

**SCHEME OF STUDY & EXAMINATION AND
COURSE WISE DETAILS & CONTENTS**

**DIPLOMA IN APPAREL DESIGN AND FABRICATION
TECHNOLOGY**

(C-21)

THIRD SEMESTER

W.E.F 2023-24

Curriculum Structure**III Semester Scheme of Studies- Diploma in Apparel Design and Fabrication Technology**

Sl. No.	Course Category / Teaching Department	Course Code	Course Name	Hours per week			Total contact hrs /week	Credits	CIE Marks		SEE Marks		Total Marks	Min Marks for Passing (including CIE marks)	Assigned Grade	Grade Point	SGPA and CGPA
				L	T	P			Max	Min	Max	Min					
INTEGRATED COURSES																	
1	PC/FT	7431	Pattern Illustration-III	3	1	4	8	6	60	24	40	16	100	40			Both SGPA & CGPA
2	PC/FT	7432	Surface Embellishment -I	3	1	4	8	6	60	24	40	16	100	40			
3	PC/FT	7433	Yarn Science	3	1	4	8	6	60	24	40	16	100	40			
4	PC/FT	7434	CAD	3	1	4	8	6	60	24	40	16	100	40			
AUDIT COURSES																	
5	AU/KA		ಸಾಹಿತ್ಯ ಸಿಂಚನ-II/ ಚಿತ್ರಕನನ ಡ-II	2	0	0	2	2	50	20	-	-	50	20			
Total				14	4	16	34	26	290	116	160	64	450	180			

*PC: Programme Core:: AU-Audit Course:: L: Lecture:: T: Tutorial:: P: Practice

PROGRAMME COORDINATOR

PRINCIPAL

**GOVERNMENT OF KARNATAKA
DEPARTMENT OF COLLEGIATE AND TECHNICAL EDUCATION
JSS POLYTECHNIC FOR THE DIFFERENTLY ABLED(AUTONOMOUS)**

Programme	Apparel Design & Fabrication Technology	Semester	III
Course Code	7431	Type of Course	Programme Core
Course Name	PATTERN ILLUSTRATION – III	Contact Hours	8 hours/week 128 hours/semester
Teaching Scheme	L:T:P :: 3:1:4	Credits	6
CIE Marks	60	SEE Marks	40

1. Rationale- Pattern making involves drafting paper patterns to create well-fitted garments, creating the blueprint of style on the paper before constructing the garment. It involves the measurement and drafting of the patterns and garment construction is done. The skills in pattern making and garment construction are crucial as these are the core areas in manufacturing and understanding the garment in all aspects.

2. Course Outcomes/Skill Sets

CO-01	Ability to draft components required for specific garment.
CO-02	Able to create design variations and construct garments.
CO-03	Identify and apply various trimmings and accessories in garment construction.
CO-04	Gain proficiency to estimate fabric requirement for various garments.
CO-05	Identify the causes and remedies for the defects in the garments.

3. Course Content

Week	CO	PO	Lecture (Knowledge Criteria)	Tutorial (Activity Criteria)	Practice (Performance Criteria)
			3 hours/week	1 hour/week	4 hours/week (2 hours/batch twice in a week)
1	1,2,3	1,7	1. Introduction to Semi Katori Sari blouse - Front, Back, Sleeves, French belt, Plackets, Neck finishing. Technical Terms: Centre front, center back, Bias, Darts, Sleeve crown, Binding, Piping, Facing, Lining, Pre shrink, Notches, Inlay, Seam allowance, Grain line.	Refer Table-1	1. Pattern Drafting on Melton cloth. Preparing paper patterns of the garment. 2. Fabrication of the Garment
			2. Sketch and design the garment on croque. Measurements required and method of measuring the same. Components, Suitable Fabric and Trimmings.		
			3. Garment Drafting & Construction – Front, Back		

2	4,5	2,3,7	1. Garment Drafting & Construction – Sleeves, French belt, plackets, Neck finishing.	Refer Table-1	1. Fabrication of the Garment 2. Finishing, Pressing and labeling and Rectifying defects.
			2. Layout and Estimation – direct layout Costing of the garment.		
			3. Defects and remedies – Sloping shoulder, Tightness at scye, Front chest or back shoulder blades too tight. Bust area too tight.		
3	1,3	1,3,7	1. Introduction to Skirt and top . Any one of the below skirt. a) Circularskirt b) Gore skirt c) Wrap around skirt d) Pleated skirt. Technical Terms: Gore, Flare, Bust line, Gather, Godet, Yoke, Pegged skirt.	Refer Table-1	1. Pattern Drafting on Melton cloth. Preparing paper patterns of the garment. 2. Fabrication of the Garment. Solving fitting problems
			2. Sketch and design the garment on croque. Measurements required and method of measuring the same. Components, Suitable Fabrics and Trimmings.		
			3. Garment Drafting & Construction – Front, Back, Waist belt.		
4	1,3	1,3,7	1. Introduction to Skirt Top- With or without yoke, with or without collar. Any fancy sleeves . Technical terms – Yoke, Cowl, Cape, Cord piping, Casing, Frog	Refer Table-1	1. Pattern Drafting on Melton cloth. Preparing paper patterns of the garment. 2. Fabrication of the Garment. Solving fitting problems.
			2. Sketch and design the garment on croque. Measurements required and method of measuring the same. Components, Suitable Fabric and Trimmings.		
			3. Garment Drafting & Construction - Front & Back, Sleeves, Collar.		
5	4,5	2,3,7	1. Costing of the garment.	Refer Table-1	1. Fabrication of the Garment. Solving fitting problems. 2. Finishing, Pressing and labeling.
			2. Layout and estimation of Skirt & top- Double pick lay.		
			3. Defects & remedies that arises due to insufficient balance in both skirt & Top.		
6	1,2,3	1,3,7	1. Introduction to Kameez – Front, back, sleeves, Neck finishing Technical Terms- Godet, princess line, Panel pieces, Top stitching, Piping, Facing, Binding, Cord Piping	Refer Table- 1	1. Pattern Drafting on Melton cloth. Preparing paper patterns of the garment. 2. Fabrication of the Garment
			2. Sketch and design the garment on croque Measurements required and method of measuring the same. Components, Suitable fabrics, Trimmings.		
			3. Garment Drafting & Construction – Front, Back, sleeves, Neck finishing.		

