	S	M	S	S
CLO2	S	S	S	S	S
CLO3	M	S	S	S	S
CLO4	M	M	M	S	S
CLO5	S	S	S	S	S

S- Strong; M-Medium

Syllabus

UNIT I

(14 Hours)

Technical textiles - Introduction, definition, scope, classifications, applications, growth and development - future of technical textiles, global technical textiles market, Indian technical textiles market. National technical textiles mission and its role in promoting technical textiles. Fabric structure

for technical textiles – woven and non - woven. Electro spinning, 3d weaving and textile applications. Upcoming techniques - fiber, yarn and fabric formation. Centre of excellence for technical textiles.

UNIT II

(15 Hours)

Industrial and package textiles - Industrial textiles - introduction, definition, types – decatizing cloth, bolting cloth, absorbent glass mat battery separators, cigarette filter. Indu-tech products - coated abrasives conveyor belts, drive belt, ropes and cordages, printed circuit boards, computer printer ribbon, paper making fabrics. Package textiles - polyolefin woven sacks, flexible intermediate bulk containers (FIBC), tarpaulins, leno bags, lamination, jute hessian and sacks, soft luggage products, teabags, carpet backing cloth. Textile reinforced composite materials and their application.

UNIT III

(14 Hours)

Geo and filtration textiles - Geo textiles - Introduction, fibers used, types, functions, properties, characteristics and applications in its field, structure and performance, non- polymeric fibres, high performance synthetic fibers, newer fibers. Geosynthesis - essential properties of geo- textiles, geo-textiles for soil strengthening, standards for geo-textiles. Filtration textiles- introduction, nano-technical fibres, filters for air pollutants, pollutant capture mechanism, dust collection, fabric construction, solid liquid separation.

UNIT IV

(15 Hours)

Protective textiles and agro textiles - Introduction, fibers used, types, functions, properties, characteristics and applications – fire protective clothing, heat-resistant garments, waterproof materials, ballistic resistant vests, biological and chemical vests, military protective clothing. Smart polymers used in protective clothing. Agro textiles- definition, types, applications - greenhouse cover, capillary mats, fishing nets, nets for plants, root-less plants and protecting grassy areas, sun-screens, wind-shields and anti-bird nets.

UNIT V

(15 Hours)

Medical textiles, sports textiles, smart and intelligent textiles – Medical textile – Introduction – features - classifications and applications - Sports textiles - Introduction, fibers used, types, functions, properties, characteristics and applications of sports tech. Smart and intelligent textiles – classification - active smart, passive smart and very smart textiles, phase change materials, shape memory polymers, chromic and conductive materials and its applications in wearable technology.

TEXT BOOKS

S.No	Authors	Title	Publishers	Year and Edition
1	Gopalakrishnan D & P. Vinayagamurthi	Technical Textiles	Daya Publishing House	2020 and 1 st Edn
2	Dr. S. Periyasamy, Dr. G. Thilagavathi	Industrial Textiles	Woodhead Publishing India	2020 and 1 st Edn
3	Gopalakrishnan D & Karthick T	Home Textiles	Daya Publishing House	2020 and 1 st Edn
4	Subhankar Maity	Functional Textiles and Clothing	Springer	2019 and 1 st Edn
5	Roshan Paul	Handbook of Sustainable Textile Production	Woodhead Publishing	2021 and 1 st Edn

REFERENCE BOOKS

S.No	Authors	Title	Publishers	Year and Edition
1	Subhankar Maity	Functional Textiles and Clothing	Springer	2019 and 1 st Edn
2	R. Alagirusamy, A. Das	Technical Textile Yarns: Industrial and Medical Applications (2nd Edition)	Woodhead Publishing	2019 and 2 nd Edn
3	Rajiv P. Rastogi	Fundamentals of Technical Textiles	Woodhead Publishing India	2016 and 1 st Edn
4	Roshan Paul	Functional Finishes for Textiles: Improving Comfort, Performance and Protection	Woodhead Publishing	2017 and 1 st Edn
5	B. L. Deopura, Alok K. Sharma	Polyesters and Polyamides for Specialty Applications	CRC Press	2018 and 1 st Edn

E – Journals

- Autex Research Journal
- International Journal of Textile Science
- Journal of Engineered Fibers and Fabrics
- Journal of Fashion Technology & Textile Engineering
- Journal of Textile and Apparel, Technology and Management
- Technical Textile

- Textile World
- Textiles
- Journal of Textile Engineering and Fashion Technology

Pedagogy

Lecture by chalk and talk, power point presentation, e-content, group discussion, assignment, quiz, peer learning, seminar.

Course Designers

- 1.Dr.M. Malini Devi
- 2.Dr.R.Tryphena

S.NO	LEARNING METHODS	PERCENTAGE
1	Participatory learning	50%
2	Experimental learning	40%
3	Problem based learning	10%

COURSE CODE	COURSE TITLE	Category	L	T	P	Credit
MFD2506	APPAREL MANUFACTURING MACHINERY	Theory	73	2	-	4

Preamble

- This course provides insights into the fundamentals of machinery used in the apparel industries

Prerequisite

- Basic knowledge in Apparel Machinery and Fundamentals

Course Learning Outcomes

On the successful completion of the course, students will be able to

CLO Number	CLO Statement	Knowledge Level
CLO1	Understand fabric spreading methods, machines, and marker planning techniques.	K2
CLO2	Explain the functions and maintenance of cutting machines.	K2
CLO3	Describe the basic concepts of sewing machine and common defects and remedies.	K3
CLO4	Analyze the fundamental concepts of special sewing machines and their maintenance.	K4
CLO5	Discuss the latest developments in apparel production.	K5

Mapping with Programme Learning Outcomes

CLOs	PLO1	PLO2	PLO3	PLO4	PLO5
CLO1	S	S	S	S	S
CLO2	S	M	S	S	S
CLO3	S	S	S	S	S
CLO4	M	M	M	M	M
CLO5	S	S	S	S	M

S- Strong; M-Medium

Syllabus

UNIT I

(14 Hours)

Spreading machines - Types of fabrics – one way – two-way fabrics – their effect on spreading. Methods of fabric spreading, spreading equipments – computerized spreaders. Marker planning, marker

efficiency, factors affecting marker efficiency. Marker duplicating methods – computer aided marker making.

UNIT II

(15 Hours)

Cutting machines - Introduction to cutting machines. Types and functions of cutting machines straight knife, round knife, band knife cutting machines. Notches, drills, die cutting machines, computerized cutting machines. Maintenance of cutting machines. Common defects in cutting and their remedies, latest developments.

UNIT III

(15 Hours)

Sewing machine - basic parts of sewing machine – primary and auxiliary parts and their functions. Bobbin case/bobbin hook, throat plate – take up devices – tensioners – feed dog – pressure foot. Types of needles – parts of needles and their function. Adjustments of stand height – pedal – needle bar – stitch length selection – feed timing – needle and bobbin thread tension – stitch cycle timing diagram. Common defects and remedies. Special attachments in sewing machines – guides, folders, stackers, trimmers, ziggers.

UNIT IV

(15 Hours)

Multi thread sewing machines - over lock machines - types of over lock machines. Parts and their functions. Threading diagram for over lock machines. Stitch cycle diagram for over lock machines – adjustment of needle height, feed dog height, angle, differential feed ratio and position of upper and lower knives, loopers. Flat lock machines – types, parts and their functions. Threading diagram of flat lock machines. Adjustment of parts – needle height, feed dog height, differential feed ratio, loopers. Maintenance of flat lock machines, defects and remedies.

UNIT V

(14 Hours)

Special purpose sewing machines – Introduction to different special purpose sewing machines. Basic working of feed of arm, button hole sewing, button sewing, bar tack, blind stitch machines. Embroidery sewing machines. Sewing machine maintenance – maintenance schedule for various machines, maintenance audit. Latest developments in apparel manufacturing machineries.

TEXT BOOKS

:

S.No	Authors	Title	Publishers	Year and Edition
1.	Rathina moorthy R and Surjit. R	Apparel Machinery and Equipment	Woodhead Publishing	2018 and 1 st Edn
2.	Rajikishore Nayak and Rajiv Padhye	Garment Manufacturing Technology	Woodhead Publishing	2015 and 1 st Edn
3.	Purushothama. B	Handbook on Managing Apparel Production and Quality Control	Woodhead Publishing India Pvt Ltd	2021 and 1 st Edn
4.	Ineta Vilumsone Nemes	Industrial Cutting of Textile Materials	Woodhead Publishing	2018 and 1 st Edn

5.	Prasanta Sarkar	Garment Manufacturing: Processes, Practices and Technology	Online Clothing Study	2015 and 1 st Edn
----	-----------------	--	-----------------------	------------------------------

REFERENCE BOOKS :

S.No	Authors	Title	Publishers	Year and Edition
1.	David J. Tyler	Carr & Latham's Technolgy of Clothing Manufacture	Wiley-Blackwell	2008 and 1 st Edn
2.	Harold Carr & Barbara Latham	Technology of Clothing Manufacture	Wiley-Blackwell	2016 and 4 th Edn
3.	Gardana colovic	Management of Technology Systems in Garment Industry	Woodhead Publishing Limited	2011 and 1 st Edn
4	V. Ramesh babu	Industrial engineering in apparel production	WPI Publishing	2012 and 1 st Edn
5.	Periyasamy Aravin Prince	Apparel Quality Control	LAP Lambert Academic Publishing	2014 and 1 st Edn

E -Journals :

- Fashion and Textiles
- Industrial Textiles
- International Journal of Textile Science
- Journal of Fashion Technology & Textile Engineering
- Journal of Textile Engineering and Fashion Technology
- Journal of Textile and Apparel, Technology and Management
- Textile World

Pedagogy

Lecture by chalk and talk, power point presentation, e-content, group discussion, assignment, quiz, peer learning, seminar.

Course Designers

1. Ms.A.Jasira banu
- 2.Dr.M.Malini Devi

S.NO	LEARNING METHODS	PERCENTAGE
1	Participatory learning	70%
2	Experimental learning	20%
3	Problem based learning	10%

COURSE CODE	COURSE TITLE	Category	L	T	P	Credit
MFD25P04	WOVEN DESIGN DEVELOPMENT LAB	Practical	-	-	75	3

Preamble

- This course explores the fundamental construction principles of developing textile materials using different types of basic weaves.

