Elements of Textile Design

Text Book

Class XI

CENTRAL BOARD OF SECONDARY EDUCATION

in collaboration with

NATIONAL INSTITUTE OF FASHION TECHNOLOGY

ELEMENTS OF TEXTILE DESIGN

Textile Science Text Book Class XI

Price: ₹ 285/-

First Edition 2013, CBSE, India

Reprinted : July, 2017

Copies: 500

Published By : The Secretary, Central Board of Secondary Education, Shiksha Kendra, 2, Community Centre, Preet Vihar, Delhi-110092

Design & Layout : Multi Graphics, 8A/101, WEA Karol Bagh, New Delhi-110005 Phone: 011-25783846

Printed By : Raj Printers, A-9, Sector B-2, Tronica City, Loni (Gzb.)

भारत का संविधान

उद्देशिका

हम, भारत के लोग, भारत को एक सम्पूर्ण [1][प्रभुत्व-संपन्न समाजवादी पंथनिरपेक्ष लोकतंत्रात्मक गणराज्य] बनाने के लिए, तथा उसके समस्त नागरिकों को:

सामाजिक, आर्थिक और राजनैतिक न्याय,
विचार, अभिव्यक्ति, विश्वास, धर्म
और उपासना की स्वतंत्रता,
प्रतिष्ठा और अवसर की समता
प्राप्त कराने के लिए
तथा उन सब में व्यक्ति की गरिमा
और [2][राष्ट्र की एकता और अखंडता]
सुनिश्चित करने वाली बंधुता बढ़ाने के लिए

दृढ़संकल्प होकर अपनी इस संविधान सभा में आज तारीख 26 नवम्बर, 1949 ई० को एतद्द्वारा इस संविधान को अंगीकृत, अधिनियमित और आत्मार्पित करते हैं।

1. संविधान (बयालीसवां संशोधन) अधिनियम, 1976 की धारा 2 द्वारा (3.1.1977) से "प्रभुत्व-संपन्न लोकतंत्रात्मक गणराज्य" के स्थान पर प्रतिस्थापित।
2. संविधान (बयालीसवां संशोधन) अधिनियम, 1976 की धारा 2 द्वारा (3.1.1977) से "राष्ट्र की एकता" के स्थान पर प्रतिस्थापित।

भाग 4 क

मूल कर्त्तव्य

51 क. मूल कर्त्तव्य – भारत के प्रत्येक नागरिक का यह कर्त्तव्य होगा कि वह –

(क) संविधान का पालन करे और उसके आदर्शों, संस्थाओं, राष्ट्रध्वज और राष्ट्रगान का आदर करे;

(ख) स्वतंत्रता के लिए हमारे राष्ट्रीय आंदोलन को प्रेरित करने वाले उच्च आदर्शों को हृदय में संजोए रखे और उनका पालन करे;

(ग) भारत की प्रभुता, एकता और अखंडता की रक्षा करे और उसे अक्षुण्ण रखे;

(घ) देश की रक्षा करे और आह्वान किए जाने पर राष्ट्र की सेवा करे;

(ङ) भारत के सभी लोगों में समरसता और समान भ्रातृत्व की भावना का निर्माण करे जो धर्म, भाषा और प्रदेश या वर्ग पर आधारित सभी भेदभाव से परे हों, ऐसी प्रथाओं का त्याग करे जो स्त्रियों के सम्मान के विरुद्ध हैं;

(च) हमारी सामासिक संस्कृति की गौरवशाली परंपरा का महत्त्व समझे और उसका परिरक्षण करे;

(छ) प्राकृतिक पर्यावरण की जिसके अंतर्गत वन, झील, नदी, और वन्य जीव हैं, रक्षा करे और उसका संवर्धन करे तथा प्राणिमात्र के प्रति दयाभाव रखे;

(ज) वैज्ञानिक दृष्टिकोण, मानववाद और ज्ञानार्जन तथा सुधार की भावना का विकास करे;

(झ) सार्वजनिक संपत्ति को सुरक्षित रखे और हिंसा से दूर रहे;

(ञ) व्यक्तिगत और सामूहिक गतिविधियों के सभी क्षेत्रों में उत्कर्ष की ओर बढ़ने का सतत प्रयास करे जिससे राष्ट्र निरंतर बढ़ते हुए प्रयत्न और उपलब्धि की नई उंचाइयों को छू ले;

[1](ट) यदि माता-पिता या संरक्षक है, छह वर्ष से चौदह वर्ष तक की आयु वाले अपने, यथास्थिति, बालक या प्रतिपाल्य के लिये शिक्षा के अवसर प्रदान करे।

1. संविधान (छयासीवां संशोधन) अधिनियम, 2002 की धारा 4 द्वारा (12.12.2002) से अंत: स्थापित।

THE CONSTITUTION OF INDIA

PREAMBLE

WE, THE PEOPLE OF INDIA, having solemnly resolved to constitute India into a [1]**[SOVEREIGN SOCIALIST SECULAR DEMOCRATIC REPUBLIC]** and to secure to all its citizens :

JUSTICE, social, economic and political;

LIBERTY of thought, expression, belief, faith and worship;

EQUALITY of status and of opportunity; and to promote among them all

FRATERNITY assuring the dignity of the individual and the[2] [unity and integrity of the Nation];

IN OUR CONSTITUENT ASSEMBLY this twenty-sixth day of November, 1949, do **HEREBY ADOPT, ENACT AND GIVE TO OURSELVES THIS CONSTITUTION.**

1. Subs, by the Constitution (Forty-Second Amendment) Act. 1976, sec. 2, for "Sovereign Democratic Republic" (w.e.f. 3.1.1977)
2. Subs, by the Constitution (Forty-Second Amendment) Act. 1976, sec. 2, for "unity of the Nation" (w.e.f. 3.1.1977)

THE CONSTITUTION OF INDIA

Chapter IV A

FUNDAMENTAL DUTIES

ARTICLE 51A

Fundamental Duties - It shall be the duty of every citizen of India-

(a) to abide by the Constitution and respect its ideals and institutions, the National Flag and the National Anthem;

(b) to cherish and follow the noble ideals which inspired our national struggle for freedom;

(c) to uphold and protect the sovereignty, unity and integrity of India;

(d) to defend the country and render national service when called upon to do so;

(e) to promote harmony and the spirit of common brotherhood amongst all the people of India transcending religious, linguistic and regional or sectional diversities; to renounce practices derogatory to the dignity of women;

(f) to value and preserve the rich heritage of our composite culture;

(g) to protect and improve the natural environment including forests, lakes, rivers, wild life and to have compassion for living creatures;

(h) to develop the scientific temper, humanism and the spirit of inquiry and reform;

(i) to safeguard public property and to abjure violence;

(j) to strive towards excellence in all spheres of individual and collective activity so that the nation constantly rises to higher levels of endeavour and achievement;

[1](k) who is a parent or guardian to provide opportunities for education to his/her child or, as the case may be, ward between age of six and forteen years.

1. Ins. by the constitution (Eighty - Sixth Amendment) Act, 2002 S.4 (w.e.f. 12.12.2002)

Elements of Textile Design

(CBSE Textbook for Class XI)

Preamble

Textile design involves a complete vision of development of new design aspects for novelty in fabric surface, textile products and various other textile materials. It includes designing of fabric used in clothing, house hold textiles, decorative textiles and others. It involves design intervention along with the development of the final product within the technical specification and right commercial value.

In order to create innovative surfaces and structures, "Elements of design" course is introduced as an elementary course. The course will provide an overview of Textile Design, Designer and Textile Industry. The overall objective of this course is to understand the basics of design in relation with textiles, textile design and related terminology and the overall work pattern of textile industry.

CBSE

Mr. Vineet Joshi, IAS, Chairman, CBSE

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Foreward

The Indian Textiles Industry has an overwhelming presence in the economic life of the country and is one of the leading textile industries in the world. India earns about 27% of its total foreign exchange through textile exports. Further, the textile industry of India also contributes nearly 14% of the total industrial production of the country. It also contributes around 3% to the GDP of the country. India textile industry is also the second largest provider of employment in the country in terms of after agriculture.

As per the 12th Five year plan, the integrated skill development scheme aims to train over 2,675,000 people within the next 5 years. This scheme would cover all sub sectors of the textile sector such as textiles and Apparel, handicraft, handlooms, jute and sericulture.

In order to match the increasing requirement of skilled personnel, CBSE has initiated to introduce "Textile Design" as a vocational course for Class XI and XII. The course aims to introduce students to Elements of Design, Fabric science, Woven textiles, Dyeing & Printing procedures and introduction to our traditional textiles. This will help students to join the industry after Class XII or they can pursue higher education in this field.

The Faculty of the National Institute of Fashion Technology has developed the curriculum and the learning Material. I place on record the Board's thankful acknowledgement of the services rendered by Shri P.K. Gera, Director General, NIFT, Sr. Prof Banhi Jha, Dean- Academics, Project In-charge and Ms. Savita Sheoran Rana, Chairperson, Textile Design Department, Project Anchor - Textile Design. The course is developed and prepared by faculty members from Textile Design Department across NIFT centers. CBSE also acknowledges the contribution by Prof. Anupam Jain, Hyderabad, Ms. Kislay Choudhary, Assistant Prof. Bhopal; Ms. Shubhangi Yadav, Associate Prof, Gandhinagar, Mohammad Javed, Associate Prof., Mumbai; Shri. Arnab Sen, Assistant Prof, Bhopal, Mr. Debojyoti Ganguly, Assistant Prof., Bhopal and Shri. Shivalingam.

I would like to appreciate Dr. Biswajit Saha, Associate Professor and Programme Officer, Vocational Education Cell, CBSE and Ms. Swati Gupta, Assistant Professor and Assistant Programme Officer, Vocational Education Cell, CBSE and other members of Vocational Education Cell, CBSE is also deeply appreciated.

Comments and suggestions for further improving the curriculum are always welcome

Vineet Joshi
Chairman, CBSE

UNIT – I

Objectives:

- To understand the historical background of textiles.
- To get an overview of the textile industry and related industries.
- To get familiar with various textile materials and processes.
- To gain knowledge about textile design as a field.
- To understand the textile design as a profession and the role of Textile designers in Textile and Fashion Industry.
- To understand the work structure, timing and planning in Textile industry.
- To develop knowledge of forecast and market trends, its importance and need in Textile industry.

Learning Outcome:

After finishing the course students shall be able

- To understand the overview of Textile industry including history and current industry scenario.
- To learn about the terminology associated with textile design material, process etc.
- To understand the importance of market and trends and enhance observational skills.
- To understand the Textile industry functional aspects and roles and responsibilities of a designer.

Course Content:

1. An Overview of Textiles, history and industrial background
2. Textile designer role responsibilities
3. Textile material and process
4. Textile industry work structure, time and planning
5. Importance of market trend and forecast

Teaching Methodology:

- Class lectures and Practical demonstrations

- Class-room quiz
- Presentations and Discussions in class
- Review and Feedback on assignments
- Market visit, Survey and Field visits to relevant Textile Manufacturing unit, museums etc.

Evaluation Criteria:

- Written theory test: knowledge and understanding.
- Discussion and quiz: understanding.

UNIT – II

Objectives:

The main objective of this unit is to develop an understanding of the primary components of textile design, and the related process. The basic of textile design knowledge is essential and useful for further application in various sectors of textile design.

- To develop an understanding for the components of textile design, and the related process.
- To introduce the students to the basic principle and elements of design
- To develop interesting compositions using forms and colour.
- To develop sensitivity among the students for better understanding of forms and its application for creating visual images of great value.

Learning Outcome:

After finishing the course students shall be able

- To understand the application of design elements and principles for textile designing.
- To get familiar with the design process and to make design ideas using innovative material and techniques.
- To enable students to work on various design compositions.

Course Content:

1. Elements of design
2. Principles of design

Teaching Methodology:

- Class lectures and practical demonstrations.
- Class-room assignments to create designs for specific textile product.
- Display, presentations and discussions in class.
- Review and feedback on assignments.
- Market visit, survey.
- Visits to design houses (if possible).
- Special lectures and presentations by textile professionals.

Evaluation Criteria:

- Written theory test: knowledge and understanding.
- Practical assignments: application and skills.
- Design assignments: innovation in design ideas, creativity and functionality.
- Display and presentation: neatness and visual impact.

UNIT – III

Objectives:

The main objective of this unit is to develop an understanding of the components of textile design through a complete process for creation of textile design patterns, repeats, various layouts, use of colors, creation of color ways for generating variety and the inspiration of design.

- To develop an understanding for the components of textile design, and the related process.
- To enable the students to utilize the principals and elements of design in application of textile design development.
- To understand motif and form development creative process through various methods.
- To develop interesting compositions using forms and colour.
- To develop sensitivity among the students for a wholesome understanding of the textile design process.
- Developing sensitivity to take various inspirations for development of design.

Learning Outcome:

After finishing the course students shall be able

- To understand the application of design elements and principles for textile designing.
- To get familiar with the design process and to make design ideas using innovative material and techniques.
- To enable students to work on various design compositions, repeats, layouts and color ways.

Course Content:

1. Elements of textile design such as motif development, repeats, layouts and color ways.
2. Inspiration for design and design process.

Teaching Methodology:

- Class lectures and practical demonstrations.
- Class-room assignments to create designs for specific textile product.
- Display, presentations and discussions in class.
- Review and feedback on assignments.
- Market visit, Survey and field visits to Textile stores.
- Visits to design houses (if possible).
- Special lectures and presentations by textile professionals.

Evaluation Criteria:

- Written theory test: understanding.
- Practical assignments: application and skills.
- Design assignments: innovation in design ideas, creativity and functionality.
- Display and presentation: neatness and visual impact.

UNIT – IV

Objectives:

The main objective of this unit is to get an overview of the various types of textiles available in industry. It includes study of knits, woven, printed, embellished and resist textiles. This unit

diversifies textiles through explaining various techniques and technology in textiles. The aim is also to understand the professional aspects of the work standards and methods existing in textile industry at present.

- To develop an understanding for the variety available in textiles.
- To enable the students to gain the knowledge of various techniques and methods of creating various types of textiles.
- To develop understanding of textile terminology.
- To develop understanding of professional aspects of the work practices existing in textile industry in current scenario.
- Developing textile technique skills through practical application.
- Developing communication skills and ability too use right terminology for an effective Design presentation.

Learning Outcome:

After finishing the course students shall be able

- To understand the application of various techniques available in textile industry.
- To be able to differentiate among various textiles by looking at technique of making and design aspects.
- To enable students to realize professional aspects of the work standards in textile industry at present.
- To be able to make an effective design presentation.

Course Content:

1. Types of various available Textiles by techniques
2. Presentation of Design and Professional Practices

Teaching Methodology:

- Class lectures and practical demonstrations.
- Class-room assignments to create designs for specific textile product using specific techniques.
- Display, presentations and discussions in class.
- Review and feedback on assignments.

- Market visit, Survey and field visits to nearby Textile manufacturing units.
- Visits to design houses (if possible).
- Special lectures and presentations by textile professionals.

Evaluation Criteria:

- Written theory test: understanding.
- Practical assignments: application and skills.
- Design assignments: innovation in design ideas, creativity and functionality.
- Display and presentation: neatness and visual impact.

Contents

Introduction

Textiles play an important part in our daily life; they fulfill vital functions and basic needs of human beings, from covering our body with clothes to providing us with shelter in form of tents. In simple words, textile is referred to cloth or woven fabric, made by interlacing of threads or yarns. These yarns could be derived from various sources to produce cotton, wool, silk, linen and synthetic yarns.

In history, textiles dates back to more than 5000 B.C., linen and woolen textiles found in excavations and are one of the most primitive remnants of human habitat. With time, in different communities, cultures started establishing their respective identities, and probably this is where the textiles played an important role after taking care of the basic needs to decorate both people and related objects by design.

The embellished and decorative textiles created by adopting various methods, such as, colouring, manipulation in interlacement of yarns, transferring impressions of forms and motifs, textures on surface of a fabric by using different material and adding fine objects as embellishments, etc. These methods and processes of creating textiles are referred as textile design, and people who practice creating such decorative textiles with aesthetic sensitivity, clear understanding of related process and needs are called Textile designers.

UNIT 1

Introduction to Textile Industry

Chapter 1

An Overview of Textiles

1.1 History of Textiles

The history of a subject depends on its background and elements related to mankind. We all wear clothes, but have we ever thought that this is not how a fabric appeared always. The time changed and so the periods; the wave of change has many threads interlaced within to form a rich heritage and a vast history of textiles. Let us try to know about the history of textile.

In this chapter, we will learn about how and where the textile originated and how it changed and modified to the modern version, which we are using nowadays in our daily lives.

Textile sector preserves a grand history of design and technology. The need to wear clothing is entirely a human trait and is an aspect of most human civilizations. Anthropologists believe that animal skins, leaves and barks were the first form of coverings which were used to protect human body from cold, heat and other climatic change.

Textiles have been an integral part of human history and often reflect the material available and technologies developed by a civilization. One of the best ways to look at different origins is through the study of textile remnants through excavations which speaks a lot about the time and culture related to a particular civilization.

a) **Textile remains found through excavations:** Yarn, fabric and tools for spinning and weaving have been found amongst the most primitive remnants of human habitats. Linen fabrics were discovered in Egypt dated almost 5000 B.C. Woolen textiles from the early Bronze Age in Scandinavia and Switzerland have also been found. The discovery of quite a few spindles, and cotton piece attached to a silver vase, explains that the spinning and weaving of cotton was known to the Harappa's civilization, almost five thousand years back in history. Many indications and references to weaving and use of various materials are found in the Vedic literature on the method of spinning. Silk fabrics have a deep rooted history in China since at least 1000 B.C.
(http://www.factmonster.com/encyclopedia/society/textiles-history.html. A few dates are taken as reference).

b) **Textiles through trades:** Sharing of knowledge, exchange of information and various technologies along with transition of aesthetic sensibilities has enriched and transformed

textiles in many ways. The trading of Indian textile with other countries started as early as the second century BC. A collection of block printed and resist-dyed fabrics, found in the tombs of Egypt, clearly reflects the export of cotton textiles from India to the Egypt in medieval times.

Trade of textiles in the ancient world happened primarily on the Silk route, a twisting path across lower Asia that connected the Mediterranean lands with the Far East. This Silk route stretched over 5,000 miles and established during the Han Dynasty in China around 114 BC, it was a vital part of the distribution of man-made merchandise, civilization and beliefs.

Silk Route map

(http://www.china-tour.cn/China-Maps/Ancient-Silk-Road-Map.htm)

In the 13th century, Indian silk was used as exchange for spices from the western countries. Towards the end of the 17th century, the British East India Company had begun exports of Indian silks and various other cotton fabrics to other countries, including the popular fine Muslin cloth of Bengal, Bihar and Orissa. Printed chintzes were extensively practiced between India, China, Java and the Philippines, long before the arrival of the Europeans.

At the time of middle epoch, majority of people preferred simple clothing, while expensive materials like silk and linen were used by royal and affluent people of society. It was during 14th century, when lot of advancement in dyeing and stitching took place resulting in the popularity of fashion throughout West Europe.

Khadi a hand spun and hand woven fabric, this highly popular fabric came into existence in India's which emphasized on self-employment and became a symbolic as well as active part of the India freedom movement. Later the modern handloom fabric came into existence, this included mechanized spun yarns woven on handlooms in India.

Khadi - hand spun yarn, creation by Mahatma Gandhi on Charkha

c) **Industrial Revolution:** In history, the time period which is known for many inventions of machines that helped many industries establish due to the higher speed and quantum of production is called as industrial revolution (time period 1760 to 1840 approx as per various historians). The Industrial Revolution scripts a key turning point in history; almost each facet of day to day life was influenced in some way. During the industrial revolution, fabric manufacturing was mechanized with machines powered by waterwheels and steam-engines. Production shifted from small cottage based production to mass production based on assembly line organization. Side by side, the clothing production continued to be made by hand.

Modern machines like, spinning wheels and handlooms came in continuation during the Industrial Revolution. Manufacturing textiles converted into an organized industry. At the same time a number of new innovations led to the industrialization of the textile industry in Great Britain. Clothing manufactured during the Industrial Revolution formed a big part of the exports made by Great Britain. Apart from cotton, wool was the main export fiber at this time.

