சர்தார் வல்லபாய் படேல் சர்வதேச ஜவுளி மற்றும் மேலாண்மை கல்லூரி
सरदार वल्लभभाई पटेल इंटरनेशनल स्कूल ऑफ टेक्सटाइल्स एंड मैनेजमेंट
SARDAR VALLABHBHAI PATEL
International School of Textiles & Management
Autonomous Institute, Ministry of Textiles, Government of India.

B.Sc. – TEXTILE AND APPAREL DESIGN

REGULATIONS, CURRICULUM & SYLLABUS 2024

#1483, Avanashi Road, Peelamedu, Coimbatore-641004. Tamil Nadu
Landline : 0422-2571675, 2592205 Fax: 0422-2571623 Web: www.svpistm.ac.in

Curriculum

B.Sc. – Textile and Apparel Design

1. Programme Objectives

1. Graduates of this programme will be able to apply acquired knowledge to identify the scope and provide appropriate solution in the appropriate discipline.
2. The graduate shall showcase the skills to define and develop innovative ideas and implementation for various demands.
3. A successful graduate will be able to research and optimize the products and processes of the textile chain.
4. Graduates of the programme will have necessary expertise to establish oneself as an entrepreneur.

2. Programme Outcomes

1. Ability to apply knowledge on basics of fiber, yarn, fabric manufacture, chemical processing and testing of textiles in the field of garment production.
2. Ability to understand and apply basic pattern engineering concepts, garment construction, merchandising and marketing, sewing, woven and knitted fabric design skills in the industry.
3. Ability to identify and solve technological problems in garment industry and
4. Ability to analyze and apply knowledge in the field of design and production of apparels using computational platforms and software tools.
5. Use the modern tools, techniques and skills necessary for practicing in the apparel design manufacturing industry.
6. Apply knowledge of textile science and technology to design and develop new products and processes.
7. Demonstrate creativity and innovation in the design of textiles and apparel.
8. Use a variety of design tools and techniques to communicate ideas effectively.
9. Understand and apply the principles of sustainable design to the textile and apparel industry.
10. Evaluate the quality of textiles and apparel products.

List of abbreviations

- L – Lecture Hours / Contact Sessions
- T – Tutorial Hours
- P – Practical Hours
- C-Credit
- CT – Course Type
- AM – Assessment Methodology
- CIA – Continuous Internal Assessment
- ESE – End Semester Examination
- MC – Major Core
- MS – Minor stream
- MD – Multi Disciplinary
- AEC – Ability Enhancement Course
- SEC – Skill Enhancement Course
- VAC – Value Added Course
- SI – Summer Internship
- PW – Project work

SEMESTER I								
COURSE CODE	**COURSE NAME**	**L**	**T**	**P**	**C**	**CT**	**AM**	
							CIA	**ESE**
24BTAD100T/ 24BTAD100H	Tamil - I / Hindi – I	3	0	0	3	MD	40	60
24BTAD101	Communicative English	3	0	0	3	MD	40	60
24BTAD102	Textile Art and Design	3	0	0	3	MC	40	60
24BTAD103	Design Principles and Elements	4	0	0	4	MC	40	60
24BTAD104	Fiber Science	4	0	0	4	MS	40	60
24BTAD105L	Design Sketching Laboratory	0	0	4	2	MC	60	40
24BTAD106L	Basics of Graphic Designing Laboratory	0	0	4	2	MC	60	40
24BTAD107L	Fiber Science Laboratory	0	0	4	2	MS	60	40
24BTAD108L	Computer Practices - I	0	0	2	1	AEC	100	-
Total		**17**	**0**	**14**	**24**			

SEMESTER II								
COURSE CODE	**COURSE NAME**	**L**	**T**	**P**	**C**	**CT**	**AM**	
							CIA	**ESE**
24BTAD110T/ 24BTAD110H	Tamil - II / Hindi – II	3	0	0	3	MD	40	60
24BTAD111	Technical English	3	0	0	3	MD	40	60
24BTAD112	Statistics	3	0	0	3	AEC	40	60
24BTAD113	Spinning and Pre-weaving	3	0	0	4	MS	40	60
24BTAD114	Design Psychology	3	0	0	3	MC	40	60
24BTAD115	Environmental Science	2	0	1	2	AEC	40	60
24BTAD116L	Design Illustration Laboratory	0	0	4	2	MC	60	40
24BTAD117L	Basic Apparel Construction Laboratory	0	0	4	2	MC	60	40
24BTAD118L	Computer Practice - II	0	0	2	1	AEC	100	-
24BTAD119	Yoga for Human Excellence#	0	0	2	1	AEC	100	-
24BTAD120	Independent study* – course from SWAYAM / NPTEL	0	0	0	1	VAC	100	-
Total		**17**	**0**	**13**	**25**			

SEMESTER III

COURSE CODE	COURSE NAME	L	T	P	C	CT	AM	
							CIA	ESE
24BTAD201	Textile Enhancement	4	0	0	4	MC	40	60
24BTAD202	Fabric Manufacturing	4	0	0	4	MC	40	60
24BTAD203	Apparel Manufacturing & Pattern Engineering	4	0	0	4	MC	40	60
24BTAD204L	Draping Laboratory	0	0	4	2	MC	40	60
24BTAD205E	Elective – I	3	0	0	3	SEC	40	60
24BTAD206L	Pattern making Laboratory - I	0	0	4	2	MC	60	40
24BTAD207L	Garment Construction Laboratory – I	0	0	4	2	MC	60	40
24BTAD208L	Surface Embellishment Laboratory	0	0	4	2	MC	60	40
24BTAD209I	Internship – I	0	0	0	3	SI	60	40
Total		**15**	**0**	**16**	**26**			

SEMESTER IV

COURSE CODE	COURSE NAME	L	T	P	C	CT	AM	
							CIA	ESE
24BTAD211	Fabric Structure and Analysis	4	0	0	4	MC	40	60
24BTAD212	Design trend and forecasting	4	0	0	4	MC	40	60
24BTAD213	Apparel Marketing and Merchandising	4	0	0	4	MS	40	60
24BTAD214	Indian Textiles and Accessories	3	0	0	3	MC	40	60
24BTAD215E	Elective – II	3	0	0	3	SEC	40	60
24BTAD216L	Pattern making Laboratory II	0	0	4	2	MC	60	40
24BTAD217L	Garment Construction Laboratory II	0	0	4	2	MC	60	40
24BTAD218L	Fabric Structure and Analysis Laboratory	0	0	4	2	MC	60	40
24BTAD219	Independent study* – any course from SWAYAM / NPTEL	0	0	0	1	VAC	100	-
Total		**18**	**0**	**12**	**25**			

SEMESTER V

COURSE CODE	COURSE NAME	L	T	P	C	CT	AM	
							CIA	ESE
24BTAD301	Textile and Apparel Quality Evaluation	4	0	0	4	MS	40	60
24BTAD302	Industrial Engineering for Apparel Production	3	0	0	3	MS	40	60
24BTAD303	Design Sustainability	3	0	0	3	MC	40	60
24BTAD304E	Elective – III	3	0	0	3	SEC	40	60
24BTAD305E	Elective – IV	3	0	0	3	SEC	40	60
24BTAD306L	Textile and Apparel Quality Evaluation Laboratory	0	0	4	2	MS	60	40
24BTAD307L	Computer Aided Garment Design Laboratory	0	0	4	2	MC	60	40
24BTAD308L	Textile Product Portfolio Laboratory	0	0	4	2	MC	60	40
24BTAD309I	Internship – II	0	0	0	3	SI	60	40
Total		**16**	**0**	**12**	**25**			

SEMESTER VI

COURSE CODE	COURSE NAME	L	T	P	C	CT	AM	
							CIA	ESE
24BTAD311	Textile Costing and Export Documentation	3	0	0	3	MS	40	60
24BTAD312	Entrepreneurship Development	3	0	0	3	VAC	40	60
24BTAD313V	Value Added Course - I #	1	0	0	1	VAC	100	-
24BTAD314V	Value Added Course - II #	1	0	0	1	VAC	100	-
24BTAD315S	Self Interest Course –I #	0	0	0	1	VAC	100	-
24BTAD316P	Project Work	0	0	24	12	PW	80	120
Total		**8**	**0**	**24**	**21**			

Total credits – **146**

SEMESTER VII

COURSE CODE	COURSE NAME	L	T	P	C	CT	AM	
							CIA	ESE
24BTAD401	Research Methodology	4	0	0	4	MC	40	60
24BTAD402	Industrial Management	3	0	0	3	MS	40	60
24BTAD403	New Product Development & Assessment	3	0	0	3	MC	40	60
24BTAD404V	VAC based on subject specialization of research	1	0	0	1	MS	40	60
24BTAD405E	Elective – V	3	0	0	3	MS	40	60
24BTAD406P	Project Phase I	0	0	0	6	MC	80	20
Total		**14**	**0**	**0**	**20**			

SEMESTER VIII

COURSE CODE	COURSE NAME	L	T	P	C	CT	AM	
							CIA	ESE
24BTAD411	Self Interest Course - II #	0	0	0	1	MS	100	-
24BTAD412P	Project Phase II	0	0	24	12	MC	80	120
Total		**0**	**0**	**24**	**13**			

Total credits – **174**

ELECTIVES	
SEM III –-24BTAD205E - **Elective I**	
A	Fabric choice and fitness for purpose
B	Home Textiles
SEM IV –-24BTAD215E - **Elective II**	
A	Technical Textiles
B	Apparel Production Planning and Process Control
SEM V –- 24BTAD304E – **Elective III**	
A	Design Photography
B	Work Wear Designing and Manufacture
SEM V –-24BTAD305E – **Elective IV**	
A	Retail Management and Visual Merchandising
B	Brand Management
SEM VII - 24BTAD405E - **Elective – V**	
A	Digital Marketing
B	Business Environment and Legal Aspects of Business

 # List of Value-Added Courses:

- Fashion Accessories
- Product Design and Development
- Intellectual Property Rights
- Digital Marketing
- Event Management
- Low-Cost Automation
- Internet of things (IoT)
- Critical Issues in Fashion Research
- Fashion journalism
- Lean manufacturing
- Sustainable Energy
- Just in Time
- Six sigma
- History of Indian Fashion industry

Independent Study

- Clo3D software
- Video designing software
- Photo designing software

The courses may be offered as per the requirement of the industry and choice of the students. The list may be updated as per the recent trends.

***Self Study Course (NPTEL courses)**

- The joy of Computing using PYTHON
- Programming in Java
- Programming in Modern C++
- Energy Conservation And Waste Heat Recovery
- System Design For Sustainability
- Water, Society And Sustainability
- Design Thinking - A Primer
- Designing Work Organization
- Threads Of Visual Exploration: Textiles And Allied Practices
- Science Of Clothing Comfort
- Or any other course of interest by student

SEMESTER I

24BTAD100T **-TAMIL – I**

குறிக்கோள்கள்:

1. **பாரத நாட்டின் பெருமை, தற்போதைய சமூக நிகழ்வுகளையும் மனித உணர்வுகளையும் புது கவிஞர்கள் வாயிலாக மாணவர்களுக்கு உணர்த்துதல்**
2. **வாழ்வில் பின்பற்றவேண்டிய தனி மனித சமூக ஒழுக்கங்களை சிறுகதை மற்றும் உரைநடை வாயிலாக மாணவர்களுக்கு உணர்த்துதல்**

	MAPPING OF COURSE OUTCOMES ANDPROGRAMME OUTCOMES (S – Strong, M-Medium)									
	PO									
CO	1	2	3	4	5	6	7	8	9	10
1		M								
2					S					

அலகு - 1 (செய்யுள்)

1. பாரதியார் - பாரத தேசம்
2. பாரதிதாசன் - இராட்டினச் சிறப்பு
3. அப்துல் ரகுமான் - ஆடை, கண்ணீரின் ரகசியம்
4. கண்ணதாசன் - யாத்திரை, ஒரு கந்தல் துணியின் கதை
5. மு. மேத்தா - மரங்கள், மனமே கோவில் மனிதனே தேவன்
6. சுகிரிதராணி - போதுமானவை, மனசெல்லாம்

அலகு - 2 (செய்யுள்)

1. பிரபஞ்சன் - அப்பாவின் வேஷ்டி
2. கிருஷ்ணன் நம்பி - சட்டை
3. கு.அழகிரிசாமி - ராஜா வந்திருக்கிறார்
4. ஏகாதசி - மஞ்சள் நிற ரிப்பன்
5. கன்னிவாடி சீரங்கராயன் சிவக்குமார் - காலம் உடன் வரும்

அலகு - 3 (இலக்கணம்)
1.வல்லெழுத்து மிகும் இடங்கள்
2.வல்லெழுத்து மிகா இடங்கள்

அலகு-4 (இலக்கிய வரலாறு)
1.மரபுக்கவிதையின் சிறப்பு இயல்புகள்
2.புதுக்கவிதையின் சிறப்பு இயல்புகள்
3.சிறுகதையின் தோற்றமும் வளர்ச்சியும்
4.உரைநடையின் தோற்றமும் வளர்ச்சியும்

அலகு-5
1. அறம் எனப்படுவது - முனைவர். அமுதன்
2. அழகோ அழகு - வெ. இறையன்பு

பாட புத்தகம்:
1. அறம் எனப்படுவது (முனைவர். அமுதன்) - நியூ செஞ்சுரி புக் ஹவுஸ் பி லிட், 41பி, சிட்கோ இண்டஸ்டிரியல் எஸ்டேட், அம்பத்தூர், சென்னை-600098
2. அழகோ அழகு - வெ. இறையன்பு - நியூ செஞ்சுரி புக் ஹவுஸ் பி லிட், 41பி, சிட்கோ இண்டஸ்டிரியல் எஸ்டேட், அம்பத்தூர், சென்னை-600098

குறிப்பு புத்தகம்:
1. தீந்தமிழ் இலக்கணம் (க. வெள்ளிமலை எம்.ஏ.) - ஐவரி அச்சகம், சென்னை - 600005

2. இலக்கணம் இலக்கிய வரலாறு மொழித்திறன் பேராசிரியர்.முனைவர். பாக்யமேரி) - பூவேந்தன் பதிப்பகம், மயிலாப்பூர், சென்னை

24BTAD100H - HINDI – I

Course Objectives

- To enable the learners to know about the modern trends in Literature
- To imbibe values, social, moral through prose and short stories.
- To introduce the concept of Translation.
- To create an opportunity for the students to learn functional aspects of the Nationallanguage.

Course Outcome

Upon completion the student would be able to,

1. Identify the importance a prose
2. Translate Hindi to English
3. To know about Hindi writers and get moral values from different stories.
4. Comprehension will help the students for competitive exams.

	MAPPING OF COURSE OUTCOMES ANDPROGRAMME OUTCOMES (S – Strong, M-Medium)									
	PO									
CO	1	2	3	4	5	6	7	8	9	10
1		M								
2					S					
3						S				
4									M	

UNIT I

Prose: 1. Meri vasiyath, 2. Kadhamba ke phool, 3. bathcheeth mem shistachar

UNIT II

Non-Detailed: 1. Pareeksha, 2. Takur ka kuwa, 3. Trishanku bechara

UNIT III

Bahuyuktha hindi padnam

UNIT IV

Translation: Hindi to English only (1 – 10 Lessons only).

UNIT V

Comprehension: 15 - 30 Lessons only.

TEXT BOOKS:

1. Gadhya Manjusha-editor, Govind. M. A., Amar Prakashan, Mathura, (U.P).

2. Hindi Gadhya Prabhakar, **Editor:** Dr. Hiranmaya, Publisher: Siksha Bharathy, Kashmiri Gate,New Delhi – 110006.
3. Madhyamic Gadhya sankalan – Editor: Shrimathi Kamala Shankar, Publisher: LokbharathiPrakashan, 15-A, Mahathma Gandhi Marg, Allahabad – 1.
4. Kahani Kunj, **Editor:** Dr. V. P. Amithab, Publisher: Govind Prakashan, Sadar Bazaar, Mathura, U. P. – 281 001.
5. Premchand ki shreshtha Kahaniyan by Kumar Krishnan, Publisher: Vani Prakashan, 21-A,Dariya ganj, New Delhi – 110002.
6. Gadhya Prasang by Dr. Sathya Prakash, Publisher: Sumithra Prakashan, 16/4, Hastings Road,Allahabad - 1
7. Vyavaharic Hindi by Sayed Rahamadulla (Page: 90-91).
8. Anuvad Abhyas – Part III by D.B.H.P. Sabha, Chennai - 17

24BTAD101 - COMMUNICATIVE ENGLISH

Course Objectives:

- To convey message to others clearly
- To develop communication skills
- To enhance students‟ communicative competence and performance
- To instill language skills

Course Outcomes:

Upon completion the student would be able to,

1. Expanding the learner's use of maximum functions of Englishs
2. Acquiring effective communications both oral and written
3. Applying language functions in real situations.

	MAPPING OF COURSE OUTCOMES ANDPROGRAMME OUTCOMES (S – Strong, M-Medium)									
	PO									
CO	1	2	3	4	5	6	7	8	9	10
1								S		
2				M						
3								S		

UNIT I: Functions of English

Use of English in media, business and technology – Social functions: Conversational English Greeting, introducing, requesting, inviting, congratulating, thanking, apologizing, advice, suggestions, opinions, permission, sympathy, asking to repeat, complaining, understanding and being understood, agreement, preference, asking for information, changing the topic.

UNIT II: Oral Communication

Face to face communication – Telephonic conversation: Skills and etiquette – Interview skills – Instruction – Dictation.

UNIT III: Remedial Grammar

Subject verb agreement – Tenses – Transformation of sentence – Auxiliary verbs – Linkers.

UNIT IV: Listening and Reading

Academic listening; Listening to talks and descriptions; Listening to Announcements; Listening to Media news; Listening to casual conversations – Intensive reading, extensive reading, skimming, scanning, literary reading, non-literary reading

UNIT V: Written Communication

Email – letter writing - report writing – note taking – sentence construction (patterns)

TEXT BOOKS:

1. Syamala V. Effective English Communication for you, Emerald Publishers, Chennai, 2005.ISBN: 81-7966-002-8.

2. Mr. Mohan, Mr. Krishna and Ms. Meera Banerji, Developing Communication Skills,Macmillan, New Delhi, 2007. ISBN: 978-0333-92919-3.

3. Mr. Dutt, Mr. P. Kiranmai, Ms. Geetha Rajeevan and Mr. C.L.N. Prakash, A Course in Communication Skills, Cambridge University Press, New Delhi, 2007. ISBN: 978-81-7596-5362

24BTAD102 - -TEXTILE ART AND DESIGN

Course Objectives

- To develop students' knowledge and understanding of the different types of textile fibers, yarns, and fabrics, as well as their properties and uses.
- To teach students about the various textile design techniques, including weaving, knitting, printing, and dyeing.
- To help students develop their creativity and self-expression through textile art and design.
- To prepare students for careers in the textile industry, such as fashion design, interior design, or textile manufacturing.

