

GUJARAT TECHNOLOGICAL UNIVERSITY (GTU)

Competency-focused Outcome-based Green Curriculum-2021 (COGC-2021)

I – Semester

Course Title: **Clothing Construction**

(Course Code: C4315102)

Diploma programme in which this course is offered	Semester in which offered
Computer Aided Costume Design and Dress Making	First

1. RATIONALE

Today's fashion industry is versatile and also rapidly changing its trends, which calls for a quick and required response in the production of garments. Thus, there is a steep demand for the professional and technically educated workforce of pattern making which is one of the basic human resources of garment production industries. This course will provide a sound foundation for garment components and their manufacturing techniques. It is designed to develop skills in students related to taking body measurements using appropriate tools, sewing by non-automatic machine, application of appropriate constructional stitches, and various pattern-making techniques.

2. COMPETENCY

The purpose of this course is to help the student to attain the following industry identified competency through various teaching learning experiences:

- **Prepare the garment component as per measurement using appropriate tools and techniques.**

3. COURSE OUTCOMES (COs)

The practical exercises, the underpinning knowledge and the relevant soft skills associated with the identified competency are to be developed in the student for the following Course Outcomes (COs) achievement :

- a) Make garment components using suitable measuring, marking, sewing & cutting tools.
- b) Identify Clothing articles, parts of the given sewing machine and various landmarks of human body used in apparel industry.
- c) Construct fabric samples using appropriate hand stitches, machine stitches shaping techniques, trims and component.
- d) Develop various types of blocks using appropriate pattern making techniques.

4. TEACHING AND EXAMINATION SCHEME

Teaching Scheme (In Hours)			Total Credits (L+T+P/2)	Examination Scheme				Total Marks
L	T	P		Theory Marks		Practical Marks		
CA	ESE	CA	ESE					
3	0	4	5	30*	70	25	25	150

(*): Out of 30 marks under the theory CA, 10 marks are for assessment of the micro-project to facilitate integration of COs and the remaining 20 marks is the average of 2 tests to be

taken during the semester for assessing the attainment of the cognitive domain UOs required for the attainment of the COs.

Legends: *L*-Lecture; *T* – Tutorial/Teacher Guided Theory Practice; *P* -Practical; *C* – Credit, *CA* - Continuous Assessment; *ESE* -End Semester Examination.

5. SUGGESTED PRACTICAL EXERCISES

The following practical outcomes (PrOs) are the sub-components of the COs. *Some of the PrOs marked “*” are compulsory, as they are crucial for that particular CO at the ‘Precision Level’ of Dave’s Taxonomy related to ‘Psychomotor Domain’.*

Sr. No.	Practical Outcomes (PrOs)	Unit No.	Approx. Hrs. required
1	Take body measurement of another person and note it in the file as per the given format. (Minimum 10 individual)	IV	04*
2	Take measurement from readymade garment and note it in the file as per the given format. (1 upper and 1 lower garment)	IV	02*
3	Prepare samples of Basting, Blind hemming and Simple hemming hand stitches on selected fabric.	V	06*
4	Prepare samples of Plain Seam, Curved Seam, Cornered to join an inward corner, Trimming, Clipping, Bias bound, French Seam, Flat felled Seam, Self-bound Seam, Lapped Seams, Double topstitched Seam, Welt Seam, Slot Seam machine stitches on selected fabric.	V	10*
5	Prepare samples of neck line finishing using piping and shape facing (any two)	VII	06*
6	Prepare samples of pockets (Patch and side)	VII	06*
7	Prepare samples of plackets (open and closed)	VII	04*
8	Prepare samples of shaping technique (Simple dart, fish dart, vertical tuck, knife pleat, box pleat and gathers)	VI	08*
9	Fix components such as lace, braid, zipper, button and button hole, hook and eye and Velcro as directed on given garments	VII	10*
Total			56

Note

- i. More **Practical Exercises** can be designed and offered by the respective course teacher to develop the industry relevant skills/outcomes to match the COs. The above table is only a suggestive list.
- ii. The following are some **sample** ‘Process’ and ‘Product’ related skills (more may be added/deleted depending on the course) that occur in the above listed **Practical Exercises** of this course, which are embedded in the COs and ultimately the competency.

