Program Name : **Diploma in Textile Manufacturers**

Program Code : **TX**

Semester : **Fourth**

Course Title : **Basic Garment Technology**

Course Code : **22465**

1. RATIONALE

Textiles are mainly meant for garments making. It is therefore important for textile engineers to understand the basic features of garment and its manufacturing, so that they can take care of needs of garment manufacturing while designing the fabric structures. In addition to this knowledge of garment manufacturing would also help textile engineers to get jobs in garment industry or set up their own garment manufacturing unit. This course aims to make students understand the process of garment manufacturing. This course will help students to understand the importance and methods of taking body measurements for preparing basic blocks for manufacturing garment. The students will understand the precautions to be taken at each step of garment manufacturing so as to manufacture quality garments. This course focuses on giving students hands on experience to the students of different garment manufacturing processes such as spreading, cutting, sewing and finishing.

2. COMPETENCY

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

- **Apply the principles of garment manufacturing to manufacture different garments.**

3. COURSE OUTCOMES (COs)

The theory, practical experiences and relevant soft skills associated with this course are to be taught and implemented, so that the student demonstrates the following ***industry oriented*** COs associated with the above mentioned competency:

a. Prepare basic blocks and markers according to body measurements.
b. Cut layers of fabrics according to marker after making the layer by spreading the fabric.
c. Stitch different garment parts to create three dimensional garments.
d. Identify different trims and components used for garment manufacturing and costing.
e. Apply different finishing processes for garments to obtain desired qualities.

4. TEACHING AND EXAMINATION SCHEME

Teaching Scheme			Credit (L+T+P)	Examination Scheme											
				Theory							Practical					
L	T	P		Paper Hrs.	ESE		PA		Total		ESE		PA		Total	
					Max	Min	Max	Min	Max	Min	Max	Min	Max	Min	Max	Min
3	-	2	5	3	70	28	30*	00	100	40	25@	10	25	10	50	20

(*): Under the theory PA, Out of 30 marks, 10 marks are for 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 the assessment 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,* ***ESE*** *- End Semester Examination;* ***PA*** *- Progressive Assessment.*

5. COURSE MAP (with sample COs, PrOs, UOs, ADOs and topics)

This course map illustrates an overview of the flow and linkages of the topics at various levels of outcomes (details in subsequent sections) to be attained by the student by the end of the course, in all domains of learning in terms of the industry/employer identified competency depicted at the centre of this map.