Course Outcomes

Upon completion the student would be able to,

1. Apply comprehensive textile design skills to design textiles through painting, weaving, screen printing, and knit.
2. Demonstrate skills in drawing, repeat creation, and color application.
3. Develop understanding regarding fibers and their use in different sectors.
4. Develop understanding about yarns and their creative use.
5. Identify different kinds of fabrics – composition, weave, etc.
6. Understand fabric structures and their analysis.

	MAPPING OF COURSE OUTCOMES ANDPROGRAMME OUTCOMES (S – Strong, M-Medium)

CO	PO									
	1	2	3	4	5	6	7	8	9	10
1		S						M		
2		S					M			
3	S									
4	S									
5	S									
6	S	M								

UNIT I

Introduction to Textile Art and Design: Introduction, History of textile art, Textile art and design in contemporary culture, textile fibres and Fabrics, Textile production process, Textile design techniques

UNIT II

Basic design principles: Introduction to Design Principles, Balance in Design, Emphasis and Focal Points, Contrast and Harmony, Rhythm and Repetition, Unity and Gestalt Principles, Application of Design Principles.

UNIT III

Textile printing techniques: Introduction to Textile Printing, Basic Principles of Design for Textile Printing, Surface Preparation and Fabric Selection, Screen Printing Techniques, Block Printing and Stamp Techniques, Heat Transfer Printing, Digital Printing on Textiles, Specialized Techniques: Discharge Printing, Resist Printing.

UNIT IV

Introduction to different print pattern: Floral – Oversized, Chintz/Ditsy (Small & complex florals in vibrant colors), Abstract, Watercolor florals, Animal skin, Geometric – Micro & Macro Geometric, Abstract; Conversational, Tropical, Nautical, Organic, Botanic, Chevron (Zig zag), Ethnic, Paisley, Tribal, Aztec, Gothic, Bohemian/Boho, Color Block, Polkas, Damask, Typography, 3D prints.
Pattern Layouts - Bricks, Half-drop.

UNIT V

Weaving and Embroidery: Basic weaving structures, weave design, Basic embroidery stitches, Embroidery design.
Textile art history: Textile art from different culture and historic periods, Analysis and interpretation of textile art.design principles

TEXT BOOKS:

1. Berndt, D. (1999). World textiles: A concise history. Thames & Hudson.
2. Devereux, D. (1995). The fabric of style: A handbook of textile history. Yale

University Press.

3. Elkins, J. (2008). What is textile art?: A critical inquiry. Bloomsbury Publishing.
4. Fairchild, P. (1991). Threads through history: A comprehensive source book on the history and development of major textile fibres, fabrics, and garment styles from the earliest times to the present day. New York: Drama Publishers.

24BTAD103 - DESIGN PRINCIPLES AND ELEMENTS

Course Objectives

- To develop students' understanding of the basic principles of design, such as balance, contrast, emphasis, rhythm, unity, and variety.
- To teach students how to apply these principles to their own work, in order to create visually appealing and effective designs.
- To introduce students to the different elements of design, such as line, shape, color, texture, and space.
- To help students develop their creativity and self-expression through their designs.
- To prepare students for careers in design-related fields, such as graphic design, interior design, or product design.

Course Outcomes

Upon completion the student would be able to,

1. Identify and apply the principles of design to create visually appealing and effective compositions.
2. Demonstrate an understanding of the different elements of design, such as line, shape, color, texture, and space.
3. Use a variety of design techniques and materials to create original and innovative designs.
4. Analyze and critique the designs of others.
5. Communicate their design ideas effectively, both verbally and visually.

	MAPPING OF COURSE OUTCOMES ANDPROGRAMME OUTCOMES (S – Strong, M-Medium)									
	PO									
CO	1	2	3	4	5	6	7	8	9	10
1		S					M			
2		S								
3								S		
4					M					
5		M						S		M

UNIT I

Introduction to Design Elements: Understanding the significance of design elements in visual communication, Exploration of the six fundamental elements of design; Line as an Element of Design:

The role of lines in design, Different types of lines and their meanings; Shape and Form: Understanding shapes and forms in design, Geometric vs. organic shapes.

UNIT II

Color Theory and Application: Introduction to color as a design element, Color models and harmonies; Texture in Design: The importance of texture in design, Visual and tactile texture; Space and Depth: Creating depth and space in two-dimensional design, Positive and negative space.

UNIT III

Value and Contrast: Understanding value as a design element, Creating contrast and emphasis through value; Typography as a Design Element: Typography as a visual element in design selecting and pairing typefaces

UNIT IV

Introduction to Design Principles: Understanding the role of design in various fields, Exploration of the foundational principles of design; Balance in Design: Symmetrical and asymmetrical balance, Creating visual equilibrium in design; Contrast and Emphasis: Exploring the use of contrast to create visual interest, Creating emphasis and focal points.

UNIT V

Unity and Harmony: Achieving unity and cohesion in design, Principles of design harmony; Proportion and Scale: Understanding the importance of proportion and scale, Proportion in typography and layout, applying proportion and scale in design projects; Typography and Layout: Typography as a fundamental element of design, Principles of effective typography, Designing layouts for print and digital media.

TEXT BOOKS:

1. Bertin, J. (1983). Semiology of graphics: Diagrams, networks, maps. University of Chicago Press.
2. Callahan, J. (2001). How designers think: A cognitive science approach to design. New York: W. W. Norton & Company.
3. Don Norman, A. (2002). The design of everyday things. Basic Books.
4. Graphic Design Theory: Readings on the nature of graphic design and its methods of inquiry. (1994). Steven Heller, ed. New York: Van Nostrand Reinhold.
5. Heller, S. (2004). The design of desire: Essays on the life and work of Beljanin. New York: Phaidon Press.

24BTAD104 - FIBRE SCIENCE

Course Objectives

- To study the basics of textile fibre and its properties
- To provide students with a fundamental understanding of the structure, properties, and processing of fibers.
- To dvelop students' ability to characterize and analyze fibers and fabrics.
- To equip students with the knowledge and skills to design and develop new fibers and fabrics with improved properties.
- To prepare students for careers in the textile, apparel, and related industries.

Course Outcomes

Upon completion of the course the student would be able to,

1. Identify and classify different types of fibers based on their structure and properties.
2. Understand the relationship between fiber structure and properties.
3. Explain the principles of fiber processing and fabric manufacturing.
4. Perform common fiber and fabric tests.
5. Interpret the results of fiber and fabric tests to assess quality and performance.

	MAPPING OF COURSE OUTCOMES ANDPROGRAMME OUTCOMES (S – Strong, M-Medium)									
	PO									
CO	1	2	3	4	5	6	7	8	9	10
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2										S
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4								S		
5										S

UNIT I

Introduction to fibre science: Definition of a fibre, filament, monomer, polymer, polymerisation, degree of polymerisation, Classification of fibres and the essential requirements of fibre-forming polymers.

UNIT II

Structure of textile fibres: Structures of natural fibres such as cotton, wool, and silk, and the molecular architecture of man-made fibres. Properties of fibers and their influence with comfort characteristics

UNIT III

Properties of textile fibres: Mechanical, physical, and chemical properties of cotton, wool, and silk, Polyester, polyamide, Poly Styrene, PAN, the influence of fibre structure on properties. Various solvents for different fibers.

UNIT IV

Fibre processing: Cotton : harvesting to spinning, Wool : harvesting to spinning, Silk : Harvesting to spinning, production of manmade fibres by melt spinning, wet spinning and dry spinning. Spin finish and its importance.

UNIT V

Fibre testing and Applications: Testing of fibre properties: fibre length, strength, fineness, moisture content. Identification of fibres by feeling, solubility, burning and microscopic tests, Applications of textile fibres in industry and everyday life.

TEXT BOOKS:

1. Mishra, S. P. (2000). A Text Book of Fibre Science and Technology. New Delhi: New AgeInternational Pvt. Ltd.

2. Corbman, Bernard. P,(2000). Textiles: Fibre to Fabric, 6th edition. Singapore: Internationalstudents Edition McGraw Hill Book.

3. Hearle, J. W. S. (2004). Principles of textile science. Woodhead Publishing.

4. Menachem, M. (2007). Fiber science: From the raw material to the finished product. CRC Press.

5. Moncrieff, R. W. (1950). Man-made fibres. London: Hutchinson's Scientific and Technical Publications.

6. Osborne, R. S. (2011). The science of fibres. Springer Science & Business Media.

7. Von Bergen, W. (1967). Textile fibers and their properties. John Wiley & Sons.

24BTAD105L - **DESIGN SKETCHING LABORATORY**

Course Objectives

- To develop students' ability to communicate their design ideas through sketches.
- To teach students the different techniques of design sketching, such as perspective drawing, shading, and rendering.
- To help students develop a visual vocabulary for their design work.
- To prepare students to use sketching in the design process, from ideation to final presentation.

Course Outcomes

1. Create accurate and detailed sketches of their design ideas, using a variety of sketching techniques.
2. Use sketching to explore different design concepts and to communicate their ideas to others.
3. Develop a personal sketching style that is both effective and visually appealing.
4. Use sketching to support the design process, from ideation to final presentation.

	MAPPING OF COURSE OUTCOMES ANDPROGRAMME OUTCOMES (S – Strong, M-Medium)									
	PO									
CO	1	2	3	4	5	6	7	8	9	10
1		S								
2				S				M		
3		S								
4					M		S			

LIST OF EXPERIMENTS:

Experiment 1: Free hand sketching – dots, lines and objects (2D &3D)
Experiment 2: Elements and principles of design
Experiment 3: Doodling in a theme.
Experiment 4: Exploration of color medium
Experiment 5: Value and shading
Experiment 6: Texture rendering
Experiment 7: Still Life Drawing
Experiment 8: Grid Drawing
Experiment 9: Negative Space Drawing
Experiment 10: Line drawing
Experiment 11: Quick Sketching

REFERENCES:

1. "Sketching: Drawing Techniques for Product Designers" by Koos Eissen and Roselien Steur.
2. "Sketching for Architecture + Interior Design" by Stephanie Travis
3. "How to Draw: drawing and sketching objects and environments from your imagination" by Scott Robertson and Thomas Bertling
4. "Visual Thinking for Design" by Colin Ware

24BTAD106L - BASICS OF GRAPHIC DESIGNING LABORATORY

Course Objectives

- To introduce students to the basic principles and elements of graphic design.
- To teach students how to use software programs such as Adobe Photoshop and Illustrator to create and manipulate graphics.
- To help students develop their visual communication skills.
- To prepare students to apply their graphic design skills to real world projects.

Course Outcomes

Upon completion of the course the student would be able to,

1. Create and manipulate basic graphic elements such as text, shapes, and images using software programs such as Adobe Photoshop and Illustrator.
2. Apply the basic principles of graphic design, such as typography, composition, and color theory, to create effective visual communications.

3. Produce a variety of graphic design projects, such as logos, posters, brochures, and social media graphics.
4. Collaborate with others to develop and execute creative graphic design solutions.

	MAPPING OF COURSE OUTCOMES ANDPROGRAMME OUTCOMES (S – Strong, M-Medium)									
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CO	1	2	3	4	5	6	7	8	9	10
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LIST OF EXPERIMENTS:

Experiment 1: Introduction to Graphic Design: Software; Graphic Design and colors – print on textile,
print on paper and media; principles and elements of graphic design.
Experiment 2: Creation of poster with lines, objects and images using raster software.
Experiment 3: Image Composition and Color Adjustments.
Experiment 4: Retouching and Repairing Images.
Experiment 5: Working with Masks and layers.
Experiment 6: Introduction to Digital Illustration: Basics of drawing and painting.
Experiment 7: Creating and Editing Shapes using vector software.
Experiment 8: Typography - Combining text and graphics
Experiment 9: Creating and Managing Art boards; Image Tracing and Live Paint
Experiment 10: Preparing for Print and Web

REFERENCES:

1. "Graphic Design School: The Principles and Practice of Graphic Design" by David Dabner, Sandra Stewart, and Eric Zempol.
2. "The Elements of Graphic Design" by Alex White.
3. "Graphic Design: The New Basics" by Ellen Lupton and Jennifer Cole Phillips.

24BTAD107L - **FIBRE SCIENCE LABORATORY**

Course Objectives

- To provide students with hands-on experience with fiber testing and analysis.
- To teach students the different methods used to characterize and evaluate fibers.
- To help students develop their skills in scientific experimentation and data interpretation.
- To prepare students to apply their knowledge of fiber science to solve real-world problems.

Course Outcomes

Upon completion of the course the student would be able to,

1. Perform common fiber tests, such as fiber identification, fiber strength testing.
2. Collect and analyze data from fiber tests.
3. Interpret the results of fiber tests to assess quality and performance.
4. Design and conduct experiments to investigate fiber and fabric properties.

5. Apply their knowledge of fiber science to solve real-world problems, such as developing new fibers and fabrics with improved properties or troubleshooting problems with existing fibers and fabrics.

	MAPPING OF COURSE OUTCOMES ANDPROGRAMME OUTCOMES (S – Strong, M-Medium)									
	PO									
CO	1	2	3	4	5	6	7	8	9	10
1	S									
2				S						
3										S
4						S			M	
5	M									

LIST OF EXPERIMENTS

1. Identification of fibers – microscopic view
2. Identification of fibers based on feel, solubility and burning test
3. Determination of fibre fineness
4. Determination of fiber length
5. Determination of moisture regain of fibres
6. Determination of yarn count
7. Determination of yarn twist
8. Determination of yarn lea strength
9. Determination of sliver and yarn hank
10. Determination of yarn grading

REFERENCES:

1. Mishra, S. P. (2000). A Text Book of Fibre Science and Technology. New Delhi: New AgeInternational Pvt. Ltd.
2. Corbman, B. P. (2000). Textiles: Fibre to Fabric. Singapore: International students EditionMcGraw Hill Book Company.

24BTAD108L - **COMPUTER PRACTICES - I**

LIST OF EXPERIMENTS

Experiment 1	Create a simple word document and format using various options available.
Experiment 2	Create a resume for the field of textile/apparel/fashion using Word document.
Experiment 3	Prepare a mail merge for client meeting.
Experiment 4	Create a class time table using Word document.
Experiment 5	Create a stock report for the trims and accessories in a ware house.
Experiment 6	Prepare Student mark sheet using mathematical formulae in Excel sheet.

Experiment 7	Create an invitation for Boutique inauguration using word document
Experiment 8	Prepare an invitation for fashion parade using power point.
Experiment 9	Create a power point presentation to advertise a product.
Experiment 10	Create a chart for result analysis of a fashion survey using Excel sheet.
Experiment 11	Create a database for boutique customer details using MS-Access
Experiment 12	Create a video presentation for a hypothetical textile/apparel/fashion brand.

References:

1. Sanjay Saxena; A First Course in Computers, Vikas Publishing House Pvt. Ltd., (2013).
2. Alexis Leon, Mathews Leon; Introduction to computers, Leon Tech World, (2001).
3. Joseph W. Habraken; Microsoft Office 2010 in-depth, (2011).
4. Bernard John Poole, Essential Microsoft Office 2013.

SEMESTER II

24BTAD110T - TAMIL – II

குறிக்கோள்கள்:

1. மாணவர்களின் மனநலத்துக்கும் வருங்கால வாழ்வுக்கும் உதவும் வகையில் இலக்கியப் பயிற்சி அளித்தல்
2. அறம் சார்ந்த வாழ்வியல் விழுமியங்களைக் கற்பித்தல்
3. சமயங்களை பற்றி மாணவர்களுக்கு உணர்த்துதல்
4. வாழ்வில் கடை பிடிக்க வேண்டிய ஒழுங்குமுறைகளை இலக்கியங்கள் மூலம் கற்றல்
5. தமிழர் வீர விளையாட்டுகளை குறுநாவல் வழி கற்றல்

	MAPPING OF COURSE OUTCOMES ANDPROGRAMME OUTCOMES (S – Strong, M-Medium)									
	PO									
CO	1	2	3	4	5	6	7	8	9	10
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அலகு - 1

திருக்குறள் - 1. ஊக்கமுடைமை 2.செய்நன்றியறிதல்

நாலடியார் - 1. பொறையுடைமை (5 பாடல்கள்) 2. பெரியாரைப்பிழையாமை (5 பாடல்கள்)

அலகு - 2

திருஞானசம்பந்தர் தேவாரம் - கோளறுதிருப்பதிகம் (10 பாடல்கள்) பெருமாள் திருமொழி - 11 பாடல்கள் . இயேசுகாவியம் - பாரச்சிலுவை (8 பாடல்கள்) சீறாப்புராணம் - கடவுள் வாழ்த்து (5 பாடல்கள்)

அலகு - 3 - இலக்கணம்

பவணந்தி முனிவர் - நன்னூல் - எழுத்து - மாணாக்கனது வரலாறு பாடங் கேட்டலின் வரலாறு

அலகு - 4 - (கட்டுரை)

1. பழந்தமிழரின் ஆடை அலங்காரப் பழக்கவழக்கங்கள் - முனைவர்.அ.கந்தசாமி, உலகத் தமிழாராய்ச்சி நிறுவனம்.

2. புடவை - கு.தாதோதரன், வரலாறும் கலையும், தமிழ்நாடு அரசு தொல்பொருள் ஆய்வுத்துறை

3. தமிழர் உடை - தொ. பரமசிவன், பண்பாட்டு அசைவுகள், காலச்சுவடு பதிப்பகம்.

அலகு - 5 (நாவல்)

பஞ்சும் பசியும் - தொ.மு.ரகுநாதன்

குறிப்பு புத்தகம்:

1. நல்லதை நோக்கி நடப்போம் - சுகி சிவம்
2. கல்வியும் கடவுட் தன்மையும் - வெ. இறையன்பு
3. அக்னிச் சிறகுகள் (அத்தியாயம் 1) முனைவர். எ பி ஜே அப்துல் கலாம்
4. தமிழருவி மணியன் - அன்பிற் சிறந்த தவமில்லை
5. டாக்டர். சிவசூரியன் - சாதனை படைக்கும் சிந்தனைகள் - உயர்வளிக்கும் எண்ணங்கள்
6. பவணந்தி முனிவர் - நன்னூல்
7. சி.சு.செல்லப்பா - காலச்சுவடு பதிப்பகம்

24BTAD110H - HINDI II

Course Objectives:

- To enable the students to know about the Modern Trends in Literature as the contemporary literature deals with the changing trends in the socio-economic cultural revolution taking place in the social system.
- To introduce the importance of letter writing, dialogue writing and applied grammar in Hindiliterature.

