

# GUJARAT TECHNOLOGICAL UNIVERSITY

**BRANCH NAME: TEXTILE PROCESSING**  
**SUBJECT NAME: TECHNOLOGY OF PRINTING - II**  
**SUBJECT CODE: 2172801**  
**B.E. 7<sup>th</sup> SEMESTER**

**Type of course:** Textile Processing Engineering

**Prerequisite:** Zeal to learn the subject

**Rationale:** This subject includes the basics of printing technology by which the decorative designs can be produced on the textiles. This course includes the methods for making of screens for flat bed as well as rotary screen printing machines. Various styles and methods of printing of nylon, polyester, acrylic, wool, silk etc and their blends are also covered. Other printing techniques such as transfer, brasso, digital printing etc are also included.

## Teaching and Examination Scheme:

Teaching Scheme			Credits	Examination Marks						Total Marks
L	T	P		Theory Marks			Practical Marks			
			C	ESE (E)	PA (M)		ESE (V)		PA (I)	
					PA	ALA	ESE	OEP		
3	0	3	6	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; OEP-Open Ended problem; AL-Active learning.

## Content:

Sr. No.	Content	Total Hrs.	Weightage (%)
1.	<b>Screen printing:</b> Preparation of screens, various methods of screen printing, hand screen printing, flat bed, rotary screen printing etc. Their advantages and disadvantages.	8	19
2.	<b>Printing of polyester and its blends:</b> Direct, discharge and resist styles of printing on polyester, direct style of printing of polyester - cellulose blended textiles, pigment printing, printing with mixture of dyes such as disperse-reactive, disperse vat systems etc., discharge and resist prints on poly/cotton blended fabrics, carbonized / brasso printing and printing of cationic dyeable polyester fabrics.	10	24
3.	<b>Styles and methods of printing:</b> Various styles and methods of printing of nylon, nylon/ polyester blends, polyester/wool blends, acrylic, polypropylene fabrics etc.	8	19
4.	Printing of wool and silk fabrics.	6	14
5.	Various methods for development & application of transfer printing, foam printing, pearl & metallic printing, khadi printing etc.	6	14

6.	Faults and remedies in printing.	4	10
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**Suggested Specification table with Marks (Theory):**

Distribution of Theory Marks					
R Level	U Level	A Level	N Level	E Level	C Level
12	14	14	8	8	14

**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. Technology of Printing- V.A. Shenai
2. Textile Printing - L.W.C.Miles
3. Printing of Textiles by Direct & Transfer Techniques – R.W. Lee
4. Printing & Dyeing of Fabrics & Plastics – Ronald James
5. Textile Printing - John Storey

**Course Outcome:**

After learning the course the students should be able to:

1. Understand the making of different screens.
2. Understand in detail the screens printing methods.
3. Understand various styles of printing of polyester, nylon, acrylic, wool, silk etc fabrics and their blends.
4. Understand specialty printing techniques such as brasso, carbonized, foam, pearl, khadi.
5. Produce special effects on different fabrics.
6. Understand the transfer printing in detail and latest technologies of printing such as digital printing
7. Decide the best style and method to obtain the required print.
8. Get utilization of printing machineries as per the fixation method used.

**List of Experiments:**

1. Printings of polyester fabric by direct style with disperse dyes.
2. White & colour discharge styles of printing on polyester fabric.
3. To study the effect of accelerator/auxiliaries on polyester fabric printing using disperse dyes.
4. Printing of polyester and P/C blended fabric by direct style with pigment & khadi printing.
5. Printing of CDPET fabric with cationic dyes.
6. Printing of Nylon fabric by direct style with acid dyes.
7. Brasso style of printing on polyester/ viscose blended fabric.
8. Printing of Silk fabric by Reactive, Basic & Acid dyes.
9. Production of special effects on fabric.
10. Foil, gold, foam, pearl printing on polyester fabric.

**Design based Problems (DP)/Open Ended Problem:**

1. To produce special effects by non conventional methods.
2. To develop inks for digital printing.
3. To construct a model printing m/c.
4. To develop after washing aids for printed fabric.
5. To develop accelerator for prints.

**Major Equipments:** Water heating bath, padding mangle, spectrophotometer, Oven, High Temperature steamer/ Loop ager, High pressure steamer, Screens and squeegee etc.

**List of Open Source Software/learning website:**

1. <http://www.wto.org/>
2. <http://www.wtin.com/>
3. <http://textileinformation.blogspot.in/>
4. <http://www.fibre2fashion.com/>
5. <http://textilelearner.blogspot.in/>
6. <http://www.fashion-era.com/>

**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.