Prerequisite

- Fundamental knowledge in weaving Concepts

Course Learning Outcome

On the successful completion of the course, students will be able to

CLO Number	CLO Statement	Knowledge Level
CLO1	Understand the structure and specifications of various weaves	K2
CLO2	Clarify accurate drafts and peg plans for each weave type	K2
CLO3	Assess the difference between various weave structures and its applications	K3
CLO4	Analyze skills to create a variety of weave designs by the use with different materials and techniques.	K4
CLO5	Develop the creative and technical skills to create new product development which incorporates multiple weave techniques.	K5

Mapping with Programme Learning Outcomes

CLOs	PLO1	PLO2	PLO3	PLO4	PLO5
CLO1	M	S	S	S	S
CLO2	M	S	S	S	S
CLO3	S	S	S	S	S
CLO4	S	S	S	S	S
CLO5	S	S	S	S	S

S- Strong; M-Medium

Syllabus

Prepare samples for the following weaves, including design, drafting, peg plan, and specifications for each type of weave.

- Plain weave 8 Hours
- Twill weave 8 Hours

3. Satin and Sateen weave 8 Hours
4. Herringbone weave 8 Hours
5. Basket weave 8 Hours
6. Honey comb weave 8 Hours
7. Huck-a-back weave 8 Hours
8. Tassels (any 3 varieties) 8 Hours
9. Design and Product development: 11 Hours
 - Design and develop a wall hanging/Carpet that incorporates different weaves, colors and textures.
 - Creation of products, Photoshoot, Compose the above details as design sheets

TEXT BOOKS

S.No	Authors	Title	Publishers	Year of Edition
1	Karolia, Anjali	Traditional Indian Handcrafted Textiles: History, Techniques, Processes, and Designs (Vols. I & II)	Niyogi Books	2019 and 1 st Edn
2	Roy, Tirthankar	The Crafts and Capitalism: Handloom Weaving Industry in Colonial India	Taylor & Francis	2020 and 1 st Edn
3	Naik, Shailaja D.	Folk Embroidery and Traditional Handloom Weaving	Indian Books	2012 and 1 st Edn
4	Mitra, Saptarshi & Roy, Stabak	Traditional Tribal Weaving of Tripura	IBP Books	2022 and 1 st Edn
5	Jaitly, Jaya	Woven Textiles of Varanasi	Niyogi Books	1996 and 1 st Edn

REFERENCE BOOKS

S.No	Authors	Title	Publishers	Year of Edition
1.	Z Grosicki	Watson's Textile Design and Colour: Elementary Weaves and Figured Fabrics	Woodhead Publishing India	2014 and 1 st Edn
2.	P.R. Lord & M.H. Mohamed	Weaving: Conversion of Yarn to Fabric	Woodhead Publishing India	2015 and 2 nd Edn
3.	R. Marks & A.T.C. Robinson	Principles of Weaving	The Textile Institute / CRC Press	2019 and 3 rd Edn
4.	Sam Wild	The Way of the Weaver: Patterns and Practice	Loom works Publishing	2020 and 1 st Edn

5.	Premlata V. Saraf	Textile Design and Colour Concepts	Abhishek Publications	2021 and 1 st Edn
----	-------------------	------------------------------------	-----------------------	------------------------------

E– Journals:

- Textile Research Journal
- Textiles and Clothing Sustainability
- International Journal of Clothing Science and Technology
- Coloration Technology

Pedagogy

Lecture by chalk and talk, power point presentation, e-content, group discussion, peer learning and demonstration

Course Designers

1. Dr. T.RIndumathi
2. Ms. A. Jasira Banu

S.NO	LEARNING METHODS	PERCENTAGE
1	Experimental learning	100%

COURSE CODE	COURSE TITLE	Category	L	T	P	Credit
MFD25P05	ACCESSORIES FOR FASHION ENSEMBLE	Practical	-	-	75	3

Preamble

- This course helps to explore the art of designing and crafting a variety of fashion accessories,culminating in a presentation of the styled creations.

Prerequisite

- Basic understanding of fashion and creativity in design.

Course Learning Outcomes

On the successful completion of the course, students will be able to

CLO Number	CLO Statement	Knowledge Level
CLO1	Understand the fundamental principles of accessory designing	K2
CLO2	Identify the suitability of textile/materials for accessory development	K2
CLO3	Apply creative thinking to repurpose and up-cycle materials for accessory creations.	K3
CLO4	Develop patterns and accessories to compliment clothing ensembles	K4
CLO5	Compile the different aspects of design and product development into design sheets	K5

Mapping with Programme Learning Outcomes

CLOs	PLO1	PLO2	PLO3	PLO4	PLO5
CLO1	S	S	S	S	S
CLO2	S	S	S	M	S
CLO3	S	M	S	S	S
CLO4	S	S	M	S	S
CLO5	S	S	S	S	S

S- Strong; M-Medium

Syllabus

Design and develop the following items with own ideas, materials and creativity

1. Scarf or stole 7 Hours
2. Tie or muffler (neck band) 7 Hours

3. Hat or cap 10 Hours
4. Jewellery 10 Hours
5. Belt or suspenders 7 Hours
6. Tote bag or clutch 7 Hours
7. Pouch or wallet 7 Hours
8. Design creation - Any one of the above products or accessory to be developed from recycled/biodegradable/sustainable materials 10 Hours
 - Selection of theme and research
 - Mood board
 - Colour board
 - Flat and illustration board
9. Design sheet development – The selected theme/ designs to be used as basis for design composition 10 Hours
 - Product development
 - Photoshoot
 - Composition as design sheets

Instruction to students

- Material selection should include recycled/biodegradable/sustainable materials for selected items
- Design development for each experiment should have five illustrations as flats one selected design to be developed as technical pattern and final product
- Design sheets should be in digital format
- Incorporation of techniques like crochet, knitting, tatting, macrame, tie and dye, batik and others in accessory development.

REFERENCE BOOKS

S.No	Authors	Title	Publishers	Year and Edition
1.	Anita Tyagi	Ornamentation and Textile Design	Sonali Publications	2011 and 1 st Edn
2.	Anmol Roy	Fashion Designing of Clothes and Ornaments	Sonali Publications	2011 and 1 st Edn
3.	Kamal Khurana	Merchandising of Fashion Products	Sonali Publications	2012 and 1 st Edn

E – Journals

- Elevate Your Look- The Power of Accessories in Fashion
- The Ultimate Accessory Guide
- Sustainable Style Eco-Friendly Accessories for Modern Fashion
- Luxury on a Budget- Affordable Accessories That Look Expensive

Pedagogy

Lecture by chalk and talk, power point presentation, e-content, group discussion, peer learning and demonstration

Course Designers

1. Ms.A.Yamuna devi
2. Ms.Jasira Banu

S.NO	LEARNING METHODS	PERCENTAGE
1	Experimental learning	100%

COURSE CODE	COURSE TITLE	Category	L	T	P	Credit
MFD25E01	GLOBAL MARKETING AND SOURCING STRATEGIES	Theory	43	2	-	3

Preamble

- This course covers the concept of global market dynamics, and sourcing strategy.

Prerequisite

- Fundamental knowledge of marketing principles, global business concepts, and supply chain basics.

Course Learning Outcomes

On the successful completion of the course, students will be able to

CLO Number	CLO Statement	Knowledge Level
CLO1	Understand global marketing concepts and influencing factors.	K2
CLO2	Analyze global competition and sustainable goals.	K2
CLO3	Explore global, positioning, and strategies.	K3
CLO4	Evaluate sourcing strategies and procurement processes.	K4
CLO5	Create solutions for global marketing and sourcing challenges.	K4

Mapping with Programme Learning Outcomes

CLOs	PLO1	PLO2	PLO3	PLO4	PLO5
CLO1	S	S	S	S	S
CLO2	S	M	S	M	S
CLO3	S	S	M	S	M
CLO4	S	S	S	S	S
CLO5	S	M	S	S	S

S- Strong; M-Medium

Syllabus

UNIT I

(9 Hours)

Introduction to global marketing – Drivers towards globalization – Factors influencing global marketing – Economic, social and cultural. Limitations to global marketing. Global competitive analysis – competitive

environment, country specific advantages, firm specific advantages. Environmental, social and governance – ESG, Sustainable development goals – SDG.

UNIT II

(9 Hours)

Global customers – Global segmentation and positioning- market segments, global product positioning, positioning a new brand, positioning a global brand. Global product and services – Global product lines, services, service quality, globalization of services. Distribution strategies, advertising, promotion. Organizing for global marketing – Organizational structure, management systems, people and organizational culture.

UNIT III

(8 Hours)

Growth of markets – Evolution of global markets from local to international trade- Characteristics of developed markets- Emerging markets and their impact on global trade. Developed and under developed countries - Issue of trade cycles. Rise of under developed and developing countries. The role of global partnerships and trade agreements. Global marketing case studies- Innovations in global supply chains- The role of artificial intelligence and big data in predicting market trends

UNIT IV

(9 Hours)

Sourcing goals and objectives. Principles of sourcing strategy. Plan for the procurement of materials as per garment design requirements – out sourcing- source selection – contracts and incentives, supplier strategies- procure materials from national and international suppliers related to fabrics, trims and accessories. Supervise and evaluate performance of subordinates. Maintain records about procurement of materials. Sourcing data and reports.

UNIT V

(8 Hours)

Sourcing requirements – maintain health, safety and security in the sourcing department. Comply with industry, regulatory and organizational requirements, sourcing design elements. Risks and rewards of multiple sourcing. Capacity constraints and pricing in sourcing markets. LIC selection and incentives for innovation – Yard stick contracts. Case studies in sourcing – latest developments in sourcing strategies.

TEXT BOOKS

:

S.No	Authors	Title	Publishers	Year and Edition
1	Martin Christopher	Logistics & Supply Chain Management	Pearson	2016 and 1 ST Edn
2	Svend Hollensen	Global Marketing	Pearson Education	2020 and 1 ST Edn
3	Warren J Keegan	Global Marketing Management	Prentice Hall of India	2017 and 1 ST Edn
4	Monczka, Handfield, Giunipero & Patterson	Purchasing and Supply Chain Management	Cengage Learning	2021 and 1 ST Edn
5	Sunil Chopra	Supply Chain Management: Strategy, Planning, and Operation	Pearson	2019 and 1 ST Edn

REFERENCE BOOKS

:

S.No	Authors	Title	Publishers	Year of Edition
1.	Mike Easey	Fashion Marketing	Blackwell Publishing oxford	2009 and 2 nd Edn
2.	Jung Ha Brookshire	Global Sourcing in the Textile and Apparel Industry	Bloomsbury Publishing	2017 and 1 ST Edn
3.	Pingali Vengopal	Marketing Management	Response Books	2010 and 1 ST Edn
4.	John Donnellan	Merchandise Buying and Management,	Fairchild Books	2013 and 1 ST Edn
5.	Paul Davies	The Global ESG Handbook: A Guide for Practitioners	Globe Law and Business	2024 and 1 ST Edn

E – Journals

:

Textiles

- Journal of Fashion Technology & Textile Engineering
- Journal of Textile and Apparel, Technology and Management
- Textiles
- The Textile Association
- Journal of Textile Engineering and Fashion Technology

Pedagogy

Lecture by chalk and talk, power point presentation, e-content, group discussion, assignment, quiz, peer learning, seminar.