Course Outcomes:

1. Students can avoid grammatical mistakes.
2. To know the letter writing methods, and how to write laghu kathayem by studying the stories.

	MAPPING OF COURSE OUTCOMES ANDPROGRAMME OUTCOMES (S – Strong, M-Medium)									
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CO	1	2	3	4	5	6	7	8	9	10
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2								S		

UNIT I

1. Sawal, 2. Jeevan ki theen pradhan bathem, 3. Do Chere.

UNIT II

Lagu Kathayem: 1. Fees, 2. Risthe, 3. Kelne ke din, 4. Kamra

UNIT III

Applied Grammar: 1. Line Badaliye, 2. Vachan Badaliye, 3. Vachya Badaliye, 4. Ulte arthavale shabda likiye, 5. Karak cinhom se bariye, 6. Vakyom mem prayog kijiye, 7. Kaal Badaliye, 8.Shuddakijiye.

UNIT IV

Vakya ke liye ek Shabda (one word for one sentence).

UNIT V

Letter Writing: 1. Leave letter, 2. About a tour from the college, 3. About a function celebrated in the college, 4. Applying for the job, 5. Ordering for the books.

TEXT BOOKS:

1. Hindi Gadhya Prabakar, Editor: Dr. Hiranmay, Publisher: Shiksha Bharathy, Kashmiri Gate,

NewDelhi - 6
2. Bharathi Gadhya Sangrah by Vani Prakashan, New Delhi.
3. From Laghu Katha.com.
4. Sugam Hindi Vyakaran, Siksha Bharathi Madarsa Road, Kashmiri Gate, New Delhi.
5. Abhinav Pathra Lekhan by D.B.H. Prachar Sabha, Chennai – 17.

24BTAD111 - TECHNICAL ENGLISH

Course Objectives:

- To enhance ability and skills of the students to comprehend technical texts
- To develop their speaking skills in paper presentation, discussions etc.
- To acquire proper writing skill for reports, and official communications
- To facilitate them to acquire proper pronunciation skills.

Course outcomes:

1. Listening, Reading and Comprehending technical texts, lectures, and talks
2. Speaking in formal and informal situation
3. Writing reports, Curriculum vitae, Circular, Notice and Minutes
4. Acquiring phonetic skills

	MAPPING OF COURSE OUTCOMES ANDPROGRAMME OUTCOMES (S – Strong, M-Medium)									
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CO	1	2	3	4	5	6	7	8	9	10
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UNIT I: Applied Phonetics

The phonological system in English – speech sounds – stress, rhythm – strong and weak forms –pitch and intonation

UNIT II: Technical Proposals

Definition and key factors – types – contents – format - evaluation

UNIT III: Formal reports

Definition – preparatory steps – types – structure – textile vocabulary

UNIT IV: English for specific purpose

Business communication – competitive examinations (TOEFL etc.) – paper presentations – description and demonstration, advertisement – notices, agenda and minutes

UNIT V: Career skills

Curriculum vitae and cover letters – soft skills – mock interviews – group discussion – personalitytraits

TEXT BOOKS:

1. Raman, Meenakshi and Sharma, Sangeetha – Technical Communication Principles and Practice,Oxford Univeristy Press: New Delhi, 2014

2. Means, L Thomas and Elaine Langlois, English & Communication for Colleges, CengageLearning, USA: 2007

24BTAD112 - STATISTICS

Course Objectives

- To enable the students to acquire knowledge in the area of statistics and their applications inbusiness decision making.
- To familiarize the student with functions of several variables.

Course Outcomes

Upon successful completion of this course the student would be able to,

1. Diagrammatically represent the data
2. Applicate the various statistical tools for explanation

	MAPPING OF COURSE OUTCOMES ANDPROGRAMME OUTCOMES (S – Strong, M-Medium)									
	PO									
CO	1	2	3	4	5	6	7	8	9	10
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2								M		

UNIT I

Presentation of data by diagrammatic and graphical method - Formation of frequency distribution. Probability – Concept, Bayes‟ theorem. Probability distributions - Binomial, Poisson and normal. Application with reference to the textile industry

UNIT II

Measures of central tendency - Arithmetic mean, median, mode, geometric and harmonic mean,measures of variation and standard mean and quartile deviations - Skewness and Kurtoses

UNIT III

Simple correlation - Scatter diagram - Karl Pearson's Co-efficient of correlation – Rank correlation – Regression – Simple and multiple regression analysis - Regression lines. Application with reference to the textile industry

UNIT IV

Sample design – Sampling theory and test of significance – Quality tools – DOE, ANOVA and Chisquare test. Application with reference to the textile industry

UNIT V

Analysis of Time Series: Methods of measuring - Trend and seasonal variations – Index number –Unweighted indices - Consumers price and cost of living indices. Application with reference to the textile industry.

Note: Theory and problem shall be distributed at 20% and 80% respectively.

TEXT BOOKS:

1. Das N G, "Statistical Methods", McGraw Hill Education, 1st Edition, 2008.

2. Goon A M, Gupta M K & Das Gupta B, "Fundamentals of Statistics" Vol I & II, The World PressP Ltd., 1968.
3. Miller & Freuntz, "Probability & Statistics for Engineers", Prentice Hall of India, 8th Edition,2010.

REFERENCES:

1. Gupta S P, "Statistical Methods" S Chand & Sons, New Delhi, 44th Edition, 2014
2. Pillai R S N & Mrs. Bagavathi, "Statistics – Theory & Practice", S Chand Publishing.

24BTAD113 - **SPINNING AND PRE-WEAVING**

Course Objective

- To provide students with a fundamental understanding of the spinning and pre-weaving processes.
- To teach students the different methods used to spin and prepare yarns for weaving.
- To help students develop their skills in yarn quality control and process optimization.
- To prepare students for careers in the textile industry, particularly in yarn manufacturing and weaving.

Course Outcomes

Upon successful completion of this subject, the students should be able to:

1. Explain the principles of yarn formation and the different spinning systems used in the textile industry.
2. Describe the different pre-weaving processes, such as winding, warping, and sizing.
3. Understand the relationship between fiber properties and yarn quality.
4. Identify and troubleshoot problems in the spinning and pre-weaving processes.
5. Apply their knowledge of spinning and pre-weaving to develop new and improved yarns and fabrics.

	MAPPING OF COURSE OUTCOMES ANDPROGRAMME OUTCOMES (S – Strong, M-Medium)									
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CO	1	2	3	4	5	6	7	8	9	10
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2	S						M			
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5									M	

UNIT I

Yarn: Introduction - staple spinning system – cotton yarn production sequence – blow room, carding, draw frame, speed frame and ring frame. Types of twist and importance of twist in garmenting.

UNIT II

Study of yarn twist and its importance. Direct and indirect yarn numbering systems, conversion factors. Blended yarn: Types of blending – benefits of blending. Blend ratios. Commercially popular blend, proportions and their applications.

UNIT III

Double yarn: Properties – uses. Classification of sewing threads – essential properties - production process of spun polyester sewing thread. Winding: Introduction – types (cone and cheese) – yarn and package defects.

UNIT IV

Fancy yarns: Introduction - texturized yarn, core spun, cover spun. - chenille, slub, nep, snarl, spiral, loop, marl, gimp and chainette. Modern spinning systems: Principles and yarn properties- open end, air-jet, friction.

UNIT V

Weaving preparatory process:– High speed winding machine - Pirn winding. Warping - warping machine – sectional warping machine. Sizing - ingredients – sizing machine. Drawing in – denting.

Conventional Weaving: Introduction – primary, secondary and auxiliary motions - passage of yarn – handloom - power loom. Selvedges – types.

TEXT BOOKS:

1. Talukdar, M. K. (1982). An Introduction to Winding and Warping. Mumbai: Textile Trade Press.
2. Anbumani N, "Knitting-Fundamentals, Machines, Structures and Developments",New Age International (P) Ltd., New Delhi, 2007.

REFERENCES:

1. Horrocks, A. R. & Anand, S. C. (2000). Handbook of Technical Textiles. Cambridge: WoodheadPublishing.
2. Vincent, J. J. (1980). Shuttleless Looms. Manchester: The Textile Institute.
3. Talavasek, O. & Svaty, V. (1981). Shuttleless Weaving Machines. Oxford: Elsevier ScientificPublishing Company.
4. Ormerod, A. (1983). Modern Preparation and Weaving Machinery. London: Butterworth‟s & Co.
5. Karthik, T., Prabha Karan, C., & Rathinamoorthy, R. (2016). Nonwovens: Process, Structure, Properties & Applications. 1st Edition. Woodhead Publishing India.
6. Spencer D J, "Knitting Technology", Textile Institute Publication, Manchester, UK, 3rd Edition,2001

24BTAD114 - DESIGN PSYCHOLOGY

Course objectives:

- To provide students with a fundamental understanding of the psychological principles that influence human behavior and decision-making.
- To teach students how to apply psychological principles to the design of products, services, and experiences.
- To help students develop their skills in user research, design thinking, and persuasion.
- To prepare students for careers in design, marketing, and other fields where they can use their knowledge of design psychology to create products and experiences that are both effective and engaging.

Course outcomes:

Upon completion of the course, the students will

1. Explain the key psychological principles that influence human behavior and decision-making, such as perception, attention, memory, motivation, and emotion.
2. Apply psychological principles to the design of products, services, and experiences, taking into account the needs, wants, and biases of users.
3. Conduct user research to understand the needs, wants, and motivations of users.
4. Use design thinking principles to develop and iterate on product and service designs.
5. Use persuasion principles to create designs that are persuasive and engaging.

	MAPPING OF COURSE OUTCOMES ANDPROGRAMME OUTCOMES (S – Strong, M-Medium)									
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CO	1	2	3	4	5	6	7	8	9	10
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2		S								
3				M						
4						S			M	
5							S			

UNIT I

Introduction to Design Psychology: The role of psychology in design; Historical context and key figures in design psychology. Perception and Visual Design: Principles of visual perception, how humans interpret and respond to visual stimuli; Color Psychology: The psychological impact of color, Cultural and emotional associations with colors, Applying color psychology in design.

UNIT II

Cognitive Psychology and Design: The role of cognitive psychology in design, Cognitive processes: perception, attention, memory, and problem-solving, creating memorable and learnable designs; Ethical responsibilities in design informed by cognitive psychology, social and

environmental impact of design.

UNIT III

Emotional Design: The role of emotions in design, creating emotionally engaging designs; Graphic Design and Visual Communication: Effective visual communication and messaging, Influence of design on user behavior and choices; Ethical Considerations in Design Psychology: Social and environmental impact of design.

UNIT IV

Illusion: The role of illusions in art and design, Historical context and famous illusion artists; The Psychology of Perception: Understanding how the brain processes visual information, How we perceive depth, motion, and dimension

UNIT V

Color Illusions (eg.Afterimage illusions, Simultaneous contrast illusions, Color constancy illusions), Geometric Illusions (eg. Müller-Lyer illusion, Ponzo illusion, Ames room illusion), size illusion, line illusion (eg. Ebbinghaus illusion, Delboeuf illusion, Vertical-horizontal illusion).

TEXT BOOKS:

1. "The Experience Economy: Work Is Theater & Every Business a Stage" by B. Joseph Pine II and James H. Gilmore.
2. "Universal Principles of Design" by William Lidwell, Kritina Holden, and Jill Butler.
3. Don Norman, A. (2002). The design of everyday things. Basic Books.
4. Eysenbach, M. C. (2016). The science behind everyday things: How everyday physical objects and products influence our cognition and behavior. Springer.
5. Gaver, W. W., Takayama, Y., & Inomata, T. (2017). Design thinking for social innovation: Jacksons in action. MIT Press.
6. Norman, D. A. (2013). Emotional design: Why we love or hate everyday things. Basic Books.
7. Preece, J., Rogers, Y., & Sharp, H. (2015). Interaction design: Beyond the interface. John Wiley & Sons.

24BTAD115 - **ENVIRONMENTAL SCIENCE**

Course Objectives

- To enable the students to understand the different types of pollution and its impact onenvironment
- To create awareness among the students about eco-systems, social issues and environmentalpollution control legislations

Course Outcomes

Upon successful completion of this course the student would be able to,

1. Elaborate on the various natural resources
2. Identify the various forms of pollution
3. Know various social issues

	MAPPING OF COURSE OUTCOMES ANDPROGRAMME OUTCOMES (S – Strong, M-Medium)									
	PO									
CO	1	2	3	4	5	6	7	8	9	10
1									S	
2	M								S	
3									M	

UNIT I

Natural Resources: Renewable and non-renewable resources - natural resources and associated problems - forest resources - water resources - mineral resources - food resources - energy resources - land resources - role of an individual in conservation of natural resources - equitable use of resources for sustainable lifestyles.

UNIT II

Ecosystems: Concept of ecosystem - structure and function of an ecosystem – producers, consumers and decomposers - energy flow in the ecosystem - ecological succession - food chains, food webs and ecological pyramids.

UNIT III

Environmental Pollution: Meaning and factors, types of environment pollution: air pollution, water pollution, noise pollution, industrial pollution - soil pollution - marine pollution - thermal pollution - nuclear hazards - role of an individual in prevention of pollution.

UNIT IV

Social issues: from unsustainable to sustainable development - urban problems related to energy - water conservation, rain water harvesting, watershed management - resettlement and rehabilitation of people; its problems and concerns - environmental ethics : issues and possible solutions - climate change, global warming, acid rain, ozone layer depletion, nuclear accidents and holocaust.

UNIT V

Environment Protection act: Environment protection act - air (prevention and control of pollution) act - water (prevention and control of pollution) act - wildlife protection act - forest conservation act -issues involved in enforcement of environmental legislation - public awareness.

TEXTBOOKS:

1. Benny Joseph, „Environmental Science and Engineering", Tata McGraw-Hill, New Delhi, 2006.

2. Gilbert M.Masters, „Introduction to Environmental Engineering and Science", 2nd edition,Pearson Education, 2004.

REFERENCES:

1. Dharmendra S. Sengar, „Environmental law", Prentice hall of India Pvt Ltd, New Delhi, 2007.

2. Erach Bharucha, "Textbook of Environmental Studies", Universities Press(I) Pvt, Ltd,

Hydrabad,2015.
3. G. Tyler Miller and Scott E. Spoolman, "Environmental Science", Cengage Learning India PVT,LTD, Delhi, 2014.
4. Rajagopalan, R, „Environmental Studies-From Crisis to Cure", Oxford University Press, 2005.

24BTAD116L - **DESIGN ILLUSTRATION LABORATORY**

Course Objectives

- Understand the basic concepts of human anatomy.
- Develop skills in fashion arts and create innovative designs.
- Developing design and improvisation of basics fashion rendering.

Course Outcomes

Upon successful completion of this subject, the students should be able to:

1. Inculcate excellent illustration skill.
2. Develop effective design communication skill.
3. Visually interpret other people's ideas.
4. The capability to be flexible and adapt to change when requested.

	MAPPING OF COURSE OUTCOMES ANDPROGRAMME OUTCOMES (S – Strong, M-Medium)									
	PO									
CO	1	2	3	4	5	6	7	8	9	10
1		S								
2								S		
3							S			
4							M			

LIST OF EXPERIMENTS:

1. Illustration of human anatomy
2. Illustrate different growth stages of male and female
3. Illustrate fashion Croquis – male and female
4. Illustrate Facial features – Eyes, Nose, Lips & Ears
5. Illustrate different men's and women's face shapes
6. Illustrate front and side face with features for men and women
7. Development of flesh figure from stick figure
8. Illustrate different hand and leg poses
9. Illustration of different styles of skirts, pants, waist band and pocket
10. Illustration of different hair styles
11. Illustration of different styles of sleeves, cuff, neckline, yoke, collars
12. Illustration of different kinds of accessories and designs

13. Illustrating of trimmings and decorations
14. Illustrating face make up with reference to prevailing fashion

REFERENCES:

1. Abling, Bina. (2012). Fashion Sketchbook. 6th Edition. New York: Fairchild Book Publications.
2. Davis, Marian. L. (1996). Visual Design in Dress. 3rd Edition. New Jersey: Prentice Hall Inc.
3. Gillow, John. & Barnard, Nicholas. (2008). Indian Textiles. Reprint edition. Thames & HudsonLtd.
4. Bhargav, Ritu. (2005). Fashion Illustration and Rendering. 1st Edition. New Delhi: B JainPublication Pvt. Ltd.
5. Morris, Bethan. (2006). Fashion Illustrator, New Delhi: Laurence King Publishing.
6. Ireland, Patrick John. (1996). Fashion Design Illustration: Men. UK: Pavilion Books.
7. Ireland, Patrick John. (2003). Fashion Design Drawing and Presentation. Batsford Publishers.
8. Wayne, Childy. (2009). Essential Fashion Illustration: Men. Beverly, Massachusetts: RockportPublishers.

24BTAD117L - BASIC APPAREL CONSTRUCTION LABORATORY

Course Objectives

- Prepare samples for various types of stitches.
- Prepare samples for fullness, plackets, zippers, collars, pockets, sleeves and yokes.

Course Outcomes

Upon successful completion of this subject, the students should be able to:

1. Identify and explain the parts and functions of a sewing machine
2. Prepare various samples for stitching.
3. Categorize various attachments for enhancing the garment value.

	MAPPING OF COURSE OUTCOMES ANDPROGRAMME OUTCOMES (S – Strong, M-Medium)									
	PO									
CO	1	2	3	4	5	6	7	8	9	10
1		S	M							
2			S							
3					M					

LIST OF EXPERIMENTS

1. Study on parts and functions of sewing machine
2. Prepare samples for hand stitches
   A) Temporary stitches: even basting, uneven basting, diagonal basting andslip basting.
   B) Permanent stitches: running, hemming, run and back stitch, over basting, overhanding andwhipping.

