

# GUJARAT TECHNOLOGICAL UNIVERSITY

## TEXTILE TECHNOLOGY (29) SUBJECT NAME: GARMENT TECHNOLOGY SUBJECT CODE: 2172906 B.E. 7<sup>th</sup> SEMESTER

**Type of course:** Engineering

**Prerequisite:** Students should have knowledge of basic fabric formation methods.

**Rationale:** Garment technology covers different techniques of garment manufacturing and requirements of machineries for the same as well as quality control in garment manufacturing.

### Teaching and Examination Scheme:

Teaching Scheme			Credits C	Examination Marks						Total Marks
L	T	P		Theory Marks			Practical Marks			
				ESE (E)	PA (M)		ESE (V)		PA (I)	
				PA	ALA	ESE	OEP			
3	0	2	5	70	20	10	20	10	20	150

L- Lectures; T- Tutorial/Teacher Guided Student Activity; P- Practical; C- Credit; ESE- End Semester Examination; PA- Progressive Assessment; AL-Active learning assignments; OEP-Open Ended problem

### Content:

Sr. No.	Content	Total Hrs	% Weightage
1.	Introduction, Indian apparel industry. Domestic industry, size of the industry, nature of the industry, its developments in recent years. Export industry: Size and nature of the industry. Different garment production systems.	4	9.52
2.	Spreading machines: Spreading table – stationary – portable – fixed machines – travelling spreaders – manual – semi-automatic – automatic. Computerized spreaders – Marker making – Marker efficiency – Factors affecting marker efficiency – Marker duplicating methods – Computer aided marker making.	5	11.90
3.	Cutting machines: Vertical blade reciprocating – rotary blade – band knife – die cutter – clickers and presses – shears – hand knives – short knives – table sword knives – notches – drills – computer-controlled cutting knives – machines using laser, water, plasma and ultrasonic waves.	5	11.90
4.	History of sewing machines – classification according to bed types - major parts of sewing machinery and functions. Adjustment of major parts of single needle lock stitch machine: Non-UBT: stand height, pedal, presser foot, height of needle bar, needle to hook relationship, height of feed dog, normal and reverse feed stitch length, feed timing, presser foot pressure, needle and bobbin thread tension, bobbin winding assembly, belt tension.	9	21.43

5.	Types of needles – Parts of needles and their function – Needle size – sewing thread – properties of sewing threads – ticket number – fabric sewability. Seam quality – effect of stitch type on seam quality. Selection of seam and stitch.	4	9.52
6.	Work aids-folders, special presser feet, feeding systems. Interlinings-classification and application. Collar turning machines, folding machinery, Fusing and pressing machines.	4	9.52
7.	Garment finishing: Fasteners, thread tucking, care and size labeling system, checking, pressing, folding and packing, packing standards for domestic and export markets.	4	9.52
8.	Quality Control in Garment manufacturing: Control in pattern making, grading, fabric laying, marking, sewing and finishing, control of garment defects.	3	7.14
9.	Garment dyeing and finishing.	4	9.52

### Suggested Specification table with Marks (Theory):

Distribution of Theory Marks					
R Level	U Level	A Level	N Level	E Level	C Level
15	20	20	5	5	5

**Legends: R: Remembrance; U: Understanding; A: Application, N: Analyze and E: Evaluate C: Create and above Levels (Revised Bloom's Taxonomy)**

Note: This specification table shall be treated as a general guideline for students and teachers. The actual distribution of marks in the question paper may vary slightly from above table.

### Reference Books:

1. Jacob Solinger, Apparel Manufacturing Handbook, VanNostrand Reinhold Company, 1988.
2. Peyton B. Hudson, Guide to Apparel Manufacturing, MediApparel Inc. 1989.
3. Carr H and Lantham B, "The Technology of Clothing Manufacture", Om Book Service, Delhi.
4. Mehta P V and Bhardwaj S K, "Managing Quality in apparel industry", Om Book Service, New Delhi
5. Aldrich W, "Metric Pattern Cutting", OM Book Service, New Delhi, 1998.
6. Cooklin Gerry, "Garment Technology for Fashion Designers", OM Book Service, New Delhi, 1997.
7. Eveleyn M and Ucas, "Clothing Construction", 2nd Edition Hughton Mifflin Co, Boston 1974.
8. Introduction to clothing Manufacture by Gerry Cooklin
9. Clothing construction and wardrobe planning by Dora S. Lewin, Mabel Goode Bowers, Manetta Knttunen — The Macmillan co New York
10. Garment Technology by Dr. V.Subramaniam — Winter School booklets 1990
11. BIS publications 1989.

### Course Outcome:

After learning the course the students should be able to:

1. Develop pattern.
2. Calculate sewing efficiency.
3. Select the parts and garment machinery as per the requirements.
4. Assess & control quality of garment.

**List of Experiments:**

1. Study of yarn passage through machine.
2. Study of marker method.
3. Study of different spreading devices.
4. Study of various cutting systems.
5. Study of different types of seams.
6. Study of various feed mechanisms.
7. Study of different types of stitches.
8. Study of various sorts of needles.
9. Preparation of samples of different types of seams.
10. Study of modern sewing methods.
11. Study of different types of sewing beds.

**Design based Problems (DP)/Open Ended Problem:** Apart from above experiments a group of students has to undertake one open ended problem/design problem. Few examples of the same are given below.

1. Develop any one part of spreading machine.
2. Develop any one part of cutting machine.
3. Develop any one part of sewing machine.

**Major Equipment:**

Sewing machine

**List of Open Source Software/learning website:** <http://nptel.iitm.ac.in>, World Wide Web, Google Search Engine etc.

**ACTIVE LEARNING ASSIGNMENTS:** Preparation of power-point slides, which include videos, animations, pictures, graphics for better understanding theory and practical work – The faculty will allocate chapters/ parts of chapters to groups of students so that the entire syllabus to be covered. The power-point slides should be put up on the web-site of the College/ Institute, along with the names of the students of the group, the name of the faculty, Department and College on the first slide. The best three works should submit to GTU.