7	1,2,3	1,3,7	1. Introduction to Salwar – Waist piece, Leg piece, Bottom piece. Technical terms – Crotch point, Crotch depth, crotch length.	Refer Table- 1	1. Pattern Drafting on Melton cloth. Preparing paper patterns of the garment. 2. Fabrication of the Garment.
			2. Sketch and design the garment on croque Measurements required and method of measuring the same. Components, Suitable Fabric and Trimmings.		
			3. Garment Drafting & Construction		
8	4,5	2,3,7	1. Precautions to be taken while cutting the following fabrics. a) Checks b) Plaids c) Stripes	Refer Table- 1	1. Fabrication of the Garment. Solving fitting problems. 2. Finishing, Pressing and labeling.
			2. Costing of the garment.		
			3. Layout and estimation of Salwar Kameez - double pick lay.		
9	1,2,3	1,3,7	1. Introduction to Fashionable Kameez - Front, back, sleeves. Technical Terms- Symmetrical, Asymmetrical, Achkan, Pivot, Bust line, Princess line.	Refer Table- 1	1. Pattern Drafting on Melton cloth. Preparing paper patterns of the garment. 2. Fabrication of the Garment.
			2. Sketch and design the garment on croque Measurements required and method of measuring the same. Components, Suitable Fabric and Trimmings.		
			3. Garment Drafting & Construction – Front, Back, sleeves, collar		
10	1,2,3	1,3,7,	1. Introduction to Survar. Technical terms – True Bias, Bias, Crotch point, Crotch depth, crotch length	Refer Table- 1	1. Pattern Drafting on Melton cloth. Preparing paper patterns of the garment. 2. Fabrication of the Garment.
			2. Sketch and design the garment on croque Measurements required and method of measuring the same. Components, Suitable Fabric and Trimmings.		
			3. Garment Drafting & Construction		
11	4,5	2,3,7	1. Precautions to be taken while cutting a) Floral design b) One way design c) Two-way design	Refer Table- 1	1. Fabrication of the Garment. Solving fitting problems. 2. Finishing, Pressing and labelling.
			2. Costing of the garment		
			3. Layout and estimation of Fashionable Kameez - double pick lay.		

12	1,2,3	1,3,7	1. Introduction to Women's Kurtha Technical Terms – Inlay, Reinforcement, Braid, Facing, Piping	Refer Table- 1	1. Pattern Drafting on Melton cloth. Preparing paper patterns of the garment. 2. Fabrication of the Garment.
			2. Sketch and design the garment on croque. Measurements required and method of measuring the same. Components, Suitable Fabric and Trimmings.		
			3. Garment Drafting & Construction – Front, Back, sleeves		
13	4,5	1,2,3,7	1. Selection of Fabrics for Kurtha for girls & ladies	Refer Table- 1	1. Fabrication of the Garment. Solving fitting problems. 2. Finishing, Pressing and labeling.
			2. Layout and estimation of Kurtha		
			3. Costing of the Kurtha.		
Total in hours			48	16	64

***PO= Program Outcome as listed and defined in year 1 curriculum and PO – CO mapping with strength (Low/Medium/High) has to be mapped by the course Coordinator. (Above only suggestive)**

TABLE 1: Suggestive Activities for Tutorials: (The List is only shared as an Example and not inclusive of all possible activities of the course. Student and Faculty are encouraged to choose activities that are relevant to the topic and on the availability of such resources at their institution).

Sl. No.	Suggestive Activities for Tutorials
1.	Sketching and Designing Fancy designs of Saree Blouse
2.	Designing, stitching and finishing one Skirt of student choice.
3.	Sketching any two different top which are in trend.
4.	Sketching 2 different Fashionable salwar suits on a 10 head croque.
5.	Collecting fabrics suitable for girls and ladies night dress and make a folder.
6.	Create and design handmade trimmings used for girls and ladies garments.
7.	Collecting pictures of different styles of Kameez which are in trend.
8.	Sketching and creating different textural effect.
9.	Prepare miniature of any two garments.
10.	Prepare lay pattern of any Garment mentioned in the syllabus.
11.	Collect different types of decorative trimmings used for girls & Ladies garments.
12.	Collecting trendy designs of Saree Blouse.
13.	Prepare a smocking pattern suitable for skirt top.
14.	Best out of waste – Create a Garment using waste materials.
15.	Using Patch work create a garment of student choice.

Note: i) Minimum 5 activities apart from collecting pictures.

ii) Folders should contain activities of all the units and submit the same at the endexam.

4. CIE and SEE Assessment Methodologies

Sl. No	Assessment	Test Week	Duration In minutes	Max marks	Conversion
1.	CIE-1 Written Test	5	80	30	Average of three tests 30
2.	CIE-2 Written Test	9	80	30	
3	CIE-3 Written Test	13	80	30	
4.	CIE-4 Skill Test-Practice	6	180	100	Average of two skill tests reduced to 20
5	CIE-5 Skill Test-Practice	12	180	100	
6	CIE-6 Portfolio continuous evaluation of Activity through Rubrics	1-13		10	10
Total CIE Marks					60
Semester End Examination (Practice)			180	100	40
Total Marks					100

5. Format for CIE written Test

Course Name	PATTERN ILLUSTRATION – III	Test	I/II/III	Sem	III
Course Code	7431	Duration	80 Min	Marks	30
Note: Answer any one full question from each section. Each full question carries 10 marks.					
Section	Assessment Questions		Cognitive Levels	Course Outcome	Marks
I	1				
	2				
II	3				
	4				
	5				
	6				
Note for the Course coordinator: Each question may have one, two or three subdivisions. Optional questions in each section carry the same weightage of marks, Cognitive level and course outcomes.					