3. Prepare samples for seams and seam finishes
4. Seams: plain, single top stitch, double top stitch, welt, lapped, slot, flatfell, french, hemmed flatfell, mantua maker's and piped seam
5. Seam Finishes: pinked, double stitch, edge stitch, herring bone, bound seamedge finish andovercast finish.
   A) Preparation of samples for Fullness (darts, tucks, pleats, flares, godets, gathers and shirrs,frills and ruffles
   B) Prepare samples for facings and bindings in necklines- bias, shaped and decorative
6. Prepare samples of plackets – Continuous bound placket, 2-piece placket,tailor placket, flyopening and zipper
7. Prepare samples of collars – PETER pan collar, shirt collar and stand collar
8. Prepare samples of pockets – Patch, set in seam and set in slot
9. Prepare samples of sleeves – Plain, puff, raglon and kimono
10. Prepare samples of yokes – Partial yoke, yoke with fullness
11. Prepare samples of fasteners – Zipper, hook and eye
12. Prepare samples of trimmings and decorations

REFERENCES:

1. Mathews, Mary. Practical clothing construction Part -I Basic Sewing Processes. (No Yearand Publication)
2. Mathews, Mary. Practical clothing construction Part-II Designing, Drafting and Tailoring.(No Year and Publication)
3. Zarapkar, K. R. (2011). System of Cutting. India: Navneet Publications.
4. Laing, R. M., Webster, J. (1998). Stitches & Seams. India: The Textile Institute.
5. Claire, B. Shaeffer. (2012). Sewing for the Apparel Industry. Vol. 978. 2nd Edition. India:Pearson Publishers.
6. Cooklin, Gerry., Hayes, Steven. G., McLoughlin, John., Fairclough, Dorothy.(2012). Cooklin's Garment Technology for Fashion Designers. John Wiley & Sons.
7. Knight, Lorna. (2010). 200 Sewing Tips, Techniques and Trade Secrets. Griffin: St.Martin'sPress.
8. Hosegood, Besty. (2006). The Complete Book of Sewing. London: Dorling Kindersley Ltd.

24BTAD118L - **COMPUTER PRACTICES II**

Course objectives

- To provide students with a fundamental understanding of the principles and practices of software development for research studies.
- To teach students how to use software tools and libraries to design, implement, and evaluate research studies.
- To help students develop their skills in data management, analysis, and visualization.
- To prepare students to use software to conduct high-quality research studies in a variety of fields.

Course outcomes

- Explain the different types of software used in research studies, such as data collection software, statistical analysis software, and visualization software.
- Use software tools and libraries to design, implement, and evaluate research studies, taking into account the needs of the study participants and the research team.
- Manage and analyze data from research studies using software tools and libraries.
- Visualize data from research studies using software tools and libraries to create clear and informative charts and graphs.

	MAPPING OF COURSE OUTCOMES ANDPROGRAMME OUTCOMES (S – Strong, M-Medium)									
	PO									
CO	1	2	3	4	5	6	7	8	9	10
1					S					
2						S		M		
3								S		
4		S								

List of Experiments :

1. Mathematical functions (SUM ( ), MAX ( ), MIN ( ), COUNT ( ), AVERAGE ( ) combining basic function(MAX,MIN)
2. Logical Functions (IF, AND, OF, COMPUND INTEREST, SIMPLE INTEREST)
3. Prepare Final Accounts (Trading, Profit & Loss Account and Balance Sheet) by using formula.
4. Illustrate year-wise performance of sales, purchase, profit of company by using chart wizard.
5. Aggregation Functions (SUM IF, COUNT IF)
6. Look up Functions (LOOK UP, H LOOK UP, V LOOK UP)
7. Regression Analysis (FORECAST and TREND)
8. Financial Functions (NPV, IRR, PMT)
9. Mini Project – Apply necessary Excel tools to analyse textile database
10. Distributions and Probability in Excel

References:

1. Sanjay Saxena; A First Course in Computers, Vikas Publishing House Pvt. Ltd., (2013).
2. Alexis Leon, Mathews Leon; Introduction to computers, Leon Tech World, (2001).
3. Joseph W. Habraken; Microsoft Office 2010 in-depth, (2011).
4. Bernard John Poole, Essential Microsoft Office 2013.

24BTAD119 - **YOGA FOR HUMAN EXCELLENCE**

Course Objectives

- To know about the importance of Physical Exercises, yogasana and meditation
- To empower the students with knowledge about the mind and its functions

Course outcomes

Upon successful completion of this subject, the students should be able to:

1. Develop good physical and mental strength
2. Live a stress free and balanced lifestyle

	MAPPING OF COURSE OUTCOMES ANDPROGRAMME OUTCOMES (S – Strong, M-Medium)									
	PO									
CO	1	2	3	4	5	6	7	8	9	10
1							M			
2							M			

UNIT I: Yoga Types

Types of yoga – karma yoga – bhakthi yoga – raja yoga – gnana yoga – hata yoga. agna- santhi – clearence – thuriya – thuriyatheetham.

UNIT II: Yogasana, Varma Art and Naturopathy

Padmasana, halasana, vajrasana, sukasana, chakrasana (side posture), viruchasana, bhujangasana, yoga mudra, ustrasana, maha mudra, vakkarasana. art of varma – philosophy of varma – practices – benefits – methods of naturopathy.

UNIT III: Simplified Physical Exercises

Physical exercises – hand exercises – leg exercises – breathing exercises – eye exercises – kapalabathi – makarasana – body massage – acupressure – relaxation science and total consciousness – integrated approach.

UNIT IV: Personality Development

Introspection – analysis of thoughts – moralization of desire – neutralization of anger – eradication ofworries – benefits of blessing.

UNIT V: Life lessons

Divine thoughts of Bharathiar – Concepts of Ramalinga Vallalar Vethathirian principles – Practicalsolutions of Vethathirian philosophy.

TEXT BOOK:

1. “Simplified Physical Exercises”, by Vedhathiri Maharishi Pathipagam, 180, Gadhiji Road, Erode –638001.

REFERENCES:

1. “Yoga its Basis and Applications” – H.R Nagendra, S-VYASSA publications.
2. “New perspective in stress Management (SMET)”, S-VYASSA publications.
3. “My Life History”, Thathuvagnani Vethathiri Maharishi, 180, Gadhiji Road, Erode
4. “Patanjali‟s Yoga Sutras”, S-VYASSA publications.

SEMESTER III

24BTAD201 - TEXTILE ENHANCEMENT

Course objectives

- To provide students with a fundamental understanding of the various methods used to enhance the properties of textiles.
- To teach students how to select and apply the appropriate textile enhancement methods for specific applications.
- To help students develop their skills in textile testing and quality control.
- To prepare students for careers in the textile industry, particularly in textile finishing and product development.

Course outcomes

1. Explain the different types of textile enhancement processes, such as dyeing, printing, finishing, and coating.
2. Describe the principles and chemistry of different textile enhancement processes.
3. Select the appropriate textile enhancement methods for specific applications, taking into account the desired properties of the final product.
4. Conduct common textile tests to assess the quality of enhanced textiles.

	MAPPING OF COURSE OUTCOMES ANDPROGRAMME OUTCOMES (S – Strong, M-Medium)									
	PO									
CO	1	2	3	4	5	6	7	8	9	10
1	S					M				
2						M				
3	S									M
4										S

UNIT I

Operation sequence in chemical processing of cotton, silk, wool, rayon, polyester, polyamide, polyester and cellulosic blend materials with emphasis on the objectives of each operation. Identification of blend proportion for blends.

UNIT II

Scouring – Introduction, theory, types, recipe of scouring; Bleaching – Introduction, theory, types, comparison of peroxide and hypochlorite bleaching agents, bleaching recipe and mercerization of cotton; preparatory process for wool and silk

UNIT III

Stages involved in dyeing process, principle of application of direct, reactive, vat, acid, disperse and natural dyes; principles of working of loose fibre, yarn and fabric processing machines. Dyeing recipe for the above dyes pertaining to cotton

UNIT IV

Printing methods and styles of printing; general constitution of printing paste, printing with pigments, principles of transfer and ink-jet printing, dyeing and printing faults, assessment of fastness properties of dyed and printed goods ; garment dyeing and washing ; Finishing - Calendering, shrink proofing, antistatic finish, softening, water and flame proofing, UV protection, antimicrobial finish, resin finishing – crease recovery, wash and wear and durable press finishes; Standard methods of assessment of all the above finishes.

UNIT V

Fundamentals of colour science, assessment of colour of dyed and printed goods; basics of colour matching technique; assessment of whiteness and yellowness indices and colour difference; pass/fail decision making; Eco friendly chemical processes, banned dyes and chemicals.

TEXT BOOKS:

1. Trotman E. R., "Dyeing and Chemical Technology of Textile Fibres", B.I Publishing Pvt. Ltd., New Delhi, 1994, ISBN: 0471809101 | ISBN-13: 9780471809104
2. Karmarkar S.R., "Chemical Technology in Pre-treatment processes of Textiles", Elsevier Publications, Newyork,1999, ISBN: 044450060X | ISBN-13: 9780444500601
3. Shenai V. A., "Chemistry of Dyes and Principles of Dyeing", Sevak Publications, Mumbai, 1995, ISBN: B0007BFE9Y.
4. Shenai V. A., "Technology of Printing", Sevak Publications, Mumbai, 1996
5. Miles W. C., "Textile Printing", Wood head Publication, 2003, ISBN 0 901956 76 1

REFERENCES:

1. Hall A.J., "Textile Finishing", 2nd ed., McGraw Hill, 1995.
2. Marsh J.T., "Introduction to Textile Finishing" Vol. II, New Age, 1996
3. Heywood D.,"Textile Finishing", Woodhead Publishing Ltd.,2003 ISBN 090195681
4. Shenai V.A., "Technology of Finishing", Vol. X, Usha, 1998
5. Schindler W.D and Hauser P., "Chemical Finishing of Textiles", Wood head Publications, ISBN: 1855739054.
6. Yin-Ling Lam , Chi-Wai Kan & Chun-Wah Marcus Yuen, "Developments in functional finishing of cotton fibres – wrinkle-resistant, flameretardant and antimicrobial treatments", Textile Progress, Vol. 44, Nos. 3 - 4, September-December 2012,175–249.
7. Jones B. W., "Garment Dyeing: Ready to Wear Fashion from the Dyehouse", Textile Progress, Vol. 19, No. 2, 1988, ISBN 1870812131.
8. Roshan Paul (Ed.), "Denim – Manufacture, Finishing and Applications", Woodhead Publishing, 2015.
9. Reife A. and Freeman H.S., "Environmental Chemistry of Dyes and Pigments", Wiley, 1996, ISBN: 0471589276

24BTAD202 - FABRIC MANUFACTURING

Course objectives

- Study the woven preparatory and production techniques.
- Study the knitted and nonwoven fabric preparatory and production techniques.

Course outcomes

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

1. Understand the preparatory process for woven, knitted and nonwoven fabric production.
2. Explain the conventional and modern weaving and knitting systems
3. Understand the various nonwoven and braiding technique

	MAPPING OF COURSE OUTCOMES ANDPROGRAMME OUTCOMES (S – Strong, M-Medium)									
	PO									
CO	1	2	3	4	5	6	7	8	9	10
1	S					M				
2	S					M				
3	S									

Unit – I

Weaving preparatory process:– High speed winding machine - Pirn winding. Warping - warpingmachine – sectional warping machine. Sizing - ingredients – sizing machine. Drawing in – denting. **Conventional Weaving:** Introduction – primary, secondary and auxiliary motions - passage of yarn – handloom - power loom. Selvedges – types.

Unit – II

Patterning mechanisms: Lifting mechanism principles – tappet, dobby (climax, staubli) andjacquard. Drop box. **Shuttleless Loom:** Introduction - weft inserting cycle - projectile, rapier, air jet, water jet -Multiphase weaving - Fabric defects, causes and remedies.

Unit – III

Weft knitting: Comparison of weaving and knitting, weft and warp knitting – weft knitting classification - circular, flat, V-bed. Elements of weft knitting - needles, and their types, sinkers, jacks, cams, cylinder, feeder and take-up, their function and operation. Knitting terminologies - open loop, closed loop, course, wale, stitch density and loop length. knitting cycle and yarn path of single and double jersey

UNIT IV

Warp Knitting: Detailed classification - tricot, raschel, simplex and 2 needles bar raschel machines, Mechanical elements of warp knitting. Needle bar, sinker bar, guide bar, warp beams, pattern wheel, chain links, knitting cycle for spring bearded and latch needles, yarn path in tricot and raschel machines, lapping diagrams and notations.

UNIT V

Nonwoven: Introduction – classification. Web formation – dry (parallel, cross, random), wet and polymer laid. Web bonding – mechanical, chemical and thermal. Properties and applications. Braiding - flat and circular braiding machines – properties and applications.

TEXT BOOKS:

1. Talukdar, M. K. (1982). An Introduction to Winding and Warping. Mumbai: Textile Trade Press.
2. Anbumani N, "Knitting-Fundamentals, Machines, Structures and Developments",New Age International (P) Ltd., New Delhi, 2007.

REFERENCES:

1. Horrocks, A. R. & Anand, S. C. (2000). Handbook of Technical Textiles. Cambridge: WoodheadPublishing.
2. Vincent, J. J. (1980). Shuttleless Looms. Manchester: The Textile Institute.
3. Talavasek, O. & Svaty, V. (1981). Shuttleless Weaving Machines. Oxford: Elsevier ScientificPublishing Company.
4. Ormerod, A. (1983). Modern Preparation and Weaving Machinery. London: Butterworth"s & Co.
5. Karthik, T., Prabha Karan, C., & Rathinamoorthy, R. (2016). Nonwovens: Process, Structure,Properties & Applications. 1st Edition. Woodhead Publishing India.
6. Spencer D J, "Knitting Technology", Textile Institute Publication, Manchester, UK, 3rd Edition,2001

24BTAD203 - APPAREL MANUFACTURING AND PATTERN ENGINEERING

Course objective

- To impart knowledge on work room terms and practices, measurements, Block preparation, Dart manipulation and drafting method for various components andgarments, Draping and grading.
- To make students gain knowledge on various techniques involved in different stages ofmanufacturing apparels

Course outcomes

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

1. Describe the various pattern making tools in the workroom and the measuring techniques
2. Explain the method of drafting basic body slopers and dart manipulation techniques
3. Describe the pattern drafting for sleeves, collars, yokes and cuffs
4. Draft block patterns for basic men's and women's garments
5. Explain the basic principles of grading and draping
6. Understanding about contemporary techniques and practices in manufacturing of apparels

MAPPING OF COURSE OUTCOMES ANDPROGRAMME OUTCOMES

	(S – Strong, M-Medium)									
	PO									
CO	1	2	3	4	5	6	7	8	9	10
1		S				M		M		
2		S				M		M		
3		S				M		S		
4		S				M		S		
5		S				M		M		
6		S				M		M		

Unit -I

Measurements and Workroom Practices

Flow chart of garment manufacturing Pattern: Definition, Importance, Types: basic pattern, working pattern and production pattern; Pattern making: Definition, Techniques: drafting and draping; Pattern making tools and workroom terms and definitions. Industrial and bespokepatterns. Figure analysis: Head theory: Seven and Half and Eight. Measuring techniques: Introduction; Standard Measurement charts for male, female and kids, Body measurements: circumference measurement, Vertical measurements and horizontal measurements and measuring the form.

Unit -II

Block preparation and Dart manipulation

Drafting of basic bodice, Skirt blocks and sleeve Dart manipulation: Pivotal method, Slash and spread method, Designing with darts, Tucks, Pleats, Flares, Gathers and Style lines, ease allowances, influence of allowances on garment fit.

Unit -III

Sleeves and Collars

Sleeves: Set–in–sleeves: Plain, Puff, Bell, Bishop, Circular and Leg-o-mutton; Sleeves combined with bodice: Kimono, Dolman and Raglan. Collars: Convertible, Shirt, Mandarin, Peter pan, Cape, Square, Scalloped, Sailor, Puritan, Shawl, and Notch collar. Cuff: Shirt cuff, French cuff and Contoured cuff. Yokes: Preparing patterns for yokes: Partial, Yoke without fullness, Yoke with fullness and Yoke supporting or releasing fullness.

Unit -IV

Drafting for Garments

Drafting: Basic principles and methodologies used to draft block patterns for the following garments: Shirt, Trouser, Skirt, Blouse and Nightwear. Pattern alterations: Importance, Principles and pattern alterations for blouse and trouser. Computer

applications in pattern making: Fundamentals of pattern making, grading and marker planning using CAD.

Unit -V

Grading and Draping

Grading: Principles of pattern grading, Types: Draft grading: Two dimensional and Three dimensional grading, Track grading; Grading of basic back, Basic front, Basic sleeve and Basic collar. Draping: Introduction, Importance, Preparation of dress forms, Preparation of muslin for draping; Draping for bodice, sleeve and skirt, Advantages and disadvantages.

TEXT BOOKS

1. Halen Josep Armstrong "Pattern Making for Fashion Design" 5 th Edition, Pretence Hall, NewJercey , 2014.
2. Claire Schaeffer, "The Complete Book of Sewing Shortcuts", Sterling Publishing(NY), 2009.

REFERENCE BOOKS

1. Winifred Aldrich, "Pattern Cutting for Menswear", 4th edition, Blackwell Science Publisher,USA, 2006.
2. Winifred Aldrich, "Metric Pattern Cutting", Om Book Service, 1997.
3. Gerry Cooklin, "Master Patterns and Grading for Women's Outsize", Blackwell ScientificPublications,1995.
4. Gerry Cooklin, "Master Patterns and Grading for Men's Outsize", Blackwell SciencePublications, 1992.
5. Helen Joseph Armstrong, "Draping for Apparel Design" , Fairchild Publications, Newyork,2000.

24BTAD204L - **DRAPING LABORATORY**

Course objectives

- To provide students with hands-on experience with fabric draping techniques.
- To teach students how to drape different types of fabrics on different types of dress forms.
- To help students develop their skills in pattern development and garment construction.
- To prepare students for careers in fashion design and apparel manufacturing.

Course outcomes

1. Explain the principles of fabric draping.
2. Identify and select the appropriate fabric draping techniques for different types of fabrics and dress forms.
3. Drape different types of fabrics on different types of dress forms to create a variety of garment silhouettes.
4. Develop and execute patterns for draped garments.
5. Construct draped garments using a variety of sewing techniques.
6. Evaluate the drape of finished garments.

	MAPPING OF COURSE OUTCOMES ANDPROGRAMME OUTCOMES (S – Strong, M-Medium)									
	PO									
CO	1	2	3	4	5	6	7	8	9	10
1		S								
2										
3		S								
4					M					
5							M			
6										S

Experiment 1: Draping Terminology – Apex, Balance, Plumb line, Trueing, Blocking, Blending, Princess line, Clipping and marking. Material used: Muslin cloth, bell pins, L and curve scale.

Experiment 2: Draping of basic bodice- front

Experiment 3: Draping of basic bodice - back

Experiment 4: Collars- Peter pan collar, shirt collar, mandarin collar and any two variations.

Experiment 5: Yokes- design yoke, midriff yoke, and shirt yoke.

Experiment 6: Skirt- basic skirt and any two variations.

Experiment 7: Cowl neck line and any two different styles.

Experiment 8: Sleeves- any two variations.