Sr. No.	Sample Performance Indicators for the PrOs	Weightage in %
1	Planning the process for creating the sample	20
2	Constructing the sample as per laid down process	50
3	Finishing of the sample	20
4	Presentation of the sample.	10
Total		100

6. MAJOR EQUIPMENT/ INSTRUMENTS REQUIRED

These major equipment with broad specifications for the PrOs is a guide to procure them by the administrators to usher in uniformity of practical in all institutions across the state.

Sr. No.	Equipment Name with Broad Specifications	PrO.No.
1	Half Shuttle Sewing Machine	3,4,5,6,7,8,9
2	Full Shuttle Sewing Machine	3,4,5,6,7,8,9

7. AFFECTIVE DOMAIN OUTCOMES

The following **sample** Affective Domain Outcomes (ADOs) are embedded in many of the above-mentioned COs and PrOs. More could be added to fulfill the development of this course competency.

- a) Work as a leader/a team member.
- b) Follow ethical practices.
- c) Practice environmental friendly methods and processes. (Environment related)

The ADOs are best developed through the laboratory/field-based exercises. Moreover, the level of achievement of the ADOs according to Krathwohl's 'Affective Domain Taxonomy' should gradually increase as planned below:

- i. 'Valuing Level' in 1st year
- ii. 'Organization Level' in 2nd year.
- iii. 'Characterization Level' in 3rd year.

8. UNDERPINNING THEORY

The major underpinning theory is given below based on the higher level UOs of Revised Bloom's taxonomy that are formulated for development of the COs and competency. If required, more such UOs could be included by the course teacher to focus on attainment of COs and competency.

Unit	Unit Outcomes (UOs) (4 to 6 UOs at different level)	Topics and Sub-topics
Unit – I Clothing Terminology	1a. Appreciate the role of garment in fashion industry. 1b. Explain the terminologies associated with clothing details. 1c. Explain the terminologies associated with clothing articles. 1d. Identify various clothing articles.	1.1. Definition of garment 1.2. History and role of garment in human race. 1.3. Terminologies associated with clothing. 1.3.1 Terms for clothing details 1.3.1.1 Fabric widths 1.3.1.2 Grain lines 1.3.1.3 Straightening 1.3.1.4 Shrinking 1.3.1.5 Seam 1.3.1.6 Seam allowances 1.3.1.7 Selvedge 1.3.1.8 Arm scye 1.3.1.9 Bias 1.3.1.10 Gusset

Unit	Unit Outcomes (UOs) (4 to 6 UOs at different level)	Topics and Sub-topics
		1.3.1.11 Hem 1.3.1.12 Crotch 1.3.1.13 In seam 1.3.1.14 Yoke 1.3.1.15 Piping 1.3.1.16 Lining 1.3.1.17 Interlining 1.3.1.18 Facing 1.3.2 Terms for clothing articles. 1.3.2.1 Achkan and Sherwani 1.3.2.2 Bell-Bottoms 1.3.2.3 Blazer 1.3.2.4 Capri 1.3.2.5 Coat 1.3.2.6 Gown 1.3.2.7 Halter Top 1.3.2.8 Hijab 1.3.2.9 Jacket 1.3.2.10 Jumpsuit 1.3.2.11 Lehenga Choli 1.3.2.12 Anarkali Suit 1.3.2.13 Churidar 1.3.2.14 Leggings 1.3.2.15 Lingerie 1.3.2.16 Muffler 1.3.2.17 Pajamas 1.3.2.18 Scarf 1.3.2.19 Shorts 1.3.2.20 Stole 1.3.2.21 Suit 1.3.2.22 Swimsuit 1.3.2.23 Tank Tops 1.3.2.24 Trousers 1.3.2.25 Undergarment 1.3.2.26 Vest 1.3.2.27 Crop top 1.3.2.28 Sarong 1.3.2.29 Waistcoat 1.3.2.30 Poncho 1.3.2.31 Peplum top 1.3.2.32 Cloak 1.3.2.33 Dungaree 1.3.2.34 Robe
Unit – II Non-Automatic tools for garment manufacture	2a. Explain the function and uses of measuring tools 2b. Explain the function and uses of marking tools 2c. Explain the function and uses of cutting tools 2d. Explain the function and uses of sewing and miscellaneous	2.1 Measuring Tools Function and uses of the following tools: 2.1.1. Measuring tape 2.1.2. Tailor’s square 2.1.3. Yardstick 2.1.4. Clear ruler (see through ruler) 2.1.5. French curve Set