6. Rubrics for Assessment of Activity (Qualitative Assessment)

Sl. No.	Dimension	Beginner	Intermediate	Good	Advanced	Expert	Students Score
		2	4	6	8	10	
1		Descriptor	Descriptor	Descriptor	Descriptor	Descriptor	8
2		Descriptor	Descriptor	Descriptor	Descriptor	Descriptor	6
3		Descriptor	Descriptor	Descriptor	Descriptor	Descriptor	2
4		Descriptor	Descriptor	Descriptor	Descriptor	Descriptor	2
Average Marks= (8+6+2+2)/4=4.5							5

Note: Dimension and Descriptor shall be defined by the respective course coordinator as per the activities

7.Reference:

Sl. No.	Description
1	Pattern Cutting and Making up- The professional Approach – Martin M Shoben & Janet P Ward
2	The New Complete Guide to Sewing: Step-by-Step Techniques for Making Clothes and Home Accessories Updated Edition with All-New Projects and Simplicity Patterns (Reader's Digest)
3	How Patterns Work: The Fundamental Principles of Pattern Making and Sewing in Fashion Design – Assembl Books
4	Zaman Zarida Fashion Pattern Cutting
5	Art of Sewing- Anna Jacob Thomas
6	Dress Pattern Designing – Natalie Bray
7	Metric Pattern Cutting for Women's Wear- Winifred Aldrich

8.CIE Skill Test and SEE Scheme of Evaluation

SL. No.	Particulars/Dimension	Marks
1	Drafting and Preparation of Paper Pattern	15
2	Laying Pattern & Fabric cutting	10
3	Fabrication of the Garment	45
4	Finishing & Pressing	10
5	Viva-Voce	20
Total Marks		100

9.Equipment/software list with Specification for a batch of 20 students

Sl. No.	Particulars	Specification	Quantity
1.	Sewing machine	Power operated Single Needle Lock stitch machine with ¼ HP Motor	20
2.	Power operated over lock machine	3 Thread over lock	04
3.	L square	Plastic	24
4.	Button Fixing machine	Power Operated with ¼ HP Motor	01
5.	Button hole machine	Power Operated with ¼ HP Motor	01
6.	Steam iron with table	Industrial Model	04
7.	Mannequins	Fiber	06
8.	Dress Forms (Male & Female)	American with sizes- 9 &10	2 each

**GOVERNMENT OF KARNATAKA
DEPARTMENT OF COLLEGIATE AND TECHNICAL EDUCATION
JSS POLYTECHNIC FOR THE DIFFERENTLY ABLED(AUTONOMOUS)**

Programme	Apparel Design & Fabrication Technology	Semester	III
Course Code	7432	Type of Course	Programme Core
Course Name	SURFACE EMBELLISHMENT – I	Contact Hours	8 hours/week 128 hours/semester
Teaching Scheme	L:T:P :: 3:1:4	Credits	6
CIE Marks	60	SEE Marks	40

1. Rationale: Embellishment is a process of adding design and decoration to the fabric. Embellishment adds value to a garment and achieves enriching the articles with decorative accessories. Surface Embellishment includes various regional and Western Embroideries which helps the employability of the students.

2. Course Outcomes/Skill Sets

CO-01	Ability to use different tools used in art of embellishment
CO-02	Application of different hand stitches
CO-03	Apply the knowledge of appropriate designs on fabric surfaces.
CO-04	Ability of using various Regional stitches.
CO-05	Creating and developing new designs.

3. Course Content

Week	CO	PO	Lecture (Knowledge Criteria)	Tutorial (Activity Criteria)	Practice (Performance Criteria)
			3 hours/week	1 hour/week	4 hours/week(2 hours/batch twice in a week)
1	1	1,4,7	1. Hand embroidery- Introduction -importance & uses. 2.Tools and Equipment's- Frames-Types, Needles-Types 3. Fabrics- Matty, Tapestry, Huckaback, Casement Transferring Techniques- Direct, pouncing	Refer Table-1	1. Sketching of tools used in hand embroidery 2. Practicing Direct and Pouncing technique in the lab
2	1,2,5	1,2,4	1. Hand Embroidery stitches— classification. 2 Selection of design, stitches, fabric, threads, color combination and needle movement.- Line stitch group-Running-even , uneven stitch. 3 Back stitch, half back stitch, stemstitch.	Refer Table-1	1Prepare the swatch of running stitch 2 Prepare the swatch of Back stitch, half back stitch and stem stitch.

3	2,5	2,3,5	<p>1. Chain stitch group- Simple Chain, Laizy-Daisy, Open chain Stitch</p> <p>2. Knot stitch group- Bullion, French, Double knot stitch</p> <p>3 Flat Stitch group-Herring bone Satin and Long short stitch</p>	Refer Table-1	<p>1 Prepare the swatch of chain stitch, Laizy Daisy and open chain stitch</p> <p>2 Prepare the swatch of French knot, bullion knot and French knot stitch</p>
4	2,3,5	2,3,5,7	<p>1. Flat Stitch group- variations of satin stitch- Padded satin, Slant Satin.</p> <p>2. Loop stitch group- button hole, spider web, Round Button Hole.</p> <p>3. Composite stitch group- Whipped running, Pekinese stitch,Laced running</p>	Refer Table-1	<p>1. Prepare the swatch of satin and long and short slant satin stitch</p> <p>2 Prepare the swatch of Button hole, Round Button hole and spider web stitch. Whipped running and Pekinese stitch.</p>
5	2,35	2,3,5,7	<p>1.Applique Work :Introduction, Design selection.</p> <p>2. Preparing Templates, selection of Applying piece</p> <p>3. Working method.</p>	Refer Table-1	<p>1. Preparation for Applique work.</p> <p>2. Embroider a pillow cover with plain applique work/ Geometric/ Floral/ Cartoons</p>
6	2,3,5	2,3,5	<p>1. Cut work- Introduction, selection of design – Corner, Center and Border</p> <p>2. Study of stitches.</p> <p>3. Working method.</p>	Refer Table-1	<p>1. Preparation for Cut work.</p> <p>2. Embroider a Saree Blouse with cut work.</p>
7	2,3,5	2,3,5	<p>1.Introduction to patch -Types – Geometrical/ Block/ Striped. working method</p> <p>2. Mirror work - Introduction and working method.</p> <p>3. Eye let work – Introduction and working method</p>	Refer Table-1	<p>1 Prepare a cushion cover with geometrical patch work- Geometrical/ block/ striped</p> <p>2. Embroider a Shoulder Bag / Sling Bag with both mirror work and eyelets</p>
8	2,3,5	2,3,5	<p>1. Beads and Sequence work-Types of Beads, Sequences</p> <p>2. Selection of designs, Needles and threads</p> <p>3 Working Method</p>	Refer Table-1	<p>1. Prepare a yoke / Sleeves with beads and sequence work</p> <p>2. Prepare a yoke / Sleeves with beads andsequence work</p>