The modern innovations in clothing production, manufacture and design came into existence during the Industrial Revolution. These included new wheels, looms, and spinning processes which has changed the face of clothing manufacture for a better future of this growing industry.

During this period, a lot of inventions took place, and these were meant to increase the production speed. Some of them are, flying shuttle in 1733, the flyer-and-bobbin system and the Roller Spinning machine by John Wyatt and Lewis Paul in 1738.

Lewis Paul later created carding machine in 1748 and the spinning jenny was also made in 1764. The water frame was invented in 1771 by Richard Arkwright, and the power loom was invented in 1784 by Edmund Cartwright.

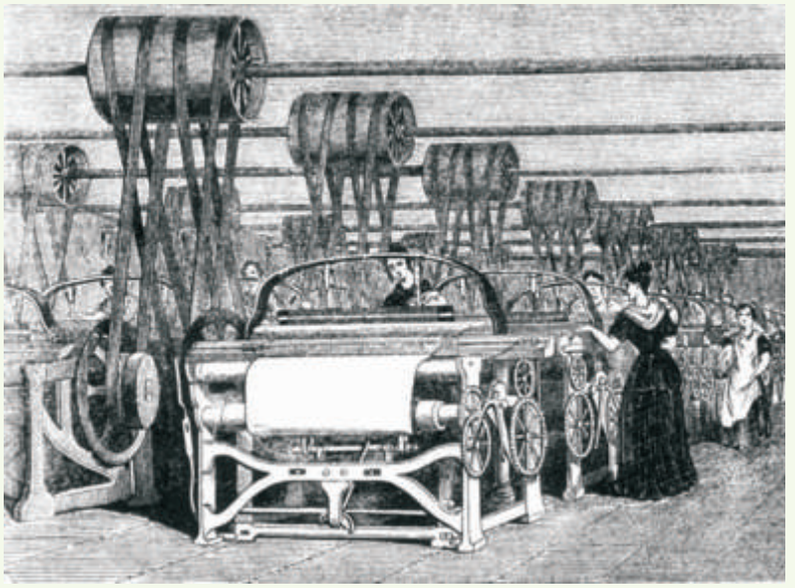


Illustration of a textile industry during the Industrial revolution

(http://www.rawrdenim.com/dictionary/t/textile-industry/)

d) Modern Textile Industry: Industrial revolutionists inspired the whole world, the transformations and modifications continued to take place. Sewing machines came later into existence in the 19th century reforming clothing manufacturing.

During this phase most of the textile industries were established near rivers, since the water was the main driving force. After the invention of steam engine, the overall scenario changed completely. Shuttles that were used in the textile industry were highly developed and efficient in the later phases of the 20th century. Today we have water jet and shuttle less looms which


has speeded up the mass production capacities to a much efficient level. In today's world we have complete automated systems and fully independent large established factories which are capable of handling the textile products from raw material stage to finished products; these are called integrated manufacturing units.

These modern techniques, electronics and innovation in the textile industry drives itself towards a competitive, low-priced industry offering all types of cloth and designs possible beyond imagination.

(http://www.nyfashioncenterfabrics.com/history-of-fabric-and-textiles.html Referred for dates and inventions in history).

EXERCISE

1. Write short notes about the following:

a) Industrial revolution

b) Silk Route

c) Integrated manufacturing units

d) Khadi

e) Modern textile industry

2. Fill in the blanks.

a) The power loom was invented in 1784 by …….

b) Khadi a …….. and hand woven, and highly popular fabric came into existence in …… which emphasized on self-employment.

c) Trade of textiles in the ancient world happened primarily on the ……..., a twisting path across lower Asia that connected the Mediterranean lands with the Far East.

d) Modern machines like Spinning wheels and handlooms came in continuation during the ……...

e) During this phase most of these industries were established near ……., since water was the main driving force.

1.2 Textile Industry

What is Textile Industry all about? Is it only about the beautiful fabrics which we wear and use in our day to day lives or is it more than that! Let us discover the facts about textile industry as a whole and also the industries which are correlated.

In this section, we will try to unfold the facts about vast textile industry.

Textile industry: Textile is one of the oldest industries in the world and has prominent presence in the national economy of many countries. Today the textile sector in India is positioned as the second largest after agriculture. The textile industry largely refers to the production (design and manufacturing), distribution, and consumption of textiles and textile products. It includes various segments.

Segments of textile industry:

i. Supply of raw materials for making of textiles for example:

   Natural - cotton, wool, silk etc. and Man-made - polyester and nylon polymers etc.

ii. Fibers and yarns industry - deals with a variety of fiber blending and yarn making.

iii. Fabrics -for example; broad and narrow woven/ printed/embellished fabrics, non-woven fabrics and knitted fabrics etc.

iv. Carpet and rugs industry manufactures various types of floor-coverings for different usage.

v. Textile Process and Finishing: this segment includes dyeing, fabric finish, processing and chemical treatments done on fabric to achieve the right feel or functionality as per the end use.

vi. Textile machinery -this can be differentiated as two main segments i.e., handloom and power loom.

vii. Textile product distributers and suppliers, importers and exporters.

a) **Significance of textile industry:** It fulfills one of the most basic needs of a common as well as a high end consumer, and it holds great significance by maintaining steady growth for improving quality. Textile industry holds a sole position as a self-sufficient industry, from the production of raw materials to the production of finished products, with considerable value-addition at every stage of handling; it is a key contribution to any country's economy.

   Other than clothing, textiles also fulfill many other purposes; from the most common usage in a household and various industrial requirements. In households, they are used in the form of home furnishings such as, curtains, carpets, cushions covers, carpets, towels, bed sheets etc.

The industrial usages are in a number of applications, such as, automotive and medical, special protective clothing and agro textiles etc. The key necessities of these industrial textiles are performance and utility, and hence most of them are referred as, Technical Textiles.

Over the years, the growth of textile industry has been enormous, due to the increase in people's disposable income and innovation in technology.

b) Textile industry in India: Indian textile industry holds only one of its kind place in our country. One of the ancient in India, it stands for 14% of the total Industrial production, contributes to nearly 30% of the total exports and is the second largest employment producer after farming.

The Indian textile industry is one of the largest in the world along with an enormous resource of raw material and textiles manufacturing background, specially cotton farming.

In today's scenario Indian textile industry consists of four key segments:

- Textile mills
- Autonomous power looms
- Handlooms and Khadi
- Garments

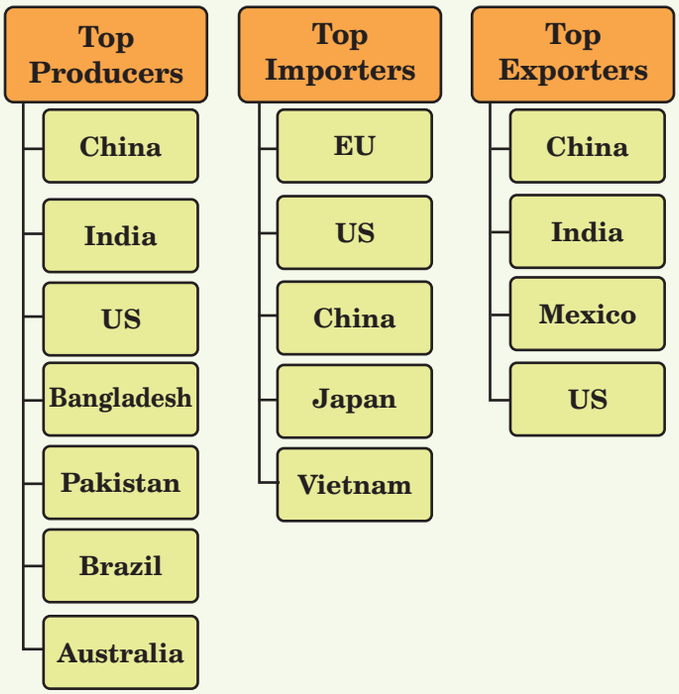
c) Global Producers, Importers and Exporters: There are some countries which specialize in production of raw materials due to the right kind of farming conditions (soil, water, climate etc.).

For example:

- Major Cotton producer countries include - China, India, USA, Pakistan and Brazil;
- Major Jute producing countries are - India, Bangladesh and China.
- Major silk producing countries include China, India, and Thailand.
- Main wool producing countries includes - Australia, New Zealand, and China.

Importers: The countries that cannot manufacture sufficient quantity of a certain material/product buys from other countries are called importers. Some of the major textiles importing countries include states of the EU, USA, China, Japan, Vietnam etc.

Exporters: The countries that can produce more than required sufficient amount of certain material/product and supplies the superfluous goods to other countries are called exporters. Leading textile exporting countries include China, India, Mexico, and USA etc.



(http://www.businessvibes.com/content/textiles-industry)

EXERCISE

1. Write short note about the following:

a) Difference between Importer and Exporter.

b) Global producers in textile.

c) The various segments of Textile Industry

d) Textile industry in India

e) Significance of textile industry in India.

2. True or False

a) Textile Sector in India positions second largest after agriculture.

b) Major Jute producing countries are - Indonesia, Bangladesh and Vietnam.

c) Textile process and finishing includes dyeing, fabric finish, processing and chemical treatments done on fabrics to achieve the right feel or functionality as per the end use.

d) Textiles used for industrial purpose are generally referred as technical textiles.

e) Textile is one of the recent industries in the world and has not so prominent presence in the national economy of many countries.

1.3 Textile materials and processes

Textile Industry works with various raw materials and on the other hand there are many different processes that help convert these raw materials to finished products.

In this chapter, we will learn about the aspects of textile materials and processes in two parts.

PART: I

Textile Materials

There are various raw materials at the fiber stage.

Fibers and Yarns

Fiber and yarns: The material used in textiles can be divided in natural and manmade fibers, and further it is divided into cellulose, protein, synthetic and regenerated fibers.

Natural fibers		Manmade fibers	
i	Cellulosic	iii.	Synthetic
ii.	Protein	iv.	Regenerated

a) Cellulosic fibers: These fibers are derived from natural plants, seeds, etc. The most common cellulosic fibers are as mentioned.

Bast: The fibers which are derived from plant stems are called bast fibers. For example: flax, hemp, jute, and ramie.

Cotton: The cotton is cellulosic fiber is derived from the fine vegetable seeds. The plants are grown in tropical regions. This was originated in India; oldest documented use in India (MohenjoDaro) c. 3500 B.C.

b) Protein fibers: The fibers derived from various animal sources are called protein fibers.

Silk: A continuous protein filament secreted by the larvae of silk worms in order to make their cocoons is called silk. The species Bombyxmori (Latin: silkworm of the mulberry tree) is the most commonly cultivated species for silk. Silk filaments produce beautiful, fine, lustrous

fabric called silk fabric. Silk production was developed in China c. 2700 B.C. The term for the process of raising silkworms and producing silk yarn from their cocoons is called sericulture.

Wool: The fibers of wool are derived from the fine, soft, fibers covering the skin of sheep or Angora goat, camel or Alpaca. Wool was a popular fiber from ancient times and sheep were kept as a herd for wool and milk.

c) **Manmade or synthetic fibers:** Synthetic fibers are polymers which are derived from absolute synthetic materials inside laboratory controlled situations and chemical processes. Synthetic fibers are made from manufactured small molecules called polymers. The raw material for these polymers mostly comes from petrochemicals. There are various examples of synthetic fibers, for example: nylon, polyester, glass nylon etc.

d) **Regenerated fibers:** Regenerated fibers are also manmade fibers but in this case it is a manufactured regenerated cellulosic fiber. For example: Rayon is made from cellulose. It can emulate the feel and texture of a natural fiber and possess the qualities similar to the natural fiber.

PART: II

Textile Processes Textile manufacturing is a major industry. It is based in the conversion of three types, first, fiber into yarn, then fabric, then textiles. These are then fabricated into clothes or other products.

There are many processes available at the spinning and fabric-making stages coupled with the other processes of dyeing (colouring), printing and finishing processes to the production of a wide range of products. In the other words we can say that textile industry has various other industries based on processes within textile industry. The technology and chemicals involved in processing of manmade and natural fibers are different and complex on its own.

Let us try to understand the most commonly used processes in making of a textile finished product step by step.

i. Processes involved at fiber stage

ii. Processes involved at yarn making stage

iii. Processes at fabric manufacturing stage

iv. Finishes on fabrics

v. Processes of dyeing and printing on fabric

a) **Processes at fiber stage:** There are various stages involved in this where the raw material is converted into clean fiber form in order to create yarns or threads.

1. **Ginning:** This process removes the seeds, leaves etc. from the fiber to make it clean and soft. This process is used mostly on the cellulosic fibers. It is done on the ginning machine.

2. **Blending:** Blending means mixing. The cleaned fibers can be mixed with other fibers at this stage to create blends of cotton with various other fibers. Due to blending a fabric will contain qualities of both the fibers.

3. **Carding:** Carding is a stage where the fibers run through carding machine to create a loose strand of fibers. This is the first stage of getting fibers aligned and getting prepared for a yarn formation. Carding process is done on carding machines.

4. **Combing:** Combing is a process which removes the shorter fiber lengths from long ones. This process is only done for the fiber which requires making a lustrous and strong fabric.

5. **Drawing:** This process is conducted for straightening of fibers for a better yarn formation.

b) **Processes at yarn stage:**

1. **Spinning:** This process is used to create yarns, in this process various technologies are used to create a yarn out of the fiber stage.

2. To give a better strength and texture to the yarn, often two or more yarns are twisted together, this process is called Twisting. In some cases it is done after spinning.

3. Gassing is the process of passing the yarn through a specialized flame mechanism which burns the short and protruding fibers to make the yarn smooth and brighter.

c) **Processes at fabric manufacturing stage**

Weaving-fabric manufacture: The process of interlacing of yarns or thread with each other to form a fabric is called weaving. Weaving is carried out on the machine called loom.

The yarns positioned in the longitudinal axis are called warp, and the cross way yarns going in horizontal axis are called weft. The preparation process of warp is called warping or beaming. To add strength to the warp a layer of starch is applied on the warp threads known as sizing.

Weaving: Once the loom is set with warp yarns, weaving process is carried out. During the weaving process there are three primary movements of a loom called shedding (divides the warp yarn to allow the weft yarn/thread insertion), picking (passing of weft yarn/thread through the gaps between warp yarns), and beating-up (completes the one weft insertion for a step by step construction of fabric weaving). These three steps are repeated again and again to weave a fabric. The fabric created by with yarns in its natural state (without coloring) is called a grey fabric.

d) **Finishing- processing of textiles:** The grey fabric is then taken for various steps of finishing depending on the end use and desired look in terms of textile design.

As a first step desizing is done to remove excess starch from fabric to make it soft and absorbent.

The next step of the process is called scouring; this is a chemical process that removes the natural wax and fabric impurities.

Then fabric is taken for bleaching, this makes a fabric white and bright.

Some cotton fabrics are treated with caustic soda to create smoothness and luster on the surface.

e) **Dyeing and printing processes**

Dyeing: Dyeing or colouring is carried out on a fabric after the desizing and scouring processes, this process is carried out to add a particular colour to the fabric. Various dyes and chemicals are available in the market for dyeing purpose.

Printing: On one side where dyeing leaves a uniform colour on to the fabric, printing on the other hand is applying of colour on the fabric in form of a certain pattern on selected areas only. Printing can be carried out in various colours and brings out beautiful designs on the surface of fabric.

Processing of synthetic fibers: Synthetic fibers are derived from various chemicals hence, the chemical composition of dyes are different from the ones which are used for cotton and other natural fibers.


EXERCISE

1. **Write short notes about the following (60 to 80 words).**

   a) Regenerated Fibers

   b) Wool

   c) Difference between cellulosic fibers and protein fibers

   d) Spinning

   e) Weaving

   f) Dyeing

2. **Match the following:**

Weaving	Cotton
Dyeing	Silk
Cellulose	Wool
Camel	Process
Sericulture	Loom

1.4 Textile Design and designer

What is Textile design? Often people think that textile design and fashion design is more or less the same thing, which in reality is not and is a misconception.

In this chapter we will get to know the overview about textile design as a field.

Textile design, by the name itself it gives an indication that it incorporates the design in the field of fabrics or textiles.

It is the method of creating and evolving a plan using lines, forms, colours and patterns for woven, printed, knitted or embellished fabric. Textile design encompasses design creation for fabrics used in garments, household, decorative and accessories made of textiles.

a) **Garments:** Garments are wearable stitched dresses. For example, shirts, trousers, skirts, etc.

b) **Household textiles:** Household textiles are the textile products used every day at house, for example - towels, bath mats, bed sheets etc.

c) **Decorative Textiles:** There are some textile products which are used more for decoration of a space for example - wall hangings, screens and carpets etc.

d) **Textile accessories:** Fabrics are used for various products apart from home and garments for example -belts, jewellery and bags etc.

Textile design process: Textile design is a vast process, it does not only involve design on paper; it also covers various technical aspects of a fabric or textile manufacturing process.

Often textile design begins from identification and use of suitable fiber or yarn to structure, and weaving of a fabric. At the next stage it incorporates, print/embellishment and desired finishing are applied to convert into a finished product

Textile design facilitates various other fields such as - accessory design (bags, purses, shoes etc) and most importantly fashion design.

Fashion designers always look forward to the best designs available in various fabrics which give an edge to their beautiful creations of a garment or related product.

Presence of Textile design in our day to day lives:

For example:

- Every night you embrace the cozy blankets and beautiful bed sheets for a nice sleep.
- Towels are used every day for bathing for hygiene and beauty needs.

Textile Designer: A textile designer is the one who first has the know-how of all textile material and processes, and secondly understands the end use of a particular textile product and the user. It also requires drawing skills, aesthetic sense and an understanding of market segment and trends for a better acceptability of his designs and products. A fully equipped place where a designer works is called a "textile design studio".

Design Process: from a designers sketch book

A design studio

An image of a textile design studio, often such places also has computers where designers work on various CAD soft-wares. CAD means computer aided designs - where designs are generated with the help of computer software. The design studio ideally has good light sources, sitting arrangements, computers, drawing and coloring equipment and tools.

A textile designer needs to visualize a product and use creativity in coordination with the technical and functional aspects of a fabric and the finished product made out of this fabric.

For example:

1. **Functional aspects:** A towel needs to be made in cotton for better absorbency and a face towel and a bath towel sizes will be different.
2. **Technical aspects:** A towel will be woven on certain type of machine in certain weave structure and weight etc.
3. **Creative aspects:** A towel will have a certain colour combination, form, motifs and their respective placement or arrangement in a design to make it look attractive.

SUMMARY

Textile industry is not only vast but also is one among the basic human requirements. To understand textile industry it is necessary to understand its historical origin, various sectors and aspects, and complete preview of today's modern textile industry. Thus the Chapter 1 aims towards the understanding of textiles from various perspectives explained through separate sections. Section 1.1 explains the study of historical developments through major events; excavations which are a proof carved by time, textile trade through silk route and the industrial revolution which has lead a path towards the modern textile industry. Section 1.2 gives an overview of Textile Industry, textile industrial sectors and the interrelated industrial sectors as well. Section 1.3 is a brief description about the textile materials and the major processes practiced in textile industry. The variety of material available and processes used makes it a unique industry on its own. Section 1.4 describes textile design as a profession and designer. Textile design is a vast field and incorporates certain basic features which explain about this profession. Often textile design is considered same as fashion design, which is not true. The overall teaching methodology is based primarily on lectures followed by audio visual resources and visits to industries etc. Study of this chapter shall enable a student to familiarize with the historical background and overview of current textile industry's various sectors.


EXERCISE

1. Answer the below questions in 60 to 80 words.

a) What are the various aspects a textile design that you will take care while designing for a fabric?

b) Who is a textile designer?

c) What are textile accessories?

d) What is Textile design as a profession?

e) What is a textile design studio?