Course Designers

1. Dr.R.Tryphena
2. Ms.A.Yamuna Devi

S.NO	LEARNING METHODS	PERCENTAGE
1	Participatory learning	45%
2	Experimental learning	45%
3	Problem based learning	10%

COURSE CODE	COURSE TITLE	Category	L	T	P	Credit
MFD25E02	SPORTS AND SMART TEXTILES	Theory	43	2	-	3

Preamble

- This course provides an knowledge of sports textiles and smart textiles and their role in performance apparel.

Prerequisite

- Basic knowledge of textiles, fabric properties, and functional material applications.

Course Learning Outcomes

On the successful completion of the course, students will be able to

CLO Number	CLO Statement	Knowledge Level
CLO1	Understand the fundamental concepts, for sports and smart textiles.	K2
CLO2	Analyze high-performance materials and functional properties relevant to sports and smart textiles.	K2
CLO3	Evaluate the garment development process and the integration of smart technologies in textiles.	K3
CLO4	Assess innovations and applications of advanced materials and technologies in diverse textile areas.	K4
CLO5	Develop sustainable and innovative solutions considering future trends and market opportunities.	K4

Mapping with Programme Learning Outcomes

CLOs	PLO1	PLO2	PLO3	PLO4	PLO5
CLO1	M	M	S	S	S
CLO2	M	M	S	S	S
CLO3	M	S	S	S	S
CLO4	M	S	S	S	S
CLO5	S	S	S	S	S

S- Strong; M-Medium

Syllabus

UNIT I

(9 Hours)

Introduction to Sports Textiles -Overview of sports textiles- Definition, scope, importance, and trends. Key materials used in performance sportswear with special reference to polyester, nylon, spandex, and aramid fibers.

Functional requirements such as moisture management, thermal regulation, and durability. Environmental considerations and biomimicry in sports textile development.

UNIT II

(8 Hours)

Materials and Functional Properties for Sports Textiles -High-performance materials with properties like moisture-wicking, UV protection, and antimicrobial finishes. Textile structures, including woven, knitted, and non-woven fabrics, and their role in sportswear. Advanced technologies 3D printing in sports textiles-seamless knitting and bonded fabrics. Applications of functional textiles in activewear, swimwear, and sports equipment.

UNIT III

(9 Hours)

Fundamentals of Smart Textiles -Introduction to smart textiles- Definition, classification -active, passive, and ultra-smart textiles, and evolution. Key components such as sensors, actuators, and conductive yarns. Functional requirements of smart textiles, including health monitoring, energy harvesting, and responsive functions. Emphasis on biomimicry and environmental considerations in smart textile applications.

UNIT IV

(9 Hours)

Applications and Innovations in Smart Textiles -Advanced materials and technologies for smart textiles, focusing on wearable devices, responsive fabrics, and e-textiles. Innovations in smart textiles for healthcare, fitness, and extreme environments. Specialized applications in automotive textiles, adaptive fabrics, and self-healing materials. Sustainability and emerging trends in smart textile development.

UNIT V

(8 Hours)

Future trends and market opportunities -Emerging innovations-AI-powered smart fabrics, 3D printing, and adaptive clothing. Sustainable practices- Recycling and energy-efficient processes. Trends like slow fashion, and consumer preferences. Market prospects- Commercialization in fashion, healthcare, sports, and defense. Role of regulatory bodies in promoting sustainability and innovation in sports and smart textiles.

TEXT BOOK

S.No	Authors	Title	Publishers	Year and Edition
1	J. Smith, L. Jones	Sports Textiles: Innovation in Design and Materials	Wiley & Sons	2022 and 1 st Edn
2	A. Kumar, R. Gupta	Textiles for Performance: The Future of Sports Apparel	Springer	2020 and 1 st Edn

3	M. Patel, S. Walker	Advanced Sportswear: Fabrics and Technology	CRC Press	2021 and 1 st Edn
---	---------------------	--	-----------	------------------------------

4	Susan M. Watkins, Lucy E. Dunne	Functional Clothing Design: From Sportswear to Space Suits	Bloomsbury	2017 and 2 nd Edn
5	Xiaoming Tao	Handbook of Smart Textiles	Springer	2015 and 1 st Edn

REFERENCE BOOK

S.No	Authors	Title	Publishers	Year and Edition
1	R. Lee, P. Thompson	Smart Textiles for Sports and Wellness	Taylor & Francis	2020 and 1 st Edn
2	A. Taylor, B. Harris	Textile Materials for Active Sportswear	McGraw-Hill Education	2022 and 1 st Edn
3	J. Carter, M. Davis	High-Performance Sports Fabrics	John Wiley & Sons	2019 and 1 st Edn
4	P. Turner, R. Brooks	Sports Textiles: From Concept to Market	Palgrave Macmillan	2021 and 1 st Edn
5	Mc Cann J. and Bryson D	Smart Clothes and Wearable Technology	Wood Head Publishing Series in Textiles, UK	2010 and 1 st Edn

E – Journals

- International Journal of Clothing Science and Technology
- Journal of Sports Science and Medicine
- Smart Materials and Structures
- Journal of Functional Textiles
- Wearable Technologies
- Advanced Functional Materials

Pedagogy

Lecture by chalk and talk, power point presentation, e-content, group discussion, assignment, quiz, peer learning, seminar.

Course Designer

1.Dr.S.Thamarai Selvi

S.NO	LEARNING METHODS	PERCENTAGE
1	Participatory learning	70%
2	Experimental learning	20%
3	Problem based learning	10%

COURSE CODE	COURSE TITLE	Category	L	T	P	Credit
MFD25E03	SUSTAINABLE APPAREL DESIGN AND DEVELOPMENT	Theory	43	2	-	3

Preamble

- This course covers the fundamental concepts and practices shaping eco-friendly and socially responsible approaches in the textile and fashion industries

Prerequisite

- Basic knowledge of textiles, fabric production, and environmental awareness.

Course Learning Outcomes

On the successful completion of the course, students will be able to

CLO Number	CLO Statement	Knowledge Level
CLO1	Understand the concepts of sustainability in textiles and clothing.	K2
CLO2	Analyze sustainable practices in textile production and waste management.	K2
CLO3	Explore ecofriendly-processing and natural finishing methods in textiles.	K3
CLO4	Evaluate sustainable strategies in fashion design and production.	K4
CLO5	Apply sustainable fashion concepts and practices in supply chains and consumption.	K5

Mapping with Programme Learning Outcomes

CLOs	PLO1	PLO2	PLO3	PLO4	PLO5
CLO1	S	S	M	S	S
CLO2	S	M	S	S	S
CLO3	M	M	S	M	S
CLO4	M	M	M	S	S
CLO5	S	S	S	S	S

S- Strong; M-Medium

Syllabus

UNIT I

(10 Hours)

Introduction -The basic concepts of sustainable development, difference between chemical and green process in manufacturing, rules recommendations for using chemicals, raw materials and waste management for sustainable textiles and clothing. Definition of sustainability – need for sustainability. Factors influencing sustainability. Impact of ecology, economy, and culture on sustainability. Product life cycle, product design sustainability using low – impact materials, recyclable material content. Sustainable fibers – organic cotton, recycled polyester, alternative sustainable fibers.

UNIT II

(8 Hours)

Sustainable textile production - Sustainable factors in yarn and fabric manufacturing, waste management in spinning and fabric manufacturing, key environmental drivers in the textile industry- legislation, eco labels - Environmental management system - EMS, retailers, green consumers, pressure groups, controlled colouration.

UNIT III

(8 Hours)

Sustainability in textile processing - Natural colorants and recent development. Bio-processing of textiles - bio desizing, bio scouring, bio bleaching, bio polishing, bio stoning, enzymatic degumming and enzymatic retting. Developments in natural finishing.

UNIT IV

(8 Hours)

Sustainable fashion design process - Production of sustainable fashion- The phases of fashion design and production, fashion designers role, sustainable strategies in design houses, Seamless garments- zero waste design practice, textile recycling – Second hand clothing, redesigning. Fast fashion vs slow fashion, new normal, sustainable fashion supply chain, fashion logistic, sustainable clothing care.

UNIT V

9 Hours

Sustainable fashion trends – new fashion ethic and aesthetics, reversing fashion consumption, locally made and globally relevant, mega demand -negative demand, sharing and servicing. Role of National and International regulating organizations in sustainability – Worldwide responsible accredited production (WRAP), mandatory requirements – benefits to company, labor and society, eco mark.

TEXT BOOK

S.No	Authors	Title	Publishers	Year and Edition
1	Richard Blackburn (Ed.)	Sustainable Apparel: Production, Processing and Recycling	Woodhead Publishing (Elsevier)	2015 and 1 st Edn
2	Subramanian Senthil kannan Muthu (Ed.)	Sustainable Fibres and Textiles	Woodhead Publishing (Elsevier)	2017 and 1 st Edn
3	Kate Fletcher & Mathilda Tham	Earth Logic: Fashion Action Research Plan	The J.J. Charitable Trust	2019 and 1 st Edn
4	Kirsi Niinimäki	Sustainable Fashion: New Approaches	Aalto University Press	2013 and 1 st Edn
5	Richard Blackburn	Sustainable Apparel: Production, Processing and Recycling	Woodhead Publishing	2015 and 1 st Edn

REFERENCE BOOK

S.No	Authors	Title	Publishers	Year and Edition
1.	Leslie Davi	sustainability and social change in fashion	Bloomsburg	2019 and 1 st Edn
2	Miguel Angel Gardetti & Subramanian Senthilkannan Muthu	Handbook of Sustainable Textile and Fashion	Routledge / CRC Press	2015 and 1 st Edn
3	Alison Gwilt	A Practical Guide to Sustainable Fashion	Bloomsbury	2020 and 2 nd Edn
4	Kirsi Niinimäki (Ed.)	Sustainable Fashion in a Circular Economy	Aalto ART S Books	2018 and 1 st Edn
5	Sandy Black	The Sustainable Fashion Handbook	Thames & Hudson	2021and 2 nd Edn

E -Journals

Fashion and Textiles

- Fashion Studies
- Industrial Textiles
- International Journal of Textile Science
- Textiles
- Journal of Fashion Technology & Textile Engineering
- Journal of Textile and Apparel, Technology and Management
- Journal of Textile Engineering and Fashion Technology
- Trends in Textile Engineering & Fashion Technology

Pedagogy

Lecture by chalk and talk, power point presentation, e-content, group discussion, assignment, quiz, peer learning, seminar.