9	3,4,5	2,3,5	1. Regional embroidery- Introduction & Origin of Kasuti Embroidery 2. Study of designs, Fabrics, stitches 3. Working Method of the stitches.	Refer Table-1	1. Preparation and selection of Design. 2. Preparation of swatches of Kasuti Embroidery in 15/15 Sq Cms fabric.
10	3,4,5	2,3,5	1. Introduction & Origin of Kutch Embroidery 2. Study of Designs, Fabric, thread 3 Working Method	Refer Table-1	1. Preparation and selection of Design. 2. Preparation of swatches of Kutch Embroidery in 15/15 Sq Cms fabric.
11	3,4,5	2,3,5	1. Introduction & Origin of Kantha Embroidery - study of designs. 2. Introduction & Origin of Phulkari Embroidery - study of designs. 3. Working Method of Kantha and Phulkari Embroidery.	Refer Table-1	1. Preparation and selection of Design for Kantha & Phulkari. 2. Preparation of swatches for Kantha and Phulkari Embroidery in 15/15 Sq Cms fabric.
12	3,4,5	3,5,7	1. Introduction & Origin of Chickankari Embroidery - study of designs. 2. Working method of Chickankari 3. Costing and Estimation of Embroidered articles.	Refer Table-1	1. Preparation and selection of Design. 2. Preparation of swatches of Chickankari Embroidery in 15/15 Sq Cms fabric.
13	3,4,5	2,3,5	1. Introduction & Origin of Kashmiri Embroidery - study of designs. 2. Working method of Kashmiri Embroidery. 3. Washing and preserving of embroidery articles	Refer Table-1	1. Preparation and selection of Design. 2. Preparation of swatches of Kashmiri Embroidery in 15/15 Sq Cms fabric.
Total in hours			48	16	64

***PO= Program Outcome as listed and defined in year 1 curriculum and PO – CO mapping with strength (Low/Medium/High) has to be mapped by the course Co-Ordinator. (Above only suggestive)**

TABLE 1: Suggestive Activities for Tutorials: (The List is only shared as an Example and not inclusive of all possible activities of the course. Student and Faculty are encouraged to choose activities that are relevant to the topic and on the availability of such resources at their institution).

SL NO	SUGGESTIVE ACTIVITIES FOR TUTORIAL
1	Collect information about hand embroidery used different garments.
2	Prepare Table cloth using hand embroidery
3	Decorate a Hand Bag using hand embroidery
4	Prepare cushion cover using hand embroidery
5	Prepare kerchief using hand embroidery
6	Prepare a wall hanging using hand embroidery
7	Prepare a phone cover using hand embroidery
8	Decorate a Dupatta edges using hand embroidery
9	Decorate a laptop cover using hand embroidery
10	Decorate designer accessories using regional embroidery.
11	Prepare a women kurta using hand embroidery
12	Prepare a saree using hand embroidery
13	Prepare a designer blouse using hand embroidery
14	Decorate a jeans pant using hand embroidery
15	Decorate a monogram letters using hand embroidery

Note: i) Minimum 5 activities apart from collecting pictures.

ii) Folders should contain activities of all the units and submit the same at the endexam.

4. CIE and SEE Assessment Methodologies

Sl. No	Assessment	Test Week	Duration In minutes	Max marks	Conversion
1.	CIE-1 Written Test	5	80	30	Average of three tests 30
2.	CIE-2Written Test	9	80	30	
3	CIE-3Written Test	13	80	30	
4.	CIE-4 Skill Test-Practice	6	180	100	Average of two skill tests 20
5	CIE-5 Skill Test-Practice	12	180	100	
6	CIE-6 Portfolio continuous evaluation of Activity through Rubrics	1-13		10	10
Total CIE Marks					60
Semester End Examination (Practice)			180	100	40
Total Marks					100

5. Format for CIE written Test

Course Name	Advanced Yarn Craft	Test	I/II/III	Sem	III
Course Code	7432	Duration	80 Min	Marks	30
Note: Answer any one full question from each section. Each full question carries 10 marks.					
Section	Assessment Questions		Cognitive Levels	Course Outcome	Marks
I	1				
	2				
II	3				
	4				
III	5				
	6				

Note for the Course coordinator: Each question may have one, two or three subdivisions. Optional questions in each section carry the same weightage of marks, Cognitive level and course outcomes.

6. Rubrics for Assessment of Activity (Qualitative Assessment)

Sl. No.	Dimension	Beginner	Intermediate	Good	Advanced	Expert	Students Score
		2	4	6	8	10	
1		Descriptor	Descriptor	Descriptor	Descriptor	Descriptor	8
2		Descriptor	Descriptor	Descriptor	Descriptor	Descriptor	6
3		Descriptor	Descriptor	Descriptor	Descriptor	Descriptor	2
4		Descriptor	Descriptor	Descriptor	Descriptor	Descriptor	2
Average Marks=(8+6+2+2)/4=4.5							5

Note: Dimension and Descriptor shall be defined by the respective course coordinator as per the activities

7. Reference:

Sl. No.	Description
1	Encyclopedia of Embroidery
2	Complete Guide to Embroidery
3	Hand embroidery stitches
4	Compatibility of fabric and embellishment.

YouTube Links:

Sl. No	Description
1	https://www.youtube.com/watch?v=bvhuC9EzMYo
2	https://www.youtube.com/watch?v=xU0QImDuZjQ
3	https://www.youtube.com/watch?v=CToXat1UGWo
4	https://www.youtube.com/watch?v=Aw_kbItHmlo
5	https://www.youtube.com/watch?v=jBIXUdoxUqs
6	https://www.youtube.com/watch?v=QosmqitTW6w
7	https://www.youtube.com/watch?v=5p8sld51TMA
8	https://www.youtube.com/watch?v=0-polm8TeOw

8.CIE Skill Test and SEE Scheme of Evaluation

SL. No.	Particulars/Dimension	Marks
1	Design Tracing	10
2	Working Method	60
3	Finishing and Presentation	10
4	Viva-Voce	20
Total Marks		100

9.Equipment/software list with Specification for a batch of 20 students

Sl. No.	Particulars	Specification	Quantity
1.	Embroidery frames	Wooden & Plastic	20
2.	Glass Lighted Tracing Table		6
3.	Bent Scissors		20
4.	Pinking Scissors		20

GOVERNMENT OF KARNATAKA
DEPARTMENT OF COLLEGIATE AND TECHNICAL EDUCATION
JSS POLYTECHNIC FOR THE DIFFERENTLY ABLED(AUTONOMOUS)

Programme	Apparel Design & Fabrication Technology	Semester	III
Course Code	7433	Type of Course	Programme Core
Course Name	YARN SCIENCE	Contact Hours	8 hours/week 128 hours/semester
Teaching Scheme	L:T:P :: 3:1:4	Credits	6
CIE Marks	60	SEE Marks	40

1. Rationale - Textiles helps in the selection of fabrics for various age groups. Knowledge and testing of different fabric textures helps the students to identify and select fabrics used for different occasions. Analyzing and identification of weave is an integral part of fashion designing students.