Unit	Unit Outcomes (UOs) (4 to 6 UOs at different level)	Topics and Sub-topics
	<p>tools</p> <p>2e. Select suitable Non automatic Garment Manufacturing tool for a given application.</p> <p>2f. Use appropriate Non automatic Garment Manufacturing tool for a given application.</p>	<p>2.1.6. Setsquare</p> <p>2.1.7. flexible Curve Rulers</p> <p>2.1.8. Sewing gauge</p> <p>2.2 Marking tools Function and uses of the following tools:</p> <p>2.2.1. Chalk pencil</p> <p>2.2.2. Pencil</p> <p>2.2.3. Fiber pens</p> <p>2.2.4. Disappearing pens</p> <p>2.2.5. Children’s washable markers</p> <p>2.2.6. Tracing wheel</p> <p>2.2.7. Fabric carbon paper</p> <p>2.2.8. Tailor’s chalk</p> <p>2.2.9. Pattern notcher</p> <p>2.2.10. Marking with soap</p> <p>2.3 Cutting tools Function and uses of the following tools:</p> <p>2.3.1. Small scissor</p> <p>2.3.2. Big shears</p> <p>2.3.3. Thread trimmers</p> <p>2.3.4. Pinking shears</p> <p>2.3.5. Stitch opener</p> <p>2.3.6. Rotary cutter</p> <p>2.3.7. Surgical blades</p> <p>2.3.8. Awl</p> <p>2.4 Sewing tools Function and use of the following tools:</p> <p>2.4.1. Bobbin & Bobbin case</p> <p>2.4.2. Machine sewing needles</p> <p>2.4.3. Hand sewing needles</p> <p>2.5 Miscellaneous tools Function and uses of the following tools:</p> <p>2.5.1. Thimble</p> <p>2.5.2. Pins and Pin cushions</p> <p>2.5.3. Ironing board</p> <p>2.5.4. Iron</p> <p>2.5.5. Bobbin winder</p>

Unit	Unit Outcomes (UOs) (4 to 6 UOs at different level)	Topics and Sub-topics
Unit– III Sewing Machine	3a. Identify different Parts of given sewing machine. 3b. Explain the functions of different parts of sewing machine. 3c. Explain the steps for operation of sewing machine. 3d. Describe the procedure for maintenance of sewing machine.	3.1. History of sewing machine. 3.2. Types of sewing machine. 3.2.1. Half Shuttle sewing machine. 3.2.2. Full Shuttle sewing machine. 3.3. Parts of sewing machine and its functions. 3.4. Operation of sewing machine. 3.5. Care & Maintenance of sewing machine.
Unit– IV Body Measurement	4a. Explain the landmarks on the body required for making garments. 4b. Take horizontal and Vertical body measurements for garment making. 4c. Take horizontal and vertical measurements from readymade garment. 4d. Take horizontal and vertical measurements from standard chart for garment making.	4.1. Knowledge of various landmarks on the body required for making the garments. 4.2. Techniques of taking body measurements. 4.2.1 Directly from the body. (Vertical & Horizontal) 4.2.2 Indirectly form the readymade garments. 4.2.3 From standard size charts.
Unit– V Clothing Construction	5a. Explain the different shaping techniques used in garment. 5b. Differentiate between different hand stiches. 5c. Suggest the machine stiches to be used for a given garment. 5d. Stitch the Fabric as per given direction, using appropriate hand stiches. 5e. Stitch the Fabric as per given direction, using appropriate machine stiches. 5f. Use appropriate shaping techniques to give required shape to the garment.	5.1. Hand stiches 5.1.1. Basting 5.1.2. Running stitch 5.1.3. Different types of hemming stiches 5.1.3.1. Blind hemming stitch 5.1.3.2. Simple hemming stitch 5.2. Machine stiches 5.2.1. Plain Seam 5.2.2. Curved Seam 5.2.3. Cornered 5.2.4. To join an inward corner 5.2.5. Trimming 5.2.6. To trim corner 5.2.7. Clipping 5.2.8. Hand overcast 5.2.9. Zigzagged 5.2.10. Bias bound 5.2.11. French seam 5.2.12. Flat felled seam 5.2.13. Self-bound seam 5.2.14. Corded seams 5.2.15. Lapped seams 5.2.16. Fagotted seam