Course Designers

1. Dr.T.R Indumathi

2. A.Yamuna devi

S.NO	LEARNING METHODS	PERCENTAGE
1	Participatory learning	70%
2	Experimental learning	20%
3	Problem based learning	10%

COURSE CODE	COURSE TITLE	Category	L	T	P	Credit
MFD24A1	FASHION RETAIL MANAGEMENT	Theory	60	-	-	4

Preamble

- This course covers retail market management, with a focus on merchandise, product, brand management, and retail planning.

Prerequisite

- Basic knowledge of marketing, retail concepts, and consumer behavior.

Course Learning Outcomes

On the successful completion of the course, students will be able to

CLO Number	CLO Statement	Knowledge Level
CLO1	Understand retailing concepts and organizational structure.	K2
CLO2	Analyze market segmentation and customer positioning.	K3
CLO3	Evaluate merchandise management and supplier selection.	K3
CLO4	Explore retail location, space management, and latest trends in retailing.	K4
CLO5	Apply pricing and promotion strategies in retail.	K5

Mapping with Programme Learning Outcomes

CLOs	PLO1	PLO2	PLO3	PLO4	PLO5
CLO1	S	S	S	S	S
CLO2	S	M	S	S	S
CLO3	S	S	S	S	S
CLO4	M	M	M	M	M
CLO5	S	S	S	S	M

S- Strong; M-Medium

UNIT I

(12 Hours)

Retail organization - Introduction, definition, characteristics and functions of retailing, retailers, retailing channels, retail strategy. Structure of retail organization, retail units,

merchandise mix, customer interaction, organized retailing, and retail formats, geographical markets, retailing in rural India, vertical marketing system, challenges in retail business.

UNIT II

(12 Hours)

Retail market segmentation - segmentation- definition and benefits - segmenting, targeting and positioning. Criteria for segmentation, types of markets, dimensions for segmentation, types of segmentation. Market targeting, customer profile, survey of buyer's intentions. Application of augmented reality and virtual reality in fashion retailing

UNIT III

(12 Hours)

Merchandise management - product management, brand management and retailing, merchandise management, model stock plan, constraining factors, types of suppliers and selection criteria, category management, merchandise management planning in retail segment. RFID for inventory management.

UNIT IV

(12 Hours)

Retail location and space management - location decision - importance, levels and determining factors, types of location, types of consumer goods and location decision, site selection analysis, atmospherics, store space management, retail selling tools, colour planning, physical materials in store designing, atmospherics in the context of internet retailing. Online retailing, E - commerce

UNIT V

(12 Hours)

Retail pricing and promotion strategy - influences on retail pricing strategy, development in retail prices, retail pricing objectives, retail pricing approaches and strategies, consumer responsiveness to prices, role of price elasticity and sensitivity, profitability, promotion mix selection, advertising, media selection, sales promotion, personal selling and publicity.

TEXT BOOKS

S.No	Authors	Title	Publishers	Year and Edition
1.	Barry Berman	Retail Management	Pearson Education	2017 and 12 th Edn
2.	Philip Kotler	Marketing Management	Pearson Education	2017 and 15 th Edn
3.	V.S. Ramasamy & S. Nama kumari	Marketing Management	Pearson Education	2010 and 4 th Edn
4	Swapna Pradhan	Retailing Management: Text and Cases	McGraw Hill Education	2019 and 6 th Edn

5	S.C. Bhatia	Retail Management	Atlantic Publishers	2018 and Edn
---	-------------	-------------------	---------------------	-----------------

REFERENCE BOOK

S.No	Authors	Title	Publisher	Year / Ed
1	Barry R. Berman, Joel R. Evans	Retail Management: A Strategic Approach	Pearson Education	2013 and 11
2	Michael Levy, Barton A. Weitz	Retailing Management	McGraw Hill Education	2015 and 9
3	Easwaran, Sundar & Ramaswamy, Ramashish	Retail Marketing Management	Vikas Publishing	2014 and 1
4	Pradhan Swapna	Retailing Management: Text and Cases	McGraw Hill Education	2013 and 5
5	Sinha P.K., Uniyal D.P.	Managing Retailing	Oxford University Press	2012 and 2

E – Journals

- Journal of Textile and Apparel, Technology and Management
- Journal of Textile Engineering and
- Fashion Technology
- The Textile Association
- Trends in Textile Engineering and Fashion Technology

Pedagogy

Lecture by chalk and talk, power point presentation, e-content, group discussion, assignment, quiz, peer learning, seminar

Course Designers

1.Dr.S.Thamarai Selvi

2 Dr.M.Malini Devi

S.NO	LEARNING METHODS	PERCENTAGE
1	Participatory learning	70%
2	Experimental learning	20%
3	Problem based learning	10%

Coursera Course: Foundation for Product Development/ MFD25CE

Sl.no	Course title	Link to the course	Duration (Hours approx)
1	Design thinking for innovation	https://www.coursera.org/programs/psgr-faculty-learning-program-1luew/learn/uva-darden-design-thinking-innovation?source=search	7
2	Creative Design, Prototyping, and Testing	https://www.coursera.org/programs/psgr-faculty-learning-program-1luew/learn/creative-design-prototyping-testing?fromClip=sfc_page_course_link~rCnE8	11
3	Sustainable Textile Manufacturing	https://www.coursera.org/programs/psgr-faculty-learning-program-1luew/learn/sustainable-textile-manufacturing?source=search	13
4	Foundations of Project Management	https://www.coursera.org/programs/psgr-faculty-learning-program-1luew/learn/project-management-foundations?source=search	17



**PSGR
Krishnammal College for Women**



**DEPARTMENT OF COSTUME DESIGN AND FASHION
PROGRAMME: M.Sc. FASHION AND APPAREL DESIGN**

**CHOICE BASED CREDIT SYSTEM (CBCS)&
LEARNING OUTCOMES- BASED CURRICULAR FRAMEWORK (LOCF)
(SEMESTER –III)**

**M.Sc. FASHION AND APPAREL DESIGN (M.Sc FAD)
2025-2027 Batch**

PROGRAMME LEARNING OUTCOMES (PLO's)

After completion of the programme, the student will be able to

- **PLO1:** Understand diverse cultural influences and market demands of apparel industry
- **PLO2:** Create innovative functional and aesthetic apparels including accessories.
- **PLO3:** Design apparels with advance digital tools and technologies
- **PLO4:** Research and analyze textile and fashion trends
- **PLO5:** Apply knowledge and skill in the fashion field and entrepreneur.

PROGRAMME SPECIFIC OUTCOMES (PSO's)

The students at the time of graduation

- **PSO1:** Graduates can function independently with their innovative and creative skills
- **PSO2:** Graduates will be able to meet the current Industries requirements
- **PSO3:** Graduates Can Undertake the research /projects sectors to new product development

MASTER OF SCIENCE - FASHION AND APPAREL DESIGN
CHOICE BASED CREDIT SYSTEM (CBCS) &
LEARNING OUTCOMES- BASED CURRICULUR FRAMEWORK (LOCF)
2025-2027 BATCH
SEMESTER –III

Semester	Course Code	Title of the Course	Course type	Instruction Hours/week	Contact Hours	Tutorial Hours	Duration of Examination	Examination Marks			Credits
								C A	ESE	TOTAL	
III	MFD2505	Industrial Engineering in Apparel Industry	CC	3	43	2	3	25	75	100	3
	MFD2507	Textile and Apparel Testing	CC	4	58	2	3	25	75	100	4
	MFD2508	Apparel Quality Standards and Specification	CC	4	58	2	3	25	75	100	4
	MFD25P06	3D Apparel Design and Modelling Lab	CC	5	75	-	3	25	75	100	4
	MFD23P07	Textile and Apparel Testing Lab	CC	6	90	-	3	25	75	100	4
	MFD23E04/ MFD25E05/ MFD23E06	Elective II Nano Textiles/ Protective Textiles- Health Care Application/ Compliance Standards in Apparel Industry	DSE	3	43	2	3	25	75	100	3

	MFD25S1	Special Course Research Methodology	GE	3	43	2	3	-	100	100	2
	MFD25COM	Comprehensive Exam (Self-study)	GC	-			-	-	100	100	Gr
I- III	17MONL1	Online Course 1 #	ACC	-	-	-	-	-	-	-	Completion Certificate
	MNM22CS2	Cyber Security	AECC	2	30	-	-	100	-	100	Gr
	MFD23IST	Internship	DSE	21 days Internship Training in Apparel Industry						100	Gr

DSE-Coursera

DSE- Elective in SEM III & IV Project

CC-All core courses

Gr-Grade

GE- IDC & Research Methodology

GC- Comprehensive examination

ACC - Online course #

DSE-Filed work /Institutional Training

CA – Continuous Assessment

ESE - End Semester Examination

QUESTION PAPER PATTERN 23 - 25 Batch

Question Paper Pattern and distribution of marks PG- Core and Allied- (First 3 Units)

CA Question from each unit comprising of

One question with a weightage of 2 Marks : 2 x 3 = 6

One question with a weightage of 5 Marks

(Internal Choice at the same CLO level) : 5 x 3 =15

One question with a weightage of 8 Marks

(Internal Choice at the same CLO level)

: 8 x 3=24

Total: 45

Marks

End Semester Examination–Question Paper Pattern and Distribution of Marks

PG-Core and Allied courses:

ESE Question Paper Pattern: 5x15=75Marks

Question from each unit comprising of

One question with a weightage of 2 Marks : 2 x 5=10

One question with a weightage of 5 Marks : 5 x 5=25
(Internal Choice at the same CLO level)

One question with a weightage of 8 Marks : 8 x 5 =40
(Internal Choice at the same CLO level)

TOTAL: 75marks

Continuous Internal Assessment Pattern

Theory

I Year UG / PG (23 Batch)

CIA Test : 5 marks (conducted for 45 marks after 50 days)

Model Exam : 7 marks (Conducted for 75 marks after 85 days (Each

Unit 15 Marks))

Seminar/Assignment/Quiz : 5 marks

Class Participation : 5 marks

Attendance : 3 marks

Total : 25 Marks

Practical

Lab Performance : 7marks

Regularity : 5marks

Model Exam : 10marks

Attendance : 3marks

Total : 25 marks

ESE Practical Pattern

The End Semester Examination will be conducted for a maximum of 75 marks with a maximum 15 marks for the record and other submissions if any.