2. Course Outcomes/Skill Sets

CO-01	Able to identify different fibers.
CO-02	Acquire the knowledge of testing of fibers.
CO-03	Able to identify quality and fineness of fiber.
CO-04	Understand loom and its functions.
CO-05	Knowledge of weaves and their application.

3. Course Content

Week	CO	PO	Lecture (Knowledge Criteria)	Tutorial (Activity Criteria)	Practice (Performance Criteria)
			3 hours/week	1 hour/week	4 hours/week (2 hours/batch twice in a week)
1	1	1	1. Knowledge of Natural fibers and their properties-Cotton, Linen, Silk and Wool. 2. Cellulosic polymers - Properties-Rayon's, Acetate. 3. Non Cellulosic polymers- Properties- Nylon, Polyester, Spandex, Acrylic.	Refer Table -1	1. Sourcing and Collecting Natural fibers with their properties. 2. Sourcing and Collecting Cellulosic and Non cellulosic Polymers with their properties.

2	1,2	1,2	<p>1. Identification of textile fibres - Introduction -Study of Non technical Test- Feeling Test - Cotton, linen .wool, silk, rayon , polyester and Nylon. Tearing test for cotton fibres</p> <p>2. Study of Nontechnical Test – Breaking Test For Cotton, linen.</p> <p>3. Study of Nontechnical Test – Burning Test. For Cotton, Linen, Wool, Silk, Rayon, Polyester and Nylon.</p>	Refer Table -1	<p>1. Conducting experiments on-Non Technical Test.</p> <p>Aim, Apparatus required, Procedure, Conclusion</p> <p>2 Conducting experiments on Breaking and Burning Test Aim, Apparatus required, Procedure, Conclusion</p>
3	2	1,,2,5	<p>1. Technical test- Microscope test - For Cotton, Linen .Wool, Silk, Rayon Polyester, Nylon</p> <p>2. Technical test-Chemical test - For Cotton, wool, silk,</p> <p>3. Technical test – Chemical test - For Cotton, linen .wool, silk, rayon , polyester, Nylon</p>	Refer Table -1	<p>1. Conducting Experiments on Microscopic Test- Aim, Apparatus required, Procedure, Conclusion</p> <p>2. Conducting Experiments on Chemical Test - Aim, Apparatus required, Procedure, Conclusion</p>
4	1	1,2,3	<p>1. Identification of yarns - Definition, introduction, classification of yarns, properties and uses.</p> <p>2. Identification of simple yarns. single ply, two ply, four ply.</p> <p>3. Identification of simple yarns.- mano filament, multi filament.</p>	Refer Table -1	<p>1. Collection/ Sourcing of Yarns.</p> <p>2. Collection/ Sourcing of Yarns.</p>
5	1,	1,2,3	<p>1. Identification of Novelty yarns., loop, slub, spiral</p> <p>2. Identification of Novelty yarns, Boucle, Chenille, Cork screw, Flock.</p> <p>3. Identification of textured yarns.- bulk yarns, stretched yarns</p> <p>Study of metallic yarn</p>	Refer Table -1	<p>1. Collection / Sourcing of Novelty yarns.</p> <p>2. Collection / Sourcing of Novelty yarns</p>

6	1	2,3,4	<p>1. Yarn count- (Yarn numbering System) Introduction, importance and uses</p> <p>2.Direct count system—Tex System.</p> <p>3. Indirect count system - Denier system, Cotton, Silk, Linen and Wool.</p>	Refer Table -1	<p>1.Determining the Yarn count of Various fibers using Bees lay Balance Aim, Apparatus required, Procedure, Conclusion.</p> <p>2 Determining the Yarn count of Various fibers using Bees lay Balance Aim, Apparatus required, Procedure, Conclusion</p>
7	3	2,3,4	<p>1. Yarn twist – Definition, introduction, importance.</p> <p>2. Study of S twist</p> <p>3. Study of Z twist</p>	Refer Table -1	<p>1. Determining Yarn Twist using Yarn Twist Tester - Aim, Apparatus required, Procedure, Conclusion</p> <p>2. Determining Yarn Twist using Yarn Twist Tester - Aim, Apparatus required, Procedure, Conclusion</p>
8	3	3,4	<p>1. Thread count-Definition, Importance.</p> <p>2. Balance of Cloth- Definition, study of Balanced and un balanced Fabric.</p> <p>3 Differentiating thread Count and Balance of Cloth</p>	Refer Table -1	<p>1. Determining Thread Count using Pick Glass Aim, Apparatus required, Procedure, Conclusion.</p> <p>2. Determining Thread Count using Pick Glass Aim, Apparatus required, Procedure, Conclusion</p>
9	4,5	3,4,5	<p>1. Introduction to Loom, Parts of the Loom.</p> <p>2. Weaving operation.</p> <p>3. Differentiating Hand Loom and Power loom and their fabrics.</p>	Refer Table -1	<p>1. Preparing miniature of Loom.</p> <p>2. Collecting Hand loom and Power loom fabrics</p>
10	4,5	3,4,5	<p>1. Definition and Classification of Weaves.</p> <p>2. Point Paper Design, its importance and uses in textile Industry.</p> <p>3. Plain weave and its Variation</p>	Refer Table -1	<p>1. Drawing point paper Design.</p> <p>2 .Preparing Weave structure using satin Ribbon-Plain Weave and variations</p>