Unit	Unit Outcomes (UOs) (4 to 6 UOs at different level)	Topics and Sub-topics
		5.2.17. Double topstitched seam 5.2.18. Welt seam 5.2.19. Tuck seam 5.2.20. Slot seam 5.3. Shaping techniques 5.3.1 Darts 5.3.2 Tucks 5.3.3 Pleats 5.3.4 Gathers 5.3.5 Shearing 5.3.6 Smocking 5.3.7 Ruffles.
Unit-VI Garment components	6a. Define various Garment components. 6b. Differentiate between different types of necklines. Pockets, plackets, sleeves, collars and cuffs 6c. Select appropriate garment components best suitable to the garment.	6.1 Types of garment components 6.1.1 Necklines (Definition & its styles) 6.1.2 Pockets (Definition & its Types – Patch pocket, Slash pocket, Double welt pocket, welt pocket, flap pocket, inseam pocket) 6.1.3 Plackets (Placket opening of upper and lower garment) 6.1.4 Sleeves (Set in and Non-Set in) 6.1.5 Collars (Flat and raised) 6.1.6 Cuffs 6.1.7 Miscellaneous (lace, braid, elastic, hook and loop fastening, Velcro, seam binding and tape, eyelets, zipper, buttons, tack buttons, snap fasteners and rivets).
Unit– VII Techniques of Pattern Making.	7a. Explain various pattern making techniques. 7b. Explain the features of different types of blocks. 7c. Prepare suitable type of block for given application. 7d. Differentiate between Draping, Drafting and Flat Pattern techniques.	7.1. Introduction to Pattern making. 7.2. Definition and types of blocks 7.2.1. Standard block 7.2.2. Simplified block 7.2.3. Tailoring block 7.2.4. Trade block 7.2.5. Primary block 7.2.6. Secondary block 7.3. Types of patterns making techniques, its definition and procedure followed: 7.3.1. Draping

Unit	Unit Outcomes (UOs) (4 to 6 UOs at different level)	Topics and Sub-topics
		7.3.2. Drafting 7.3.3. Flat pattern 7.3.3.1. Pivot method 7.3.3.2. Slash method 7.4. Material required for various pattern making techniques. 7.5. Advantages and disadvantages of various Pattern making techniques.

9. SUGGESTED SPECIFICATION TABLE FOR QUESTION PAPER DESIGN

Unit No.	Unit Title	Teaching Hours	Distribution of Theory Marks			
			R Level	U Level	A	Total Marks
I	Clothing Terminology	06	03	07	00	10
II	Non automatic tools for garment manufacturing	06	02	03	05	10
III	Sewing machines	04	01	03	02	06
IV	Body measurement	02	01	01	02	04
V	Clothing Construction	08	02	03	07	12
VI	Garment Components	06	02	03	05	10
VII	Techniques of Pattern making	10	03	05	10	18
Total		42	14	25	31	70

Legends: R=Remember, U=Understand, A=Apply and above (Revised Bloom's taxonomy)

Note: This specification table provides general guidelines to assist students for their learning and to teachers to teach and question paper designers/setters to formulate test items/questions to assess the attainment of the UOs. The actual distribution of marks at different taxonomy levels (of R, U and A) in the question paper may slightly vary from above table.

10. SUGGESTED STUDENT ACTIVITIES

Other than the classroom and laboratory learning, following are the suggested student-related **co-curricular** activities which can be undertaken to accelerate the attainment of the various outcomes in this course. Students should conduct following activities in group and prepare reports of about 5 pages for each activity. They also collect/record physical evidences for their (student's) portfolio which may be useful for their placement interviews:

- Assign internet-based assignments.
- Give seminar on any relevant topic.
- Undertake market survey on relevant topics.
- Assign teacher guided self learning activities.

11. SUGGESTED SPECIAL INSTRUCTIONAL STRATEGIES (if any)

These are sample strategies, which the teacher can use to accelerate the attainment of the various outcomes in this course:

- a) Massive open online courses (**MOOCs**) may be used to teach various topics/sub topics.
- b) Guide student(s) in undertaking micro-projects.
- c) **'L' in section No. 4** means different types of teaching methods that are to be employed by teachers to develop the outcomes.
- d) About **20% of the topics/sub-topics** which are relatively simpler or descriptive in nature is to be given to the students for **self-learning**, but to be assessed using different assessment methods.
- e) With respect to **section No.10**, teachers need to ensure to create opportunities and provisions for **co-curricular activities**.
- f) Guide students on how to address issues on environ and sustainability
- g) Make students understand the relevant topic using animation, video and presentations.