COURSE CODE	COURSE TITLE	CATEGORY	L	T	P	CREDITS
MFD2505	INDUSTRIAL ENGINEERING IN APPAREL INDUSTRY	THEORY	43	2	-	3

Preamble

This course provides comprehensive knowledge on industrial engineering concepts and management practices in the apparel industry. It focuses on productivity improvement, work study techniques, ergonomics, and efficient production systems, enabling students to optimize manufacturing processes and enhance industrial performance.

Prerequisite

Basic knowledge on apparel production planning and control

Course Learning Outcomes

On successful completion of the course, students will be able to:

CLO NUMBER	CLO STATEMENT	CLO LEVEL
CLO1	Explain the scope and importance of industrial engineering and productivity in the apparel industry	K2
CLO2	Apply principles of work environment, ergonomics, and material handling systems	K3
CLO3	Analyze method study techniques and process analysis tools	K4
CLO4	Evaluate work measurement techniques and calculate standard time in garment production	K5
CLO5	Apply work study techniques and modern production systems for improving efficiency	K6

Mapping with Programme Learning Outcome

CLOs	PLO1	PLO2	PLO3	PLO4	PLO5
CLO1	M	M	S	S	S
CLO2	M	M	S	S	S
CLO3	M	M	S	S	S
CLO4	M	M	S	S	S

CLO5	M	M	S	S	S
------	---	---	---	---	---

S – Strong; M – Medium

INDUSTRIAL ENGINEERING IN APPAREL INDUSTRY - MFD2505 – 43 HRS

Unit I (9 Hrs)

Introduction – Scope of industrial engineering in apparel industry, role of industrial engineers. Productivity – definition, productivity measures. Causes for low productivity in the apparel industry and measures for improvement. Work Study – definition, purpose, basic procedure and techniques of work study.

Unit II (9 Hrs)

Work Environment – lighting, ventilation, climatic conditions affecting productivity. Temperature control, humidity control, noise control measures. Safety and ergonomics at workstations and work environment. Material handling – objectives, classification and characteristics of material handling equipment, specialized material handling equipment.

Unit III (8 Hrs)

Method Study – definition, objectives, procedure, process charts and symbols. Charts indicating process sequence – outline process chart, flow process chart (man type, material type, equipment type). Charts using time scale – multiple activity chart. Diagrams indicating movement – flow diagram, string diagram, travel chart. Motion study – principles of motion economy, two-handed process chart, micromotion analysis – therbligs, SIMO chart.

Unit IV (9 Hrs)

Work Measurement – definition, purpose, procedure, equipment, techniques. Time study – definition, basics, equipment. Time study forms, stopwatch procedure. Predetermined motion time standards (PMTS). Time study rating, calculation of standard time, performance rating, relaxation and other allowances. Calculation of SAM for different garments, GSD.

Unit V (8 Hrs)

Work Study Application – application of work study techniques in cutting, stitching, and packing in garment industry. Work aids in sewing, line balancing, capacity planning, scientific method of training, value engineering, lean manufacturing.

Text Book

S.No	Authors	Title	Publishers	Year and Edition
1	Khanna O.P	Industrial Engineering and Management	Dhanpat Rai Publications	2010 and 17 th Edn
2	Meyers F.E	Motion and Time Study for Lean Manufacturing	Pearson	2001 and 3 rd Edn
3	Ramesh Babu V	Industrial Engineering in Apparel Production	Woodhead Publishing	2012 and 1 st Edn

Books for Reference

S.No	Author	Title	Publisher	Year & Edition
1	Niebel B.W	Motion and Time Study	McGraw Hill	1993 and 9 th Edn
2	Chuter A.J	Introduction to Clothing Production Management	Wiley	1995 and 2 nd Edn
3	Harold Bright Maynard	Industrial Engineering Handbook	McGraw Hill	2001 and 5 th Edn
4	Glock R.E & Kunz G.I	Apparel Manufacturing: Sewn Product Analysis	Pearson	2005 and 4 th Edn

E-Journals

1. <https://nptel.ac.in/courses/110/107/110107144/>
2. <https://nptel.ac.in/courses/112/102/112102107/>
3. <https://www.ilo.org/global/topics/working-conditions>

Course Designers

1. Dr.R..Divya
2. Dr.M.Malini Devi

S.NO	LEARNING METHODS	PERCENTAGE
------	------------------	------------

1.	Participatory Learning	60%
2.	Experiential Learning	40%

COURSE CODE	COURSE TITLE	CATEGORY	L	T	P	CREDIT
MFD2507	TEXTILE AND APPAREL TESTING	THEORY	58	2	-	4

Preamble

This course helps to explore the methodologies, standards, and technologies employed in textile and apparel testing

Prerequisite

Basic knowledge on textile testing

Course Learning Outcomes

On the successful completion of the course, students will be able to

CLO NUMBER	CLO STATEMENT	CLO LEVEL
CLO1	Explain the importance and types of textile testing	K2
CLO2	Demonstrate different methods, standards, principles and working of instruments used	K3
CLO3	Examine advanced instrumentation and computerized testing systems	K4
CLO4	Evaluate yarn and fabric properties	K6
CLO5	Evaluate and analyse the effects of various parameters affecting test results	K6

Mapping with Programme Learning Outcome

CLOs	PLO1	PLO2	PLO3	PLO4	PLO5
CLO1	M	M	S	S	S
CLO2	M	M	S	S	S
CLO3	M	M	S	S	S
CLO4	M	M	S	S	S

CLO5	M	M	S	S	S
------	---	---	---	---	---

S- Strong; M-Medium

TEXTILE AND APPAREL TESTING - MFD2507 – 58 HRS

Unit- I (11 Hrs)

Introduction to Textile Testing - Importance and objectives of textile testing – Overview of Fiber, yarn, fabric and garment testing. Sampling techniques in textiles – Random sampling, yarn sampling, fabric sampling. Preparation of sample for testing – conditioning and pre conditioning. Standard atmosphere for textile testing. Sources of textile testing standard ISO, BIS, AATCC, ASTM.

Unit-II (11 Hrs)

Conventional testing methods - cotton fiber length - baer sorter, fineness – sheffield micronaire, maturity - caustic soda swelling, strength and elongation - pressley bundle strength tester and stelometer. Determination of trash and lint in cotton - shirley trash analyser. Computerized testing methods - HVI, AFIS. Moisture content and moisture regain.

Unit- III (12 Hrs)

Yarn numbering systems - direct and indirect, conversion of count from one system to another, instruments for count determination – wrap reel and balance, quadrant balance, beesley balance. Yarn strength testing - Single yarn strength, lea strength. Yarn twist - definition, direction of twist, measurement of yarn twist. Yarn evenness- Yarn defects and imperfections

Unit- IV (12 Hrs)

Fabric Physical parameters: length, width, count (EPIxPPI), crimp, weight (GSM), cover factor, thickness, air and water permeability, fabric dimensional stability to domestic washing and drying. Mechanical parameters – tensile strength, tearing strength, bursting strength, peel bond strength. Handle and comfort parameters - fabric abrasion, pilling, drape, stiffness, crease resistance /crease recovery, sensory testing, thermo-physiological testing, thermal comfort, FTT – fabric touch tester.

Unit- V (12 Hrs)

Fabric flammability testing - vertical and inclined plane. Colour fastness - laundering, dry cleaning, crocking, perspiration, sunlight and hot pressing and tests for natural dyes. Seam testing - seam strength, seam slippage. Accessories testing - zipper, buttons, sewing thread. Testing of linings, interlinings, and fusible interlinings.

Text Book

S.NO	Name of the	Title	Publishers	Year and
------	-------------	-------	------------	----------

	Authors			Edition
1	Raul Jewel	Textile Testing	A P H Publishing Corporation	2005 and 1 st Edn
2	Booth J E	Principles Of Textile Testing	CBS Publishers and Distributors Pvt Ltd	1996 and 3 rd Edn
3	P.Angappan, R. Gopalakrishnan	Textile Testing	S.S.M. Institute of Textile Technology	1997
4	Gopalakrishnan D, Vinayagamurthi P, Kandhavadiu P	Textile Testing	Daya Publishing House	2011
5	Arindam Basu	Textile Testing Fibre, Yarn & Fabric	The South India Textile Research Association	2006 and 2 nd Edn

Books for Reference

S.NO	Name of the Authors	Title	Publishers	Year and Edition
1	Ahmad	Advanced Textile Testing Techniques	Taylor and Francis Books Limited U.K.	2017 and 1 st Edn
2	Jinilian Hu	Fabric Testing	Wood head Publishing	2008 and 1 st Edn
3	Amutha	Practical Guide to Textile Testing	WPI Publishing	2016 and 1 st Edn
4	Elliot B Grover and Hamby D S	Handbook of Textile Testing and Quality Control	Wiley India Pvt Ltd	2011 and 1 st Edn

EContents

- 1 <https://nptel.ac.in/courses/116/102/116102029/#>
- 2 <https://nptel.ac.in/courses/116/102/116102049/>
- 3 <https://www.iso.org/committee/48148.html>

Pedagogy

Lecture by chalk and talk, power point presentation, e-content, group discussion, assignment, quiz, peer learning, seminar.

CourseDesigners

1.Dr.S.Thamarai Selvi

2.Dr.T.R.Indumathi

S.NO	LEARNING METHODS	PERCENTAGE
1.	Participatory Learning	60%
2.	Experiential Learning	40%

COURSE CODE	COURSE TITLE	CATEGORY	L	T	P	CREDIT
MFD2508	APPAREL QUALITY STANDARDS AND SPECIFICATION	THEORY	58	2	-	4

Preamble

This course is designed to provide a comprehensive understanding of the quality standards and specifications that are essential in the apparel industry.