11	5	3,4,5	<p>1. Twill weave- properties, point paper design and its uses.</p> <p>2. Twill weave variations- properties, point paper design and its uses.</p> <p>3. Satin weave -properties, point paper design uses.</p>	Refer Table -1	<p>1 Preparing Weave structure using satin Ribbon- Twill Weave</p> <p>2. Identification of weave using pick glass.</p> <p>Aim, Apparatus required, Procedure, Conclusion</p>
12	5	3,4,5	<p>1. Sateen weave, properties point paper design.</p> <p>2. Decorative weaves -Jacquard Weave- Properties and Point paper design.</p> <p>3. Pile Weave-Types of Pile weave, Properties and Use.</p>	Refer Table -1	<p>1. Identification of Sateen weave.</p> <p>Aim, Apparatus required, Procedure, Conclusion</p> <p>2. Identification of Jacquard and Pile weave.</p> <p>3.Aim, Apparatus required, Procedure, Conclusion</p>
13	5	3,4,5	<p>1. Fabric Analysis -Study of Design, Draft and peg plan for the following fabrics.</p> <p>Long cloth and casement.</p> <p>2. Matte Cloth.</p> <p>3.Drill and Corduroy</p>	Refer Table-1	<p>1. Identification of fabrics using Pick Plan and Procedure.</p> <p>a) Long cloth b) Casement</p> <p>c) Matte Cloth</p> <p>Aim, Apparatus required, Procedure, Conclusion.</p> <p>2. Identification of Drill and Corduroy -</p> <p>Aim, Apparatus required, Procedure, Conclusion.</p>
Total in hours			48	16	64

***PO= Program Outcome as listed and defined in year 1 curriculum and PO – CO mapping with strength (Low/Medium/High) has to be mapped by the course Co-Ordinator. (Above only suggestive)**

TABLE 1: Suggestive Activities for Tutorials: (The List is only shared as an Example and not inclusive of all possible activities of the course. Student and Faculty are encouraged to choose activities that are relevant to the topic and on the availability of such resources at their institution).

SL NO	Suggestive Activities for Tutorials
1	Collect any Two Blended fibers
2	Collect Pictures of Microscopic View of cotton and Linen fibers
3	Collect Pictures of Microscopic View of silk and wool fibers
4	Collect Pictures of Microscopic View of Nylon and polyester fibers

5	Collect simple, and Textured Yarns.
6	Collect any five Novelty yarns and compare each other
7	Draw the sketch of Bees Lay balance and name the parts
8	Draw the sketch of Yarn Twist Tester and name the parts
9	Compare s and z twists and their uses
10	Collect different thread count fabrics
11	Draw the sketch of a loom and name the parts
12	Prepare a Loom
13	Draw the point paper design of Herring bone weave
14	Collect any five different Weave Fabrics -Pile ,lappet, Swivel ,Jacquard ,huckaback
15	Collect Balanced and Un Balanced fabrics
16	Collect the picture of Dobby weave and explain
17	Create any two fabric swatches using weaving technique
18	Create a Decorative fabric swatch using weaving technique

Note: Note: i) Minimum 5 activities apart from collecting pictures.

ii) Folders should contain activities of all the units and submit the same at the end exam.

4. CIE and SEE Assessment Methodologies

Sl. No	Assessment	Test Week	Duration In minutes	Max marks	Conversion
1.	CIE-1 Written Test	5	80	30	Average of three tests 30
2.	CIE-2 Written Test	9	80	30	
3	CIE-3 Written Test	13	80	30	
4.	CIE-4 Skill Test-Practice	6	180	100	Average of two skill tests reduced to 20
5	CIE-5 Skill Test-Practice	12	180	100	
6	CIE-6 Portfolio continuous evaluation of Activity through Rubrics	1-13		10	10
Total CIE Marks					60
Semester End Examination (Practice)			180	100	40
Total Marks					100

5. Format for CIE written Test

Course Name	Yarn Science	Test	I/II/III	Sem	III
Course Code	7433	Duration	80 Min	Marks	30
Note: Answer any one full question from each section. Each full question carries 10 marks.					
Section	Assessment Questions	Cognitive Levels	Course Outcome	Marks	
I					
II					
III					

Note for the Course coordinator: Each question may have one, two or three subdivisions. Optional questions in each section carry the same weight age of marks, Cognitive level and course outcomes.

6. Rubrics for Assessment of Activity (Qualitative Assessment)

Sl. No.	Dimension	Beginner	Intermediate	Good	Advanced	Expert	Students Score
		2	4	6	8	10	
1		Descriptor	Descriptor	Descriptor	Descriptor	Descriptor	8
2		Descriptor	Descriptor	Descriptor	Descriptor	Descriptor	6
3		Descriptor	Descriptor	Descriptor	Descriptor	Descriptor	2
4		Descriptor	Descriptor	Descriptor	Descriptor	Descriptor	2
Average Marks= (8+6+2+2)/4=4.5							5

Note: Dimension and Descriptor shall be defined by the respective course coordinator as per the activities

7. Reference:

Sl. No.	Description
1	Fiber to Fabric -- Bernard p Corbman
2	Introduction to Textiles -: K Veerendra Pal Singh
3	Fiber To Fabric -: K P Hess
4	Textile Science --: J T Marsh

YouTube Links:

SL. No	Description
1	https://www.youtube.com/watch?v=-ONxoV1eABs
2	https://www.youtube.com/watch?v=xmKKvvpQujo
3	https://www.youtube.com/watch?v=sLcT7P-ZS4E
4	https://www.youtube.com/watch?v=MwR23XkXQTM
5	https://www.youtube.com/watch?v=RMvO68tlZfw
6	https://www.youtube.com/watch?v=WsbNmcEO5kI
7	https://www.youtube.com/watch?v=qBbbFOaoT-w
8	https://www.youtube.com/watch?v=-E0KJrnWB6A

8.CIE Skill Test and SEE Scheme of Evaluation

SL. No.	Particulars/Dimension	Marks
1	Determine the Yarn Count/ Yarn Twist	30
2	Identification of fiber - Burning test/Chemical test/Microscopic test (2 Fibers)	20
3	Identification of Fiber - Design, draft and peg plan (two swatches).	30
4	Viva-Voce	20
Total Marks		100