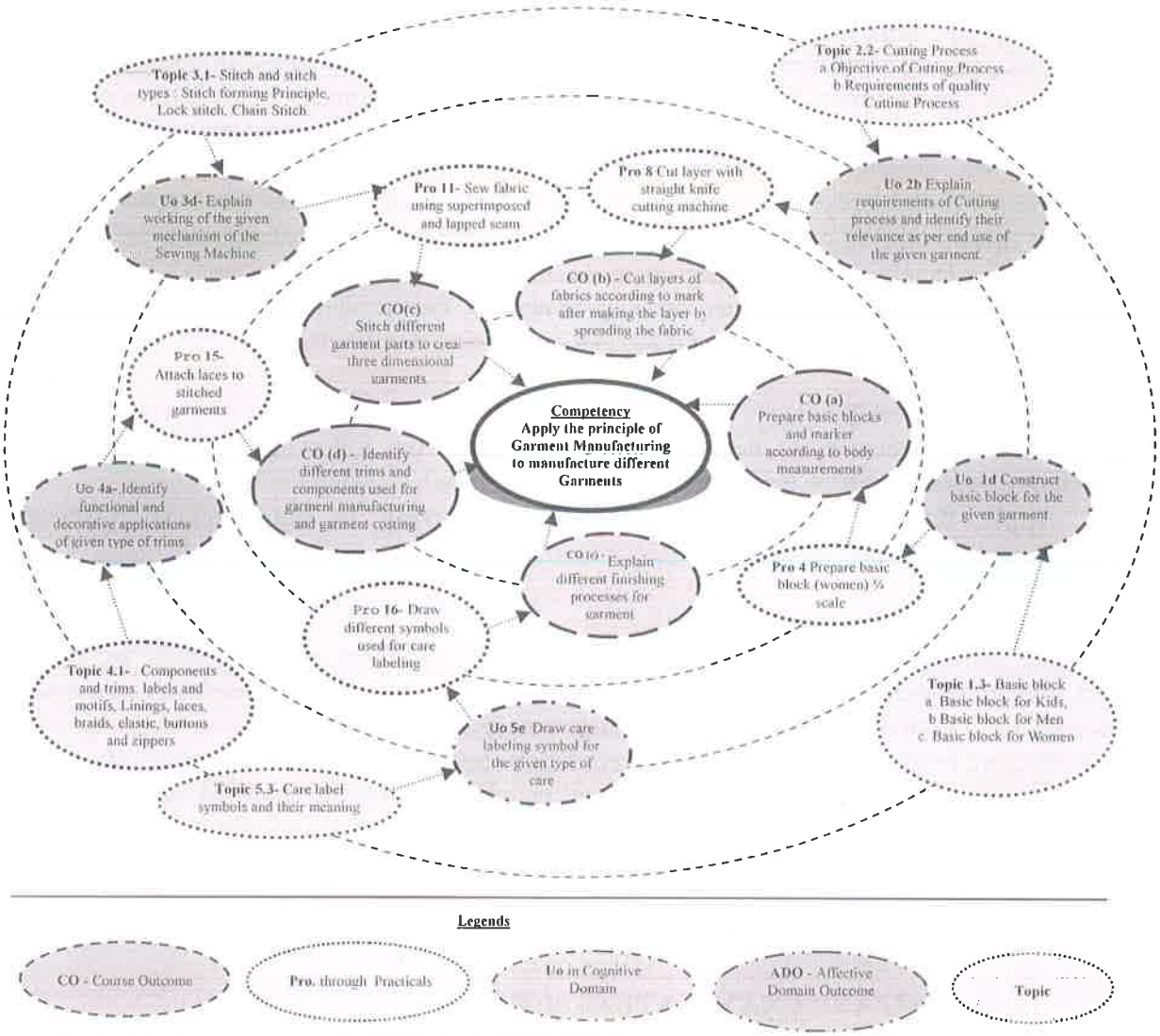

Figure 1 - Course Map

6. SUGGESTED PRACTICALS/ EXERCISES

The practicals in this section are PrOs (i.e. sub-components of the COs) to be developed and assessed in the student for the attainment of the competency.

S. No.	Practical Outcomes (PrOs)	Unit No.	Approx. Hrs. Required
1.	Take different body measurements	I	02

S. No.	Practical Outcomes (PrOs)	Unit No.	Approx. Hrs. Required
2.	Prepare basic block (child) ¼ scale	I	02*
3.	Prepare basic block (men) ¼ scale	I	02
4.	Prepare basic block (women) ¼ scale	I	02*
5.	Plan a marker for two and four garments ¼ Scale	I	02*
6.	Spread fabric to form a lay (Flat)	II	02
7.	Plan on fold marker for two and four garments.(¼ Scale on paper only)	II	02
8.	Cut layer with straight knife cutting machine	II	02*
9.	Cut layer with round knife cutting machine	II	02
10.	Make reference marks using drills and notchers.	II	02
11.	Sew fabric using superimposed and lapped seam	III	02*
12.	Sew fabric using decorative and flat seam	III	02*
13.	Identify different parts of sewing machine and draw sketch of them	III	02*
14.	Attach labels to stitched garments	IV	02
15.	Attach laces to stitched garments	IV	02*
16.	Draw different symbols used for care labeling	V	02*
	Total		**32**

Note

i. *A suggestive list of PrOs is given in the above table. More such PrOs can be added to attain the COs and competency. A judicial mix of minimum 12 or more practical need to be performed, out of which, the practicals marked as '*' are compulsory, so that the student reaches the 'Precision Level' of Dave's 'Psychomotor Domain Taxonomy' as generally required by the industry.*

ii. *The 'Process' and 'Product' related skills associated with each PrO is to be assessed according to a suggested sample given below:*

S. No.	Performance Indicators	Weightage in %
1	Understanding of the process.	20
2	Use of relevant tools.	20
3	Handling of the machines	30
4	Practicing professional techniques	20
5	Submit report in time.	10
	Total	**100**

The above PrOs also comprise of the following social skills/attitudes which are Affective Domain Outcomes (ADOs) that are best developed through the laboratory/field based experiences:

a. Follow safety practices.
b. Practice good housekeeping.
c. Demonstrate working as a leader/a team member.
d. Maintain tools and equipment.
e. Follow ethical Practices.

The ADOs are not specific to any one PrO, but are embedded in many PrOs. Hence, the acquisition of the ADOs takes place gradually in the student when s/he undertakes a series of practical experiences over a period of time. Moreover, the level of achievement of the ADOs according to Krathwohl's 'Affective Domain Taxonomy' should gradually increase as planned below:

- 'Valuing Level' in 1st year
- 'Organising Level' in 2nd year
- 'Characterising Level' in 3rd year.

7. MAJOR EQUIPMENT/ INSTRUMENTS REQUIRED

The major equipment with broad specification mentioned here will usher in uniformity in conduct of experiments, as well as aid to procure equipment by authorities concerned.