References:

1. Hilde Jaffe, NurieRelis; *Draping for Fashion Design*, Pearson Education, Singapore, 4th Edition,(2004).
2. Connie Amaden- Crawford; *The Art of Fashion Draping*, Fairchild Publications Inc and Om Books International, New Delhi,(2005).
3. Hilde Jaffe, NurieRelis; Draping for Fashion Design, Prentice Hall Career and Technology, 2ndEdition,(1993).
4. PremalataMullick; Garment Construction Skills, Kalyani Publishers, New Delhi, (2002).
5. Gillian Holman; Pattern Cutting Made Easy, Om Books International, New Delhi, (2005).
6. Complete Guide to Sewing, The Reader's Digest Association (Canada) Ltd, New York, (2002).

24BTAD206L - PATTERN MAKING LABORATORY – I

Course Objectives

- To learn the procedure for obtaining measurements and measurement chart preparation
- To draft the basic bodice for various garments

Course Outcomes

Upon successful completion of this course the student would be able to,

1. Obtain various body measurements and to prepare measurement chart
2. Draft the basic pattern from the obtained measurements

	MAPPING OF COURSE OUTCOMES ANDPROGRAMME OUTCOMES (S – Strong, M-Medium)									
	PO									
CO	1	2	3	4	5	6	7	8	9	10
1		S					M			
2		S				M				

LIST OF EXPERIMENTS:

1. Measuring the form – Male, female and child.
2. Drafting the basic pattern set of bodice and sleeve using the standard measurements.
3. Drafting the basic pattern of skirt and trouser using the standard measurements.
4. Drafting the patterns for the following components:
    a) Sleeve
        i. Plain
        ii. Puff sleeve

iii. Bell sleeve
iv. Raglon

b) Collar

i. Peter pan
ii. Stand
iii. Shirt

c) Yoke

i. Partial yoke
ii. Yoke with fullness

5. Designing, drafting and grading for children wear

i. Baby frock
ii. Rompers
iii. Round neck T-Shirt

REFERENCES:

1. Armstrong, Helen. J. (2011). Patternmaking for Fashion Design. 5th Edition. Pearson EducationPvt. Ltd.

2. Aldrich, Winifred. (2012). Metric pattern cutting for children‟s wear and baby wear. 4th Edition.John Wiley and Sons.

3. Cooklin, Gerry. (1995). Master patterns & grading for women‟s outsize. 1st Edition. Wiley -Blackwell Publications.

4. Bray, Natalie. (2003). More dress pattern designing. 4th Edition. Wiley - Blackwell Publication.

24BTAD207L - **GARMENT CONSTRUCTION LABORATORY – I**

Course Objectives

- Prepare samples for various types of stitches.
- Prepare samples for fullness, plackets, zippers, collars, pockets, sleeves and yokes.

Course Outcomes

Upon successful completion of this course the student would be able to,

1. Identify and explain the parts and functions of a sewing machine.
2. Prepare various samples for stitching.
3. Categorize various attachments for enhancing the garment value.

	MAPPING OF COURSE OUTCOMES ANDPROGRAMME OUTCOMES (S – Strong, M-Medium)									
	PO									
CO	1	2	3	4	5	6	7	8	9	10
1		S				M				
2										M
3		S								

LIST OF EXPERIMENTS:

1. Study on parts and functions of sewing machine
2. Prepare samples for hand stitches

A) Temporary stitches: even basting, uneven basting, diagonal basting andslip basting.

B) Permanent stitches: running, hemming, run and back stitch, over casting,overhanding and whipping.

3. Prepare samples for seams and seam finishes

A) Seams: plain, single top stitch, double top stitch, welt, lapped, slot, flatfell, french, hemmed flat fell, mantua maker‟s and piped seam.

B) Seam Finishes: pinked, double stitch, edge stitch, herring bone, bound seamedge finish and overcast finish.

4. Preparation of samples for Fullness (darts, tucks, pleats, flares, godets, gathers and shirrs, frills andruffles).
5. Prepare samples for facings and bindings in necklines- bias, shaped and decorative.
6. Prepare samples of plackets – Continuous bound placket, 2-piece placket,tailor placket, fly opening and zipper
7. Prepare samples of collars – PETER pan collar, shirt collar and stand collar
8. Prepare samples of pockets – Patch, set in seam and set in slot
9. Prepare samples of sleeves – Plain, puff, raglon and kimono
10. Prepare samples of yokes – Partial yoke, yoke with fullness
11. Prepare samples of fasteners – Zipper, hook and eye
12. Prepare samples of trimmings and decorations

REFERENCES:

1. Mathews, Mary. Practical clothing construction Part -I Basic Sewing Processes. (No Year andPublication)
2. Mathews, Mary. Practical clothing construction Part-II Designing, Drafting and Tailoring. (NoYear and Publication)
3. Zarapkar, K. R. (2011). System of Cutting. India: Navneet Publications.
4. Laing, R. M., Webster, J. (1998). Stitches & Seams. India: The Textile Institute.
5. Claire, B. Shaeffer. (2012). Sewing for the Apparel Industry. Vol. 978. 2nd Edition. India: PearsonPublishers.
6. Cooklin, Gerry., Hayes, Steven. G., McLoughlin, John., Fairclough, Dorothy. (2012). Cooklin‟sGarment Technology for Fashion Designers. John Wiley & Sons.
7. Knight, Lorna. (2010). 200 Sewing Tips, Techniques and Trade Secrets. Griffin: St. Martin‟sPress.
8. Hosegood, Besty. (2006). The Complete Book of Sewing. London: Dorling Kindersley Ltd.

24BTAD208 L- SURFACE EMBELLISHMENT LABORATORY

Course objectives

- To provide students with hands-on experience with a variety of surface embellishment techniques.
- To teach students how to apply surface embellishment techniques to different types of fabrics and garments.
- To help students develop their creativity and artistic expression through surface embellishment.
- To prepare students for careers in fashion design, apparel manufacturing, and other fields where surface embellishment is used.

Course outcomes

1. Identify and select the appropriate surface embellishment techniques for different types of fabrics and garments.
2. Apply a variety of surface embellishment techniques, such as beading, embroidery, and appliqué, to create unique and visually appealing designs.
3. Evaluate the quality of surface embellishment work.
4. Troubleshoot problems with surface embellishment techniques.
5. Develop new and innovative surface embellishment techniques.

	MAPPING OF COURSE OUTCOMES ANDPROGRAMME OUTCOMES (S – Strong, M-Medium)									
	PO									
CO	1	2	3	4	5	6	7	8	9	10
1		S								
2		S	M							
3										S
4			M							
8						S				

LIST OF EXPERIMENTS:

Experiment 1: Fabric Painting
Experiment 2: Block Printing
Experiment 3: Hand Embroidery
Experiment 3: Machine Embroidery
Experiment 4: Shibori Dyeing
Experiment 5: Appliqué
Experiment 6: Beadwork and Sequin Embellishments
Experiment 7: Geometric Smocking
Experiment 8: Stitch and Shirring Smocking

REFERENCES:

1. Mathews, Mary. Practical clothing construction Part -I Basic Sewing Processes. (No Year andPublication)

2. Mathews, Mary. Practical clothing construction Part-II Designing, Drafting and Tailoring. (NoYear and Publication)

3. Zarapkar, K. R. (2011). System of Cutting. India: Navneet Publications.

4. Laing, R. M., Webster, J. (1998). Stitches & Seams. India: The Textile Institute.

24BTAD209I - INTERNSHIP – I

Course Objectives

- To expose the students in the real time world
- To gain knowledge on the process, machinery and technology

Course Outcomes

After successful completion of this course, the students should be able to

1. Identify the solution for industry related problems
2. Understand the suitable process, machinery and technology for product manufacturing
3. Summarize the results and submit a report.

	MAPPING OF COURSE OUTCOMES ANDPROGRAMME OUTCOMES (S – Strong, M-Medium)									
	PO									
CO	1	2	3	4	5	6	7	8	9	10
1		S	S							
2			S				M			
3			S					M		

Pre-requisites:

Students will undergo internship training in an established organization of Textile / Apparel / Retailfor a period of 3 weeks.

- At the end of internship training, students will submit a report of training undertaken.
- The student has to present their report to the Panel of members for evaluation.

SEMESTER IV

24BTAD211 - **FABRIC STRUCTURE AND ANALYSIS**

Course objective

- To enable the students to learn about structure of fabric and design the structure fordifferent applications.

Course outcomes

Upon the completion of this course the student will be able to

1. Understand different structures of woven and knitted fabric

2. Design the structure for different end uses

3. Construct the draft and peg-plan which are required to convert the design into fabric

	MAPPING OF COURSE OUTCOMES ANDPROGRAMME OUTCOMES (S – Strong, M-Medium)									
	PO									
CO	1	2	3	4	5	6	7	8	9	10
1	S	M								
2							M			
3	S						M			

UNIT I

Elementary weaves – plain and its derivatives, twill and its derivatives, satin, sateen and their derivatives – loom requirements. GSM –Meaning and importance. Methods of identifying warp and weft.

UNIT II

Ordinary and Brighten Honey Comb; Huck-a-Back and its modifications; Mock Leno; crepe weaves; colour and weave effects – loom requirements. Application of the mentioned weaves.

UNIT III

Bedford cords - plain and twill faced, wadded; welts and piques, wadded piques; backed fabrics - warp and weft, reversible and non-reversible fabrics; extra warp and extra weft figuring – single and double colour – loom requirements

UNIT IV

Pile fabrics; warp pile - wire pile, terry pile, loose backed; weft pile – plain back and twill back velveteen, lashed pile, corduroy, weft plush – loom requirements. Double cloth, types of stitches; Damasks; Gauze and Leno principles – loom requirements, 3D woven structures.

UNIT V

Weft Knit Structures: Needle loop, sinker loop, technical face, technical back, open loop, closedloop, knit stitch, tuck stitch, purl stitch, miss stitch - single jersey, rib, purl and interlock, their structures and fabric characteristics. Flat knitting Basic structures-Cardigan, Racked Rib and Cablestitch. Warp knitted fabric Standard Structures.

TEXT BOOKS

1. Grosicki, Z. J. (2004). Watson‟s Textile Design and Colour-elementary Weaves and FiguredFabrics. 7th Edition. England: Woodhead Publishing Ltd.

2. Anbumani N, "Knitting-Fundamentals, Machines, Structures and Developments", New AgeInternational (P) Ltd., New Delhi, 2007.

REFERENCES:

1. Talukdar, M. K. (1982). An Introduction to Winding and Warping. Mumbai: Textile Trade Press.

2. Spencer D J, "Knitting Technology", Textile Institute Publication, Manchester, UK, 3rd Edition,2001

24BTAD212 - **DESIGN TREND AND FORECASTING**

Course objectives

- To provide students with a fundamental understanding of the fashion design trend forecasting process.
- To teach students how to identify and analyze emerging trends in fashion, culture, and society.
- To help students develop their skills in trend prediction and forecasting.
- To prepare students for careers in fashion design, trend forecasting, and other related fields.

Course outcomes

1. Define and explain the concept of fashion trend forecasting.
2. Identify the different types of fashion trends and how they are disseminated.
3. Analyze the factors that influence fashion trends, such as social, cultural, economic, and technological factors.
4. Collect and analyze data from a variety of sources to identify emerging trends.
5. Develop and present trend forecasts for different fashion seasons and markets.
6. Apply their knowledge of fashion design trend and forecasting to develop and produce new and innovative fashion collections.

	MAPPING OF COURSE OUTCOMES ANDPROGRAMME OUTCOMES (S – Strong, M-Medium)									
	PO									
CO	1	2	3	4	5	6	7	8	9	10
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4								M		
5				M						
6										S

UNIT I

Forecasting Process: Introduction to Fashion, Fashion Trends, Fashion Forecasting, Forecasting in Apparel Planning and Scheduling; Introducing Innovation: Characteristics of an Innovation, the Consumer Adoption Process, Fashions, Fads, and Classics, Consumer Segmentation.

UNIT II

Direction Change: Fashion Movement, Theories of Fashion Change, Directional Theories of Fashion: Change in Tandem, Model of Vertical Flow

UNIT III

Color Forecasting: Dimensions of the Color Story, Color in Marketing, Consumers and the Psychology of Color, the Language of Color, Forecasting with Color Cycles, Color Research- Sources for Color Ideas and Palettes ; Textile Development: Fashion in Fiber and Fabric, Sources of Innovation in Textile Development, Fabric Fairs and Trade Shows, Fabric Libraries.

UNIT IV

Consumer Research: Fashion Brands, Retail Formats- Emergence of Catalogs, TV Shopping and Online Shopping, Relational Marketing; Demographics: Geo demographics, Demographics and Preferences; Preferences with Ethnicity, Gender and Income; Sale Forecasting ; Real Time Marketing; Sales Forecasting Basics; Sales Forecasting Methods; Sales Forecasting in Context.

UNIT V

Presenting the Forecast: Presentation Design as a Creative Process; Transforming Data into Information and Knowledge; Trend Reporting; Trend Map; Presentation Techniques.

TEXT BOOKS

1. Fashion buying, Helen Goworek, Wiley-Blackwell.
2. Fashion art for the Fashion Industry, Rita Gersten, Fairchild Books
3. Fashion Forecasting: a Mystery or a Method? Rita Perna, Images Publishing Group.
4. The Fashion Design Manual, Pamela Stecker, Macmillan Education.

24BTAD213 - **APPAREL MARKETING AND MERCHANDISING**

Course Objectives

- To understand the functions of merchandiser on production and retail perspective.
- To inculcate the knowledge of apparel product lines, development, pricing and sourcing.

Course Outcomes

Upon successful completion of this course the student would be able to,

1. Develop the skill to analyze the functions, characteristics and requirements of amerchandiser.
2. Diagnose the role of exporters, manufacturer, merchant exporter and job workers.
3. Identify the suitable SCM procedure.

	MAPPING OF COURSE OUTCOMES ANDPROGRAMME OUTCOMES (S – Strong, M-Medium)									
	PO									
CO	1	2	3	4	5	6	7	8	9	10
1					S					
2			M							
3									S	

UNIT I

Merchandising: Definition – functions - division - role and responsibilities. Types of buyers - communications with the buyers – awareness of current market trends – product development – tech pack analysis - order confirmation process. Export Merchandising. Classification of exporters: Manufacturer, Merchant, Job worker (CM/CMT). Introduction to buying house.

UNIT II

Merchandiser's Role: Proto type to production model – samples, types of samples, samplingprocedures, production planning, vendor based rationalization, order placement, in-house and sub- contractor units. Approval: types of approval, approval procedure, buyer approval and organizational approval. Record maintenance. Vendor evaluation and rating.

UNIT III

Marketing: Fashion consumer typologies, Maslow‟s hierarchy of needs, 4 P‟s, SWOT analysis, marketing research process, importance of marketing. Marketing mix – pricing, product and brand distribution channels. Market size, structure and environment.

UNIT IV

Marketing Research: Definition, role in apparel business, use of research findings for marketing decisions and action plans. Marketing research techniques – translation of

businessand marketing problems into research issues and design, survey design, data types and collection methods, sample design and statistical inference. Model building and analysis methods.

UNIT V

Sourcing: Definition, types and methods of sourcing. Sourcing decision in practice – Bought outcomponent.

Supply Chain Management: Introduction and benefits. Push/pull concepts. Supply Chain strategies. Use of barcoding and RFID. **Warehousing:** Introduction, types and importance.

TEXT BOOKS:

1. Merchandising- Theory, Principles and Practice Grace I. Kunz II Edition, Fairchild Publications,Inc. New York. 2005
2. Fashion Marketing by Easey M(Ed), Blackwell Science 1994.
3. Jeremy A Rosenau & David Wilson, "Apparel Merchandising: the Line Starts Here", FairchildBooks, 3rd Edition, 2014.
4. Ruth E Glock & Grace I Kunz, "Apparel Manufacturing: Sewn Product Analysis", Pearson /Prentice Hall Inc. 4th Edition, 2005
5. Frances Harder, "Fashion for Profit", Harder Publication, 10th Edition, 2014.
6. Elaine Stone, Jean A Samples, "Fashion Merchandising", McGraw Hill, 5th Edition. 1990.

REFERENCES:

1. Mike Easey. .March (2009)."Fashion marketing" 3rd Edition, Edited by, ISBN 13:9781405/39533.
2. Tim Jackson and David show (2009) Mastering Fashion marketing

24BTAD214 - **INDIAN TEXTILES AND ACCESSORIES**

Course objectives

- To provide students with a comprehensive understanding of the Indian textile and accessories industry, including its history, culture, and economic significance.
- To teach students about the different types of Indian textiles and accessories, their production methods, and their traditional and contemporary uses.
- To help students develop their skills in identifying, evaluating, and appreciating Indian textiles and accessories.
- To prepare students for careers in the Indian textile and accessories industry, as well as in related fields such as fashion design, interior design, and museum curation.

Course outcomes

1. Define and explain key concepts in Indian textile and accessories, such as handloom, powerloom, khadi, and ikat.
2. Identify and classify the different types of Indian textiles and accessories, such as sarees, dhotis, kurtas, and jewelry.
3. Describe the production methods used to create different types of Indian textiles and accessories, including hand weaving, block printing, and embroidery..

4. Apply their knowledge of Indian textile and accessories to develop new and innovative products or to curate museum exhibitions.

	MAPPING OF COURSE OUTCOMES ANDPROGRAMME OUTCOMES (S – Strong, M-Medium)									
	PO									
CO	1	2	3	4	5	6	7	8	9	10
1				S						
2					S					
3					M					
4							S			

UNIT I

Sarees: Introduction and history of the traditional Indian sarees: Banarasi Sarees, Kanjeevaram Sarees, Chanderi Sarees; Cotton Fabrics: Khadi, Dhaka Muslin; Silk: Muga silk, eri silk, Paithani silk.

UNIT II

Woolen Textiles: Introduction, History and outcomes of the products: Pashmina, Kashmiri Shawls; Block-Printed Textiles: Rajasthani Block Prints, Bagru Prints; Kalamkari; Bandhani; Patola; Jamdani.

UNIT III

Traditional embroideries of India: zardozi, kantha, phulkari, chikankari, kasuti, shisha, aari/tambour embroidery, gota patti, kasab, sozni, Beadwork and Sequin Embroidery and Gara Embroidery.

UNIT IV

Traditional handmade footwear in India: Juttis/Mojdis, Kolhapuri Chappals, Paduka, mojri, Punjabi jutti, khapusa, kara, kasmini pheran shoes, kher/khari, pulikali moorupu, aligari khussa. Traditional bags of India: Palm Leaf Bags, Kilim Bags, Jhola Bag and potli bag. Traditional accessories of India.