9. Equipment/software list with Specification for a batch of 20 students

Sl. No.	Particulars	Specification	Quantity
1	Microscope	Model Name/Number- micro VISION i2 Longitudinal view Depth-150 mm,6 Inch Height-365 mm,14 1/2 Inch Length-200 mm,8 Inch Object Lens-4X/5X, 10X, 20X, 40X and Eye Piece 10X.	02nos
2	Yarn twist Tester	Twist Tester-19 (manual, single yarn) Weight- 8Kg (17.6 lb) Height – 330mm (13 inch) Depth -125mm (5inch) Length -420mm (16 i/2inch) Untwisted method- for S and Z twist yarn	02nos
3	Bees Lay balance	Weight- 6.2Kg (13.6 lb) Height – 230mm (9 inch) Depth -140mm (5 1/2inch) Length - 535mm (21inch) Automation Grade- manual yarn	02 nos
4	Beaker glass	250 ml	05 nos
5	Glass Rods	Standard size	10 nos
6	Test tube	Standard size	10 nos
7	Burner container with stand	Small oil burner container with cord inside. stand	10 nos 10 nos
8	Holder	Standard size	10 nos
9	Pick glass	Magnification -6X Size -1inch x 1/2inch x 3/4inch Package Size- standard Automation Grade – Semi-Automatic Material - MS	20 nos

GOVERNMENT OF KARNATAKA
DEPARTMENT OF COLLEGIATE AND TECHNICAL EDUCATION
JSS POLYTECHNIC FOR THE DIFFERENTLY ABLED (AUTONOMOUS)

Programme	ADFT	Semester	III
Course Code	7434	Type of Course	Programme Core
Course Name	COMPUTER AIDED DESIGN	Contact Hours	8 hours/week 128 hours/semester
Teaching Scheme	L:T:P :: 3:1:4	Credits	6
CIE Marks	60	SEE Marks	40

1. Rationale: Computer Aided Design assist in the creation & modification in Designing of Costumes. It is used to increase the productivity of the designers and to improve the quality of the visualized designs. CAD help the students to understand the various multipurpose software used for designing and printing of Apparel, Textile, and Leather. Fundamentals and principles of CAD provide students with the knowledge of 3D storyboard and cataloguing, texture mapping, color rendering, design and repeats.

2. Course Outcomes/Skill Sets

CO-01	Application of various software's in designing
CO-02	Creating different textural effects and weaves in the fabric.
CO-03	Drape various silhouettes and colour combination in the garments
CO-04	Application and Presentation Techniques using Adobe Photoshop and Illustrator in Designing.

3. Course Content

Week	CO	PO	Lecture (Knowledge Criteria)	Tutorial (Activity Criteria)	Practice (Performance Criteria)
			3 hours/week	1 hour/week	4 hours/week (2 hours/batch twice in week)
1	1,2	1,3	1. Introduction to various Fashion Designing software 2. Application of Software – Auto CAD. 3. Knowledge and Practice of Tools – Lines- Straight lines, Curved lines	Refer Table-1	1. Identify and understand various CAD software's used in designing. 2. Application and creations of geometrical designs using CAD tools.
2	1,2	1,2	1. Displaying with Zoom and Scale, drawing Circles and Ellipse. 2. Transformation Tools – Rotate, Mirror, Move, Copy and Pan.	Refer Table-1	1. Creating repeats- $\frac{1}{4}$, $\frac{1}{2}$, $\frac{3}{4}$

			3. Manipulating Entities – Chamfer, Fillet, Offset, Trim and Break, Extend. 1.1 Edit , Array.		2. Cross repeat and brick repeat.
3	1,2	3,4	1. Drawing Filled Shapes, Donut, Solid, Traces and Fill 2. Draw: Polyline and Polyline Edit. 3. Creating Pattern design: Hatch.	Refer Table-1	1. Creating Symmetric and Asymmetric designs. 2. One way design, Abstract and overall design
4	1,2	2,4	1. Radical changes: Block, Insert, 2. Point, Divide Measure and Distance. 3. Edit: Stretch, Extend, Break, Color, Line Types.	Refer Table-1	1. Creating designs using different line types. 2. Creating designs using different line types and rendering with colours
5	1,2	3,4	1. COREL DRAW - Introduction to Corel Draw Understanding the tools used, drawing shapes, 2. Working with color and filling objects. Handling objects Shaping, Layers, Using Nodes, 3. Trimming, Welding, Cropping, Intersecting, Aligning.	Refer Table-1	1. Drawing – Lines, Shapes, inserting pictures. 2. Outlining and filling objects.
6	1,2	3,4	1. Cloning, Positioning, Scaling, Rotating, 2. Combining, Grouping, locking, Replacing. 3. Special Effects Using lenses, adding 3D effect, Blending	Refer Table-1	1. Inserting symbols, Creating logos. Motifs and filling colour. 2. Creating designs and adjusting the positions, resizing, Positioning, Merging.
7	1,2	2,5	1. Texts and formatting, Pages and layouts, File formats. 2. Import and export of images; resize image. 3. Drawing , shaping, aligning, editing and grouping and ungrouping images.	Refer Table-1	1. Creating designs with advance effects. 2. Creating designs with special effects. Creating Business cards and Banners

8	1,2,4	1,3	ADOBE PHOTOSHOP 1.Introduction to Photoshop and its features. 2.Creating documents with different sizes. 3. Marquee tools-Rectangular, Elliptical, Single row, single column marquee tool	Refer Table-1	1. Creating designs using lines and shapes. 2. Creating designs using lines and shapes.
9	1,4,5	1,4,5	1. Tools used in Photoshop – Move tool, Magic wand tool, Quick selection tool 2. Masking, transforms, working with layers. 3. Merging & blending layers, text effects.	Refer Table-1	1. Inserting pictures and Shapes, Filling colours. 2. Creating design Patterns with layers and filters.
10	1,3	1,4,5	1. Gradient's used for Rendering 2. Rendering & 3D effects, 3. Making collage in Photoshop, Applying filters	Refer Table-1	1. Creating animations and Presentations. 2. Creating animations and Presentations.
11	1,4	1,4,5	ADOBE ILLUSTRATOR 1. Introduction to Adobe Illustrator. 2. Raster and vector, a brief orientation. 3. Menu Bar – File, Edit, Object, Type, Select, Effect, View, Window	Refer Table-1	1. Creating designs using various tools. 2. Creating designs using various tools.
12	1,3,4	1,4,5	1. Tool bars, Palettes, New document, 2. Zoom tool and Hand tool, 3. Pen Tool, Selection tool and Direct selection tool.	Refer Table-1	1. Draping garments and rendering with colour a) Casual Wear (Kids Garment-Girl & Boy) 2. Draping garments and rendering with colour a) Formal Wear (Kids Garment-Girl & Boy)

13	1,3,4	1,4,5	1. Shape Tool, Type Tool and Guides. 2. Modifying objects, Strokes and colour. 2. Working with Raster images. Layering in Illustrator.	Refer Table-1	1. Draping of garments with colour combination & different textures of women's & men's garment-party wear 2. Draping of garments with colour combination & different textures of women's & men's garment-party wear
Total in hours			48	16	64

***PO= Program Outcome as listed and defined in year 1 curriculum and PO – CO mapping with strength (Low/Medium/High) has to be mapped by the course Co-Ordinator. (Above only suggestive)**

TABLE 1: Suggestive Activities for Tutorials: (The List is only shared as an Example and not inclusive of all possible activities of the course. Student and Faculty are encouraged to choose activities that are relevant to the topic and on the availability of such resources at their institution).