S. No.	Equipment/Instruments/Other resources name with Broad Specifications	PrO. No.
1	Mannequin of boy, girl, man and women	1
1	Tailoring Tape T	1
2	Scale, Set squares, French curves, pattern paper, pins, pencils	2 to 4
3	Cutting table, pattern paper, pins, pencils	5
4	Cutting table, fabric	6, 7
5	Cutting Table, fabric, Straight Knife cutting machine	8
6	Cutting Table, fabric, round blade cutting machine	9
7	Cutting Table, fabric, drill and knotcher	10
8	Sewing Machine, Sewing Thread, Fabric	11 to 16

8. UNDERPINNING THEORY COMPONENTS

The following topics are to be taught and assessed in order to develop the sample UOs given below for achieving the COs to attain the identified competency. More UOs could be added.

Unit	Unit Outcomes (UOs) (in cognitive domain)	Topics and Sub-topics
Unit – I Body Measurements and Preparing Basic Block	1a. Describe with sketches the process flow for manufacturing a given garment 1b. Explain with sketches the method of taking measurement of given body part with the help of diagram and precautions to be observed. 1c. Organize measurement chart for different sizes. 1d. Construct with sketches the basic bodice block for the given garment. 1e. Describe with sketches the process to compare allowances used for the given seams. 1f. Explain with sketches the given method of planning of marker.	1.1 Show Garment Process flow chart 1.2 Body measurements and preparing measurement chart. 1.3 Basic block a. Basic block for Kids b. Basic block for Men c. Basic block for Women 1.4 Ease allowances and stitch allowances and their importance 1.5 Methods and requirements of Marker planning a. Requirements of Marker Planning. b. Methods of Marker Planning 1.6 Methods of drawing and reproducing of marker a. Methods of drawing of marker on fabric

Unit	Unit Outcomes (UOs) (in cognitive domain)	Topics and Sub-topics
	1g. Identify requirements of marker as per the end use of the given garment. 1h. Describe with sketches the given method of drawing and reproduction of marker	b. Methods of Marker duplication
Unit– II Fabric Spreading for layer and Cutting	2a. Describe with sketches the given method of spreading with requirements of spreading process. 2b. Explain with sketches the requirements of Cutting process and identify their relevance as per end use of the given garment. 2c. Describe with sketches the the given cutting tools used for garment manufacturing with the help of diagrams	2.1 Spreading Process a. Objective of Spreading process b. Requirements of Spreading process c. Methods of Spreading to form a lay 2.2 Cutting Process a. Objective of Cutting Process b. Requirements of quality Cutting Process 2.3 Cutting tools- portable knives, stationery knife, notchers and drills.
Unit – III Sewing Process	3a. Explain principle and formation of a given stitch type with the help of diagram. 3b. Describe with sketches the process to compare lock stitch and chain stitch and identify their application in the given garment with justification. 3c. Explain with sketches the the given seam type with the help of diagram and identify its application in the garments with justification. 3d. Explain working of the given mechanism of the Sewing Machine with the help of diagram. 3e. Convert the given Ticket no. into Tex No, and explain the construction of thread based on its ticket no.	3.1 Stitch and stitch types : Stitch forming Principle, Lock stitch, Chain Stitch. 3.2 Seam and seam types: superimposed, bound, decorative, lapped, French, flat seams 3.3 Sewing Machine: Sewing machine Needle, feed mechanism, tensioning devises, stitch formation. 3.4 Sewing thread construction, ticket number, Tex No.
Unit– IV Trims and Componen ts and Garment	4a. Describe with sketches the the given components and trims used in garment manufacturing 4b. Identify functional and decorative applications of given	4.1 Components and trims: labels and motifs, Linings, laces, braids, elastic, buttons and zippers 4.2 Components contributing towards Garment costing: fabric

Unit	Unit Outcomes (UOs) (in cognitive domain)	Topics and Sub-topics
Costing	type of trims. 4c. Determine cost of the garment for given specification.	consumption, fabric cost, trims, labor cost, transport cost, over heads
Unit– V Fusing, Pressing and Care Labeling	5a. Explain with sketches the the given method of fusing. 5b. Describe with sketches the process to compare the given methods of applying resin on base fabric. 5c. Explain with sketches the requirements of the given pressing process and list its advantages. 5d. Describe how the given parameter influences performance of the pressing process. 5e. Draw care labeling symbol for the given type of care.	5.1 Fusing Process a) Advantages and requirements of fusing process b) Methods of applying resins on base cloth c) Methods of fusing 5.2 Pressing of garments a) Objective of pressing b) Methods of Pressing 5.3 Care label symbols and their meaning

Note: To attain the COs and competency, above listed UOs need to be undertaken to achieve the 'Application Level' and above of Bloom's 'Cognitive Domain Taxonomy'