2. Choose products that a textile designer would design.

Leather Boots	
Metallic buttons	
Knit fabrics	
Printed cushion cover	
Bed sheet and pillow case	
Textile Machinery	
Woven shirting fabric	
Ceramics	

Chapter 2

Textile Design and Designer

2.1 Textile Design

Textile Design: Textile design is a method of creating designs and patterns for woven, non-woven, printed, knitted or embellishments of fabrics. To understand this in other words we can also say that textile design is a complete process from deciding and planning the raw material through a design process to envision and create a finished product. During textile design process technical aspects like fiber, yarn, finishes are the key elements, and on the other hand creative elements like color scheme, design and pattern are also considered. Textile design is a creative profession that leads to fashion design, home textile design, interior design or any other field which incorporates fabric in any form.

Mostly designing process begins with receiving and understanding a design brief, the brief explains the requirements of a product that needs to be designed. First, the initial ideas in form of drawings on paper, colour sketches, patterns, layouts and suggestive fabric types put together. Once a design is selected by the client or buyer or manufacturer, it goes for an actual scale sample making with required modifications if any, this is called prototyping or sampling. Designs for woven fabrics are often made on graph papers for better understanding of weave and yarn calculation. Now a day's designers are using a lot of computer technology/software for creation of designs which is called CAD - computer aided design.

EXERCISE

1. **Write short notes about the following.**
   a) Textile design
   b) Designer

2.2 Role of Textile Designer

As the name depicts Textile Designer, they are the professionals who create innovative designs for our everyday textiles, they are not only restricted to designing on paper, in fact their role is much more than this.


Elements of Textile Design

In this chapter, we will get to know about how textile designers work, and what is the role of a textile designer in textile industry?

Textile designer create designs on paper or computer that can be used, often as a repeat design to cover the width and length of running fabric in yardage for the production of woven, knits, printed fabrics or other textile products.

A designer work in environments, industrial and non-industrial, depending on the nature of organization and production. Within textile products there are two main classifications, and designer can opt to specialise in any one or two, and possibly other kind of further specialisation.

The two main areas are:

- Interiors and Home furnishings (soft furnishings and carpets)
- Fabrics for clothing (fashion fabrics or technical textiles for e.g. fire-proof fabrics).

Textile designers also work in correlated industries, for example, designing gift wrap paper, wall papers, packaging design, graphic and ceramic design.

A textile designer may also work as a member of design team, and or design studios are the places where they usually work in.

A few textile designers work independently and work with various clients at a time, they are called self-employed or freelance textile designer or design consultant.

Work activities of a Textile Designer: The job profile of textile designer may include various activities, some activities involved mainstream design and the other activities are related to development of designs in actual product form. In some areas where the designers establish their own company they work on the promotional activities of their own products too.

The role of a textile designer could broadly be defined in various segments depending on the need of the industry.

- A textile designer needs to coordinate with clients, marketing and buying staff to plan and develop designs.
- They need to accurately understand and represent customer's requirements.
- A textile designer creates design ideas and develops samples for presentation to customers.
- He/she incorporates customer's feedback and ensures required changes in design and sample.
- A textile designer also checks and approves finished samples and production standards. .

- Needs to work as a part of team and handles design and development through guiding the team as well.
- Using specialized software and computer-aided design (CAD) programs to develop a range of new designs.
- A textile designer is expected to experiment with colour, fabric and texture.
- He/she needs to maintain up-to-date knowledge of new designs and up gradation in production and textile technology.
- Textile designers also keep developing new design concepts which build the design archive.
- As a part of the large team they need to ensure completion of design projects on time.
- They also make regular market visits to update their understanding of market trends and requirements.
- Spotting fashion trends in textile design by reading forecasts and trade magazines is another essential element of their role.
- Sourcing new fabrics, various trims and materials at trade fairs, suppliers, market and antique shops.
- Textile designers also need to attend various trade shows, either as a visitor or as a company representative.
- They keep developing a business network which helps them find new suppliers for various textile techniques which can be incorporated in textile design.
- In case a textile designer is self-employed, apart from designs, he/she also manage marketing, everyday business dealings and promotional activities.

EXERCISE

1. Write short notes on the following (60-80 words).

a) Freelance textile designer

b) Sourcing requirements for textile designer

c) Design archive

d) Design Team


2. Which of the following activities defines the role of a textile designer? Tick mark in the correct columns.

a)	Sourcing new fabrics and various other trims and materials at trade fairs, suppliers, market and antique shops.	
b)	Developing a business network	
c)	Going frequently market for shopping	
d)	Working in isolation	
e)	Market visits for market study	
f)	Working as per own wish	
g)	experiment with color and designs	
h)	Using specialized software and computer -aided design (CAD)	

2.3 Timing and planning in Textile Industry

We all know that all industries are driven by time and planning. So what do you think, does textile industry follow some kind of time plan? If yes, what are the time schedules and how are they followed through a strong planning?

In this chapter we will try to unfold the facts about timing and planning in textile industry.

Timings in Textile Industry: Most of the western countries have very distinct seasonal change and people who shop during summer have different requirements as compared to winters. Based on the season change and diversified requirements, the international textile industry is divided in two parts of year by seasons and they are referred as:

1. **Spring-Summer:** Spring summer is referred to the first six months of year, beginning roughly from January to June or April to September. It incorporates the fabrics and textile manufacturing suitable for spring and summer season for example light weight cotton fabrics.

2. **Autumn-Winter:** This is referred to the later six months of year, beginning from July to December or October to March. This season includes the textile products which are suitable for winters, for example, woolen fabrics.

Planning: To deliver the goods at a shop the planning usually begins nine months to a year in advance in case of exports, and three to six months for domestic market. This planning is required due to several activities involved in making of a product from raw material stage to reaching of the product to store shelf for sale.

These activities involve:

a) **Forecast study and market research:** The designers study the forecast and market trends and start working on initial designs and concepts.

b) **Design concept and approvals:** Designs created by designers goes through a process of client presentation for approvals and feedbacks.

c) **Final Design /approvals/ corrections:** Based on the feedback the final designs are created which goes through another round of approvals.

d) **Sample developments:** Final approved designs go for actual size sample/prototype development.

e) **Approvals and corrections:** Prototypes go through a round of critical analysis. The purpose of which is to ensure that if there are any errors at the sample stage it could be corrected so that the final product is feasible for production and usability.

f) **Production/manufacturing:** Once the product sample is finalized, then it is ready for mass production. Mass production means making of same pieces in large numbers or quantity. Production is done as per fixed pre decided schedule, for example, 60 days, 90 days, or depending on the raw material procurement and time required for fabric process and stitching.

Packaging of ready material is also another essential part of production.

g) **Dispatch:** Once all the products/goods are ready, then they are ready for dispatch to the locations where it needs to be sold or circulated to other points or specific stores/shops etc. Usually before sending them directly to shops, ready goods are first dispatched to warehouse.

h) **Warehouse:** Dispatched goods are generally kept in large sized well organized places called warehouses; these warehouses may be at different locations. From the warehouses the timely dispatches of product quantities are planned for different stores.

i) **Product in stores:** Once the product reaches stores it is displayed in shelves and it is ready to be sold. Generally a packed product at store reflects its MRP(maximum retail price) along-with an attractive picture and information about the product.

j) **On shelf-life:** A product remains on shelf for a maximum of 4 to 5 months; if it is not sold within a specific period, then generally it goes for a discounted price sale. This is also the time when new season's goods are ready to move in the stores. This is how textile field works in a cyclic form of two seasons.

EXERCISE

1. **Write short notes on the following (words 60-80).**
   a) Dispatch
   b) Manufacturing/production
   c) Sample development
   d) Spring/Summer
   e) Warehouse
2. **Fill in the blanks.**
   a) The designers study the forecast and market …….. and start working on initial designs and concepts.
   b) Final approved designs go for actual …… sample development.
   c) Autumn winter season includes the textile products which are suitable for ……. for example woolen fabrics.
   d) Once the product reaches a store it is …….. in shelves and it is ready to be sold.
   e) Mass production means making of same pieces in large numbers or …….. quantity.

2.4 Forecast and Market Trends

In textile design, knowing and understanding the surroundings, markets, current trends and also information about innovations are an important part of design profession.

This chapter is all about understanding the trends and forecast in textile design and its significance.

In the previous chapter we learnt about the timing and planning in textile design and manufacturing. As designers, merchandisers and retailers needs to work well in advance at least

two seasons ahead to get proper time to plan the schedules, they need the system of anticipation of customer's needs and wants well ahead of time. The system of understanding trends, analyzing them and deriving the anticipation about the trends which will be prevalent in coming seasons is called forecast.

At a given time there are certain set of design and style attributes which pulls more popularity than others. These attributes are collectively called trends by textile and fashion industry. Textile professionals need to study the market regularly to understand the popular trends to be incorporated in the designs and related products.

In order to understand the market trends one needs to carry out various activities listed below.

Designer's representation of Trend Forecast for Spring/Summer 2014

a) Studying market conditions: It is the study of the consumers buying behavior and influences by society, economics, technology & the environment. For example, at the time of economic slowdown people tend to move towards conservative spending behaviors.

b) Observing different lifestyle changes of customers. For example: Nuclear families in metro cities and joint families in small towns will have different lifestyles.

c) The market study can be also done by taking feedback from customers, for example, through survey forms/questioners.

d) Past data analysis: In a store which products and colours that have sold well and the products that have not sold well. Collecting all the sales data and measuring it based on the analysis of sales-figures in coordination with design/colour/style also helps determining the current and upcoming trend information.

e) Keeping up with current events, media, arts and other related developments in current events.

f) Surveying and analyzing fashion publications, catalogs, magazines and websites. These could be any fashion magazine, such as, Vogue, Marie Claire, Elle Décor etc., and product catalogues from various brands and their websites.

g) Going through trade publications: Trade publications are the journals which are published for specific trade or industry and is mostly referred by the professionals and experts of the trade. For example, Home Fashions.

h) Forecast Agencies: There are international and national agencies having a dedicated team for conducting market research worldwide; these agencies are called forecast agencies. These agencies generally have their own paid website services or forecast and research material in published form. Textile designers and various textile brands and companies refer to the forecast before venturing into new design ideas for coming new season. These forecasts are done at least two to three seasons in advance for a better planning for the textile industry. For example, WGSN and Style-sight are web based forecasting services.

(Image from style-sight home page)

EXERCISE

1. Write short notes on the following (60-80 words)

a) State various activities which can help in trend study.

b) Forecast

c) Need for market study

d) Seasons followed in textile design forecast

e) Trade Publications

2. Which of the following activities should not be considered under market trend study? 'Tick' mark the incorrect ones.

a)	Visiting market and random shopping	
b)	Observing other people shopping and making a list of best sellers for the day	
c)	Reading articles in Fashion magazines	
d)	Reading novels	
e)	Keeping pace with media activities and art events	
f)	Going through forecast websites	
g)	Conducting survey for a particular textile brand	
h)	Asking random questions to customers while they are shopping	

2.5 Introduction to types of textiles

Textiles are a part of our everyday life. From morning to night textile products touches our lives in various ways. There are different types of textiles categorized as per making techniques.

This chapter is a broad description about the different type of textiles.

1. Woven Textiles
2. Printed Textiles
3. Resist Dyed Textiles
4. Surface embellished Textiles
5. Non-woven Textiles
6. Knits
7. Technical Textiles

1. **Woven Textiles:** A woven fabric is constructed in step by step process of yarns interlacing each other at 90 degrees angle. These are two set of yarns, one in vertical axis referred as warp,


and other in horizontal axis referred as weft. Warp runs along the length and weft along the width of a fabric. Different manipulations in interlacing yarns give various structured patterns or designs, and these can be created depending on the mechanisms and methods used. Based on the methods used for weaving, woven fabrics can be categorized in various types. The extreme two edges of fabric widthwise is called selvedge. The mechanism used to create woven fabrics is called loom.

2. **Printed Textiles:** Designs are created through colour application on the surface of textiles through various printing methods and is referred as printed textile. Printed textiles are vast in terms of designs as they can offer a wide range of design options from simple to complex. Thanks to today's modern technology; you can click a picture and the same picture can be translated exactly on fabric through special printing methods. In ancient times natural materials producing colours were used for printed fabrics however now a day's various dyes and chemicals are used for printing. The end use of printed fabrics is as vast as the fabric range itself. These fabrics are used from home furnishing to apparels, and in almost everything.

3. **Resist Dyed Textiles:** There are various techniques used for resisting or blocking a certain area of a fabric prior to dyeing the fabric to get different interesting patterns. Resist dyeing techniques are one of the oldest methods of creating designs on fabrics. Resisting on fabric or yarns is done through various techniques including folding, tying, clamping, waxing etc. These are hand techniques and associated with various regional crafts of the world.

4. **Surface Embellished Textiles:** Surface embellishment techniques add attraction to any fabric. There are various methods available and has a rich history of traditional technical expertise worldwide. The major techniques are embroidery, appliqué, patchwork and fabric manipulation for value addition on textile surfaces.

5. **Non-woven Textiles:** The fabric is not always woven, sometimes fibers are put together in chemical solutions and a layer of fabric is created through fiber bonding creating a padded look. The most common non-woven fabrics are felt created out of wool fibers. These are used to make doormats and blankets etc.

6. **Knits:** A knitted fabric is very different from woven fabric, and is based on a complete different technique of interlacement of yarns. It is created by formation of loops connected to each other one by one, by a single yarn. Knits are very flexible and stretchable up-to 500 percent. Traditional woolen sweaters are created by this technique. Today knits are as popular as woven fabrics and used in T-Shirts, socks and many other garments, especially in sportswear.

7. **Technical Textiles:** The textiles used for industrial purposes are called technical textiles. You must have observed the people working on road construction sites wearing special

garments which reflects prominent light or fire brigade people wearing textiles which can resist a higher degree of temperature. These textiles are created or treated using specialized techniques which hold specific attributes as per various technical and industrial needs.

SUMMARY

Textile design is one of the key areas of textile industry. In order to understand the roles and responsibilities of textile design as a profession it's important to understand the professional aspects of this field. This chapter aims towards the understanding of textile design profession, role and responsibilities of textile designer and various aspects of work, time planning and trend studies broadly followed in textile design industry. Section 2.1 covers the study of textile design as a field. Since textile industry is vast and interrelated to various other industries it becomes necessary to understand the areas that are design specific. Section 2.2 explains the role of a textile designer in textile industry. The work and responsibilities of a textile designer defines the complete role of a designer. Section 2.3 is a description about the time lines and planning followed broadly by textile industry. This chapter also helps to understand the importance of the planning in the industry. Section 2.4 describes the need for forecast and trend studies in context with textile industry. Most of the design industries follow the trends and it is an integral part and necessity. In fact textile design work begins with the study of seasonal forecast and trends. Section 2.5 is a brief introduction to various types of textile and design aspects related to it. A detailed explanation of various textiles mentioned in this chapter is available in chapters 5, 6, 7 and 8. The overall teaching methodology is based primarily on lectures followed by audio-visual resources and visits to industries etc. At the end of this course content a student should be able to relate to the industrial and professional terminology and should be able to understand the work areas in textile design.

EXERCISE

1. Write short notes on the following with examples (60 -80 words).

a) Technical Textiles

b) Difference between woven and non woven textiles

c) Printed Textiles

d) Resist methods

e) Use of nonwoven textiles


2. Mentioned below are some types of end use of technical textiles.

Mark the correct ones.

1.	Fire retardant fabrics for workers working at Fire brigade	
2.	Kitchen towels with good absorbency	
3.	Light weight pillow covers	
4.	Light reflection fabrics for civil engineers	
5.	Insulation fabrics used for machinery	
6.	Soft fabrics for babies quilts	

UNIT 2

The Primary Components of Textile Design


Chapter 3

Design Elements and Priciples

The elements and principles of textile design

The understanding of basic language of design and the important units associated with it are essential part of design profession, design and fine art. The knowledge and ability to appropriately use this language make a design successful. Any product, specially a textile product first attracts attention of viewer because of its overall form, colour and surface appearance, and later comes its quality, price and brand value.

A good textile design is about relating suitable elements and principles of design to achieve visually interesting textile product while keeping in view the material, fabric, structure, customer, manufacturing procedure, economics and market trends.

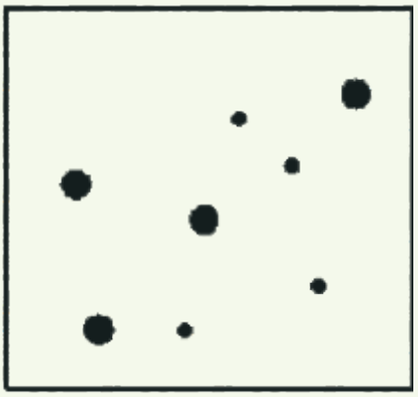
3.1 Elements of design

The main function of design is to regularly create visually aesthetical and functional solutions for our day to day life. Where as an art created by an artist mainly has aesthetical value, and it is a highly personal actively. To express these visual aesthetics, both design and artist needs to use same elements and principles. There are many ways of visually relating and interestingly arranging different kinds of images, and some components of these images to create a new visual composition. This new composition will consist of elements, such as lines, shapes, forms colours and textures.

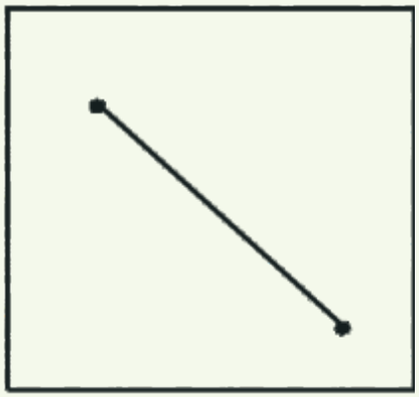
3.1.1 Line

A line can be drawn using a pencil or pen or any other similar tool by joining any two or more points. A human eye follows the path of a line that indicates direction.

The movement of a line may be horizontal, vertical or diagonal, straight or curved. Line, depending on its use may recall, inform, describe, amuse, make fantasy, signify subjective forces, and arouse deep lying associations, all with impressive economy. Lines as pictograms, ideograms or words - that is, lines as writings - signify things, actions, concepts, qualities and conditions across a spectrum of civilizations.



Points



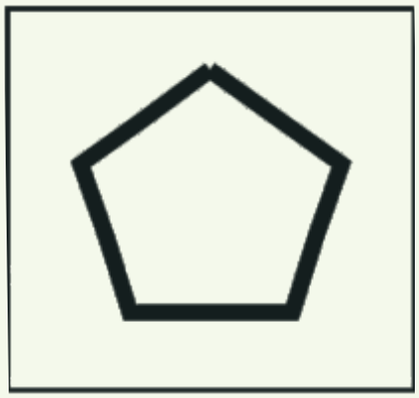
Line

3.1.2 Shape

A shape is created when the two starting ends of a line turn and join together. Shape can also be referred as a silhouette or flat image pertaining to and rather than mass. This created shape is also referred as a figure; it is a positive element that occupies a position in space. Hence a shape cannot exist or be visually visible without space.

There are various types of shapes visible in and around nature and our surroundings. Depending on the simplicity or complexity of a shape, the size, the colour or texture that it may have, it will draw more visual attention than other.

Movement (Lines)



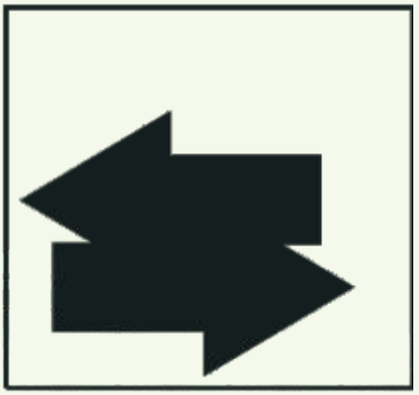
Shape

3.1.3 Form

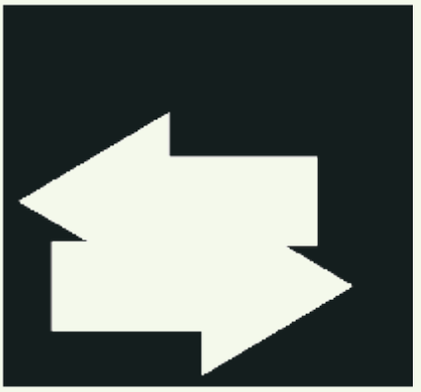
A three dimensional shape or object is referred to as a form. It is a visual and physical structure of an object. In design, when we see a form in two dimensions, then it is the illusion of three dimensional volume and mass. All most all the natural and man-made objects will have one or other kind of form. Like shapes, even forms can also be different from each other by their respective size, scale, colour or textures.