12. SUGGESTED MICRO-PROJECTS

Only one micro-project is planned to be undertaken by a student that needs to be assigned to him/her in the beginning of the semester. In the first four semesters, the micro-project are group-based (group of 3 to 5). However, **in the fifth and sixth semesters**, the number of students in the group should **not exceed three**.

The micro-project could be industry application based, internet-based, workshop-based, laboratory-based or field-based. Each micro-project should encompass two or more COs which are in fact, an integration of PrOs, UOs and ADOs. Each student will have to maintain dated work diary consisting of individual contribution in the project work and give a seminar presentation of it before submission. The duration of the microproject should be about **14-16 (fourteen to sixteen) student engagement hours** during the course. The students ought to submit micro-project by the end of the semester to develop the industry-oriented COs.

A suggestive list of micro-projects is given here. This has to match the competency and the COs. Similar micro-projects could be added by the concerned course teacher:

- a) **Seams:** Take 5-6 different garments, identify various seams in it and prepare the report.
- b) **Garment components:** Collect pictures of various garments, identify the garment components in it and prepare the report.
- c) **Shaping techniques:** Take 5-6 stitched garments and identify different shaping techniques and prepare a report.
- d) **Trims and components:** Undertake a market survey of trims and components available in market and prepare a report.
- e) **Fabric waste:** Prepare creative articles using the waste material collected while preparing different garment components

13. SUGGESTED LEARNING RESOURCES

Sr. No.	Title of Book	Author	Publication with place, year and ISBN
1	Visual Design in dress	Marian L Davis	Prentice Hall, Upper Saddle River, NJ 07458. ISBN: 0-13-112129-4
2	The Art of Sewing	Anna Jacob Thomas	UBS Publishers Distributers Limited, New Delhi. ISBN: 81-85944-75-X
3	Pattern Making for Fashion Design	Helen Joseph - Armstrong	Pearson Education, New Delhi – 110092. ISBN: 81-297-0925-2
4	New Complete Guide to Sewing		Reader's Digest, Canada. ISBN: 0-7621-0420-1
5	Fashion Terms and Styles for Women's Garments	A. W. Koester & N.O. Bryant	Wiley India, New Delhi. ISBN : 9788126518951

14. SOFTWARE/LEARNING WEBSITES

- <https://cbseportal.com/ebook/vocational-books-fashion-design-and-garment-technology>
- <file:///C:/Users/dell/Downloads/ECNO1382.pdf>
- <https://bie.tg.nic.in/Pdf/bie.pdf>
- <https://bie.tg.nic.in/Pdf/GarmentTextBookfinal.pdf>
- https://www.usha.com/sites/default/files/sewing_tutorials/indian-garment-design-course-book.pdf

15. PO-COMPETENCY-CO MAPPING

Semester I	Clothing Construction(Course Code: C4315102)						
	POs						
Competency & Course Outcomes	PO 1 Basic & Discipline specific knowledge	PO 2 Problem Analysis	PO 3 Design/ development of solutions	PO 4 Engineering Tools, Experimentation & Testing	PO 5 Engineering practices for society, sustainability & environment	PO 6 Project Management	PO 7 Life-long learning
Competency	<i>Prepare the garment component as per measurement using appropriate tool and techniques</i>						
COa) Make garment components using suitable measuring, marking, sewing & cutting tools.	3	2	2	3	-	2	3
CO b) Identify Clothing articles, parts of the given sewing machine and various landmarks of human body used in apparel industry.	3	2	2	2	-	-	3
CO c) Construct fabric samples using appropriate hand stitches, machine stitches, shaping techniques, trims and component.	3	2	2	2	2	3	3
CO d) Develop various types of blocks using appropriate pattern making techniques.	3	3	3	2	-	3	3

Legend: '3' for high, '2' for medium, '1' for low or '-' for no correlation of each CO with PO

16. COURSE CURRICULUM DEVELOPMENT COMMITTEE**GTU Resource Persons**

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