Prerequisite

Basic knowledge on apparel production and quality standards

Course Learning Outcomes

On the successful completion of the course, students will be able to

CLO NUMBER	CLO STATEMENT	CLO LEVEL
CLO1	Describe the importance of quality standards and specifications in the apparel industry.	K 1
CLO2	Identify and describe the various quality standards and specifications used in apparel production.	K 2
CLO3	Discover interpret and apply quality standards and specifications to ensure product quality.	K 3
CLO4	Examine the knowledge of quality control processes and techniques used in the apparel industry.	K 4
CLO5	Develop skills in measuring and evaluating apparel products against quality standards and specifications.	K 5

Mapping with Programme Learning Outcome

CLO LEVEL	PLO 1	PLO 2	PLO 3	PLO 4	PLO 5
CLO 1	S	S	S	S	S
CLO 2	M	M	S	M	S
CLO 3	S	S	S	S	S

CLO 4	S	S	M	S	M
CLO 5	S	S	S	S	S

S- Strong; M-Medium

APPAREL QUALITY STANDARDS AND SPECIFICATION - MFD2508 – 58 HRS

Unit I (11 Hrs)

Introduction to quality standards, importance, benefits, levels and sources of quality standards. ISO Standards for the Apparel Industry - ISO 9000 & ISO 14000 standards, OEKO Tex - 100 standard, Made in Green, STEP, GOTS standards, GRI's sector standards -blue sign standards, ANSI standards, Textile Exchange standards, Cradle to Cradle certified standards.

Unit II (12 Hrs)

Standards in garment construction, seams, seam finishes, darts, dart equivalents, underlining, interfacing, interlinings, linings, inseam pockets, applied pockets, slashed pockets, bindings, facings, inset bands, rib-stretch Bands, Collars, Sleeves, sleeve finishes- cuffs and plackets, Waistline edge treatments – waistbands, waistline facings, edge casings, internal waistline treatments, button and decorative snap closures, buttonholes, zippered closures, hems and hems treatments. Finishing of placket opening of upper and lower garment.

Unit III (12 Hrs)

Quality Standards - Definition of a standard, benefits of standards, levels of standards, need for uniform standards, standards for different levels, quality standard and price relationship, national, company, industry, international, standardizing bodies, AATCC, ASTM, ANSI, ISO, BSI, BIS. Quality control and inspection of finished garments. Quality implementation system SA8000 Standard, 5S, TQM, Lean manufacturing and Six Sigma lean manufacturing.

Unit IV (11 Hrs)

Specifications -Importance of specification sheet and its role in maintaining quality, process of spec sheet development, concept of tolerances - maximum, minimum, zero tolerance. Fabric inspection, classification of fabric defects, independent product quality certification.

Unit V (12 Hrs)

Garment defects - cutting defects, sewing defects, assembly defects, pressing, finishing and packaging defects. Inspection procedures - raw materials, in process, and final inspection. Quality control in final Inspection – AQL: Levels 1.5, 2.5, 4.0, 6.5. Cost of Quality and customer return.

Text Book**Books for Reference**

S.NO	Name of the Authors	Title	Publishers	Year and Edition
1	Sara J. Kadolph	Quality Assurance for Textiles and Apparel	Fairchild Publications	2007 and 2 nd edn
2	G. Prema and J. Hayavadana	Apparel Quality Assurance and Quality Control Handbook	Woodhead Publishing	2016 and 2nd Revised edn
3	Rajkishore Nayak and Rajiv Padhye	Garment Manufacturing Technology	Woodhead Publishing	2015 and Nil edn
4	S Purushothama	Effective Implementation of Quality Management Systems	Woodhead Publishing	2010 and 1 st Edn
5	Subrata Das	Quality Characteristics of Apparel	Woodhead Publishing	2009 and 1 st Edn

S.No	Name of the Authors	Title	Publishers	Year and Edition
1.	Pradip Mehta & S.K.Bhardwaj	Managing Quality in Apparel Industry	New Age Publishers	2011
2.	Stanley Bernard Brahams	The Fundamentals of Quality Assurance in the Textile Industry	CRS Press	2016
3.	Janace Bubonia-Clarke	Apparel Quality: A Guide to Evaluating Sewn Products	Fairchild Books	2015 and 1 st Edn
4.	A. Chakraborty	Apparel Quality Control	PHI Learning Private Limited	2011 and 1 st Edn
5.	Pradip V. Mehta	Quality Management in the Apparel Industry	CRS Press	2012, and 1 st Edn

EJournals

- Journal of Textile and Apparel, Technology and Management
- International Journal of Textile Science
- Journal of Textile Engineering and Fashion Technology

E-Content / Web Resources

1. <https://www.iso.org>
2. <https://www.oeko-tex.com>
3. <https://textileexchange.org>
4. <https://www.aatcc.org>
5. <https://www.bis.gov.in>

Course Designers

1. Dr.R.Divya
2. Dr.T.R.Indumathi

S.NO	LEARNING METHODS	PERCENTAGE
1.	Participatory Learning	60%
2.	Experiential Learning	40%

COURSE CODE	COURSE TITLE	CATEGORY	L	T	P	CREDIT
MFD25P06	3D APPAREL DESIGN AND MODELLING LAB	PRACTICAL	-	-	75	4

Preamble

This course helps to develop and gain about knowledge in the use and application of 3D fashion design software.

Course Learning Outcomes

On the successful completion of the course, students will be able to

CLO Number	CLO STATEMENT	Knowledge Level
CLO1	Recognize designs for 3D modelling	K1
CLO2	Develop digital garment designs and patterns	K2
CLO3	Assess pattern and garment for virtual fitting	K3
CLO4	Experiment on colour ways and 3D modelling	K4
CLO5	Create simulation for the developed designs	K5

Mapping with Programme Learning Outcomes

CLOs	PLO1	PLO2	PLO3	PLO4	PLO5
CLO1	S	S	S	M	S
CLO2	S	M	M	S	S
CLO3	S	S	S	S	S
CLO4	S	S	S	S	S
CLO5	S	S	S	S	S

S- Strong; M-Medium

3D APPAREL DESIGN AND MODELLING LAB - MFD25P06 – 75 HRS

- Tools and functions of 2D and 3D software. (5 Hrs)
- Design and pattern development of kids wear (6 Hrs)
- Fabric visualization –creation of digitized fabrics for kids wear (6 Hrs)
- Assembling of pattern on 3D models and virtual fitting (5 Hrs)

5. Colour ways, 3D modelling and simulation of kids wear (5 Hrs)
6. Design and pattern development of women's wear (7 Hrs)
7. Fabric visualization -creation of digitized fabrics for women's wear (6 Hrs)
8. Assembling of pattern on 3D models and virtual fitting (5 Hrs)
9. Colour ways, 3D modelling and simulation of women's wear (6 Hrs)
10. Design and pattern development of men's wear (6 Hrs)
11. Fabric visualization –creation of digitized fabrics for men's wear (6 Hrs)
12. Assembling of pattern on 3D models and virtual fitting (6 Hrs)
13. Colour ways, 3D modelling and simulation of men's wear (6 Hrs)

Text Book

S.NO	Name of the Authors	Title of the book	Publishers	Year and Edition
1	Paterson	Textile Colour Mixing	Abhishek Publications	2008 and 1 st edn
2	Asim Kumar	Modern Concepts of Color and Appearance	Oxford & IBH Publishing	2000
3	Padmavathi	Techniques of Drafting and Pattern Making	Atlantic Publishers And Distributors	2009

Books for Reference

S.No	Name of the Authors	Title	Publishers	Year and Edition
1	Natalie Bray	Dress Fitting	John Wiley & Sons	1987 and 5 th Edn
2	Kathryn Mckelvey	Fashion Design: Process, Innovation and Practice	Wiley	2011 and 2 nd Edn
3	Alexandra Suhner Isenberg	Technical Drawing For Fashion Design 2: Garment Source Book	Pepin Press	2011 and 1 st Edn

E - Contents

1. <https://www.youtube.com/@CLOVirtualFashion>
2. <https://www.youtube.com/@Learn3DFashion>

3. <https://www.clo3d.com/en/learning>
4. <https://www.learn3dfashion.com/course-structure/>
5. <https://www.fashionic.ca/training>

Course Designers

- 1.Mrs.A.yamuna Devi
- 2.Dr.M.Malini Devi

S.NO	LEARNING METHODS	PERCENTAGE
1.	Experiential Learning	100%

COURSE CODE	COURSE NAME	Category	L	T	P	Credit
MFD23P07	TEXTILE AND APPAREL TESTING LAB	Practical	-	-	90	4

Preamble

This course helps to develop and gain knowledge about the physical testing of textiles and apparels as per the standards used in Apparel industry.

Prerequisite

Basic Knowledge on textile testing

Course Learning Outcomes

On the successful completion of the course, students will be able to

CLO Number	CLO STATEMENT	Knowledge Level
CLO1	Understand the physical parameters of fibers, yarns and fabrics.	K2
CLO2	Identify the mechanical properties of woven and knitted fabrics	K3
CLO3	Experiment with the comfort properties of woven and knitted fabrics	K3
CLO4	Distinguish the suitability of fibers, yarns and fabrics for various end application	K4
CLO5	Examine the physical properties of apparels	K4

Mapping with Programme Learning Outcomes

CLOs	PLO1	PLO2	PLO3	PLO4	PLO5	S-Strong; M-Medium TE
CLO1	M	M	S	S	S	
CLO2	M	M	S	S	S	
CLO3	M	M	S	S	S	
CLO4	M	M	S	S	S	
CLO5	M	M	S	S	S	

TEXTILE AND APPAREL TESTING LAB - MFD23P07 – 90 HRS

Testing and Evaluation of:

I Fibre and Yarn

1. Fibre length, moisture regain

(15 Hrs)

2. Estimation of linear density of yarn (Natural and synthetic)
3. Lea strength, single/ply yarn twist, crimp length

II Fabric

4. Woven and Knitted - EPI, PPI, WPI, CPI, Thickness, GSM (12 Hrs)
5. Estimation of blend ratio of fabric (5 Hrs)
6. Fabric Stiffness, Crease Recovery, Drape (8 Hrs)
7. Tensile strength and elongation, Tear strength (8 Hrs)
8. Bursting strength, Abrasion Resistance, Pilling (13 Hrs)
9. Fabric absorbency tests-Drop, wicking, spray and sinking tests (8 Hrs)
10. Colour fastness to sunlight, washing, wet and dry crocking, pressing Perspiration –Acidic and alkaline (10 Hrs)