3.1.4 Space

Space is infinite or boundless or intangible, it is also a blank or unoccupied area in a defined bigger space. It is also referred to an in-active background in a composition. Space also flows in, around and in-between shapes and or forms in a design. Even a space could have colour or textures.



Form (in black) & Space (in white)

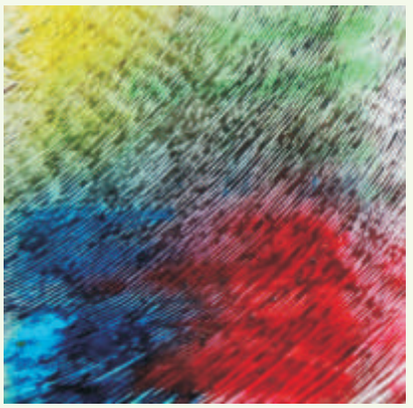


Form & Space (relation of negative positive)

3.1.5 Texture

Texture is the surface sensuality of objects that is perceived by touch. A touch by our hand or rubbing our hand over a surface will give us realization about some sensual character of this surface such as smooth to rough, hairy, poky, sandy, grainy or bumpy.

Texture refers to surfaces that have more than two dimensions thereby enhancing the surface quality. For example, there is the smooth surface of silk or mirror and the textured surface of jute or snow. Texture can change the character of a colour or the personality of a figure. As human beings, we are very sensitive to tactile stimulation. Therefore the surface quality or textural variations of all objects are important.



Texture (in nature)

3.1.6 Colour

Colour is a physical attribute of objects that results from light they reflect and transmit the aspect of visual perception that can be recognised by an observer. The physical environment also plays an important role and affect colour.

Colour-wheel

Colours on a surface

For example, if one were to say Red, Blue or Yellow, just by hearing these colours each person would have a significantly different perception of what each specific colour means. Perceptions of colours vary according to cultures, geographic regions, diverse ages, emotional, personal preferences etc. It is affected by the nature of light, materials, surfaces, and other colours, to mention a few.

EXERCISE

1. **Draw a square format of 8" x 8" inches in black line on white paper, use total 15 lines in black of same thickness (0.10 mm approx.) and length (3" to 1" inch approx.) and represent two examples each of following:**

   a) Three different shapes in the above mentioned square.

   b) Two different forms in the above mentioned square.

   c) One texture using these lines in the above mentioned square.

2. **Draw a square format of 8" x 8" inches in black line on white paper, use soft-lead pencil of 4B or 6B, and represent two examples each of the following:**

   a) Get textures from nature that you can transfer on to the above mentioned square by rubbing in 6" x 6" inch square.

   b) Get texture from man-made objects that you can transfer on to the above mentioned square by rubbing in 6" x 6" inch square.

c) Make a shape of 4" x 4" inches (approx.) by rubbing a texture from nature.

d) Make a shape of 4" x 4" inches (approx.) by rubbing a texture from man-made object.

3. **Draw square format of 8" x 8" inches in black line on white paper back ground, using water base colours (poster colours) represent two examples each of following:**

a) Create a composition using four different shapes of 1 ½" x 1 ½ " inch (approx.) and fill them in four different colours and give a suitable title.

b) Create a composition using three different shapes of 2"x 2" inches (approx.) and fill them in three different colour representing different textures in colour.

3.2 Principles of design

The elements of design familiarized us with their respective importance in every design or work of art. The way these elements are used and put together determines the quality and aesthetics of creative invention in form of design or art.

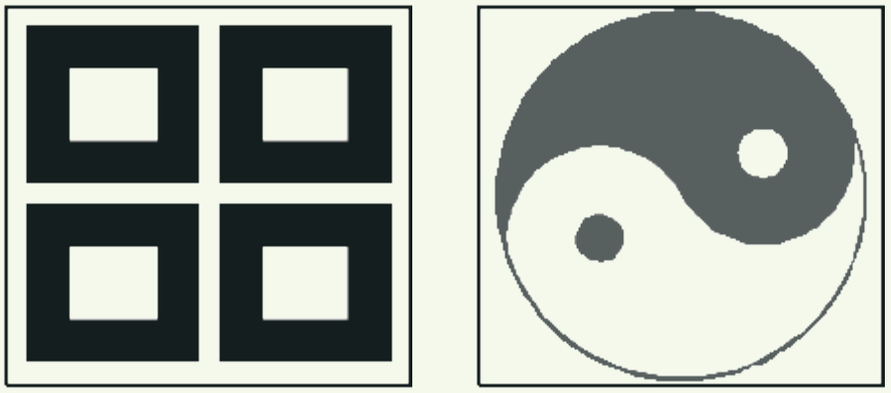
Careful planning and placing the design elements will make a design or piece of art look visually pleasing, and the appropriate balance, symmetry, emphasis, movement, repetition and contract play an important role as the fundamental principles of design.

3.2.1 Balance

Balance in visual arts and design is the relation between the positive and the negative. Positive is referred to the figure or shape or form, and negative is referred to ground or unoccupied space. A visual balance is achieved by placing and organizing various figures on and across a specific ground or space almost at an equal distance, or keeping the centre of grainy in view, or randomly to create an informal balance.

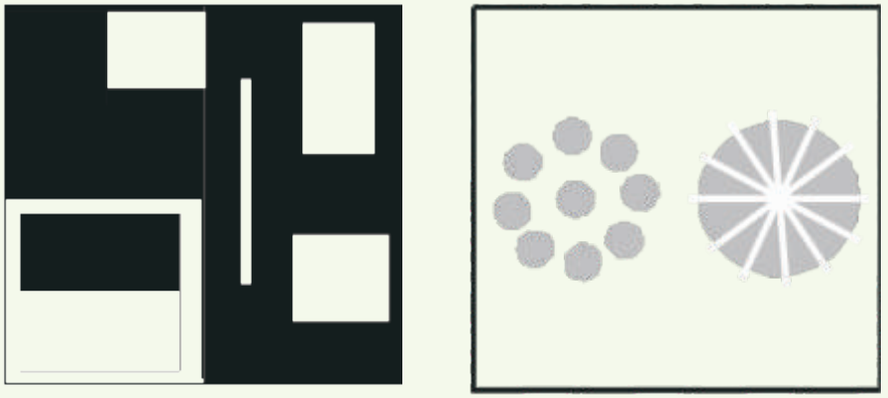
Thus balance can be of two type, symmetrical balance and asymmetrical balance.

Symmetrical Balance: A chess board is an example of an absolutely symmetrical balanced composition, though its aesthetical success may be questionable. This kind of balance restrains movement of every kind and ultimately fails to hold interest for any length of time unless handled in a sophisticated manner. It is stable, absolute, safe, familiar and finally invisible unless energized by subtle contrasts and tensions, thus leads to absolute mathematical symmetry.



Balance-Symmetric

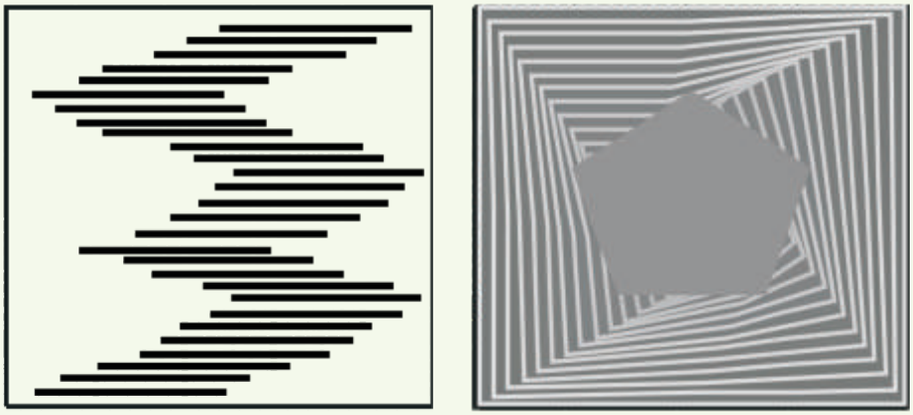
Asymmetrical Balance: This kind of balance may be achieved when one area of visual dominance in a composition is combined with other areas taking on a subordinate role. It involves the balancing of qualities other than the weights. Asymmetrical balance achieved between a solid and hollow form, a pale Blue and an intense Red or a large positive and a small negative space invites the spectator to participate in offbeat visual expression of a form of balance, commonly referred as anasymmetrical balance.



Balance-Asymmetric

3.2.2 Movement

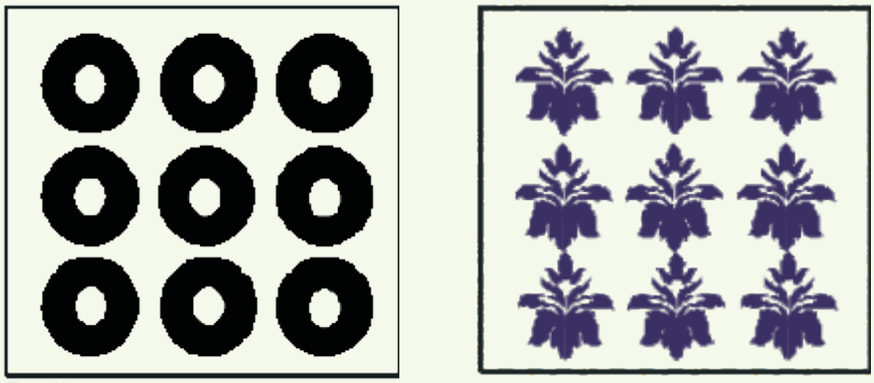
Movement in a design or piece of art is referred to a visual expression, when different elements force our eyes to move around the design object or composition dynamically in order to see the whole in a particular flow or direction. Whereas the elements are not moving, it is the illusion of movement that is created by juxtaposition or repetition of forms and shapes by a designer or an artist. The sensation of movement in a design can intensely effect of the viewer's responses towards this design.



Movement

3.2.3 Repetition

Repetition means repeating or duplicating one thing more than once, again and again. In design, repeating elements, such as colour, form, shape line in such a manner that the image of a design tends to unify the total effect in a design or piece of art along with creating a visual rhythm. Repetition in nature is a very common sight; we all notice it in petals of a flower, patterns on leaves, skin pattern of a Leopard or Zebra.



Repetition

There are three basic types of repetition

i. Sequence: Regular repetition

The repetition of points, lines, shapes or forms at regular or slightly varying intervals, as in a row of shirt buttons or the stripes on a Zebra.

ii. Rhythm: Accented repetition

There is a profound rhythm to be found in man and in nature, for example, in walking,

running, and breathing; in the seasons, phases of the moon, tides of the sea, voices of animals, birds and insects. Rhythm consists of directional movement created by patterns of strong and weak pulsations. A rhythmical sequence could be created by arranging large and small points (and lines) in variously staggered positions. It is more than just a beat or pulse repeated regularly. No tradition of ornament or decoration seems to have existed without it. Rhythmical repeats are also found in craft techniques like basket making, weaving, knitting etc.

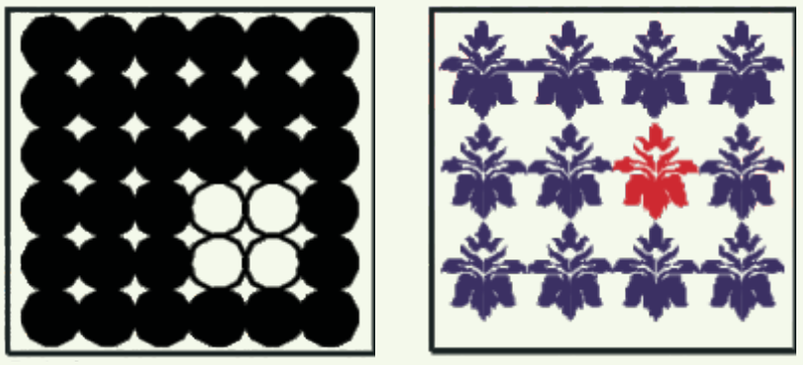
A combination of strong and weak accents, rising and falling attitudes, wide and narrow intervals of space, or alternating motifs produce eye-catching movements.

iii. Balance: Stabilized Repetition

This is stabilized repetition. Though it may have many things in common with sequence and rhythm, it does not suggest movement along a continuous path. Balance may be defined as a pleasing harmonious relationship between the positive and the negative. Balance is the organization of the various weights of a whole across a center of gravity. It is a relationship where all parts of a whole are comfortably settled.

3.2.4 Emphasis

Emphasis is attention or focus on a specific desired areas or elements or a single element of a design. It is also to stand-out one or more elements than the rest in a composition. By doing this a design can create area of interest that may cause our eye to come back on this area again and again.

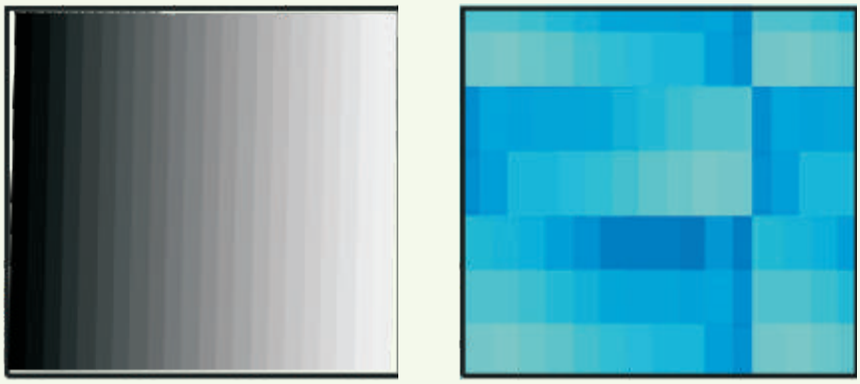


Emphasis

It is used to attract attention to and clearly state the importance of the idea presented. Emphasis, when used with discretion adds a charm which harmony alone cannot give. It is the idea of optical simulation by the daring application of any one rule of the elements or principles of design - in reverse.

3.2.5 Contrast

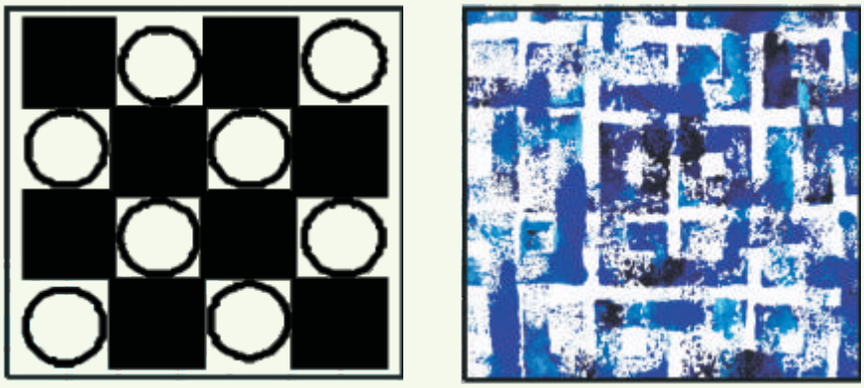
Contrast in a design means that some elements stand out because of differences between the other elements or they are not alike, for example, shapes like square, circle and triangle. For example, placement of opposite colours in a colour wheel. Contrast make things stand out, lack of contrast can lead to simple camouflage. On other hand too much contract throughout a design or in a painting can destroy the harmony and create visual confusion. Therefore it also helps dealing monotony in a design.



Contrast

3.2.6 Unity

Unity in a design is the cohesive linking of various elements in a design to achieve harmony. This also reflects that every element in a design has equal importance and value. It is the relationship among the elements that helps all of them to work together to give a visual sense of oneness in a design or image.



Unity

SUMMARY

This chapter describes complete understanding of basic language of design and the important units associated with it. There are various basic principles associated with design without which a design can neither be explained nor be understood. It's important to know various elements of design. Section 3.1 discusses various elements of designs such as line, shape, form, space, texture and colour. Section 3.2 explains the principles on which the design is based. It is explained in relation with the textile design which includes balance, movement, repetition, emphasis, contrast and unity. All the aspects are explained in the chapter with visual references. Most of the methodology for teaching is process based and is oriented towards practical learning. Knowing about these aspects helps students to get familiar with design basics which will further enable them to design with rational thinking and application of design principles in the required textile design filed.

EXERCISE

1. **Draw square format of 8" x 8" inches in black line on white paper, use a minimum of 7 to 15 lines in black along with different shapes, forms and textures, and represent two examples each of following:**

   a) Symmetric balance

   b) Asymmetric balance

   c) Repetition

   d) Movement

   e) Contrast

2. **Draw square format of 8" x 8" inches in black line on white paper back ground, using water base colours (poster colours) represent one example each of following:**

   a) Create a composition representing 'Movement' using four different shapes of 1 ½" x 1 ½" inch (approx.) and fill them in four different colours.

   b) Create a composition representing 'Emphasis' using three different shapes of 2"x 2" inches (approx.) and fill them in three different colours.

UNIT 3

Textile Design Development

Chapter 4

Components of Textile Design

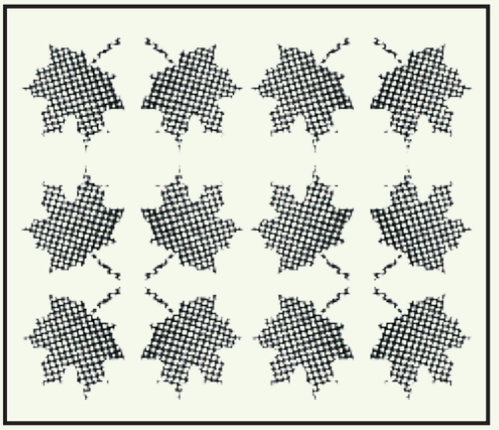
4.1 Motif and form development

What is motif and what are the various methods and process followed in textile design for motif and form generation?

In this chapter we will learn various processes of motif generation.

Motif and form: Motif is a core unit or design element which has certain defined characteristics based on a particular style of aesthetics and can be used in textile design to create various repeat patterns. Similarly form can be any visual shape or a combination of shapes generating a new shape.

Motif



Repeat

Motif and form development: Textile designs thrives on original ideas and unique design concepts. The motifs or single unit of designs which are the core contributors of any textile design repeat plays a very important role.

We come across various designs/objects in our day to day life and the shapes/elements/colors that preserves in our mind in form of visual information. In order to break through and create something which is original idea, various processes or methods needs to be followed so we generate a motif or a set of design elements which reflects our inspiration, thought process and is original at the same time.

Let us discuss some of the popular methods of motif and form development.

1. Generating various forms and motifs through nature and man-made objects study:
In this method we can take inspiration from any natural or man-made objects and we can depict it in various styles keeping the original shape same.

Step 1: Maple leaf - Inspiration

Take inspiration from any natural object and draw it its original form.

Maple leaf - original drawing

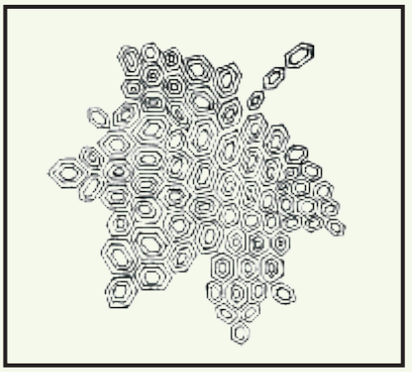
Step 2: Maple leaf - Motif generation

Draw the maple leaf in various styles to generate different motif such as

a) **Geometric:** using geometrical shapes following the maple leaf original shape - image 1 & 2.

b) **Ornamental:** using intricate and decorative style of drawing to generate ornamental motif of a maple leaf shape - image 3.

c) **Stylized:** drawing the maple leaf shape changing its style to a different style - image 4.



1

2

3

4

2. **Generating various forms through metamorphosis process:** Metamorphosis is a process which combines different elements from different objects transforming each of them and combining as one. This is a process inspired by the process of evolution found in nature. Let us try to understand this process through an example below.

Step 1: Take any two or more natural beings and draw them in their original form. In this example we have taken inspiration from three living beings - horse, eagle and cock.

Step 2: Draw the three forms by keeping any one prominent feature and combine them together. This can be done using various steps also (image left).