UNIT V

Traditional accessories: Introduction and history : Kamarbandh, Nath, Mangalsutra, Oddiyanam/Vaddanam, Talapaga or Metti, Chur or Churi, Bengali Matha Patti, Kamar Patta, Borla, Panetar, Timaniyaan, Penchia and Paayal.

TEXT BOOKS:

1. Gertrud Lehnert, “A History of Fashion in the 20th Century”, Konemann Publications,

2000.

2. Jamila BrijBhushan, “The Costumes and Textiles of India”, Taraporevala, Bombay, 1958.
3. Martand Singh, “Hand Crafted Indian Textiles”, Lustre Press, 2005.
4. John Gillow, “Traditional Indian Textiles”, Thames & Hudson Ltd., 1993.
5. Ahuja, D. (2010). Indian textiles: A celebration of handcraft traditions. Roli Books.
6. Bhatt, S. R. (2009). The handloom industry in India: A study of its socio-economic impact. Concept Publishing Company.
7. Jain, J. K. (2009). Indian textiles: A kaleidoscope of colors and designs. Abhinav Publications.

24BTAD216L - **PATTERN MAKING LABORATORY – II**

Course Objectives

- To learn the procedure for obtaining measurements and measurement chart preparation
- To draft the pattern for various adult garments

Course Outcomes

Upon successful completion of this course the student would be able to,

1. Obtain various body measurements and to prepare measurement chart
2. Draft the basic pattern from the obtained measurements

	MAPPING OF COURSE OUTCOMES ANDPROGRAMME OUTCOMES (S – Strong, M-Medium)									
	PO									
CO	1	2	3	4	5	6	7	8	9	10
1		S								
2			M							

LIST OF EXPERIMENTS:

- Designing, drafting and grading for women‟s wear:
  - i. Nighty
  - ii. Salwar and kameez
  - iii. Blouse
  - iv. Skirt and top
- Developing pattern and grading for Men‟s wear
  - i. Knicker
  - ii. Formal shirt
  - iii. Formal trouser
- Draping:
  - i. Basic bodice – Front and Back
  - ii. Cowl

iii. Yoke
iv. Collar
v. Skirt

RFERENCES:

1. Helen Joseph, Armstrong, "Patternmaking for Fashion Design", Pearson Education Pte. Ltd.,2005.
2. Martin M Shoben, Patrick J Taylor & Nelson Thomas, "Grading for the fashion Industry", LCFSFashion Media revised edition, 2004.
3. Gerry Cooklin, "Pattern Grading for women"s clothes", Black well science Ltd., U.K., 1990, 1991 & 1992.

24BTAD217L - **GARMENT CONSTRUCTION LABORATORY – II**

Course Objectives

- To make the students understand the need for fabric preparation and different processes involvedin the garment preparation
- To create a foundation for making the textile material suitable for garmenting, designs andincreasing the market value

Course Outcomes

Upon successful completion of this course the student would be able to,

1. Gain practical skills on determination of the suitability of base materials suitable for valueaddition.
2. Elaborate on the procedure for constructing various apparels

	MAPPING OF COURSE OUTCOMES ANDPROGRAMME OUTCOMES (S – Strong, M-Medium)									
	PO									
CO	1	2	3	4	5	6	7	8	9	10
1					S					
2			M		M					

LIST OF EXPERIMENTS:

Designing, Drafting and constructing the following garments with the design features.

1. Children's apparel:
   a. Bib and Jabla
   b. Romper
   c. A- line frock
2. Women apparel
   a. Salwar
   b. Kameez

c. Saree Blouse
d. Skirt and Top

3. Men's apparel
   a. Shirt
   b. Trouser
   c. Waist coat

REFERENCES:

1. Zarapkar, K.R., System of Cutting, Navneet Publications, India.
2. Mary Mathews, Practical clothing construction Part-I "Basic Sewing Processes"
3. Mary Mathews, Practical clothing construction Part-II "Designing, Drafting and Tailoring"
4. Winifred Aldrich (2009), "Metric Pattern Cutting for Children"s Wear and Baby Wear", WileyBlackwell Publications, UK, 4th Edition.
5. Padmavthi B, "Techniques of Drafting & Pattern Making, Garments for Kids & Adolescents",Atlantic Publishers & Distributors P Ltd.
6. Anita Tyagi (2012), Handbook of fashion Technology, Sonali Publications, New Delhi.
7. Nancy J. S. Langdon and Sabine Pollehn (2010), Sewing Clothes Kid;s Love, Creative PublishingInternational Inc. USA.
8. Peg Couch (2011), Garment Construction: A Complete course on making clothing for fit andFashion, Fox Chapel Publishing. USA.
9. Samantha Me Nes (2005), Baby Couture, K.P. Books, USA.

24BTAD218L - **FABRIC STRUCTURE AND ANALYSIS LABORATORY**

Course objective:

- To train the students in analyzing the cloth to identify construction parameters and preparedesign, draft and peg plan.

Course outcomes:

Upon completion of the lab the student will be able

1. Identify the constructional parameters of fabric
2. Construct design, draft and peg plan for weaving the fabric
3. Analyse the blend composition of yarn used in the fabric and the type of finish applied inthe fabric

	MAPPING OF COURSE OUTCOMES ANDPROGRAMME OUTCOMES (S – Strong, M-Medium)									
	PO									
CO	1	2	3	4	5	6	7	8	9	10
1						M				
2	S									
3										S

LIST OF EXPERIMENTS:

Analysis of construction details of the following fabric structure

1. Woven fabric
    a. Plain
    b. Twill
        c. Satin (Regular and irregular)
        d. Sateen(Regular and irregular)
        e. Honeycomb (ordinary and Brighton)
        f. Huck-a-back
        g. Extra warp and extra weft figuring
        h. Pile fabrics (warp / weft)
        i. Gauze and Leno
        j. Double cloth
        k. Mock-leno
        l. Bedford cord.
    2. Knitted fabric
        a. Single jersey
        b. Double jersey structures

REFERENCES:

1. Grosicki, Z. J. (2004). Watson‟s Textile Design and Colour-elementary Weaves and FiguredFabrics. 7th Edition. England: Woodhead Publishing Ltd.

2. Talukdar, M. K. (1982). An Introduction to Winding and Warping. Mumbai: Textile Trade Press.

3. Anbumani N, “Knitting-Fundamentals, Machines, Structures and Developments”, New AgeInternational (P) Ltd., New Delhi, 2007.

4. Spencer D J, “Knitting Technology”, Textile Institute Publication, Manchester, UK, 3rd Edition,2001

SEMESTER V

24BTAD301 - TEXTILE AND APPAREL QUALITY EVALUATION

Course Objectives

- To inculcate the knowledge of sampling, testing instruments and testing of textile and apparelmaterials.
- To inculcate the knowledge of inspection and quality control of apparel products.

Course Outcomes

Upon successful completion of this course the student would be able to,

1. Elaborate on the working principles of various apparatuses for textile testing
2. Point out the importance of various instrument like KES and FAST
3. Apply the various principles of lean manufacturing

	MAPPING OF COURSE OUTCOMES ANDPROGRAMME OUTCOMES (S – Strong, M-Medium)									
	PO									
CO	1	2	3	4	5	6	7	8	9	10
1						M				S
2			M							S
3						M				S

UNIT I

Fibre Testing: Fibre properties - Fibre length: Staple length Span length – Hand stapling method, Baer sorter, Fibro graph. Fibre trash analyzer. Fibre strength – Stelometer, Pressley tester. Fibre fineness: Airflow principle, Micronaire testers. Maturity. Moisture content - regain and RH %determination. Measurement of fibre crimp- HVI and AFIS.

UNIT II

Yarn Testing: Numbering systems: Direct system, indirect system and yarn Count Determination, Twist and its measurement-Twist construction, principle of twist measurement for single- corded yarns. Tensile testing of yarn: Constant Rate of Elongation, Constant Rate of Loading and Constant Rate of Traverse, Lea strength tester - Factors influencing tensile testing of yarns, Tenacity, elongation% & CSP.

UNIT III

Fabric Testing: EPI, PPI, strength: tensile, tearing and bursting - GSM, thickness, shrinkage,abrasion, crease recovery, pilling, stiffness, drapability, thermal resistance, air and water permeability, water repellency - Objective evaluation of fabric handle – KES and FAST systems.

UNIT IV

Apparel Testing: Strength Testing: Loop and Knot Strength test for sewing threads – Seam Strength

– Seam Slippage - Seam Severance – button strength – Snap - Zipper Strength. Spirality test for knitted garments - Evaluation of Interlinings Quality - Apparel Dimensional

Stability Testing.

UNIT V

Fabric and Apparel Inspection: Definition –stages of inspection: Raw material - In-process inspection - Final inspection - Types: Fabric inspection, 4-point system, 10-point system, 100% inspection, Zero inspection and Statistical sampling – AQL standards. Fabric defects – Pre-sewing defects - Sewing defects - Post sewing defects - causes and remedies.

TEXT BOOKS:

1. Grover & Hamby. (1969). "Hand book of Textile Testing and quality Control". New Delhi: WileyEastern P Ltd.

2. Bhardwaj & Pradip V Mehta. (1998). "Managing Quality in Apparel Industry". New Delhi:NewAge International Publishers.

3. Solinger, Jaccob. (1993). "Apparel Manufacturing Hand book", New Delhi: Prentice Hall of India.

REFERENCES:

1. Pradip V Mehta. (1992). "An Introduction of Quality control for the Apparel Industry", New York:ASQC quality press, Marcel Dekker Inc.

24BTAD302 - **INDUSTRIAL ENGINERING FOR APPREL PRODUCTION**

Course Objectives

- To impart knowledge on work study methods in apparel production.
- To utilize the various Industrial Engineering techniques in Garment manufacturing process.
- To understand the Material movement in the apparel manufacturing process.

Course Outcomes

Upon successful completion of this course the student would be able to,

1. Select appropriate Process route and Technique to minimize the cost of production.

2. Understand the process flow and their importance in machine planning and time control forevery process.

	MAPPING OF COURSE OUTCOMES ANDPROGRAMME OUTCOMES (S – Strong, M-Medium)									
	PO									
CO	1	2	3	4	5	6	7	8	9	10
1			S			M				
2						S		M		

UNIT I

Industrial Engineering: Concepts, functions and applications - Fundamentals of industrial engineering – operations analysis and design, operations control and management; productivity concept and importance, factors affecting productivity, kinds

of productivity measures, Total productivity management.

UNIT II

Organisation and Plant Layout: Concepts, elements, importance, process and characteristics of organisation; organisational theories; organisational structure in the apparel industry; departmentation and delegation of authority in the apparel industry; concepts and factors governing plant location; plant layout – methods, procedure and types with respect to the apparel industry; facility services like air, water, electricity, drainage; Computerised layout planning.

UNIT III

Material Handling: Functions and principles, relationship to plant layout, types of material handling equipments, selection of material handling equipment for the various operations in the apparel industry; storage and warehousing: functions, objectives and principles

UNIT IV

Time and motion study: Definition and concepts, objectives of method study and work measurement for the apparel industry; method study procedure; flow process charts for the various processes in the apparel industry; flow diagram, string diagram, multiple activity chart, SIMO chart; motion economy; time study procedures, standard data required for time study, use of time study in wage incentive and collective bargaining; operator efficiency distributions – SAM. Allowances.

UNIT V

Lean Manufacturing: Introduction, Importance. 7 wastes of lean – Tools of lean – Push, Pull system of production. Introduction to lean concepts - 5S, Kaizen, Kanban, Takt time, Six sigma. Casestudies related to lean manufacturing.

TEXT BOOKS:

1. Maurice,Johnson.(1995).“Introduction of Work Study”, Geneva: International Labour Organization.
2. RameshBabu,V.(2012).“Industrial Engineering Application in Apparel Production”. New Delhi:Woodhead Publishing India,
3. Solinger,Jacob.(1998). “Apparel Manufacturing Hand Book”.2nd Edition., Columbia: BobbinBlenhein Media Corp,
4. Juan Carlo, Hiba. (1998). “Improving working conditions and productivity in the garmentindustry”. Geneva: International Labour Organization.

24BTAD303 - DESIGN SUSTAINABILITY

Course objectives

- To provide students with a fundamental understanding of the principles and practices of sustainable design.
- To teach students how to apply sustainable design principles to the design of products, services, and experiences.
- To help students develop their skills in life cycle assessment, environmental impact assessment, and social impact assessment.
- To prepare students for careers in sustainable design, as well as in related fields such as architecture, engineering, and business.

Course outcomes

1. Define and explain key concepts in sustainable design, such as life cycle thinking, cradle-to-cradle design, and biomimicry.
2. Identify and assess the environmental and social impacts of design decisions.
3. Apply sustainable design principles to the design of products, services, and experiences, taking into account the needs of users, the environment, and society.
4. Use life cycle assessment, environmental impact assessment, and social impact assessment tools to evaluate the sustainability of design proposals.
5. Communicate the benefits of sustainable design to stakeholders and decision-makers.

	MAPPING OF COURSE OUTCOMES ANDPROGRAMME OUTCOMES (S – Strong, M-Medium)									
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UNIT I

Introduction to Sustainability in Design: Overview of the course and its significance, the impact of design on the environment, Ethical considerations in design; Sustainable Design Principles: The triple bottom line: People, Planet, Profit, Cradle to Cradle design philosophy, Bio mimicry and nature-inspired design.

UNIT II

Sustainable Materials and Resources: Sustainable material selection, Life cycle assessment

(LCA) of materials, Sustainable certifications and labels; Energy Efficiency in Design: Energy-efficient design principles, Passive design strategies, Renewable energy sources in design; Sustainable Product Design: Sustainable product development, Design for disassembly and recyclability.

UNIT III

Sustainable Architecture and Interior Design: Green building practices, Sustainable interior design principles, LEED and other green building certifications.

UNIT IV

Sustainability in Art and Artisanal Crafts: Sustainable art materials and practices, Ethical considerations in art, Sustainable craftsmanship and traditions; Sustainable Design Projects.

UNIT V:

Sustainable Fashion and Textile Design: Eco-friendly textiles and materials, Sustainable fashion design principles, slow fashion and ethical considerations.

References

1. Brengle, S., & Hansen, D. M. (Eds.). (2017). Ecodesign: The science of designing for sustainability. Routledge.
2. Cooper, P., & Lye, D. (Eds.). (2014). Design for a better future: Where designers meet sustainability. AVA Publishing.
3. Garnham, A., & Rushton, A. (Eds.). (2007). The right to design?: Intellectual property, creativity and the public interest. Edward Elgar Publishing.
4. Gero, P. (Ed.). (2014). Design thinking for sustainable development. Springer.
5. Hart, S., & Scharff, M. (2010). Hart's guide to green building: A practical guide to the principles of sustainable design, construction and operation. John Wiley & Sons
6. Lieder, M., & Rashid, A. (Eds.). (2016). Circular economy and design thinking: A handbook for practitioners. Greenleaf Publishing.

24BTAD306L - **TEXTILE AND APPAREL QUALITY EVALUATION LABORATORY**

Course objectives

- To provide students with hands-on experience in using a variety of textile and apparel testing instruments and procedures.
- To develop students' skills in collecting and analyzing textile and apparel quality data.
- To enable students to identify and assess the quality of textile and apparel materials, products, and processes using a variety of testing methods.
- To prepare students to apply the principles and practices of textile and apparel quality evaluation in real-world industrial settings.

Course outcomes

- The operation and calibration of textile and apparel testing instruments
- The performance of a variety of textile and apparel quality tests, such as fiber identification, yarn count, fabric strength and durability, colorfastness, and flammability
- The analysis and interpretation of test results

- The preparation of quality control reports
- The application of textile and apparel quality evaluation principles to specific industrial processes, such as spinning, weaving, knitting, dyeing and finishing, and garment manufacturing

	MAPPING OF COURSE OUTCOMES ANDPROGRAMME OUTCOMES (S – Strong, M-Medium)									
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LIST OF EXPERIMENTS:

1. Determination of fabric thickness and GSM.
2. Determination of fabric stiffness and crease recovery.
3. Determination of fabric pilling.
4. Determination of fabric tensile, tearing and bursting strength (any one).
5. Determination of colour fastness of given sample to washing and rubbing.
6. Determination of dimensional stability for the given sample.
7. Determination of drape of the given fabric.
8. Determination of fabric wicking property.
9. Analyze the given fabric sample and grade using 4-point and 10-point systems.
10. Analysis of Garment defects.

REFERENCES:

1. Saville B.P.(1999). “Physical Testing of Textiles”.1st Edition. Woodhead Publishing
2. Grover & Hamby.(1969).“Hand book of Textile Testing and quality Control”, New Delhi, WileyEastern.P Ltd.

24BTAD307L - COMPUTER AIDED GARMENT DESIGNING LABORATORY

Course Objectives

- To enhancing knowledge in motifs development using various designing software.
- To familiarize the students to design and develop dobby and jacquard designs.
- To improve soft skills in creating innovative designs.

Course Outcomes

Upon successful completion of this course the student would be able to,

1. Design motifs for print design using software
2. Develop weave designs for dobby and jacquard using textile CAD software
3. Draft a pattern and marker plan using garment CAD

	MAPPING OF COURSE OUTCOMES ANDPROGRAMME OUTCOMES (S – Strong, M-Medium)									
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LIST OF EXPERIMENTS:

1. Designing of Motif.
2. Designing 2D silhouettes for Children's, Women's and Men's wear.
3. Development of motif for screen printing.
4. Patten drafting and grading for Baby frock.
5. Patten drafting, grading and marker plan for T- Shirt.
6. Patten drafting, grading and marker plan for Formal shirt.
7. Patten drafting, grading and marker plan for Trouser.
8. Patten drafting, grading and marker plan for Skirt and Top's.
9. Patten drafting, grading and marker plan for Blouse.
10. Patten drafting, grading and marker plan for Women's Party wear.
11. Design Oriented Project.