III Apparel Testing

(11 Hrs)

11. Apparel dimensional stability, Spirality
12. Skewing and measurement, Peel bond strength

***Necessary practice given through the industry and research centers visit.**

Textbooks

S.NO	Name of the Authors	Title	Publishers	Year and Edition
1	Elliot Brown Grover, Dame Scott Hamby	Handbook of Textile Testing and Quality control	Textile Book Publishers, New York	2007 and 1 st Edn
2	Booth J.E.,	Principles of Textiles Testing	CBS Publishers and Distributors, New Delhi	1996 and 3 rd Edn
3	Saville, B.P	Physical Testing of Textiles	Wood head publishing Ltd., England	2004 and 1 st Edn
4	Ruth E Glock and Grace I Kunz	Apparel Manufacturing	Prentice hall, New Jersey	2005 and 3 rd Edn

Books for Reference

S.No.	Name of the Authors	Title	Publishers	Year and Edition
1	Wang Lijing	Performance Testing of Textiles, Methods, Technology and Applications	Woodhead Publishing, Elsevier Ltd. New Delhi	2016 and 1 st Edn
2	Jewel Raul	Textile Testing	APH Publishing	1994

			Corporation New Delhi	
3	Jinlian HU	Fabric Testing	Wood Head Publishing, Cambridge, England	2008 and 1 st Edn

E-Content

1. <https://www.youtube.com/playlist?list=PLCC58838EBECB7149>
2. <https://www.youtube.com/channel/UCXw7428MTvquxKUZEOr4EAA/videos?view=0&sort=dd&flow=grid>
3. <https://www.youtube.com/channel/UCGqWXJgzyXyyu283QbdYiFQ/videos>

CourseDesigners

1. Dr.S.Thamarai Selvi
2. Mrs.A.Jasira banu

S.NO	LEARNING METHODS	PERCENTAGE
1.	Experiential Learning	100%

COURSE CODE	COURSE TITLE	CATEGORY	L	T	P	CREDIT
MFD23E04	NANO TEXTILES	THEORY	43	2	-	3

Preamble

This course helps to explore the fundamental concepts of nanotechnology, development of nano textiles in apparel sectors

Prerequisite

Basic Knowledge on technical textiles

Course Learning Outcomes

On the successful completion of the course, students will be able to

CLO NUMBER	CLO STATEMENT	CLO LEVEL
CLO1	Explain the fundamental concepts of nanotechnology	K1
CLO2	Indicate the properties and applications of nano fibers by different process and methods	K2
CLO3	Discover the nano particles and preparation of nano-sized materials with functional finishing	K3
CLO4	Analyse the functionality of Nano textiles	K4
CLO5	Explain the methods of characterization nanoparticles	K5

Mapping with Programme Learning Outcomes

CLOs	PLO1	PLO2	PLO3	PLO4	PLO5
CLO1	S	S	S	S	S
CLO2	S	M	S	M	S
CLO3	S	S	S	S	S
CLO4	S	S	M	S	S
CLO5	S	S	S	S	S

S- Strong; M-Medium

NANO TEXTILES - MFD23E04 – 43 HRS

Unit- I (8 Hrs)

Introduction to nanotechnology - concept of nanoscale and historical background of nanotechnology, fundamental concepts of nano technology - bottom-up approaches, top down approaches, scope of nanotechnology in textile and apparel manufacturing

Unit -II (9 Hrs)

Synthesis and properties of nano fibers - electro spinning of nano fibres. Continuous yarns from electro spun nano fibres. properties of nano fibers, electro spraying and electro spinning by the capillary method, electro spraying and electro spinning by the charge injection method, controlling fiber orientation, applications of nano fibres viz, tissue engineering, filter media.

Unit -III (9 Hrs)

Nano particles - Preparation of nano-sized materials - vapour phase reaction-commercially nano-particles- metals and metal oxides nano-particles- polymer and polymer nano-composites- Clay nano-particles, carbon nano particles-polymer nano-whiskers. Nano-particles in functional textile finishing- Wrinkle resistance- stain resistance- water repellency -anti-static performance- anti-bacterial effect-ultra violet protection.

Unit-IV (8 Hrs)

Nano textiles and apparel - development of nano textiles and apparel using - nano-tex, nano-care, nano-dry, nano-touch, for home furnishing, technical textiles, smart and medical apparels. Polymer functionality and nano coating development of nano

technologies for coating and structuring of textiles.

Unit-V

(9 Hrs)

Characterization of nanoparticles - X-ray diffraction, transmission electron microscopy and spectroscopy; Scanning electron microscopy (SEM) Transmission electron microscopy (TEM) Energy-dispersive x-ray spectroscopy (EDS), Small-Angle X-Ray Scattering (SAXS), The Cone calorimeter(CC), The mass loss calorimeter(MLC)

Text Book

S.No	Name of the Authors	Title	Publishers	Year and Edition
1	MaiY-W	Polymer Nano composites	Wood head publishing	2006 and 1st Edn
2	Guazhong Cao	Nano structure and nanomaterials	Imperial College Press, USA	2006 and 2nd edn
3	Seeram Ramakrishna	An introduction to electro spinning and Nano fibers	World Scientific Publishing Co,	2005 and 1 ST Edn

Books for Reference

S.No	Name of the Authors	Title	Publishers	Year and Edition
1	BrownPJ and StevensK	Nano fibres and Nanotechnology in Textiles	Woodhead Pub.Ltd	2007 Paperback edn
2	CRC Taylor & Francis, Boca Raton	Nanotubes and Nano fibres	YuryGogots	2006 and 1 st Edn
3	Mick Wilson, Kamali Kannangara, Geoff Smith, Michelle Simons and Burkhard Raguse	Nanotechnology- BasicScienceandEmergingTechnologies	OverseasPress, New Delhi	2005 and Nil Edn
4	Ramakrishna.S Fujihara.K Teo,W.E.,Lim, T.C.,Ma,Z	Electro spinning and Nanofibers	World ScientificPrinters , Singapore	2005 and 1 st Edn

EJournal

- Textile World

- International Journal of Textile Science
- Journal of Fashion Technology & Textile Engineering
- Journal of Textile Engineering

Course Designers

1. Dr. R. Divya

2. Mrs. A. Jasira Banu

S.NO	LEARNING METHODS	PERCENTAGE
1.	Participatory Learning	60%
2.	Experiential Learning	40%

COURSE CODE	COURSE TITLE	CATEGORY	L	T	P	CREDIT
MFD25E05	PROTECTIVE TEXTILES-HEALTH CARE APPLICATION	THEORY	43	2	-	3

Preamble

To impart knowledge in the development of health care textiles for front line personnel

Prerequisite

Basic knowledge on technical textiles

Course Learning Outcomes

On the successful completion of the course, students will be able to

CLO NUMBER	CLO STATEMENT	CLO LEVEL
CLO1	Understand the different segments of Health care and medical textiles	K1
CLO2	Gain knowledge on health care and medical textile devices	K2
CLO3	Understand the Design criteria for health care products	K3
CLO4	Fabrication of Healthcare medical textiles	K4
CLO5	Understand the Quality and Standards for Healthcare Protective textiles	K5

Mapping with Programme Learning Outcomes

CLOs	PLO1	PLO2	PLO3	PLO4	PLO5
CLO1	S	S	S	S	S
CLO2	S	M	S	S	S
CLO3	S	S	S	S	S
CLO4	S	S	M	S	S

CLO5	S	S	S	S	S
------	---	---	---	---	---

Strong; M-Medium

PROTECTIVE TEXTILES-HEALTH CARE APPLICATION – MFD25E05 – 43 HRS

Unit I (8 Hrs)

Introduction to Health care medical textiles-different segments of medical textiles and the products of each segments. Different segments of medical textiles -Healthcare medical textiles, Hygiene medical textiles, Implantable medical textiles, Non implantable medical textiles and Extra corporeal devices.

Unit II (9 Hrs)

Introduction to healthcare, medical and bio-textile devices -various health care and medical textile device, different types of polymers Alginate, Chitosan, Silk, PLA, PGA, Carboxymethyl cellulose, Cellulose acetate, Polyurethane, Polyester, Polypropylene used in medical applications. Chemical and physical properties of each polymer with respect to the specific product.

Unit III (9 Hrs)

Design criteria and fabrication of health care medical textile products-Technologies for Health care Textiles and Product Development- Knitting, Braiding, 3D weaving, nonwoven techniques, spacer fabric, composites, Hydrogel, Rapid prototyping, Electro spinning.

Unit IV (9 Hrs)

Healthcare medical textiles Introduction- Importance of textile materials in the development of health care products and the technologies used for the development of these products for - surgical gowns, drapes, coverall, face masks, antibacterial textiles. Manufacturers, sterilization process, advantages and disadvantages of the technologies with respect to disposal and non-disposal nature of each products- future directions.

Unit V (8 Hrs)

Healthcare Medical textiles -Standards - National and International standards, quality norms as per BIS and CDSCO. Certification process involved in medical textiles.

Text

Book

S.No	Name of the Authors	Title	Publishers	Year and
------	---------------------	-------	------------	----------

				Edition
1	V. K. Kothari (Ed)	Technical Textiles	IAFL Publications.New Delhi	2008 and 1st Edn
2	Sabit Adanur (Ed)	Wellington Sears Handbook of Industrial Textiles	Technomic Publishing Company, Inc, Pennsylvania	1995 and 1st Edn
3	Richard A. Scott (Ed)	Textiles for Protection	Woodhead Publishing Limited, Cambridge	2005 and 1st Edn

Books for Reference

S.No	Author	Title of the Book	publishers	Year and Edition
1	Subhash Anand	Medical Textiles	Woodhead Publishing Ltd	2005 and Nil Edn
2	JF Kennedy, SC Anand, M Miraftab, S Rajendran	Medical Textiles- Proceedings of the fourth international conference on health and medical textiles	CRC Press	2007 and 2 nd Edn
3	S.C. Anand, M Miraftab, Kennedy	Medical Textiles and Biomaterials for Healthcare	Woodhead Publishing Ltd	2005 and 1st Edn
4	Richard A. Scott (Ed)	Handbook of Technical Textiles	Woodhead Publishing Limited, Cambridge	2005 and 1st Edn

E- Contents

- <https://youtu.be/zTdPS0fCCvs?si=4Pp0oURbSmpt5MeF>
- <https://youtu.be/OKSTt7TPr1A?si=J0uE5A6xhGxi9tZG>
- <https://youtu.be/vh04FIc6OPk?si=rGXZt tn830RNfvW>

Course Designers

- 1.Dr. T.R.Indumathi
- 2.Dr.M.Malini Devi

S.NO	LEARNING METHODS	PERCENTAGE
-------------	-------------------------	-------------------

1.	Participatory Learning	60%
2.	Experiential Learning	40%

COURSE CODE	COURSE TITLE	CATEGORY	L	T	P	CREDIT
MFD23E06	COMPLIANCE STANDARDS IN APPAREL INDUSTRY	THEORY	43	2	-	3

Preamble

This course provides gain about knowledge in the concept and need for compliance in apparel industry, technical compliance, ethical trading and international compliance.