Step 3: Color them as per the requirement (image right)

3. **Generating various motifs through generation of a theme board:** Take any topic/subject and research about it. Collect various images and put it together in an aesthetic manner. This is your theme board which works as a visual information as well as visual inspiration for a textile designer to work further to generate motifs. Let us understand this aspect from a theme board inspired by zodiac signs.

Step 1- Generation of theme board

Step 2: Motif generation shall be done through taking inspiration from the colors/mood/textures and forms depicted in the theme board. Create various sketches inspired from the elements of mood board and add color/texture to it to generate motifs. See below examples of motifs generated through the theme board depicted above.

Motif 1

Motif 2


EXERCISE

1. Take any three natural beings, create sketches in black and white in pencil on A3 sheets and generate one motif through metamorphosis process on A3 sheet.
2. Take any man made or natural object - and sketch it in its own original form on A3 sheet. Create 3 geometric and 3 ornamental style forms inspired from it on A3 size sheet (3 motifs on one sheet).
3. Choose any topic and create an A3 size theme board. Create 4 motifs of 6x6 inch size taking inspiration from the theme board.

4.2 Pattern and basic repeats

Pattern is referred to a visual affect which is based on the intended interrelationship of one or more elements. Usually it is achieved by repetition of some elements or component parts. In textile design, designs are created and planned in such a manner that one design unit is repeated side by side across the width of a fabric, and end to end along the entire length of fabric in a regular continuous flow without any break in pattern.

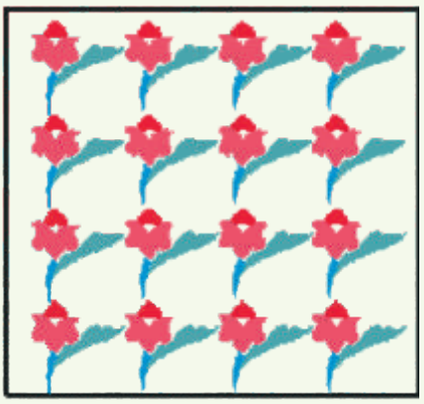
Therefore the pattern and repeats are very important and integral part of almost all textile design work, especially in the running meterage fabric, some of the basic repeats followed are, straight repeat, half drop and mirror repeat.

4.2.1 Straight Repeat

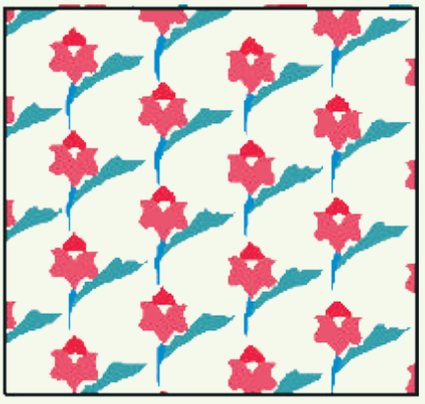
The simplest repetition is achieved by placing a design unit in a square grid format by repeating the design unit side by side next to each other both horizontally and vertically in straight lines to create a continuous pattern.

4.2.2 Half-drop repeat (vertical)

A vertical half-drop repeat is achieved by sliding or dropping the design unit half way down in vertical axis, in length wise direction. To achieve variation in this, less than half or other fraction such as one-third drop can also be applied.



Straight repeat



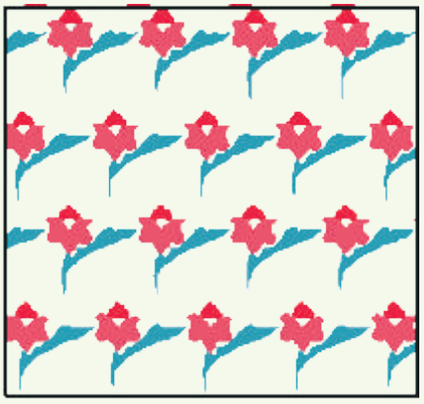
Half-drop repeat (vertical)

4.2.3. Brick repeat (horizontal)

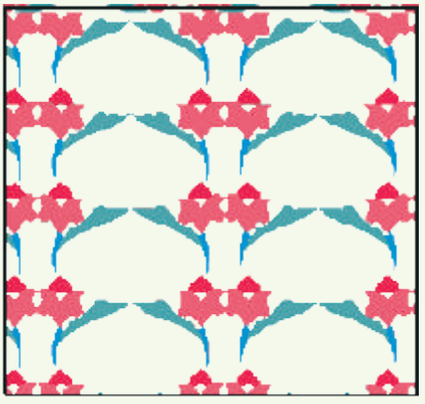
Brick repeat is also referred as tile repeat and is another simple kind of repeat that follow, same fundamental as vertical half-drop repeat, except that, in brick repeat the placement of design unit is side-ways either on left or right, and in second row the unit shifts half way across in horizontal direction or width-wise. Even in this repeat variation in the amount of shift can be achieved.

4.2.4. Mirror repeat

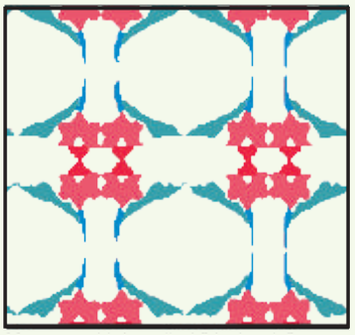
Mirror repeat can give us numerous possibilities to achieve different kind of repeats. A horizontal mirror image of design unit will give us the simplest mirror repeat, and so does with vertical mirror image. A horizontal or vertical mirror repeat can again be mirrored in opposite direction to get a bigger compound unit of design, and this can further be repeated using straight or half-drop repeat.



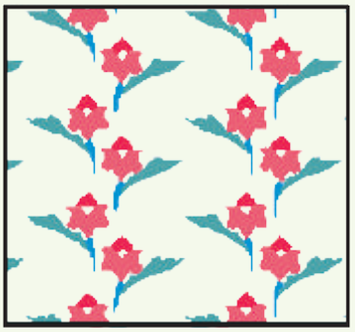
Brick repeat (horizontal)



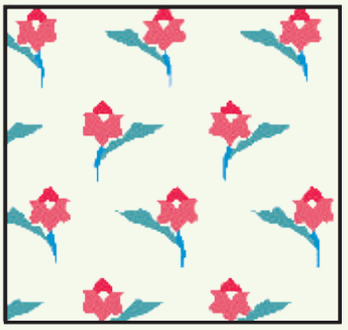
Mirror repeat



Mirror repeat (mix-vertical & horizontal)



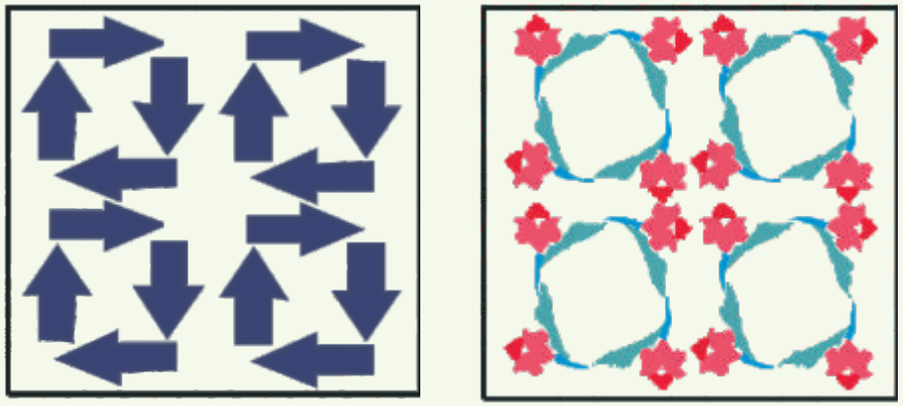
Half-drop repeat (vertical mirror)



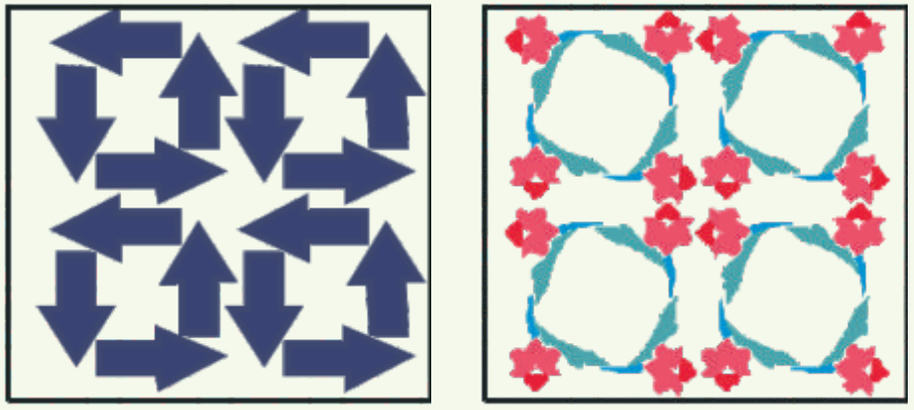
Half-drop mirror (horizontal)

4.2.5 Rotate repeat

A unit of design can be repeatedly placed in clockwise or anti-clockwise direction to achieve a new pattern or design unit. This new unit can further create patterns using other simple repeats mentioned earlier.



Rotate repeat (clock-wise)



Rotate repeat (anti-clock-wise)


EXERCISE

1. **Draw square format of 12" x 12" inches in pencil on white paper, make a motif of 1 ½" x 1 ½ " inch (approx.) in solid black or any one colour inspired from nature and use this motif 9 to 12 times to represent one examples each of following:**

   a) Straight repeat

   b) Half-drop repeat (vertical)

   c) Brick - repeat (horizontal)

   d) Mirror repeat.

2. **Draw square format of 12" x 12" inches in pencil on white paper, make a motif of 1 ½" x 1 ½ " inch approx. inspired from man-made objects in two colours, repeat this shape 6 to 9 times to represent two examples each of following:**

   a) Clock-wise rotate repeat

   b) Half-drop vertical repeat

4.3 Design layouts and placements

Positioning and arrangement of various design elements or motifs or patterns on a specific marked surface area or a design plain while keeping in view the width, length, manufacturing process and end-use of fabric or textile is referred as design layout or design placement in textile design process.

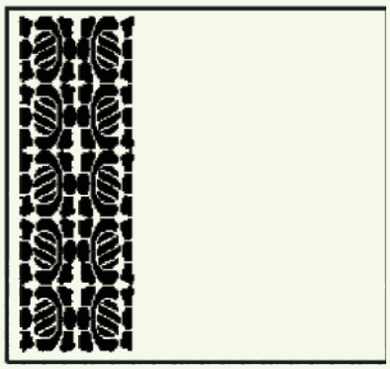
There are numerous ways of arranging motifs and patterns, and these arrangements can give various types of layouts. Creating design layouts is an integral part of textile design process that leads to beautiful and innovative visual expressions of a textile product.

When a design is reproduced on surface of fabric, it must be worked and converted into a standard unit of design in repeat form. This standard unit needs to be in a specific size, scale and follow an arrangement of motifs. As mentioned earlier that the design layouts and placements are always determined based on the final end product.

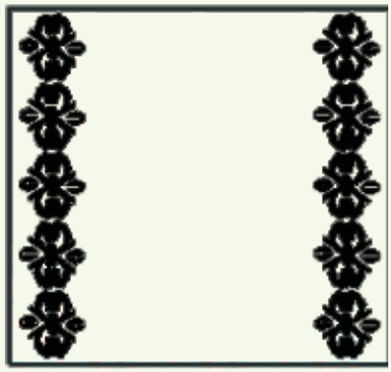
In case of furnishing or dress-material fabric, all-over or randomly tossed or free-flowing placements are preferred, whereas, in case of bed-covers, quilt-covers, cushion-covers, carpets, scarves and saris etc., design layouts are done keeping in view the harmonious relation of borders, central main

surface or body, corners and edges of these products, and their respective usage. In saris the wider one-sided border is called 'pallau'. These multiple interrelated arrangement and placement of putting together the border, overall motifs and medallion are referred as 'engineered' layouts in textile design.

Let us look into different layouts and placements below.

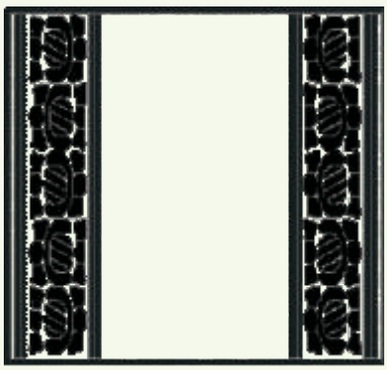


Border

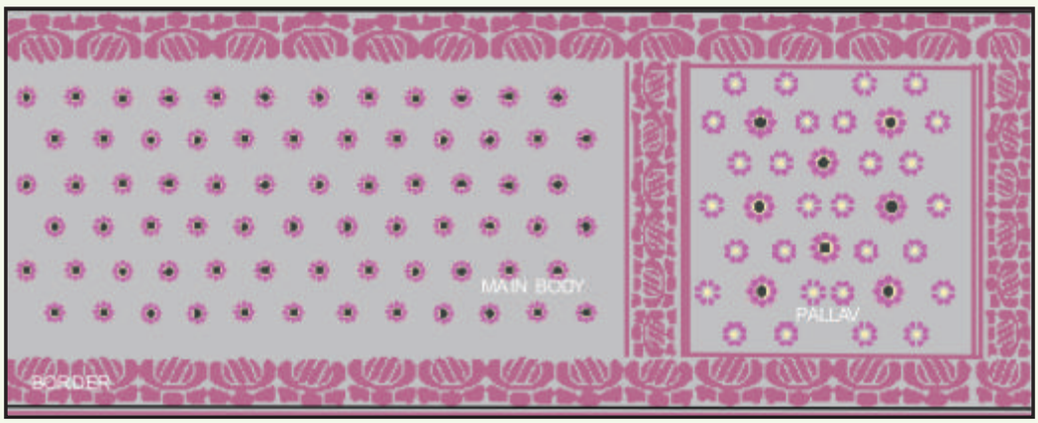


Open Border

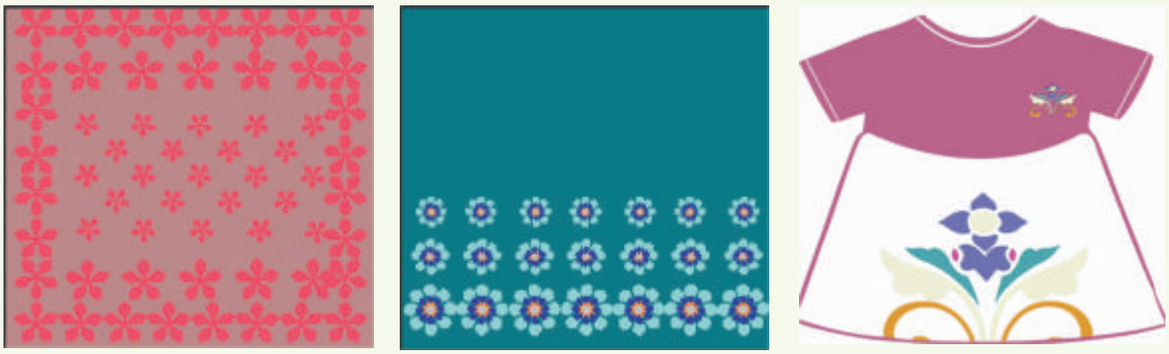
One-sided open border



Closed border



Sari design: Motifs on main body, borders and Pallau border design



Engineer placement/layout

4.4 Colourways

In textile design, a colourway is to make one or more alternatives of a design or design unit by changing existing colours to different new colours. Everything in the original design remains exactly the same, except that all the original colours are replaced by other set of colours. By altering and replacing colours, look of the original design either changes partly or drastically. For example, if an original design has a total of five colours in it, even the colourways of this design will five colours, and so will in the rest all other colourways. It is important to remember that the shape, form, size and placement of the other elements do not change at all; it is only the colour that will change.

The most common practice followed in making colourways is to change the colours by maintaining the intensity and value of colours as per the original design.

Colourways are created mainly to provide options to the customer or based on the local regional social culture, and for commercial reasons to increase the sales of the products.

Original colours (initial design)

Colourway-1
(colour option 1 of original)

Colourway-2
(colour option 1 2 of original)

EXERCISE

1. Draw square format of 8" x 8" inches in pencil on white paper, make a motif of 1" x 1" inch (approx.) use this motif in different orientations and represent two examples each of followings:

a) In black outline create an overall pattern surface.

b) In black outline create a border of 1 ½" width.

c) Create layout for a head-scarf using overall motif pattern and border.

2. a) Make a design for head scarf in 12" x 12" inches on white paper using for six colours. You may use the pattern and layout from above exercise no.: 1.c).

b) Make two colourways of the above head-scarf design (in same size) create in above exercise no.: 2.a).

3. Make a design for sari in 15" x 9" inches (approx.) on whitepaper using four to eight colours, using any motif of 1 ½" x 1 ½" inches (approx.) and a coordinated border of 2" inches width (approx.), and a wider border as a 'pallau' of 5" inches width approx.

4.5 Inspiration for design

All the designs are based on some of thought or motivation or sources that inspires designer to create a new design. It could be either from the natural resource, mam-made object, the surroundings around us, material and the techniques used, or combination two or more resources. Promising textile designs are achieved through proper paper work following a design process. A design normally starts first by understanding a design brief or the requirement of customers, then designer considers an inspirational theme or source, and then starts drawing, creating and exploring initial design ideas on paper (or on computer using suitable software), all this is based on the inspiration and design brief.

The elements and principles of design are carefully applied while creating new design ideas and finally giving them a final plan and layout as per the requirement of specific textile product.

Let us briefly look into the common sources of inspiration that leads to amazing, innovative and exciting textile designs.

- Nature
- Man-made objects
- Combination of nature and man-made objects
- Design by other designers

4.5.1 Nature

Nature and natural surroundings always inspire creative professionals and textile designer in one of them. First a designer can literally recreate nature on textile, and second, he/she can pick-up elements that visually appear interesting and pleasing to eye, and give them a new look to design a textile piece. For example, leaves, flowers, creepers, plants, trees, sand, water waves, animals and animal skins etc.

It is observed that using inspirational elements from nature leads to creating more original designs and any other form of inspiration.

Natural Object

4.5.2 Man-made objects

Man-made objects are referred to the objects or articles made by man to fulfill a specific purpose. These objects are usually created after proper planning and calculation using shapes and forms

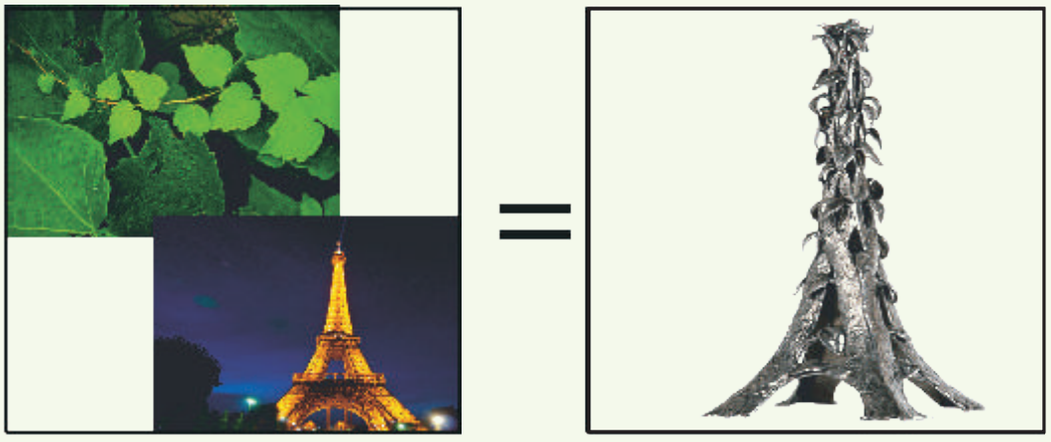
derived from geometry. The man-made objects are ubiquitous in the real world and in virtual environments. For example, a sewing-needle, writing pen, tooth-brush, spoon, chair, phone, bicycle, car, building, bridges etc. While taking inspiration from man-made objects a designer must be careful so that the new design for textile does not look a replica or copy of the object made by someone else.