REFERENCES:

1. Groover, M. P. & Zimmer, E. W. (1998). CAD / CAM Computer Aided Design and Manufacturing. New Delhi: Prentice hall of India.
2. Bezant, C. E. & Horwood, Ellis. (1983). Computer Aided Design and Manufacture. England.
3. Aldrich, Winfred. (1994). CAD in Clothing and Textiles. USA: Blackwell science.
4. Taylor, P. (1990). Computers in Fashion Industry. Heinemann publications.
5. Buchanan & Grady, C. (1995). Automation in the Textile Industry from Fibres to Apparels. UK:The Textile Institute.
6. Donald, D. Voisinet. (1987). Computer Aided Drafting and Design – Concept and Application.McGraw Hill Education

24BTAD308L - **TEXTILE PRODUCT PORTFOLIO LABORATORY**

Course Objectives

To describe the contents of the fashion portfolio

- To maintain a sketchbook that reflects student's creative process
- To do a portfolio project for standard and specialized fashion apparels
- To purchase a portfolio case based upon student's ideals for a final portfolio

Course Outcomes

1. To inculcate creativity and designing capability
2. To improve Illustration skill, organization skills & communication skills
3. To be able to formulate and diagnose various colour combinations

	MAPPING OF COURSE OUTCOMES ANDPROGRAMME OUTCOMES (S – Strong, M-Medium)									
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LIST OF EXPERIMENTS

1. Designer profile
2. Trend Forecasts
3. Theme board
4. Inspiration board
5. Theme Write Up.
6. Creation of Mood board
7. Colour board
8. Customer profile
9. Design development board
10. Flat presentation
11. Fabric board
12. Spec sheet
13. Fabric sourcing
14. Look board (Illustration with Back Drops)
15. Pattern Making and Garment Construction board
16. Accessory Board
17. Story board
18. Final presentation
19. Designer show/ Garment exhibition (Four garments)

24BTAD309I - INTERNSHIP - II

Course Objectives

- To expose the students in the real time world
- To gain knowledge on the process, machinery and technology

Course Outcomes

After successful completion of this course, the students should be able to

1. Identify the solution for industry related problems
2. Understand the suitable process, machinery and technology for product manufacturing
3. Summarize the results and submit a report.

	MAPPING OF COURSE OUTCOMES ANDPROGRAMME OUTCOMES (S – Strong, M-Medium)									
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Pre-requisites:

Students will undergo internship training in an established organization of Textile / ApparelRetail for a period of 3 weeks.

- At the end of internship training, students will submit a report of training undertaken.
- The student has to present their report to the Panel of members for evaluation.

SEMESTER VI

24BTAD311 - TEXTILE COSTING AND EXPORT DOCUMENTATION

Course Objectives

- To impart knowledge on various costing techniques
- To know the export documentation procedures

Course Outcomes

Upon successful completion of this course the student would be able to,

1. Appreciate the importance of budgeting.
2. Understand the elements of cost.
3. Gain knowledge about pricing methods and policies.

	MAPPING OF COURSE OUTCOMES ANDPROGRAMME OUTCOMES (S – Strong, M-Medium)									
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UNIT I

Budgeting and Principles of costing: Budgeting – aims of Budgeting, types of budget. Costing - aims of costing, Elements of cost – Material cost, Labour cost and overheads, difference between budgeting and costing. Depreciation cost – reasons and methods of calculating depreciation. Pricing policies, Factors influencing pricing. Pricing Methods - Full- cost pricing, Marginal cost pricing.

UNIT II

Costing of garments: Cost determinants - Raw material to finished product - cutting, making and trim cost (CMT) - lot size and design affecting cost. Cost of bought out components - Thread, button,zipper and interlining.

UNIT III

Costing Practices - Costing methods, Cost estimation bulk production. Cost calculation by interpreting Specification sheet Practical cost calculation for Ladies, Men‟s and Children's wear – woven and knitted.

UNIT IV

Selecting export markets: country identification, risk evaluation, pre-shipment export finance – role of commercial banks. Difference between foreign trade and domestic trade- legal requirements for exporting - IE code number definition – registration with sales tax department, central excise department and export promotion councils / commodity boards.

UNIT V

Export Document: Importance, terms of payment: Letter of credit – documentary collection – open account. Terms of shipment – Incoterms - essential elements of an export contract, different types of invoices, bill of lading, packing list, inspection certificates, delivery instructions and delivery orders, drafts of payment, letters of credit, negotiation of documents – action in the event of discrepancies. Online documentation. International trade policy

TEXT BOOKS

1. Charles T. Horngren.(2001).”Introduction to Management Accounting, Prentice Hall. New Delhi,
2. M. I.Mahajan.(2007). “Export Policy, Procedures and Documentation”, , Mumbai:Snow-whitePublishers
3. Thomas E. Johnson and Donna L. Bade(2010) Export/Import Procedures and Documentation,

REFERENCES:

1. Levi.(1997)International Finance, Tata McGraw-Hill,.
2. R. Narayanaswamy, Financial Accounting – A Managerial Perspective, Prentice Hall India Pvt.Ltd.,New Delhi,1997.
3. S. K. Bhattacharya & John Dearden, (2000) “Accounting for Management Text and Cases,” VikasPublishing House, New Delhi, Ministry of Commerce, Govt. of India.

24BTAD312 - **ENTREPRENEURSHIP DEVELOPMENT**

Course Objectives

- To create awareness and enhance skills in identifying opportunities, develop ideas and startbusiness ventures.
- To emphasizes on entrepreneurial process.

Course Outcomes

Upon successful completion of this course the student would be able to,

1. Gain knowledge on textile entrepreneurship.
2. Understand the barriers of starting a small business.
3. Learn the process of managing small and medium business

	MAPPING OF COURSE OUTCOMES ANDPROGRAMME OUTCOMES (S – Strong, M-Medium)									
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UNIT I

Entrepreneurship: Internal and external factors, functions of an entrepreneur, entrepreneurial motivation and barriers, classification of entrepreneurship, theory of entrepreneurship, concept of entrepreneurship, development of entrepreneurship; culture, stages in entrepreneurial process.

UNIT II

Business plan development: Creativity and entrepreneurial plan - Idea generation, screening and project identification, creative performance, feasibility analysis: Economic, marketing, financial and technical - Project planning - Evaluation, monitoring and control segmentation - Creative problem solving - Heuristics, brainstorming, value analysis and innovation. Business model canvas, SWOT Analysis.

UNIT III

Institutional support for new ventures - Supporting Organizations: Incentives and facilities: Financialinstitutions and small-scale industries, Government Policies for SSIs, Angel investors, and private equity.

UNIT IV

Family and non-family entrepreneur - Role of professionals, professionalism v/s family entrepreneurs, role of woman entrepreneur - Venture capital - Nature and overview, venture capital process, locating venture capitalists.

UNIT V

Role of support institutions and management of small business - Director of industries - DIC,

SIDCO, SIDBI, TIIC, MSME small industries, development corporation (SIDC), SISI, NSIC, NISBUED, SFC.

TEXT BOOKS:

1. Poornima M Charantimath, "Entrepreneurship Development and Small Business
2. Enterprise", Pearson Education India, Noida, 2011 & 2014
3. Holt, "Entrepreneurship: New Venture Creation", Prentice-Hall Inc., USA, 1998.

REFERENCES:

1. Simon Bridge & Ken O'Neill, "Understanding Enterprise: Entrepreneurship and Small Business",Palgrave Macmillan, London, 4th Edition, 2012.
2. Dollinger M J, "Entrepreneurship", Prentice Hall Inc., USA, 1999.

SEMESTER VII

24BTAD401 - **RESEARCH METHODOLOGY**

Course Objectives

- To enable impactful business research that is accepted by National and International Journals.

Course Outcomes

Upon successful completion of this course the student would be able to,

i. Understand the fundamentals of research, including its scope, significance, types, and ethical considerations.

ii. Determine measurement techniques, scaling, sampling, data collection, and processing of data for business research.

iii. Conduct statistical tests, interpretation of results, report writing, and effective presentation of research findings.

	MAPPING OF COURSE OUTCOMES ANDPROGRAMME OUTCOMES (S – Strong, M-Medium)									
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UNIT I

Research - Scope and significance - Types of research - Research process - Characteristics of good research – Research design- Ethics in business research*.

UNIT II

Measurement - Errors in measurement* - Tests of sound measurement, techniques of measurement - Scaling Techniques - Types of scales - Scale construction.

UNIT III

Sampling design – Criteria for good sample design* - Types of sample designs - Probability and non-probability samples - Data collection: Types of data - Sources – Tools for data collection - methods of data collection - Constructing questionnaire - Pilot study* - Case study* - Data processing: Coding - Editing and tabulation of data.

UNIT IV

Test of Significance: -Assumptions about parametric and non-parametric tests.

Parametric test – t test, F test and Z test - Non-Parametric Test -U Test, Kruskal Wallis, sign test – non-parametric test – Chi square and ANOVA.

UNIT V

Interpretation - Techniques of interpretation - Report writing: Significance – Report writing: Steps in report writing - Layout of report - Types of reports - Oral presentation - Executive summary - mechanics of writing research report - Precautions for writing report - *Norms for using tables, charts and diagrams – Appendix: Norms for using index and bibliography.

TEXT BOOKS:

1. Zukmund, G. William., Barry Babin., & Jon Carr. (2012). Business Research Methods (9th ed.). Cengage Learning.

2. Cooper,R. Donald., & Pamela, S. Schindler. (2014). Business Research Methods (12th ed.). McGraw Hill Education.

3. 3. Collis Jill., & Hussey. (2013). Business Research: A Practical Guide for Undergraduate and Post Education (4th ed.). Palgrave Macmillan.

24BTAD402 - **INDUSTRIAL MANAGEMENT**

Course Objectives

- To acquaint the students with the basic nature of management, its process, tasks and responsibilities of a manager
- To introduce the basics of managerial functions like human resources, marketing, finance and production

Course Outcomes

Upon successful completion of this course the student would be able to,

- Elaborate on the HRM policies in an organization
- Provide examples on marketing using case studies
- Point out the functions of HR, Marketing, Finance and Production departments in an organization

	MAPPING OF COURSE OUTCOMES ANDPROGRAMME OUTCOMES (S – Strong, M-Medium)									
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UNIT I

Management: Science, theory and practice - the evolution of management thoughts – management as art - management as profession - professionalization of management in India - functions of management - levels of management - case analysis.

UNIT II

Human Resource Management: Introduction - HRM policies and roles - The importance of the human factor - HRM and its interaction with other functional areas - line and staff functions – role of HR manager - case analysis.

UNIT III

Marketing: Concept of marketing and marketing management, marketing as a business process - marketing environment, marketing mix - relationship of marketing department with production, finance, purchase and human resource department - demand and market - concepts of consumer marketing, industrial marketing and services marketing – marketing research, demand and supply – price determination - case analysis.

UNIT IV

Finance: Introduction: Financial, management and cost accounting - accounting concepts and conventions - concept of finance and functions of financial management; objectives of the firm; time value of memory and risk - return relationship - case analysis.

UNIT V

Production: Production planning and control: production systems, types of production, re-planning and control functions, relations with other departments, efficiency of production planning and control – scheduling – GANTT charts - case analysis.

TEXT BOOKS:

1. Tripathi,P.C.&Reddy,P.N.(2013),Principles of Management,5th Edition, JBA publishers, New Delhi.

2. Rao,V.S.P.(2000),Human Resource Management : Text&Cases,1stEdition, Excel Books, New Delhi.

3. Pandey I.M.(2010),Financial Management,10thEdition, VikasPublishing House P. Ltd., Noida.

24BTAD403 - NEW PRODUCT DEVELOPMENT & ASSESSMENT

Course Objectives

- To comprehend nuances of new product development and factors influencing it.
- To develop alternate products with reduced cost of development

Course Outcomes

Upon successful completion of this course the student would be able to,

- Developing of alternate products with reduced time for development
- Comprehend fibre properties and relating with specific product requirements.
- Analyze and Develope yarn to meet specific requirement of new product or modify yarn properties to enhance functional performance.

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UNIT I

Introduction to new product development - factors to be considered in new product development. Deriving aesthetic and functional requirements of new product from customer needs.

UNIT II

Understanding properties of natural and synthetic fibres, Evaluation of fibre properties and relating product requirements. Application of fibres for various uses and assessment for compliance. Selection and Assessment of fibre properties for specific end use. Development and Documentation of new product from fibres.

UNIT III

Types of yarns - properties - manufacturing method - development of new product or modify existing product to meet current market requirements. Selection and assessment of yarn properties for specific end use. Development and Documentation of new product from fibres.

UNIT IV

Types of fabrics - properties - manufacturing method - knitted and woven fabrics - finishing process for various applications. Selection of appropriate fabric and assessment of fabric properties for specific end use. Development and Documentation of new product from knitted and woven fabrics.

UNIT V

Strategies to develop alternate product or modify existing product to meet customer needs, reduce development cost and time.

TEXT BOOKS:

1. The Technology of Short Staple Spinning by W. Klein
2. Principles of Textile Testing by J. E. Booth, 1961, Heywood Books, London.
3. Knitting Technology : D. Spencer; Published by Pergammon Press.

ELECTIVE COURSES

ELECTIVE I
(A) FABRIC CHOICE AND FITNESS FOR PURPOSE

Course Objective

- To provide students with a fundamental understanding of the relationship between fabric properties and fabric fitness for purpose.
- To teach students how to select the appropriate fabric for specific applications, considering factors such as performance requirements, aesthetics, and cost.
- To help students develop their skills in fabric evaluation and quality control.
- To prepare students for careers in the textile, apparel, and home furnishings industries.

Course outcomes

1. Identify the key performance requirements for different types of garments and home furnishings.
2. Explain the relationship between fabric properties and fabric fitness for purpose, considering factors such as strength, durability, drape, wrinkle resistance, comfort, and appearance.
3. Select the appropriate fabric for specific applications, taking into account the key performance requirements, aesthetics, and cost.
4. Evaluate the quality of fabrics using a variety of methods, such as visual inspection, hand testing, and laboratory testing.

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UNIT 1

Introduction to fabric choice and fitness for purpose: This would cover the basics of fabric choice, including the different types of fibers, their properties, and their applications. It would also cover the concept of fabric fitness for purpose and how to consider factors such as performance requirements, aesthetics, and cost when choosing a fabric.

UNIT 2

Fiber properties: This topic would cover the physical and mechanical properties of different types of fibers, such as strength, elasticity, absorbency, and flammability. It would also cover how these properties affect fabric performance.

UNIT 3

Fabric properties: This topic would cover the physical and mechanical properties of fabrics, such as strength, drape, wrinkle resistance, and abrasion resistance. It would also cover how these properties are affected by fiber choice and other factors, such as fabric construction and finishing.

UNIT 4

Fabric performance: This topic would cover the different performance characteristics of fabrics, such as moisture management, breathability, and thermal insulation. It would also cover how to choose fabrics with the right performance characteristics for specific applications.

UNIT 5

Fabric selection for specific applications: This topic would cover how to choose the right fabric for specific applications, such as apparel, home furnishings, and industrial textiles. It would consider factors such as fabric properties, performance requirements, aesthetics, and cost. Introduction to Seamless garments.

References:

1. "Textiles: Basics" by Sara J. Kadolph and Anna L. Langford

2. "Textile Science" by Phyllis G. Tortora and Ingrid Johnson

3. "Textiles for Residential and Commercial Interiors" by Amy Wilbanks and Nancy Oxford

4. "Performance of Protective Clothing: Issues and Priorities for the 21st Century" by D.J. Lantagne, R.E. Gorman, and J.L. Dill

5. "Metric Pattern Cutting for Women Wear" by Winifred Aldrich

(B) – HOME TEXTILES

Course Objectives:

- To enable the students to learn about the
- Recent developments in furnishing, floor covering and other home textile products Variouskinds of materials used in home textile.

Course Outcomes:

Upon completion of this course, the student shall be able to

- Know about different types of home textiles
- Understand the production method of different types of home textile products

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UNIT I

FURNISHINGS: Developments in Textile Furnishing; Type of Furnishings Materials – Woven andnon-woven; Factors affecting selection of Home Furnishings. Tuft fabric.

UNIT II

FLOOR COVERINGS: Recent Developments in manufacturing of floor coverings - Hard Floor Coverings, Resilient Floor Coverings, Soft Floor Coverings, Rugs, Cushion and Pads; Care of floor coverings.

UNIT III

CURTAINS AND DRAPERIES: Advances in Home decoration - Draperies – Choice of Fabrics, Curtains – Types of Developments in Finishing of Draperies; Developments in tucks and Pleats; usesof Drapery Rods, Hooks, Tape Rings and Pins. Curtains – Sheer & Opaque. Fabrics – Cotton, Organza, etc. Tapestry.

UNIT IV

HOME FURNISHING: Advances in period style in, Different styles, and use of Colours, design & texture in home furnishing. Developments in living room furnishing including upholstery, Wall Hangings, Cushion, Cushion Covers, Bolster and Bolster Cover.

UNIT V

BED LINENS: Advances in the production of - Different Types of Bed Linen, Sheets, Blankets,Blanket Covers, Comforts, Comfort Covers, Bed Spreads, Mattress and Mattress Covers, Pads, Pillows.

KITCHEN LINENS: kitchen towels, dishcloths, tea towels, aprons and oven mitts. Table linens are table cloths, place mats, table runners and napkins to lay the table

TEXT BOOKS:

1. Alexander.N.G., ‘‘Designing Interior Environment’’, Mas Court Brace Covanorich, Newyork, 1972
2. Donserkery.K.G., ‘‘Interior Decoration in India’’, D. B. Taraporeval Sons and Co. Pvt. Ltd., 1973

REFERENCES:

1. Wingate I.B. & Mohler J.F., ‘‘Textile Farbics & Their Selection’’, Prentice Hall Inc., New York, 1984.
2. Irsak.C, " Nonwoven Textiles" Textile Institute", Manchester, 1999
3. Krcma.R., Manual of Non-wovens, Textile Trade Press, Manchester 1993.

ELECTIVE II

(A) TECHNICAL TEXTILES

Course Objectives

- To inculcate the knowledge of textile materials in various technical areas.
- To learn about technical textiles, and its applications in different field knowledge.

Course Outcomes

Upon successful completion of this course the student would be able to,

1. Identify the various technical textiles used in the day to day life
2. Visualize the usage of various fibres for specific application

	MAPPING OF COURSE OUTCOMES ANDPROGRAMME OUTCOMES (S – Strong, M-Medium)									
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UNIT I

Technical Textiles: Definition – Classification – Market growth and potential - Future of Technical Textiles industry in India. Fibres used - Technical yarns: staple yarns, monofilament, multifilament yarns - Technical fabrics: woven, nonwoven, knitted and braided structures.

UNIT II

Medical Textiles: Non-implantable materials, extra-corporeal devices, implantable materials,healthcare and hygiene products. Fibres used in medical textiles.

Industrial Textile: Fibres used - functions and properties - introduction to coated fabrics -Coatingmethods: Direct and indirect - Lamination methods: Flame bonding and adhesive lamination - Applications of coating and laminated textiles.

UNIT III

Geo-Textiles: Materials used – properties – testing methods and application.**Agro Textiles**: Materials used – properties – classification and applications. **Build Textiles**: Materials used – classification - properties and applications.

UNIT IV

Mobile Tech Textiles: Raw material selection – properties – classification and applications. **Protective Textiles:** Materials used – properties - applications: Fire Protective clothing, Heatresistant garments, Water proof materials, Ballistic resistant Vests, Biological and chemical Protective clothing.