9. SUGGESTED SPECIFICATION TABLE FOR QUESTION PAPER DESIGN

Unit No.	Unit Title	Teaching Hours	Distribution of Theory Marks			
			R Level	U Level	A Level	Total Marks
I	Body Measurements and Preparing Basic Block	10	5	5	4	14
II	Fabric Spreading for layer and Cutting	14	6	6	6	18
III	Sewing Process	14	6	6	6	18
IV	Trims and Components and garment costing	4	3	3	2	8
V	Fusing, Pressing and Care Labeling	6	4	4	4	12
Total		**48**	**24**	**24**	**22**	**70**

Legends: *R=Remember, U=Understand, A=Apply and above (Bloom's Revised taxonomy)*
Note*: This specification table provides general guidelines to assist student for their learning and to teachers to teach and assess students with respect to attainment of UOs. The actual distribution of marks at different taxonomy levels (of R, U and A) in the question paper may 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, also collect/record physical evidences for their (student's) portfolio which will be useful for their placement interviews

a. Student should maintain a scrapbook containing images of different types of garments.
b. Student should visit various garment machinery trade fairs to know modern developments.
c. Students should maintain scrapbook containing images and samples of various trims and components.

11. SUGGESTED SPECIAL INSTRUCTIONAL STRATEGIES

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. ***'L' in item No. 4*** does not mean only the traditional lecture method, but different types of teaching methods and media that are to be employed to develop the outcomes.
c. About ***15-20% of the topics/sub-topics*** which is relatively simpler or descriptive in nature is to be given to the students for ***self-directed learning*** and assess the development of the COs through classroom presentations (see implementation guideline for details).
d. With respect to item No.10, teachers need to ensure to create opportunities and provisions for ***co-curricular activities***.
e. Guide student(s) in undertaking micro-projects.

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. However, in the fifth and sixth semesters, it should be preferably be ***individually*** undertaken to build up the skill and confidence in every student to become problem solver so that s/he contributes to the projects of the industry. In special situations where groups have to be formed for micro-projects, 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 total duration of the micro-project should not be less than ***16 (sixteen) student engagement hours*** during the course. The student ought to submit micro-project by the end of the semester to develop the industry oriented COs.

A suggestive list of micro-projects are given here. Similar micro-projects could be added by the concerned faculty:

a. **Preparing Measurement Chart**: Batch of students (Maximum four) will take body measurements of at least 50 persons (child, men and women) and prepare measurement chart for different sizes.
b. **Sewing Thread and ticket Number:** Batch of students (Maximum four) will collect at least 40 samples of sewing thread and their ticket number.
c. **Trims and Components:** Batch of students (Maximum four) will collect at least 40 samples of different trims and components and describe their features with uses in garment.
d. **Industrial Clothing:** Batch of students (Maximum four) will prepare report on at least one garment for industrial application. Considering functional requirements of the

garments students will give specifications of the fabric, sewing thread and accessories to be used.

e. **Plant organization:** Batch of students (Maximum four) will select at least one end product and prepare organization chart, type of machines required and plant layout considering production requirements.

f. **Care Labeling:** Batch of students will prepare report on care label standards used for at least 5 countries (they will collect information by visiting different malls and exploring internet)

13. SUGGESTED LEARNING RESOURCES

S. No.	Title of Book	Author	Publication
1.	The Technology of Clothing Manufacture	Harold Carr and Barbara Lathan	Blackwell Science, UK.
2.	Sewing Lingerie	Singer	Cy De Cosse ,UK
3.	Garment Technology for Fashion Designer	Gerry Cooklin	Blackwell Science, UK.
4	Clothing for moderns	Erain Mabel Clothing for	Macmillaan Publications, New-Yark.
5	Pattern Making for Fashion Design	Armstrong, Helen Joseph	Harper Collins, LA, ISBN:9780136069348

14. SUGGESTED SOFTWARE/ LEARNING WEBSITES

a. https://www.youtube.com/watch?v=sLb59LdvUjg
b. https://www.youtube.com/watch?v=xUNzIgMlgtU
c. https://www.youtube.com/watch?v=kRX5F3Rhq0Q
d. https://www.youtube.com/watch?v=nmkS8brdWhI
e. https://www.youtube.com/watch?v=GfsvE2AgwEo
f. https://www.youtube.com/watch?v=ACOLyczZqmk
g. https://www.youtube.com/watch?v=ACOLyczZqmk
h. https://www.youtube.com/watch?v=zFeLzscngJY
i. https://www.youtube.com/watch?v=y1ZD88zs6eU
j. https://www.youtube.com/watch?v=y1ZD88zs6eU
k. https://www.youtube.com/watch?v=YQitIduh6DE
l. https://www.youtube.com/watch?v=wSi8nAdCCZQ
m. https://www.youtube.com/watch?v=hafPb7v6ggs
n. https://www.youtube.com/watch?v=BV0IShoSXig
1. https://www.youtube.com/watch?v=pjVvW6zROGY