Man-made object

4.5.3 Combinations

Some designers prefer to combine elements of nature and man-made objects together to create a new interesting design or design pattern, such combinations are mainly done because of the requirement of a design brief, and to break the monotony from regular design process and designs.

The combinations do bring contracting elements and proportions together to form one rhythmic pleasing design.



Combinations

4.5.4 Designs by other designers

A designer often get inspired by the works of other creative professionals, it may be a senior or a master designer, great artist and architects, or historic traditional crafts of unknown creators.

Many a times textile pieces are created by referring and using elements of traditional classical designs of tapestries and architectural patterns and carvings. A designer must take precaution while creating new design using such existing form of inspiration, as it should not become merely a copy of someone else's creation. Directly applying someone else's design or art work is also referred as reproduction or copy with nothing new in it, therefore will not be appreciated as a good design. There are occasion when a design brief specifically require copy and reproduction of some existing master piece, but then it is only a skillful application to translate truly to the original. Ethical practices must be followed while using others creation as inspiration for new design.

Digital Print design (by - Charles Evans)

Nature inspired (by - Ellie Curtis)

SUMMARY

This chapter explains the practical application of elements of design in textile design. Motif and form are one of the basic units of any textile design. A motif is a main element which should be innovative in order to bring newness to the design ideas developed by the designer. In section 4.1, various creative methods are discussed for the development process of motif and forms. Pattern and basic repeat are the primary and essential part of any textile design as most of the designs in textiles are based on repeats (applicable to woven, embroidered, knits and printed textiles. This sub unit explains the basic understanding of a repeat and types of repeats used in textile design. Apart from various repeats textile designers should be aware of the popular design layouts and placements of design elements as explained in the subunit under section 4.3. As explained in section 4.4, colours play an important role in any design and enhance the look and appeal of

textile products. A textile design becomes extremely desirable if presented in the right combination of colours; a design available in various colour options provides the variety factor and enhances the possibilities of likeness by people of different taste and preferences. The source of inspiration in design comes from various sources as explained in section 4.5. This chapter aims towards enabling the student to handle elementary stages of a design process. The teaching methodology follows a fine mix of theory, visual explanation and practical learning through process based assignments in the classroom.

EXERCISE

1. Take an A3 size mount-board or card-paper to create an expression board/chart placing and arranging 12 to 16 natural objects sourced from the nature. For example, dry-leaves, broken barks of trees, dry stem of a plant, small piece of a rock, pebble, shell, etc.
2. Take an A3 size mount-board or card-paper to create an expression board/chart placing and arranging 12 to 16 man-made objects sourced from the surroundings around your home, or in home, office etc. For example, old tooth-brush, safety-pin, writing pen, part of broken phone or tea-cup, electric switch, metal screw, etc.
3. Take an A3 size mount-board or card-paper to create an expression board/chart based on a theme or story by placing and arranging 6 to 8 natural and another 6 to 8 man-made object sourced from the surrounding around. As per your theme give a suitable title to board.
4. Create a composition each on an A3 size mount-board or card-paper by placing and arranging 6 to 10 visuals of following:
   a) a traditional Indian handicraft
   b) works of two or three famous India painters or architects (Note: for both the above you can get the visuals/pictures from magazines/newspaper etc.).

UNIT 4

Design for various types of Textiles

Chapter 5

Design for Woven Textiles

5. Design for woven textiles

Woven fabrics are the most widely used fabrics. By carefully looking into the structure and method of interlacement of yarns in a fabric one can differentiate between a woven or knitted fabric.

In this chapter we will learn about the types of woven fabrics available.

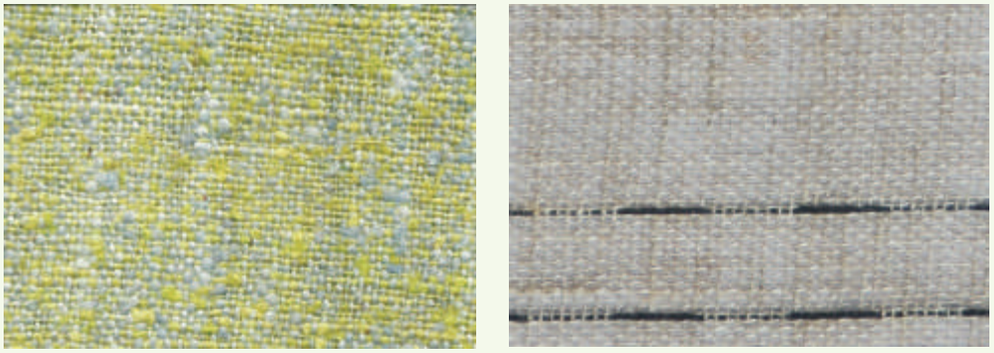
Woven Fabrics

interlacing each other at 90 degrees angle. There are two set of yarns, one in vertical axis referred as warp, and the other at horizontal axis referred as weft. Warp runs along the length and weft along the width of a fabric. Different manipulations in interlacing warp and weft yarns will create various patterns and designs, these patterns will also depend on the mechanisms and methods used. Based on the methods used for weaving, woven fabrics can be categorized in various types.

Let us now try to understand various types of woven fabrics as following.

Types of Woven Fabrics

1. **Handloom fabrics:** Woven fabrics are generally classified as per woven design or structures, where plain weave is the most common and simplest of all. The fabrics which are woven on handlooms are called handloom woven fabrics. The process of making a handloom fabric is generally slow, however beautiful and intricate work is also achieved on handlooms in India in form of traditional saris.



Handloom fabric

2. **Dobby fabrics:** Dobby is a complex mechanism; beautiful geometric and simple organic designs can be made using this mechanism. A dobby can be hand operated on handloom or power on power-loom.

Dobby fabric

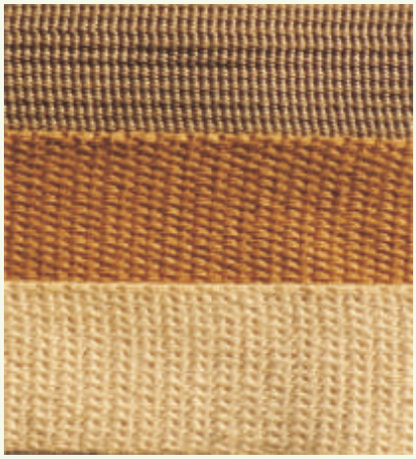
3. **Jacquard fabrics:** Finer and intricate designs can be created by complex interlacement of yarns on a jacquard loom. Jacquard is basically the name of a mechanism which highly complex and is able to control threads during weaving to a one on one basis. Looms fitted with this mechanism are called Jacquard looms. Jacquard fabrics are very popular for upholsteries (sofa cover etc.), shawls and pallau design of saris.

(Image on the left - http://www.made-from-india.com/showroom/krishna-technofab/products/Jacquard-Fabrics-_85747.html)

4. **Pile fabrics:** All fabrics which have protruding threads from surface are called piled fabrics, for example - towels, velvet etc. Pile fabrics have an extra set of yarns to form loops, and may be cut or uncut. Piles add bulk and weight to fabric and the cut pile fabrics such as velvets are used for luxurious products.

Terry towel

Narrow width fabrics: Ribbons and tapes are narrow width fabrics which are woven on different looms. There fabrics/tapes/ribbons are used for embellishment purpose.



Narrow-width fabric

SUMMARY

This chapter is an introduction to the woven fabrics and the type of woven fabrics broadly available as per the technique of weaving. Weaving is one of the basic techniques in making of textiles as even the printed textiles need some base such as woven or knitted. The chapter discusses the important attributes about hand loom woven fabrics, dobby and jacquard fabrics, pile and narrow width fabrics. The chapter although is theory based incorporates visual references and actual fabric swatch references in order to enhance the learning of a student towards the various types of popular woven textiles.


EXERCISE

1. Write short notes on the following with examples (60 -80 words):

a) Pile fabrics

b) Handloom fabrics

c) Dobby fabrics

d) Narrow width fabrics

e) Jacquard fabrics

2. Match the following:

Dobby	towels
Pile	jacquard
Ribbon	simple geometric patterns
Intricate designs	narrow fabric

Chapter 6

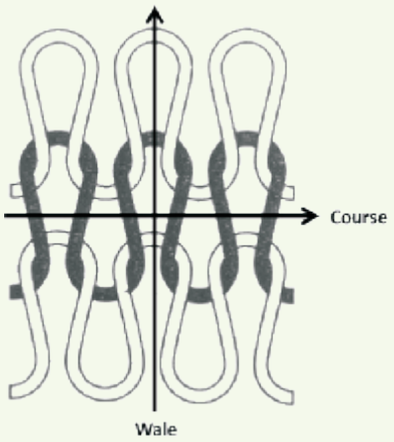
Introduction to Knitting

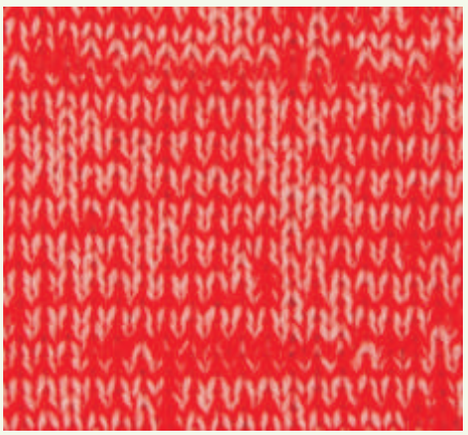
6. Introduction to knitting

Knitting is a very old practice of manufacturing fabric by intermeshing loops. Unlike woven fabrics (interlacement of two set of yarns lying in perpendicular direction), knitted fabrics are produced by interlocking loops with the help of needle / needles. During the process a new loop is stitched through the old loop. The fabric consist loops along the longitudinal direction known as wales and along the traverse direction known as courses.

The presence of loops, make knitted fabrics highly stretchable, comfortable and mouldable to fit body shapes. Knits are very flexible in terms of its use / applications. They are widely used for summer wear, winter wear and sportswear. The high porous structure makes the knit fabric permeable and more breathable that makes it comfortable to wear in summer. Winter wear knits are usually made thick to increase the thermal insulation and the pours in the fabric traps air that retain heat and keeps the body warm. The high stretch ability helps a sportsman to twist his body with ease. However, incomplete elastic recovery gives rise to "bagging" at knees and elbows.

Knitted products are popular and are one of the most emerging fields in fashion and apparel industry. The knitting was found practiced before 250 AD. Earliest type of knitting known as "Arabic Knitting" was carried out in North Africa and is introduced in Europe by Arabs. It was William Lee with his brother James Lee who produced the first knitting machine in 1589 in England.





SUMMARY

This chapter is a basic introduction to the knit fabrics. In today's world knits are as popular as woven fabrics and knitting industry is growing day by day. Textile design professionals need to understand the knits as well in order to enhance the sphere of their knowledge. The chapter although is theory based incorporates visual references in order to make the student understand about the knitted textiles.

EXERCISE

1. Fill in the blanks:-

a) Knitting is produced by _____ of loops.

b) Knitted fabric _____ stretch ability and comfort properties due to its unique structure.

c) _____ invented the first knitting machine in England in year 1589.

d) In knitted fabric, the loops along the longitudinal direction are known as _____, and along the transverse direction are known as _____.

Keys:

a) Intermeshing

b) Possess high

c) William Lee and James Lee

d) Wales, Courses

Chapter 7

Design for Printed Textiles

7. Design for printed textiles

Whenever we visit markets and see fabrics with beautiful design with floral, geometric, mixed patterns and many other design patterns in single or multi colour, go close, and touch and observe a fabric. Look at this fabric from front and back both sides, if you see the design on the fabric is created through colour application creating definite shapes on side more prominent and fresher, the design is most likely a printed fabric.

In this chapter we will learn about various types of printed textiles and various designs and related terminology.

In order to understand printed textiles we need to know that how many types of printing techniques are available, and accordingly the design for printed textiles could be understood. The types of printed textiles can be understood in three ways.

1. Printing techniques and methods.
2. Chemicals and technologies used in printing
3. Various design attributes

7.1 Method of Printing

There are four popular methods of printing textiles, they are

i. Hand block printed textiles

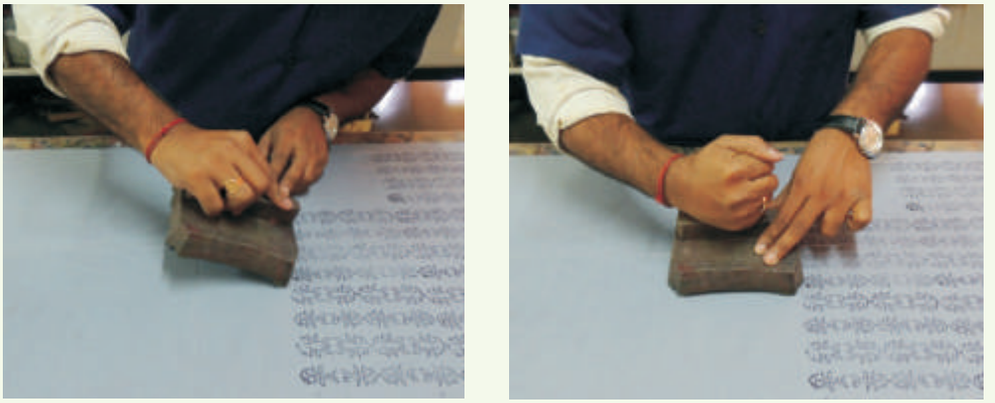
ii. Screen printed textiles (by hand and machine)

iii. Mill printed textiles (using high speed automatic printing machines)

iv. Digital and transfer printed textiles.

i. Hand Block printed textiles: This type of printing method is ancient and still a very popular form of textile. India is known for its traditional hand block printed textiles. In this method a fabric is stretched on the padded tables, colour is first applied on design engraved wooden block and then this wooden block is stamped on to the fabric, resulting

transfer of design impression through the colour on wooden-block. Each wooden block is designed in a way so the design fits exactly into the next. To identify this textile you should look at the detailing of the designs, there could be some kind of slight imperfection in thickness and matching of lines, this is due to the hand printing where the pressure while stamping the block get varied. This also defines the character of block printing technique and creates beautiful fabrics.



Hand block printing

ii. **Screen printed textiles:** This method of printing is done on padded tables; fine perforated fabric mesh or screen is stretched and fixed on square or rectangular metal (or wooden) frame. In comparison to block printing, here designs with bigger repeat size can be achieved and the printing production of a fabric is faster. Screen printing also gives fine interacted designs, and is popular for small production.

iii. **Mill printed textiles:** Mills produce a large quantity of printed textiles; the printing is done using cylindrical drums with fine mesh on the circumference of the cylinder, this is called rotary printing method. The fabrics produced through this method are usually of fine quality, with possibility of several kinds of finishes applied after printing. The printing is accurate and long lasting due to highly controlled mechanized environment in a factory. Pigment colours are directly printed on a light ground or white fabric. This is one of the cheapest and simplest printing techniques as compared to others.

iv. **Digital and Transfer printed textiles:** All the above mentioned textiles are achieved through a certain number of colours, whereas in transfer or digital printing technique almost any design with any number of colours can be printed. Where ever you see a photographic prints looking like an actual photograph, then consider it to be a digital printed fabric. For transfer printing first the design prints are done on a special paper and then the same design is transferred on the desired fabric. Mostly T-shirts,

customised home linen and big banners are done using transfer or digital printing technique.

http://www.designersguild.com/fabric-and-wallpaper-showroom/view-all-collections/sofienberg-fabrics/mariedal/mariedal---peony/#.UP9vtfLCdsY

7.2 Chemicals and Technologies used in printing

i. **Pigment printing:** Pigment colours are directly printed on a light ground or white fabric. In this printing, the pigment dye is directly applied on to the surface of fabric; pigment colours form a colour layer on the surface of fabric producing a desired pattern through colours. This is the cheapest and simplest printing technique as compared to discharge and reactive.

ii. **Discharge:** In this technique the fabric is dyed in dark colours first, thereafter chemicals are used to remove dark colours from certain surface areas of a fabric, and then light colours are printed in desired design/pattern. Discharge is more expensive than the pigment, as two techniques (dyeing and printing) are used to create desired finished designs. When a design has a dark colour background in a larger area, and small portions of light colours are printed in other areas, this technique is preferred especially for apparel.

iii. **Reactive:** In this process chemicals and colours react with each other to create a particular color.

Pigment printed fabric

Discharge printed fabric

7.3 Print Design Technology

Various print design attributes and terminology

There are various types of print designs and related terminologies associated to them are vast. Let us discuss about some important and popular designs.

a) **Floral prints:** Beautiful flowers are the main attribute of these print designs. Floral prints are timeless and appreciated in every country and class.

b) **Geometric prints:** The prints having geometric elements are called geometric prints for example simple dots are called 'polka' dots and simple lines are called 'stripes'. When lines intersect each other at 90 degrees such prints are called 'checks'.

c) **Abstract prints:** The symbolic way of representing a flower or any other element that visually does not associate with normal is called abstract. The abstract prints are also referred as the modern prints of all.

d) **Conversational prints:** Any element of design which conveys or communicates some direct message is called a conversation prints. For example sport activities, animals, faces or flying airplanes, etc. Today conversational prints are extremely popular category among kids, for example, popular cartoon characters.

e) **Ethnic prints:** Print designs related to any particular region or culture or traditions are called ethnic prints. For example, Indian paisley prints are ethnic because, it is believed that their origin could be in Asian Persian region.


SUMMARY

This chapter explains the design terminologies related to printed textiles. There are various types of textiles available as per printing techniques and methods of printing. In order to understand the design aspect of printed textiles one needs to understand methods and techniques related to printing, such as screen printing, block printing, rotary and digital printing etc. This understanding leads to development of a greater capacity and better understanding of design. The chapter although is theory based incorporates visual references and actual swatch references and certain practical assignment in order to enhance the learning for printed textiles.

EXERCISE

1. Write short notes on the following (60-80 words):

a) Difference between discharge and pigment printing

b) Indian Block printed fabrics

c) Digital printing

d) Rotary printed textiles

e) Screen printed textiles

2. Tick mark on the correct combination of interrelated words:

White background	Pigment printing	
Discharge prints	Small flowers	
Transfer printing	T Shirts	
Photographic prints	Pigment prints	
Natural looking flowers	Digital printing	
Imperfection in joining of lines	Hand Block printing	

3. Mark the statements by true or false:

a) Conversation prints have the power to speak in any language.

b) Cartoon characters can be considered geometric prints also.

c) Floral prints are specific to any region.

d) Ethnic prints can be understood by understanding the related culture of a particular region.

e) Abstract prints are obsolete.


Chapter 8

Design by Dyeing Textiles

8. Design by resist dyeing of textiles

Resist is a traditional method of textile design. In this technique certain areas of fabric or yarn is resisted and further dyed. The tie and dye technique creates interesting results on fabric. The method of tie and colour combinations play an important role in this technique.

In this chapter we will learn about different types of resist techniques practiced in the field of textile design.

The resist technique is one of the oldest and prevalent in many civilizations.

The fabric or threads are resisted first in a desired order to create patterns; afterwards the fabric is dyed, thus resulting in beautiful patterns in the resisted areas. Dyeing is always done in order of light to dark colours to achieve a resist pattern in more than two colours.

The resist techniques can be broadly classified in the following segments as per the resist methods.