UNIT V

Sports Textiles: Raw materials used – classification - properties and applications.
Smart and Intelligent Textiles: Active, passive and very smart textiles - Phase change materials -shape memory polymers - chromic and conductive Materials - applications in various fields.

TEXT BOOKS:

1. Adanur, Sabit (2017). Wellington Sears Handbook of Industrial Textiles. Rouledge.
2. Horrocks, A. R. & Anand, S. C. (2000). Handbook of Technical Textiles. Cambridge, England:Woodhead Publishing and The Textile Institute.
3. Hearle,J.W.S.(2001),High Performance Fibers,Cambridge,England:WoodHead Publishing limited.

REFERENCES:

1. Kumar,Senthil. R. (2013). Textiles for Industrial Applications. 1st Edition. CRC Press.
2. V.K.Kothari Recent advances in technical textiles-Indian journal of fiber and textile research
3. Johnson, J. S. and Mansdorf, S. Z. (1996). Performance of Protective clothing. 5th Volume. SA: ASTM Publication.

(B) – APPAREL PRODUCTION PLANNING AND PROCESS CONTROL

Course Objectives

- To understand the concepts in production planning and control.
- To utilize the various techniques in production planning and control.
- To understand the material management and their movement in the production.

Course Outcomes

Upon successful completion of this course the student would be able to,

1. Utilize the various tools for enhancing the productivity
2. Identify various forms for production control
3. Elaborate on the various production control systems

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UNIT I

Production Planning: Objectives - production control system: functional areas - elements - types – strategy production - pre-planning - pre-production functions - product acceptance -

product development.

UNIT II

Production Systems: Whole garment production system - progressive bundle system – unit production system - multiple flow system - modular system - evaluating production system - principles for choosing a production system.

Flow Process grid and charts: Flow process grid construction - flow process grids for production control - Producing multiple styles.

UNIT III

Production Analysis: Qualitative and quantitative specifications - cut order planning -marker utilization - economic cut quantities.

Plant Loading and Capacity Planning: Determination of machinery requirements for a new factory - calculation of labour requirements - application of line balancing techniques - balance control.

UNIT IV

Production Scheduling: Principles - scheduling charts: GANTT chart and backlog graph - scheduling control techniques - network representations: CPM and PERT.

Machine Loading: Determination of machine allocations for balanced production in existing plant.

UNIT V

Production Control Forms: Form Distribution Chart -Types of Control forms – Materials Management - Manufacturing Resources Planning (MRP) and its types - just in time production system (JIT) - Inventory modeling: Economics order quantity (EOQ) - Optimized production technology (OPT).

TEXTBOOKS:

1. Solinger, Jacob. (2000). Apparel Manufacturing Analysis. Columbia Boblin Media.

2. Bheda, Rajesh. (2002). Managing Productivity of Apparel industry. New Delhi, India: CBIPublishers and Distributors.

REFERENCES:

1. Glock, R. E. and Kunz. G. I. (2005). Apparel Manufacturing: Sewn Product Analysis. 4th Edition.New Jersey, USA: Pearson/ Prentice Hall Publishing Company.

2. Brown, P. K., Brown, P. and Rice, Janett. (2014). Ready To Wear Apparel Analysis. 4th Edition.New Jersey, USA: Pearson/ Prentice Hall Publishing Company.

3. Tyler, D. J. (1991). Materials Management in Clothing Production. New Jersey, USA: Pearson/Prentice Hall Publishing Company.

4. Karthik, T., Ganesan, P. and Gopalakrishnan, D. (2016). Apparel Manufacturing Technology.India: CRC Press.

5. Colovic, Gordana. (2011). Management of Technology Systems in Garment Industry. India:Woodhead Publishing, CRC Press.

6. Chapman. (2008). Fundamentals of Production Planning and Control. India: Pearson EducationIndia.

7. Nayak, Rajkishore and Padhye, Rajiv. (2015). Garment Manufacturing Technology. Elsevier.

ELECTIVE III
(A) DESIGN PHOTOGRAPHY

Course Objectives:

- To educate on principles of photography. Different techniques and lighting methods
- To educate on different types of photography equipments. Photography for different media,printing techniques.
- To impart knowledge on videography and computer applications in photography.

Course Outcomes:

The students would have enhanced their knowledge on

1. Different photography techniques and equipments.
2. Different printing techniques.

	MAPPING OF COURSE OUTCOMES ANDPROGRAMME OUTCOMES (S – Strong, M-Medium)									
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CO	1	2	3	4	5	6	7	8	9	10
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UNIT I

General principle – Photography - camera, lens. How to use your camera – Needs and methods lighting techniques for indoor / outdoor photography – methods and equipment's – advantage and disadvantages.

UNIT II

Image capture – parts of camera (body, lens, image sensor, shutter, aperture)- classification and types of camera (compact camera, DSLR, mirrorless, action, smartphone) – Applications Disadvantages.Light – Natural, artificial, flash and strobe.

UNIT III

Photography techniques (understanding exposure, composition, lighting and editing) and equipment for different fields. Basic, studio, location portraiture, Photojournalism, Fashion Photography, Fashion shows.

UNIT IV

Exposure (influence of ISO, shutter speed and aperture) and processing of colour and black and white films. Different techniques in developing.Printing – definitions – Methods of printing for black & white color.

UNIT V

Photography using digital cameras (choosing right camera, experimenting with different techniques, finding niche) – Video photography – image mixing – advertising and still life -application of computers in photography.

TEXT BOOK:

1. W.R. Miller, ‘‘Basic Industrial Arts, Plastics, Graphics Arts, Power Mechanics, Photography’’, McKnight Publishing Company, Illionois, 1978.
2. Nirmal Pasricha, "A Professional‘s Basic Photography", Black Rose Publications, Delhi, 2002.
3. Daniel Lezano, "The Photography Bible", A David and Charles Book., United Kingdom,2004.

REFERENCES:

1. John Hedge, ‘‘Photography Course’’, John Hedge Co, 1992
2. Simon Joinson, "Get the most from your Digital Camera", A David and Charles Book.,United Kingdom, 2004.
3. Steve Bavister, "35 mm Photography -The Complete Guide", A David and Charles Book.,United Kingdom, 2004.
4. Peter Cattrell, "Photography", Octopus Publishing Group Ltd, London 2005.
5. Sue Hillyard, "The Photography Handbook - A Step by Step Guide", New HollandPublishers, London, 2003

(B) WORK WEAR DESIGN AND MANUFACTURE

Course Objectives:

- To provide students with a comprehensive understanding of workwear design
- To develop students' skills in designing and creating workwear garments
- To introduce students to the principles of sustainability in workwear design
- To prepare students for careers in workwear design

Course Outcomes:

The students would have enhanced their knowledge on

1. Design and create workwear garments that meet the needs of specific professions.
2. Select appropriate fabrics and construction methods for workwear garments.
3. Evaluate and critique workwear designs

	MAPPING OF COURSE OUTCOMES ANDPROGRAMME OUTCOMES (S – Strong, M-Medium)									
	PO									
CO	1	2	3	4	5	6	7	8	9	10
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Unit I

Introduction to Professional Dress Design: Overview of professional dress history and trends; Understanding professional dress codes; the importance of professional dress in different workplaces.

Unit II

Design Principles for Professional Dresses: Elements of visual design: line, shape, color, texture, pattern; Principles of design: balance, proportion, emphasis, rhythm, unity; Applying design principles to professional dress

Unit III

Technical textile garments: Fabric, its properties and the profession it is suitable for; selecting fabrics for specific professions and work environments; Considering durability, comfort, and appearance; Sustainable alternatives for professional dress fabrics. (Medical professionals (Doctors, nurses), Construction workers, Firefighters, Cooks and chefs, Restaurant servers, Athletes, Astronauts, Scuba divers, mine workers and Pilots)

Unit IV

Pattern making and garment construction for various profession - Medical professionals (Doctors, nurses), Construction workers, Firefighters, Cooks and chefs, Restaurant servers, Athletes, Astronauts, Scuba divers, mine workers and Pilots.

Unit V

Portfolio presentation: Creating mood boards and sketches for professional dresses, checking the physical and chemical properties; final presentation of the collection. For each of the professions - Medical professionals (Doctors, nurses), Construction workers, Firefighters, Cooks and chefs, Restaurant servers, Athletes, Astronauts, Scuba divers, mine workers and Pilots.

TEXT BOOKS:

1. Alexander.N.G., ‘‘Designing Interior Environment’’, Mas Court Brace Covanorich, Newyork, 1972
2. Donserkery.K.G., ‘‘Interior Decoration in India’’, D. B. Taraporeval Sons and Co. Pvt. Ltd., 1973

REFERENCES:

1. Wingate I.B. & Mohler J.F., ‘‘Textile Farbics & Their Selection’’, Prentice Hall Inc., New York, 1984.
2. Irsak.C, " Nonwoven Textiles" Textile Institute", Manchester, 1999
3. Krcma.R., Manual of Non-wovens, Textile Trade Press, Manchester 1993.

ELECTIVE IV

(A) – RETAIL MANAGEMENT AND VISUAL MERCHANDISING

Course Objectives

- To give an understanding to the students about the significant role of retailing in themarketing system.
- To give inputs to gain insights on the issues involved in organizing and establishing a retailformat.
- To enable the students to understand about the pricing and promotion strategies in retailing.

Course Outcomes

- Able to effectively perform the role of a store manager.
- Able to decide on the length of product assortment based on the store format and shoppers'profile.
- Gain the knowledge and skill sets to become a visual merchandising expert

	MAPPING OF COURSE OUTCOMES ANDPROGRAMME OUTCOMES (S – Strong, M-Medium)									
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CO	1	2	3	4	5	6	7	8	9	10
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UNIT I

Concept of retailing, Functions of retailing, Terms and Definition, Retail formats and types, RetailingChannels, Non-Store Retailing- On-line sales, Retail Industry in India, Importance of retailing, changing trends in retailing. FDI in Indian retail and its importance - Strategies of international retailers in India

UNIT II

Importance of Retail locations, Types of retail locations, Factors determining the location decision, Steps involved in choosing a retail locations, Measurement of success of location, Retail value chain, Retail market segmentation, targeting and positioning. Changing nature of retailing, organized retailing, Modern retail formats, E-tailing, Challenges faced by the retail sector

UNIT III

Introduction, Objectives, Concept of Visual Merchandising, Objectives of Visual Merchandising, Growth of Visual Merchandising, Visual Merchandising in India, Scope of visual merchandising in India, Visual Merchandising as a Support for Positioning Strategy, Prospects of Visual Merchandising, Challenges in Visual Merchandising, The common challenges, Ways to overcome the visual merchandising challenges

UNIT IV

Planning a Store Layout, Various Types of Store Layouts, Grid layout, Forced-path layout, Free-formlayout, Boutique layout, Combined layout, Store Space Allocation, Heads of space allocation in a store, Managing Customer Navigation in a Store, General Rules of Customer Traffic in a Store, The Loop for Guiding the Shoppers through a Store

UNIT V

Concept of Store Design and Display, Objectives of store design, Purpose and importance of display, Rules of display planning, Display Settings, Store Design, Exterior of a store, Interior of a store, Thematic Communication, Graphics, Signage, Window displays, Merchandise Presentation Strategies

REFERENCES

1. Martin M Peglar S. V. M, Visual Merchandising and Display – Fairchild Publication, Inc. NewYork – 2002.
2. Tony Morgan - Visual Merchandising 2nd edition
3. Swati Bhalla, Anuraag Singhal - Visual Merchandising – Tata McGraw Hill Education, 2012
4. Swapna Pradhan, "Retailing Management", Tata McGraw Hill, New Delhi, 3rdEdition,2009.
5. Levy M, Barton AWeitz & Ajay Pandit, "Retailing Management", Tata Mc Graw Hill, New Delhi,6th Edition, 2008.
6. Chetan Bajaj, "Retail Management", Oxford University Press, 2nd Edition,2010.
7. James R. Ogden & Denise T. Ogden, "Integrated Retail Management", Biztantra, 2007.

(B) BRAND MANAGEMENT

Course Objective

- To understand the importance of Brand Management in today's scenario
- To enable the students to understand the concept of brand and its value.

Course Outcomes

- Able to create strategies for marketing a product at various stages of product life cycle
- Able to take effective decisions on issues pertaining to branding.
- Understand the forecasting procedure.

	MAPPING OF COURSE OUTCOMES ANDPROGRAMME OUTCOMES (S – Strong, M-Medium)									
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CO	1	2	3	4	5	6	7	8	9	10
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UNIT I

Fashion forecasting - Market research - Evaluating the collection - Fashion services and

resources -Portfolio development: Theme board, mood board, colour board, fabric board, customer profile andfinal design board.

UNIT II

Fashion show - Definition, planning, budgeting, location, timings, selection of models, collection, setdesign, music, preparing the commentary, rehearsal. Domestic fashion market - Market centre – Mart - Market week - Trade shows.

UNIT III

Brand- Definition, brand building process – Types of branding – Role of brand –Brand development. Brand loyalty – Brand equity. Case studies pertaining to the field of textile and apparel retailing.

UNIT IV

Brand names and its basic applications - Brand leverage and brand performance - Market segmentation – Brand positioning-Pricing strategies –Market skimming – Penetration pricing, brand franchising and licensing.

UNIT V

Designing and sustaining brand strategies, steps in branding, brand equity – Establishing brandvalues, integrated marketing communication to build brand - Managing brand over time* – repositioning brands*

REFERENCES

1. Mathur U C, "Brand Management Text &Cases", Macmillan Publishers India ltd., Noida, 2006.
2. Kevin Lane Keller, "Best practice cases in Branding", Pearson Education, New Jersey, 3rd Edition,2008.
3. Chunawalla SA, "Product management", Himalaya publishing house P Ltd., Mumbai, 2nd Edition,2010
4. Kotler Philip, "Marketing Management", Pearson Education Inc. USA, 13th Edition, 2009.
5. Mary Frances Drake, Janice Harrison Spoone & Herbert Greenwald "Retail Fashion promotionand Advertising", Prentice Hall Inc, 1991.
6. Mike Easey, "Fashion Marketing", Blackwell Publishing, 3rd Edition, 2008.
7. Elaine Stone, Jean A Samples, "Fashion Merchandising ", McGraw Hill Education, 5th Edition,1990.Maurice J Johnson & Evelyne C Moore, "Apparel Product Development",

ELECTIVE V

(A) – DIGITAL MARKETING

Course Objective

- Customer-centric digital marketing skills, including creating customer avatars, defining value propositions, and understanding the customer journey, enabling them to set marketing objectives and design effective campaigns.
- Competencies in crafting winning offers, perfecting content marketing, blogging for business, and leveraging essential tools for digital marketing success, from website development and email marketing to analytics and optimization.

Course Outcomes

- Competencies to create drivers for highly profitable digital value-proposition
- Capability to analyse customer journey in the digital landscape.

	MAPPING OF COURSE OUTCOMES ANDPROGRAMME OUTCOMES (S – Strong, M-Medium)									
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CO	1	2	3	4	5	6	7	8	9	10
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UNIT I

Creating a Customer Avatar - Getting Clear on the Value You Provide - Stages of the Customer Journey- Preparing Your Customer Journey Road Map - Establishing Marketing Objectives - Defining a Digital Marketing Campaign - Understanding the Types of Campaigns.

UNIT II

Offering Value in Advance - Designing an Ungated Offer - Designing a Gated Offer - Designing Deep-Discount Offers - Maximizing Profit.

UNIT III

Knowing the Dynamics of Content Marketing - Finding Your Path to Perfect Content Marketing - Executing Perfect Content Marketing - Distributing Content to Attract an Audience.

UNIT IV

Establishing a Blog Publishing Process - Applying Blog Headline Formulas - Auditing a Blog Post - Building High-Converting Landing Pages - Capturing Traffic with Search Marketing - Following Up with Email Marketing.

UNIT V

Building a Website - Hosting a Website - Choosing Email Marketing Software - Considering Customer Relationship Management (CRM) - Adding a Payment Solution - Using Landing Page Software - Sourcing and Editing Images - Managing

social media - *Measuring Your Performance: Data and Analytics - Optimizing Your Marketing.

REFERENCES

1. Deiss, Ryan, and Russ Henneberry, (2020-21), Digital Marketing for Dummies. John Wiley and Sons.
2. Puneet Bhatia ,Fundamentals of Digital Marketing, Pearson education, Second Edition,2019
3. Deiss, R., and Henneberry, R. (2020-21). Digital marketing for dummies. John Wiley and Sons.
4. Ian Dodson, The Art of Digital Marketing, Wiley publication, 2016 3 Seema Gupta, Digital Marketing, McGrawhill publication, 2017

(B) – BUSINESS ENVIRONEMENT AND LEGAL ASPECTS OF BUSINESS

Course Objective

- The objective of this course is to familiarize the students with various laws that will help them to refine their understanding of how law affects the different aspects of business.

Course Outcomes

- Understand the fundamental legal principles in developing various contracts and commercial laws in the business world
- Identify the common forms of business associations and elements of Corporate Governance
- Develop insights regarding the laws related to industrial environment

	MAPPING OF COURSE OUTCOMES ANDPROGRAMME OUTCOMES (S – Strong, M-Medium)									
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UNIT I

Introduction: Concept of Business Environment-Definition-Characteristics- Environmental factors affecting decision making of the business firm-Environmental Scanning: importance, process of scanning.

UNIT II

Economic and Technological Environment: Concept-definition of Economic Environment-Economic Systems, Relative merits and demerits of each systems-Economic Policies-Monetary-Fiscal-Industrial Policy (1991)-Exim (Latest policy) - Economic Planning: Objectives, Merit, Limitations-Technological Environment: Features, Its impact on

Business, Restraints on Technological Growth.

UNIT III

Political and Social Environment: Concept and Meaning of Political Environment-Political Institutions: Legislature, Executive, Judiciary, And Its Impact on Business-Social Environment: Meaning-Business and ethics-Social Responsibility of Business-Its impact on Business Decisions.

UNIT IV

Business Law: Meaning, scope and need for Business Law- Source of Business Law-Indian Contract Act-Export and Import Law-Essentials of Valid Contract-Void Contract and Void able Contract-Breach of Contract and remedies.

UNIT V

Miscellaneous Acts: Sales of Goods Act-Sale- agreement to Sale – Implied Conditions and Warranties- Consumer Protection Act 1986- Competition Act- Environment (Protection) Act 1986- *Foreign Exchange Management Act (FEMA).

REFERENCES

1. Kapoor, N. D. (2017). Elements of Mercantile Law. Sultan Chand and Company.
2. Goel, P. K. (2017). Business Law for Managers. Biztantatara Publishers.
3. Akhileshwar Pathak. (2018). Legal Aspects of Business. Tata McGraw Hill.