Course Learning Outcomes

On the successful completion of the course, students will be able to

CLO Number	CLO Statement	Knowledge Level
CLO1	Understand the knowledge and concept need for compliance in Apparel industry.	K2
CLO2	Develop knowledge on health and safety compliance followed in Apparel industry	K3
CLO3	Interpret on environmental compliance to be adhered by Apparel industry.	K3
CLO4	Examine the technical compliance norms followed in Apparel industry.	K4
CLO5	Create compliance norms followed by various international sourcing companies.	K5

Mapping with Programme Learning Outcomes

CLOs	PLO1	PLO2	PLO3	PLO4	PLO5
CLO1	S	M	S	M	M
CLO2	S	M	S	M	M
CLO3	S	M	M	M	M
CLO4	S	M	M	M	M

CLO5	S	M	M	M	M
-------------	----------	----------	----------	----------	----------

S- Strong; M-Medium

COMPLIANCE STANDARDS IN APPAREL INDUSTRY – MFD25E06 – 43 HRS

Unit I (9 Hrs)

Compliance - introduction -scope and need for different compliances Social, health and safety, environmental, technical, international compliance - concept, need, benefits for industry, workers and society. Social accountability and Corporate Social responsibility - scope and need. Social Compliance in supply chain management.

Unit II (9 Hrs)

Social compliance - conventions on gender and caste discrimination, forced labour, child labour, and minimum age convention. SA 8000 – elements, Worldwide Responsible Apparel Production (WRAP). Ethical Trading Initiative (ETI). Corporate Social Responsibility (CSR) compensation–norms applicable in India, code of conduct, minimum wages Act, remuneration, Trade Union Acts.

Unit III (8 Hrs)

Environmental compliance – environmental laws and regulations, the regulations related to handling, recycling, and disposal of hazardous materials. Requirements of pollution control board, ISO 14000 – elements and certification. Eco standards, Eco labels, REACH, OEKO TEX, GOTS. Certification requirements for apparel industry.

Unit IV (8 Hrs)

Technical compliance - elements and requirements of ISO 9000, Meeting vendor compliance–WALMART, JCPENNY. Needle policy, maintenance of safety data of materials in stain removal, poly bags, children wear requirements.

Unit V (9 Hrs)

Ethical trading and international compliance - Ethical Trading Initiative (ETI). Basic code of labour practice. Worldwide Responsible Apparel Production (WRAP) purposes, WRAP Principle, certification process, SA8000. National and international regulating organizations –OSHA, WRAP, GOTS, OEKO TEX. HIGG- HIGG concept.

Text Book

S.No	Name of the Authors	Title	Publishers	Year and Edition
1	Rathinamoorthy	Apparel Machinery And Equipment	Woodhead Publishing	2018 and Standard Edn
2	Seema Kapoor	Apparel Manufacturing Technology	Sonali Publications	2016 and illustrated Edn
3	Richard M.Jones	The Apparel Industry 2nd Edition	Wiley-Blackwell John Wiley & Sons L	2006 and 1 st Edn

Books for Reference

S.No.	Author	Title	Publishers	Year and Edition
1	Das.S,Li&Fung	Product safety and restricted substances in apparel	Woodhead Publishing	2016 and 1 st Edn
2	Christie.R	Environmental aspects of textile dyeing	Heriot-Watt University,UK Woodhead Publishing Series in Textiles	2006 and 1st Edn
3	Rajesh Chhabara	Social Accountability	Ava Softech Pvt. Ltd	2005 and nil Edn

EContents

- <http://www.labour.nic.in>
- <http://www.unicef.org>
- <http://www.indianchild.com>
- <http://www.paycheck.in>
- <http://www.sa-intl.org>

Pedagogy

Lecture by chalk and talk, power point presentation, e-content, group discussion, assignment, quiz, peer learning, seminar.

Course Designers

1. Dr. R. Divya
2. A. Yamuna Devi

S.NO	LEARNING METHODS	PERCENTAGE
1.	Participatory Learning	60%
2.	Experiential Learning	40%

COURSE CODE	COURSE TITLE	CATEGORY	L	T	P	CREDIT
MFD25S1	RESEARCH METHODOLOGY	THEORY	43	2	-	2

Preamble

This course is designed to provide the foundational knowledge and skills necessary to conduct research in various fields and also focus on how to design research studies, analyze data, and interpret results effectively.

Prerequisite

Basic knowledge on research practices

Course Learning Outcomes

On the successful completion of the course, students will be able to

CLO NUMBER	CLO STATEMENT	CLO LEVEL
CLO1	Understand and explain the fundamentals of research, including meaning, objectives, types, research process, and formulation of research problems with relevant literature review.	CLO 1
CLO2	Apply appropriate research designs and sampling techniques to develop research plans, especially in the textile and apparel field.	CLO 2
CLO3	Demonstrate the ability to collect, process, analyze, and interpret data using various methods. Analyze data using statistical tools and hypothesis testing techniques such as Chi-square and ANOVA.	CLO 3

CLO4	Recognize and prepare research reports and publications following ethical standards. Apply principles of research ethics, intellectual property rights (IPR), and responsible conduct in research, including plagiarism and publication ethics.	CLO 4
CLO5	Evaluate and apply principles of research ethics and responsible conduct in research, including integrity, authorship, confidentiality, informed consent, and compliance with national and international regulatory guidelines.	CLO 5

Mapping with Programme Learning Outcomes

CLO LEVEL	PLO 1	PLO 2	PLO 3	PLO 4	PLO 5
CLO 1	S	S	M	S	S
CLO 2	S	S	M	S	M
CLO 3	S	S	S	M	S
CLO 4	S	M	S	S	S
CLO 5	S	S	M	S	S

S -Strong; M-Medium

RESEARCH METHODOLOGY - MFD25S1 – 43 HRS

Unit-I (8 Hrs)

Research - Definition, Meaning, Objectives, types of research, significance of research and defining research process. Research Problem- Sources, identification, selection and statement, review of related literature.

Unit-II (9 Hrs)

Research design - Meaning, types of research designs, basic principles of experimental designs. Developing a research plan related to the textile industry. Sampling - sampling census and sample survey, steps in sampling design, criteria for selecting a sampling procedure, characteristics of a good sample design, different types of sample designs.

Unit-III (9 Hrs)

Methods of data collection - Observation, questionnaire and interview. Data processing and analysis - collection, classification – tabulation, graphical representation and data analysis. Measures of central tendency. Descriptive measures – mean, median, mode and its applications. Dispersion – standard deviation, statistical analysis-correlation, coefficient of co-relation, rank co-relation, regression equation. Application of Chi-square

test, ANOVA test.

Unit-IV (9 Hrs)

Interpretation of data, report writing and paper publication – Layout of a Research Paper, selection of Journals, Impact factor of Journals, Ethical issues related to publishing, Plagiarism. Intellectual Property Rights (IPR)-Meaning and importance of IPR, types (Patents, Copyrights, Trademarks), Ethical issues (data collection, analysis, and reporting), Plagiarism and academic integrity, Role of IPR in research and design innovations.

Unit-V (8 Hrs)

Research ethics and Responsible conduct in research: Brief history and analytical basic of research ethics, responsible conduct in research (Honesty in science: Integrity, Authorship, Conflicts of Interest, privacy and Confidentiality. Informed Consent, Risk/Benefit. assessment), The legal regulation of research ethics in India (From UGC, MHRD and other governing agencies), Regulatory requirements relevant to international research.

TEXTBOOKS

S.NO	Name of the Authors	Title	Publishers	Year and Edition
1	Mark N.K. Saunders, Philip Lewis, and Adrian Thornhill	Research Methods for Business Students	Pearson Education Limited	2019 and 1 ST Edn
2	Nicholas Walliman	Research Methods: The Basics	Routledge	2017 and 2 nd Edn
3	S P Gupta	An Introduction to Statistical Methods	Vikas Publishing House	2009 and Nil Edn
4	G.C.Ramamurthy	Research Methodology	Kindle Edition, Dream tech Press.	2011 and 1 st Edn

Books for Reference

S.No	Name of the Authors	Title	Publishers	Year and Edition
1.	Ranjit Kumar	Research Methodology: A Step-by-Step Guide for Beginners	SAGE Publications Ltd	2020 and 1 st Edn

2.	John W. Creswell and J. David Creswell	Research Design: Qualitative, Quantitative, and Mixed Methods Approaches	SAGE Publications, Inc	2017 and 2 nd Edn
3.	Neil J. Salkind	Statistics for People Who (Think They) Hate Statistics	SAGE Publications, Inc	2016 and 1 st Edn
4.	Geoffrey R. Marczyk, David DeMatteo, and David Festinger	Essentials of Research Design and Methodology	John Wiley & Sons	2017
5.	V S Karpagavalli, Dr. C. P. Shirley, Dr. S. Shirley & Mrs. R Golden Nancy	Research Methodology	Jec Publication	2023 and 1 st Edn

E- Contents

- <https://youtu.be/1vf8ZvADxfY?si=1eVoMT1jGCvOPD9->
- https://youtu.be/rloOsJxluBk?si=Sia_lRc4PzdHawXN
- <https://youtu.be/YOppeXzFkBs?si=pDLbIHUfe3TxJ368>
- <https://youtu.be/I10q6fjPxJ0?si=Ce5ZG6XHzCpyRDSW>

CourseDesigners

- 1.Dr. R. Divya
- 2.Dr.T.R.Indumathi

S.NO	LEARNING METHODS	PERCENTAGE
1.	Participatory Learning	60%
2.	Experiential Learning	40%