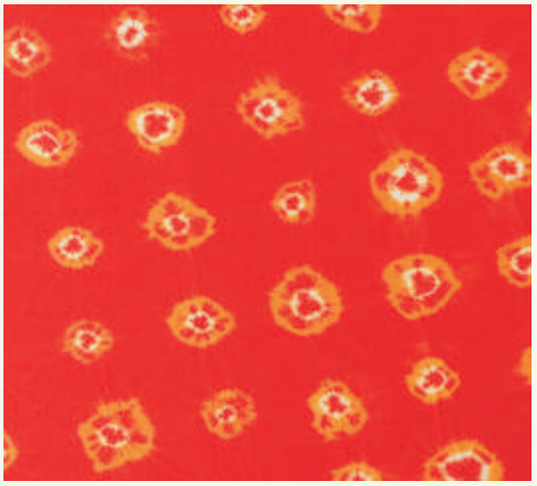
1. Resisting the yarns (warp and weft - *Ikat*)
2. Tie and dye - (*Bandhni*)
3. Wax resist - (*Batik*)
4. Resist through folding and stitching - (*Shibori*)
5. Resist through clamping technique -(*Jiaxie*)
6. **Resisting the yarns (*Ikat*):** In this technique yarns of warp or weft or both are tied using threads in a very calculated pattern method. Thereafter the set of tied warp or weft is dyed in desired colours. The dye colour does not penetrate the tied areas of yarns therefore leaving it in the original colour of the yarn. When placed on the loom and woven this creates a subtle and inconsistent outline of motifs or patterns. It is not possible to achieve a design with sharp outlines on a fabric in this technique. Ikats are of three types; warp ikat, weft ikat and double ikat. When warp and weft both yarns are tied and dyed it is called double Ikat. In India, the state of Andhra Pradesh, Orissa and Gujarat are well known for Ikat fabrics.Orissa has a fine

variety of ikatsarees called 'patola' or 'sambhalpuri'. 'Pochampally'sari is a double Ikat textile from a small village in Nalagonda district of Andhra Pradesh, and is popular by the name of the village itself. Kasuri is a style of Indonesian ikat, it employs extreme accuracy.

Tie-dyed yarn

Ikat - fabric with tie-dyed yarn

Tie and Dye (*Bandhni*): This technique is used on fabric instead of yarns. The fabric is tied in certain patterns using threads. Sometimes small beads or food grains are used in the tied areas to get different circular shapes. After the tying is done tightly and properly, the fabric is taken for dyeing. The dye does not penetrate the resisted tied areas; after the dyeing is done fabric is dried under sun. The resist tied yarns are opened to get the beautiful patterns on the surface of a fabric. This technique is extensively used in India, where it is known as 'bandhani'. This technique is practiced in Gujarat and Rajasthan regions of India. The products are sold without removing the tied threads on fabric to let people believe the authenticity of the hand technique.



Bandhani

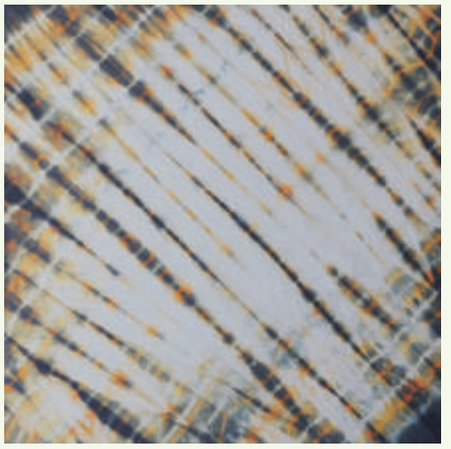
7. **Batik:** Batik is a wax resist technique. Wax is applied through brush or wooden blocks to resist the design form on fabric. The dyeing is done using cold Naphtol dyes in order to protect wax resist area. Bees wax is used for smoother results and paraffin wax is used to introduce more cracks in design. After dyeing the fabric is boiled in water to remove the wax. Thereafter fabric is dyed to get a beautiful batik pattern.

Batik

This technique is called Batik in Java where wax is used and called 'Tsutsugaki' in Japan where rice paste is used as a resist material.

8. **Resist through folding and stitching (*Shibori*):** Shibori is one of the popular techniques of Japanese textiles. In this technique fabric is tightly folded and stitched, twisted and compressed to achieve fine patterns. Due to the various methods combined and used, the results are often very unique. In this technique the type of fabrics used for resist also affects the end result of design.

9. **Clamp technique (*Jiaxie*):** This technique involves fabric folding and then using a carved wooden design shape as the main resist. These wooden resists are always two identical pieces because it is placed on both sides of the fabric. These two blocks are then held together with a clamp. Just like other resist techniques fabric is taken for dyeing, and afterwards clamps are removed to get desired patterns. 'Jiaxie' is one of the old clamp resist techniques practiced in some places of China.



Resist by folding

SUMMARY

There are various methods used to create beautiful surface patterns by resisting certain areas of fabric and further by dyeing it in desired colours. The techniques are ancient and still in demand. This chapter explains various methods of resisting the fabric such as Ikat, tie and dye of fabric, clamping methods, Japanese Shibori, Batik etc. The main purpose is to understand various techniques of resist dyeing and its application in textile design. Teaching methodology for this course involves lecture, visual and swatch reference followed by practical assignments for enhanced learning.

EXERCISE

1. Write short notes on the following (60-80 words).

a) Shibori

b) Indian Ikat

c) Resist dyeing techniques

d) Batik

e) Bhandhni

2. Tick mark on the correct combination of interrelated words.

Bhandhni	Rajasthan
Ikat	Indonesia
Bees wax	Softer and lesser cracks
Shibori	Iran
Fabric Folding	Batik


Chapter 9

Surface Ornamentation and Embellishments

9. Surface embellishment on textiles

The embellishment on fabric makes it attractive. There are various popular techniques practiced in handicrafts, cottage and small-scale industry for enhancing the look of fabric surfaces.

In this chapter let us explore various techniques used for surface embellishment of fabric.

Fabric manipulation techniques are extremely popular in textile and fashion, and considered as value addition to any textile product.

There are few popular methods of surface embellishments on textiles:

1. Embroidery
2. Appliqué
3. Patch work
4. Fabric gathering
5. Smocking
6. Fabric folding, Pleating and Tucks
7. Thread Pulling techniques

1. **Embroidery:** Embroideries are among the most popular technique for fabric embellishment created on a fabric using needle and thread, and other materials such as beads, ribbons, metallic threads etc. There are two types of embroideries - hand and machine. Hand embroideries are considered premium in comparison to machine embroideries. Hand embroideries are diversified as per regions. India is known for exquisite embroideries such as U.P. (Lucknow) for Chikankari embroidery, Banaras for Zardozi embroidery, Gujarat for mirror embroidery and West Bengal for Kantha embroidery. Now a day's embroidery is also carried out on computerized machines.

Hand embroidery

2. **Appliqué:** A fabric piece in a particular shape or pattern is cut and applied on the surface of another fabric, and edges of the fabric applied are stitched or embroidered for the finishing in the appliqué technique.

Applique

3. **Patchwork:** Two or more than two fabrics of various shapes and sizes are attached using stitching technique in patchwork. Patchwork technique is very popular for making bed covers and quilts. Patchwork is done in various styles based on the shapes created.

Patchwork

4. **Fabric Gathering:** In this, first, a fabric is stitched through simple running stitch, thereafter the thread is pulled to create gather in the fabric. This fabric gathering technique is used to create frills and ruffles. This technique is widely used in home furnishing and garments, this adds volumes to any garment, and beautiful details on the surface and edges of textile products.

5. **Smocking:** Smocking is a modified version of fabric gathering. Smocking consumes a lot of fabric due to the close gathering techniques used. Smocking is of many types; the most popular ones are:

    1. **English Smocking:** Fabric is pulled very closely forming rows of small gathers and further embellished using hand embroideries. French knots, back stitch and cross stitches are the popular embroidery stitches used for decorating English smocking. This also creates some amount of stretch-ability in a fabric due to gathers created in one direction. This technique is very popular for kids-wear and ladies garments.

English Smocking

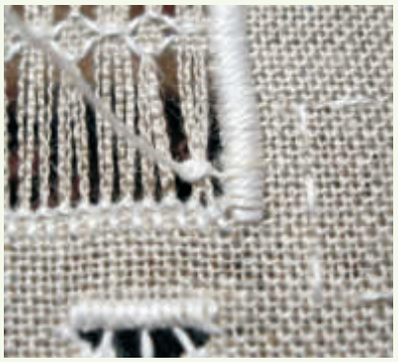
    2. **Canadian Smocking:** Square blocks are drawn on a fabric, and then the fabric is stitched and pulled in a particular pattern. Fabric pulling in following different patterns gives different results and creates interesting three dimensional effects on a fabric surface. This technique is also called lattice smocking. This technique is very popular in home furnishings (cushion covers) and apparel products (ladies tops).

Canadian Smocking

6. **Fabric folding techniques:** There are various methods of fabric folding such as pleating and tucking. These fabric techniques are timeless classics. The most common of these are pleated skirts for school dresses.

(http://tonianneeveritt.blogspot.in/2012/11/pleated-fabric-ciment-pleaters-in-london.html)

7. **Thread pulling techniques:** Threads can be pulled to create beautiful perforations in a fabric. Thread pulling is done very carefully on the fabric by counting each thread to avoid the fabric from getting spoiled.



(http://www.needlenthread.com/2009/02/tutorial-coral-knot-in-drawn-thread.html)


SUMMARY

This chapter aims towards developing understanding for various types of embellishment techniques on textiles. The students need to see various visuals in order to understand the techniques. This chapter is an introduction to several fabric surface embellishment techniques used prominently in the field of textile design such as, Embroidery, Appliqué, patchwork, Thread Pulling techniques, different types of smocking, folding, pleating, tucks and gathering. This will also require showing some actual fabrics for embroidery; smocking and other techniques. Technique like pleating can be explained by paper folding as well. This enables the students to handle the hand needle along with fabric surface manipulations to achieve creative solutions for surface embellishments.

EXERCISE

1. Write short notes about following:

a) Difference between hand and machine embroidery

b) Mirror embroidery

c) Appliqué

d) The purpose of Surface embellishment in textiles

e) Smocking

2. Match the surface embellishments techniques with the achievable look on fabric:

Pleats	Embroidery
Zardosi	Thread pulling technique
Smocking	Lucknow
Perforations	Lattice
Chikankari	School dress skirts

3. Collect different fabric swatches from market: 3" x 3" inches in size. Paste them on one A2 size sheet and prepare a chart by labeling them.

Chapter 10

Presentation of Design and Professional Practices

10. Presentations for design and professional practices

The design filed is mostly service oriented along-with creativity, and textile design is no exception. The designers need to take care of their client's preferences, requirements and market trends.

In this chapter we will discover the professional practices most commonly found in the field of textile design. It can be understood in various steps.

a) **Approaching a client for textile design work/project:** In this section a designer needs to prepare detailed curriculum vitae (professional information about skills, work experience and personal information about the name, contact details etc.).

b) **Client brief understanding:** Understanding what a client needs and why do they need it, is the most crucial part. Each market is different and so is each client. The basic outline of the purpose of design, deadline, amount and nature of work etc. is defined in client's brief.

c) **Assessing Goals:** Assessing the goals is the next step, as one needs to estimate the amount of time, man power and efforts required to complete a design project, based on which a designer's brief is prepared by designer and submitted to client.

d) **Design agreement:** Based on the facts from both parties i.e., client and designer, a design agreement is prepared and signed by both parties. The design agreements involve many clauses such as the designer will keep the designs discreet until the products are launched in market. It also contains the payment terms; this could be on hourly or daily basis, it could be an annual agreement or retainer-ship which is equivalent to a full time employment for a certain period.

e) **Application of creativity in a defined context:** The design ideas are created keeping the client's brief in mind. The designs are supported by correct colours, appropriate fabrics/materials and detailed technical specifications.

f) **Design presentation and client's feedback:** Designs are presented to the client and client feedback is incorporated by designer in terms of modifications.


g) **Design submission:** Initial and final designs are submitted to client in the required format such as CD or DVD for soft copies, actual size print outs, fabric swatches and other material boards along with technical specification sheets.

h) **Copyright and other legal considerations:** Designs are created keeping all the legal considerations in mind, for example copy right - it is the exclusive rights provided to the creator of an original work, generally for a limited time period. Designers can keep the rights with them and ask for a royalty that is a certain fee decided for each piece. The royalty multiplies as the larger number of pieces are produced or sold depending on the agreement.

i) **Submission, invoicing and payments:** After the submission is done invoice is raised for billing and submitted to client for final payment release. Sometimes designers work in advance payment system, where some amount of charges are taken before starting the design work and rest of the percentage is charged at different stages or at the end of the design project.

SUMMARY

This chapter explains the professional practices in the textile industry. Textile designers need to work very closely in association with their client and work step by step based on a client presentation and feedback process. This is an integral part of the textile design field and is necessary to understand to get an overview of the working system. This chapter explains about various important terminology related to work such as -client brief, design agreement, copy rights and other legal considerations, design submissions, invoicing etc. Teaching methodology for this chapter incorporates lectures as well as practical professional presentation mock demonstrations by involving students to enhance the overall learning.

EXERCISE

1. Write short notes about following:

a) Copyright

b) Client Feedback

c) Design Agreement

d) Freelance

e) Approaching a client

2. Mark the correct co related words:

Payment	Invoice	
Submission	Deadline	
Design Brief	Design concepts	
Design submission	Copyright	
Retainer-ship	Freelance	


Glossary

- **Agreement:** Harmony or accordance in opinion or feeling; a position or result of agreeing.
- **Automated:** To control or operate by automation/self-driven
- **B.C:** Before Christ
- **Clamp:** A brace, band or clasp for holding to things together
- **Culture:** The arts and other manifestations of human intellectual achievement regarded collectively.
- **Defined context:** The circumstances in which an event occurs; a setting.
- **Design:** A plan or drawing produced to show the look and function of a surface or garment, or other object before it is made/produced.
- **Emphasis:** Importance
- **Environment:** Surroundings
- **Ethnic:** Belonging to a particular population or sub group possessing certain cultural characteristics.
- **Excavations:** The action of excavating something, esp. an archaeological site.
- **Export:** Send (goods or services) to another country for sale.
- **Fabric:** Cloth
- **Feedback:** Information about the reactions of a task or product.
- **Forecast:** Prediction of future trends
- **Form:** The visible shape or configuration of anything
- **Geometric:** Related to geometrical shapes.
- **Interior:** Inside areas of any building or house.
- **Linen:** A fabric obtained from flax fiber.


- **Metamorphosis:** The process of transformation
- **Motif:** A decorative design element
- **Natural:** Coming from nature/derived from nature
- **Ornamental:** Decorative
- **Perforation:** A hole made by boring or piercing
- **Primitive:** An early stage in history
- **Remnants:** A small remaining quantity of something.
- **Revolution:** A sudden change through the force of society regarding an important issue.
- **Silk:** A fine, strong, soft, lustrous fiber produced by silkworms in making cocoons and collected to make thread and fabric.
- **Spinning:** The action or process of converting fibers into thread or yarn.
- **Stabilized:** Make or become stable
- **Staggered:** Unsteadily
- **Stylized:** Depict or treat in a mannered and nonrealistic style.
- **Technology:** The application of scientific knowledge for practical purposes especially in industry.
- **Textile:** Cloth/fabric.
- **Texture:** The feel, appearance of any surface.
- **Theme:** Topic or thought
- **Trade:** The action of buying and selling goods and services.
- **Trends:** A general direction in which something is developing or changing.
- **Yarn:** Spun thread used for knitting, weaving, or sewing.


Credits

- **Chapter 6 of Unit -IV:** Compiled by Mr. Prithwiraj Mal, Assistant Professor at Knitwear Design department in NIFT Hyderabad.
- **Illustrations in chapter 1.4 of Unit-I:** Works of Mr. Divya Sisodiya of Textile Design department at NIFT Hyderabad, batch 2010-14.
- **The Trend Forecast boards of Spring/Summer 2014 in chapter 2.4 of Unit-II:** Ms Rutuja S. Mahajan and Lavanya Mittimani of Knitwear Design department at NIFT Hyderabad, batch 2010-14.
- **Illustrations in Unit - II and III:** Mr. Shashank Shandilya of Textile Design department at NIFT Hyderabad, batch 2010-14.
- **The Inspiration board in chapter 4.4 of Unit-III:** Ms. Ankita Gupta of Textile Design department at NIFT Hyderabad, batch 2010-14 and Anand Singh of Knitwear Design department at NIFT Hyderabad, batch 2010-14.
- Fabric swatches of 'Bandhani', 'Batik' and 'Resist by folding' in chapter 8 of Unit-IV, and swatches of 'Applique' and 'Smocking' in chapter 9 of Unit-IV: Ms. Vinita Kumari and Ms. Ankita Gupta of Textile Design department, NIFT Hyderabad, batch 2010-14.
- The images used in this book with the references of respective website are from free sources.
- All the other images/photographs are by Prof. Anupam Jain.
- Book cover is designed by Mr. Nitin Shekhar of Fashion Communication Design department at NIFT Hyderabad, batch 2010-14.

Elements of Textile Design

Practical Manual


Contents

Practical 1

Objective:

- Understanding textiles from various perspectives.
- Study of historical developments through major events.
- Overview of Textile Industry, the various sectors of industry and the interrelated industries
- Understanding Textile design as a profession.

Lab requirement for a batch of 30 students:

Material and equipments.

For Chapter 1 (1.1, 1.2, 1.3, and 1.4) no laboratory practical assignments are assigned since these sub units are theory based. Study material and teaching methodology needs to be followed as provided in chapters and teacher's manual; however some class room equipments could be used to enhance students learning experience.

Classroom Equipments:

1. Projector or KIAN - One
2. White Screen of approximately 6 x 6 feet - One
3. Proper electricity connection.
4. Pen drive of approximately 2GB capacity - One
    - The cost of the equipment depends on the local or international brands purchased
    - Please note the pen drive is required to save images, videos or presentations and attached to the KIAN to have a full screen mode audio visual presentation.
    - The pen drive can be used by teachers to save images and bring to the class for audio visual references.
    - The answer key is enclosed in the teacher's manual for the written exercises to be conducted in the class room and answer sheets to be checked.

Museum visits as a practical experience: Apart from the lectures, student visits can be organized to nearby museums (textile related). A museum visit will give student a clear insight in Textile history.

Practical 2

Objective:

- To understand textile design profession, role and responsibilities of textile designer and various aspects of work, time planning and trend studies broadly followed in textile design industry.
- To understand areas which are design specific.
- To understand work and responsibilities of a textile designer

Methodology apart from lectures: Apart from lectures audio visual references such as magazines, books, movies etc. should be shown to students for better understanding of the subject.

Material and equipments.

For Chapter 2 (2.1, 2.2, 2.3, and 2.4) no laboratory practical assignments are assigned since these sub units are theory based. Study material and teaching methodology needs to be followed as provided in chapters and teachers manual; however some class room equipment could be used to enhance the learning experience for the students.

Classroom Equipment:

1. Projector or KIAN - One
2. White Screen of approximately 6 x 6 feet - One
3. Proper electricity connection.
4. Pen drive of approximately 2GB capacity - One

- The cost of the equipment depends on the local or international brands purchased
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- The answer key is enclosed in the teacher's manual for the written exercises to be conducted in the class room and answer sheets to be checked.

Practical 3

Objective:

- To understand basic language of design and the important terms associated with it.
- To understand basic principles associated with design
- To understand elements of design and principles on which the design is based.
- To understand balance, movement, repetition, emphasis, contrast and unity.
- To explain various aspects to get familiar with design basics which will further enable students to design with rational thinking
- Application of design principles

Material and equipments.

For this chapter, no laboratory practical assignments are required since the practical assignments can be carried out in class room itself. The study material and teaching methodology needs to be followed as provided in chapters and teachers manual; however some class room equipment could be used to enhance the learning experience for the students.

Classroom Equipment:

1. Projector or KIAN - One
2. White Screen of approximately 6 x 6 feet - One
3. Proper electricity connection.
4. Pen drive of approximately 2GB capacity - One
   - Please note the pen drive is required to save images, videos or presentations and attached to the KIAN to have a full screen mode audio visual presentation.
   - The pen drive can be used by teachers to save images and bring to the class for audio visual references.
   - The answer key is mentioned below for the written exercises to be conducted in the class room and answer sheets to be checked.
   - The cost of the equipment depends on the local or international brands purchased


Assignments

Methodology and Additional activities apart from the audio visual lecture:

- In order to achieve better understanding a couple of objects should be shown to students describing the principle and elements of designs
- Students should be asked to work on all exercises in the class using innovative ideas. The students can work out various ideas and the best ideas should be taken forward in the final assignment on paper. Students should be explained and partly demonstrated some exercises of the subject well before explaining the assignment. The exercise should be carried out in the class in teacher's presence, and some finishing work could be done at home.
- Students should use the coarse side of paper for drawing the compositions. First the compositions should be planned in pencil and discussed with teacher for guidance. Once approved students should go ahead and finalize the compositions using brush and poster colour.