Sl. no	Suggestive Activities for Tutorials
01.	Create & develop a collection using all the CAD software's
02.	Collect the images of different types of CAD software's in today's technology.
03.	Collect the different types of software in Fashion industry, Weaving, knitting & Apparel industry
04	Prepare a presentation on the tools and its functions of Auto CAD.
05.	Demonstrate the different applications of Auto CAD software.
06	Creating the different types of geometrical and logo designs using Auto CAD software
07.	Practice to get acquainted with interactive tools of Corel draw; import and export of images;resize image. Drawing, shaping, aligning, editing and grouping and ungrouping images.
08.	Prepare a presentation on the tools and its functions of Corel Draw software.
09.	Demonstrate the different applications of Corel Draw software.
10.	Draw croque with coral draw, under close supervision, having limited skill requirements in a routine and predictable situation, understand the context of work and quality, and with the knowledge of basic facts and with the responsibility for own work.

11.	Open the software and do the required page setup for the design. Identify and use the suitable tools for making croque. Set the required guidelines for croque. Make connected points for croque with the suitable tool and Explain it.
12.	Prepare a presentation on the tools and its functions of Abode Photoshop software.
13.	Collect information & Practice to get acquainted with Abode Photoshop manipulating color, color conversion; adjusting hue saturation.
14.	Collect information & Practice to get acquainted with Abode Photoshop manipulating color, color conversion; adjusting hue saturation.
15.	Demonstrate the different applications of Abode Photoshop software.
16.	Presenting, using tools of Abode Photoshop software, create different design garments for men and women.
17.	Collecting information on Abode Photoshop Illustration of latest software.
18.	Collect the information about the differences between the different types of tools and application in software's- Auto CAD, Corel Draw, Abode Photoshop & Abode Photoshop Illustration.

Note: i) Minimum 5 activities apart from collecting pictures.

ii) Folders should contain activities of all the units and submit the same at the end exam.

4. CIE and SEE Assessment Methodologies

Sl. No	Assessment	Test Week	Duration In minutes	Max marks	Conversion
1.	CIE-1 Written Test	5	80	30	Average of three tests30
2.	CIE-2Written Test	9	80	30	
3	CIE-3Written Test	13	80	30	
4.	CIE-4 Skill Test-Practice	6	180	100	Average of two skill tests reduced to 20
5	CIE-5 Skill Test-Practice	12	180	100	
6	CIE-6 Portfolio continuous evaluation of Activity through Rubrics	1-13		10	10
Total CIE Marks					60
Semester End Examination (Practice)			180	100	40
Total Marks					100

5. Format for CIE written Test

Course Name	Computer Aided Design	Test	I/II/III	Sem	III
Course Code	7434	Duration	80 Min	Marks	30
Note: Answer any one full question from each section. Each full question carries 10 marks.					
Section	Assessment Questions	Cognitive Levels	Course Outcome	Marks	
I	1				
	2				
II	3				
	4				
III	5				
	6				
Note for the Course coordinator: Each question may have one, two or three subdivisions. Optional questions in each section carry the same weightage of marks, Cognitive level and course outcomes.					

6. Rubrics for Assessment of Activity (Qualitative Assessment)

Sl. No.	Dimension	Beginner	Intermediate	Good	Advanced	Expert	Students Score
		2	4	6	8	10	
1		Descriptor	Descriptor	Descriptor	Descriptor	Descriptor	8
2		Descriptor	Descriptor	Descriptor	Descriptor	Descriptor	6
3		Descriptor	Descriptor	Descriptor	Descriptor	Descriptor	2
4		Descriptor	Descriptor	Descriptor	Descriptor	Descriptor	2
Average Marks=(8+6+2+2)/4=4.5							5

Note: Dimension and Descriptor shall be defined by the respective course coordinator as per the activities

7. Reference:

1	W Aldrich, CAD in Clothing and Textiles, Blackwell Science Ltd.
2	Manuals of the Software's Being Used.
3	Donald Hearn and M. Pauline Baker 'Computer Graphics, Prentice hall of India, New Delhi
4	Steve Baine, Using Coreldraw, Prentice Hall of India, New Delhi
5	Deke McClelland, Photoshop CS2, Wiley Dreamtech India Pvt. Ltd.
6	Eismann, Katrin, Photoshop Retouching Techniques, Simmon – Steve publisher
7	Adobe Photoshop CS6, Class room in a book, Dorling Kingslay Pub, 2013,
8	CAD for Fashion Design. By Rene Weiss Chase., Prentice Hall, upper saddle River, London.

9	Instrumental Colour measurements and Computer aided colour matching for textiles by H.S. Shah and R.S. Gandhi, Mahaj.
10	http://help.adobe.com/archive/en/photoshop/cs6/photoshop_reference.pdf
11	http://www.mypracticalskills.com/store/photoshop-for-fashion-ebook/
12	https://www.mooc-list.com/course/learn-designing-using-adobe-photoshop-scratcheduonix

8.CIE Skill Test and SEE Scheme of Evaluation

SL. No.	Particulars/Dimension	Marks
1	Create a logo using Auto CAD/ Photoshop/ Coral Draw/ Adobe Illustrator	20
2	Design and Drape a garment for a kid using Auto CAD/ Photoshop/ Coral Draw/Adobe Illustrator	20
3	Drape a Garment for Women/Men using Auto CAD/ Photoshop/ Coral Draw/ Adobe Illustrator	20
4	Create and animate a design using Photoshop/ Adobe Illustrator	20
5	Viva-Voce	20
Total Marks		100

9.Equipment/software list with Specification for a batch of 20 students

Sl. No.	Particulars	Specification	Quantity
01	Computer		20nos
02	Software –Auto Cad, Corel Draw, Adobe Photoshop & Adobe Illustrator		20 No.
03	PRINTER		01NO