Exercises:

1. Draw square format of 8" x 8" inches in black line on white paper, use a minimum of 7 to 15 lines in black along with different shapes, forms and textures, and represent two examples each of following: a) Symmetric balance b) Asymmetric balance c) Repetition d) Movement e) Contrast.
2. Draw square format of 8" x 8" inches in black line on white paper back ground, using water base colours (poster colours) represent one example each of following:
   a) Create a composition representing 'Movement' using four different shapes of 1 ½" x 1 ½" inch (approx.) and fill them in four different colours.
   b) Create a composition representing 'Emphasis' using three different shapes of 2"x 2" inches (approx.) and fill them in three different colours.

Method:

Take an A3 size sheet and make lay out first using pencil and scale as shown below an example for the same. As a next step students should plan the composition as per the assignment. This basic planning should be discussed with the teacher in case of any clarification and should be approved by teacher before going ahead with final composition.

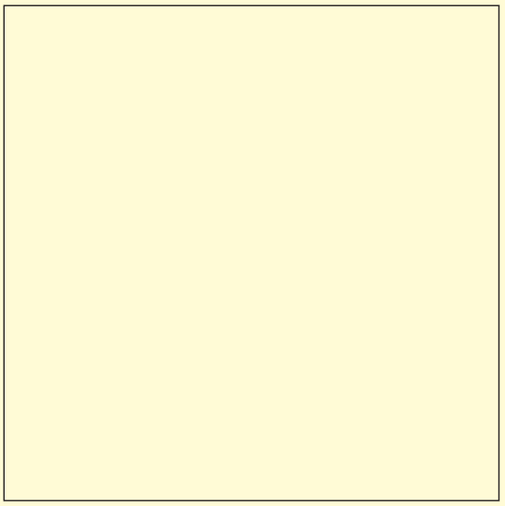
Materials:

No specific material is required by teacher, however students would require

1. A3 sheet (cartridge or buff) - off white or white color

2. Pencil
3. Brushes - sizes: 0, 1, 3, 5 etc.
4. Black poster color
5. Black pen or fine tip marker or Black micro tip pen
6. Any color medium, for example - poster colors, pencil colors, water colors etc.

Sample Layout on A3 sheet

Name Subject Class Date Assignment .... Description .... Teacher's Sign	

Note: The right hand side square is 8 x 8 inches as mentioned in the assignment 1. Based on the basic layout teacher can guide the students to create their own creative layouts for presenting the compositions.

Students should write their name, topic and date on the sheet in right or left corner of the back/rear side of paper in a simple and legible font. Only the topic should come on front side of paper.

Practical 4

Objective:

- Practical application of elements of design in textile design.
- To learn motif development, repeats and pattern

Methodology and Additional activities apart from the audio visual lecture: In order to achieve better understanding of the various topics related to chapter 4 and subunits teachers need to show different fabrics and design layouts. Teachers should also show a design in different colours to explain the meaning of colourways.

A lab would require certain material and equipment in order to conduct the practical successfully. For this chapter, no laboratory practical assignments are required since the practical assignments can be carried out in class room itself. The study material and teaching methodology needs to be followed as provided in chapters and teachers manual; however some class room equipment could be used to enhance the learning experience for the students.

Classroom Equipment:

1. Projector or KIAN - One
2. White Screen of approximately 6 x 6 feet - One
3. Proper electricity connection.
4. Pen drive of approximately 2GB capacity - One
   - The cost of the equipment depends on the local or international brands purchased
   - Please note the pen drive is required to save images, videos or presentations and attached to the KIAN to have a full screen mode audio visual presentation.
   - The pen drive can be used by teachers to save images and bring to the class for audio visual references.

Exercises: (4.1)

1. Take any three natural beings, create sketches in black and white in pencil on A3 sheets and generate one motif through metamorphosis process on A3 sheet.

2. Take any man made or natural object - and sketch it in its own original form on A3 sheet. Create 3 geometric and 3 ornamental style forms inspired from it on A3 size sheet (3 motifs on one sheet).

3. Choose any topic and create an A3 size theme board. Create 4 motifs of 6x6 inch size taking inspiration from the theme board.

Exercises: (4.2)

1. Draw square format of 12" x 12" inches in pencil on white paper, make a motif of 1 ½" x 1 ½ " inch (approx.) in solid black or any one colour inspired from nature and use this motif 9 to 12 times to represent one examples each of following:

   a) Straight repeat

   b Half-drop repeat (vertical)

   c) Brick - repeat (horizontal)

   d) Mirror repeat.

2. Draw square format of 12" x 12" inches in pencil on white paper, make a motif of 1 ½" x 1 ½ " inch approx. inspired from man-made objects in two colours, repeat this shape 6 to 9 times to represent two examples each of following:

   a) Clock-wise rotate repeat

   b) Half-drop vertical repeat

Exercises: (4.3 and 4.4)

1. Draw square format of 8" x 8" inches in pencil on white paper, make a motif of 1" x 1" inch (approx.) use this motif in different orientations and represent two examples each of followings:

   a) In black outline create an overall pattern surface.

   b) In black outline create a border of 1 ½" width.

   c) Create layout for a head-scarf using overall motif pattern and border.

2. a) Make a design for head scarf in 12" x 12" inches on white paper using for six colours. You may use the pattern and layout from above exercise no.: 1.c).

   b) Make two colour-ways of the above head-scarf design (in same size) create in above exercise no.: 2.a).

3. Make a design for sari in 15" x 9" inches (approx.) on white paper using four to eight colours, using any motif of 1 ½" x 1 ½" inches (approx.) and a coordinated border of 2" inches width (approx.), and a wider border as a 'pallau' of 5" inches width approx.

Exercises: (4.4)

1. Take an A3 size mount-board or card-paper to create an expression board/chart placing and arranging 12 to 16 natural objects sourced from the nature. For example, dry-leaves, broken barks of trees, dry stem of a plant, small piece of a rock, pebble, shell, etc.
2. Take an A3 size mount-board or card-paper to create an expression board/chart placing and arranging 12 to 16 man-made objects sourced from the surroundings around your home, or in home, office etc. For example, old tooth-brush, safety-pin, writing pen, part of broken phone or tea-cup, electric switch, metal screw, etc.
3. Take an A3 size mount-board or card-paper to create an expression board/chart based on a theme or story by placing and arranging 6 to 8 natural and another 6 to 8 man-made object sourced from the surrounding around. As per your theme give a suitable title to board.
4. Create a composition each on an A3 size mount-board or card-paper by placing and arranging 6 to 10 visuals of following: a) a traditional Indian handicraft b) works of two or three famous India painters or architects (Note: for both the above you can get the visuals/pictures from magazines/newspaper etc.).

Method:

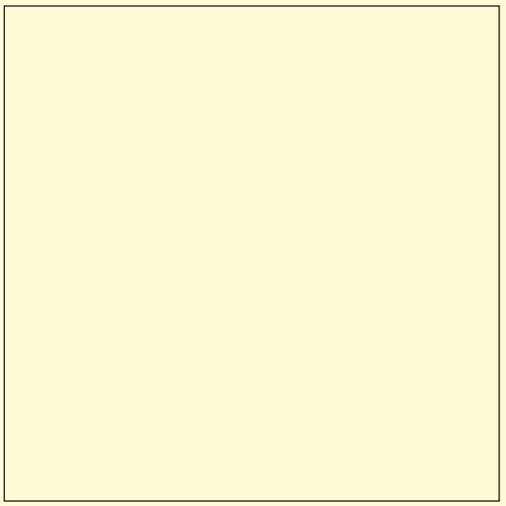
Take an A3 or A2 size sheet and make lay out first using pencil and scale as shown below an example for the same. As a next step students should make various motifs (3 to 5) as per the assignment. These motifs should be discussed with the teacher and final motif should be approved by teacher before going ahead with repeats.

Materials:

No specific material is required by teacher, however students would require

1. A3 sheet or A2 (cartridge or buff)
2. Pencil
3. Brushes - sizes 0, 1, 3, 5 including round and flat brushes etc
4. Black pen or fine tip marker or Black micro tip pen
5. Any color mediums, for example - poster colors, pencil colors, water color etc.

Sample Layout on A3 sheet

Name Subject Class Date Assignment .... Description .... Teacher's Sign	

Note: Based on the basic layout teacher can guide the students to create their own creative layouts for presenting the compositions.

The visual examples from chapters can be referred in order to complete the above mentioned assignments.

The teachers should conduct the practical assignments in order to provide guidance to students.

Practical 5

Objective:

- To understand woven fabric, the type of woven fabrics available as per the technique of weaving.

Methodology and Additional activities apart from the audio visual lecture:

In order to achieve better understanding of the woven fabrics teachers should show various woven fabrics in the class room. If possible students can also be taken for visit to a nearby weaving unit.

Exercise - The exercises are written and answer key is provided along with teacher's manual for assessments of the exercises.

Lab requirement for a batch of 30 students:

A lab would require certain material and equipment in order to conduct the practical successfully.

For Chapter 5 no laboratory practical assignments are assigned since the sub chapters are theory based and study material and teaching methodology needs to be followed as provided in chapters and teachers manual; however some class room equipment could be used to enhance the learning experience for the students.

Classroom Equipment:

1. Projector or KIAN - One
2. White Screen of approximately 6 x 6 feet - One
3. Proper electricity connection.
4. Pen drive of approximately 2GB capacity - One

- The cost of the equipment depends on the local or international brands purchased
- Please note the pen drive is required to save images, videos or presentations and attached to the KIAN to have a full screen mode audio visual presentation.
- The pen drive can be used by teachers to save images and bring to the class for audio visual references.
- The answer key is enclosed in the teacher's manual for the written exercises to be conducted in the class room and answer sheets to be checked.

Practical 6

Objective:

- To introduce knitted fabrics.

Methodology and Additional activities apart from the audio visual lecture:

In order to achieve better understanding of the knits, teacher should explain the students to observe the t-shirts, socks, sweaters and other knits products to get a basic understanding of knitted fabric.

Exercise - The exercises are written and answer key is provided along with teacher's manual for assessments of the exercises.

For Chapter 6 no laboratory practical assignments are assigned since the sub chapters are theory based and study material and teaching methodology needs to be followed as provided in chapters and teachers manual; however some class room equipment could be used to enhance the learning experience for the students.

Classroom Equipment:

1. Projector or KIAN - One
2. White Screen of approximately 6 x 6 feet - One
3. Proper electricity connection.
4. Pen drive of approximately 2GB capacity - One

- The cost of the equipment depends on the local or international brands purchased)
- Please note the pen drive is required to save images, videos or presentations and attached to the KIAN to have a full screen mode audio visual presentation.
- The pen drive can be used by teachers to save images and bring to the class for audio visual references.
- The answer key is enclosed in the teacher's manual for the written exercises to be conducted in the class room and answer sheets to be checked.

Practical 7

Objective:

- To understand design terminologies related to printed textiles.
- To know printing methods & techniques.

Methodology and Additional activities apart from the audio visual lecture:

- In order to achieve better understanding a couple of printed fabric swatches need to be sourced and shown to the students in the class.

A lab would require certain material and equipment in order to conduct the practical successfully. For this chapter, no laboratory practical assignments are required since the practical assignment no 4 can be carried out in class room itself. The study material and teaching methodology needs to be followed as provided in chapters and teachers manual; however some class room equipment could be used to enhance the learning experience for the students.

Classroom Equipment:

1. Projector or KIAN - One
2. White Screen of approximately 6 x 6 feet - One
3. Proper electricity connection.
4. Pen drive of approximately 2GB capacity - One
   - The cost of the equipment depends on the local or international brands purchased
   - Please note the pen drive is required to save images, videos or presentations and attached to the KIAN to have a full screen mode audio visual presentation.
   - The pen drive can be used by teachers to save images and bring to the class for audio visual references.
   - The answer key is enclosed in the teacher's manual for the written exercises to be conducted in the class room and answer sheets to be checked.

Exercise 4 (Practical)

- Students should be asked to bring an off white or white A3 cartridge or buff sheet.

- Students should be explained to visit market or nearest tailor shop and bring small printed fabric cuttings/swatches. Collect at least 6 different printed fabric swatches.
- The fabrics should be properly cut into 3 x 3 inches and all the swatches should be placed on A3 size papers leaving equal gaps.
- Double-sided tape can be used for placing the fabric swatches on paper.
- Each swatch should be labeled (written information).
- Before explaining this assignment, students should be shown various swatches.
- Students can also identify the number of colours used in printed textiles.

Method:

Take an A3 size sheet and make lay out first using pencil and scale as shown below an example for the same. The zigzag edge of the fabrics can be obtained by using pinking shears.

Materials: No specific material is required by teacher, however students would require

1. A3 sheet (cartridge or buff)
2. Various printed fabrics - to be sourced from the market
3. Pencil
4. Scale
5. Double sided tape to stick fabrics
6. Pinking shears
7. Black pen or fine tip marker for writing

Sample Layout

Name
Subject
Class
Date
Assignment
.....
.....
.....
.....
.....
.....
.....
.....
.....
Teacher's Sign

Fabric 1
Pigment
printed

Fabric 2
Pigment printed
Floral

Fabric 3
Pigment single
color

Fabric 3
Pigment printed
Dots design

Fabric 4
Black & white
discharge print

Fabric 5
printed
cheque

More information can also be added - for example

1. Students can count the number of colors in a printed fabric
2. Students can identify the background color
3. Students should try to identify the type of fabric as per printing technique

Practical 8

Objective:

To learn various methods of resisting the fabric and its application in textile design.

Methodology and Additional activities apart from the audio visual lecture:

Additional activities apart from the lecture through audio visual references. In order to achieve better understanding a couple of fabric swatches need to be sourced and shown to the students in the class. If it is possible, a visit to a nearby textile resist dyeing unit should be arranged. A couple of techniques of tying fabric using thread should be demonstrated in classroom.

Lab requirement for a batch of 30 students:

A lab would require certain material and equipment in order to conduct the practical successfully. For this chapter, no laboratory practical assignments are required since the practical assignment no 4 can be carried out in class room itself. The study material and teaching methodology needs to be followed as provided in chapters and teachers manual; however some class room equipment could be used to enhance the learning experience for the students.

Classroom Equipment:

1. Projector or KIAN - One
2. White Screen of approximately 6 x 6 feet - One
3. Proper electricity connection.
4. Pen drive of approximately 2GB capacity - One

- The cost of the equipment depends on the local or international brands purchased
- Please note the pen drive is required to save images, videos or presentations and attached to the KIAN to have a full screen mode audio visual presentation.
- The pen drive can be used by teachers to save images and bring to the class for audio visual references.
- The answer key is enclosed in the teacher's manual for the written exercises to be conducted in the class room and answer sheets to be checked.


Exercise:

Students should be asked to get the following material from local market

- Cotton voile fabric - half meters to one meter,
- 50 to 100 grams direct dye in any dark color (such as blue or red and
- Polyester thread for tying.
- Any one basic technique of thread tying should be explained to students in the classroom. Students can tie the fabric in different patterns.
- Students should be clearly instructed to dye the fabric in presence of some one elderly.
- Students should be explained the method well and asked to write the instruction on a paper which can be followed at home while doing the exercise.

Materials:

No specific material is required by teacher, however students would require

1. Half meter 'mulmul' or voile fabric
2. 1 bobbin of Polyester thread in white color
3. Pencil
4. Scale
5. One stainless steel container approx. 2 liters capacity - used one
6. Direct dye - 2 table spoon (or more depending on the intensity and depth of color required)

Method:

Step 1: Make the marks for tying the fabric in desired pattern using pencil on voile fabric.

Step 2:

- Take half meter cotton voile or 'mulmul' and tie design as shown below in the reference image 1.
- Tie the fabric using polyester thread.
- Ensure it is tight enough and knots are properly done to secure it.

Step 3: Mix the direct dye powder in water (should be sufficient for the fabric to soak properly) and boil.

Step 4: Put the fabric in water and keep stirring for 5 to 10 minutes.

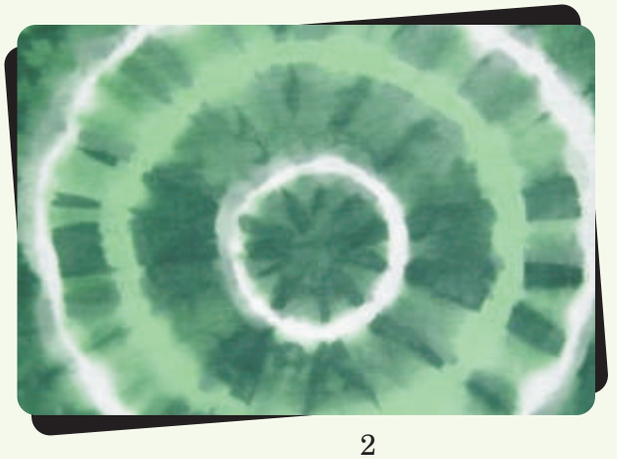
Step 5: Take out the fabric and wash in running water to remove excess dye/color.

Step 6: Keep it for drying.

Step 7: Once dried completely carefully open the tied area to see the beautiful pattern.

Important note: Ensure to use a stainless steel vessel at your home which is not used for cooking.

1



2

Source: http://diyfashion.about.com/od/diytops/ss/TieDye_3.htm (image 1)

Source: http://www.ehow.com/how_7579356_tie-dye-applying-different-patterns.html (image 2)

**More designs can be tried - for example

a) Students can use pulses to tie the fabric

b) Students can use various colors

Practical 9

Objective:

- To develop understanding for various types of embellishment techniques on textiles.

Methodology and Additional activities apart from the audio visual lecture:

- In order to achieve better understanding a couple of embroidery techniques such as basic like chain stitch, stem stitch, lazy daisy etc.
- Basic gathering, patchwork and appliqué techniques can also be demonstrated.
- Pleats can be explained using paper as a base material.
- For the demonstration reference books mentioned in teachers manual are a good visual source.

Lab requirement for a batch of 30 students:

A lab would require certain material and equipment in order to conduct the practical successfully. For this chapter, no laboratory assignments are required since the practical assignment no 3 can be carried out in class room itself. The study material and teaching methodology needs to be followed as provided in chapters and teachers manual; however some class room equipment could be used to enhance the learning experience and demonstration of the techniques.

Classroom Equipment:

1. Projector or KIAN - One
2. White Screen of approximately 6 x 6 feet - One
3. Proper electricity connection.
4. Pen drive of approximately 2GB capacity - One
    - The cost of the equipment depends on the local or international brands purchased
    - Please note the pen drive is required to save images, videos or presentations and attached to the KIAN to have a full screen mode audio visual presentation.
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- The answer key is enclosed in the teachers' manual for the written exercises to be conducted in the class room and answer sheets to be checked.

Materials:

1. White or cream cambric fabric - 1 meter
2. Satin fabric in any color - 2 meters
3. Needle
4. Anchor thread - 6 colors one mini hank each
5. Wooden frame for embroidery - 8 to 9 inch diameter
6. Pencil or tailor's chalk for drawing the design

Practical Assignment: There is no practical assignment as mentioned in the chapter however, a couple of technique demonstration can be done to enhance the learning.

Technique 1 - Hand embroidery

a) Stem stitch embroidery

b) Lazy daisy embroidery

c) Chain stitch embroidery

Method:

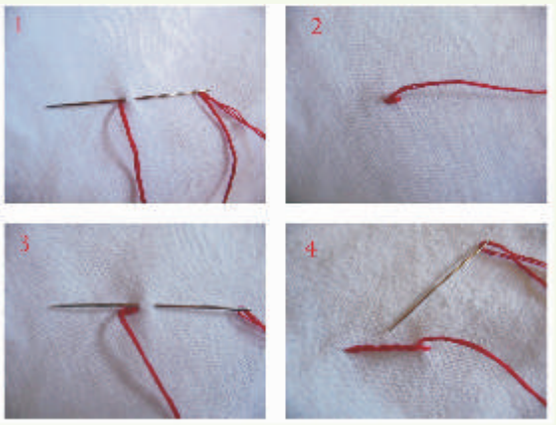
Step 1: Make the design using tailor's chalk on cream or off white cambric fabric.

Step 2: Tighten the fabric on wooden frame.

Step 3: Use needle with thread to do embroidery.

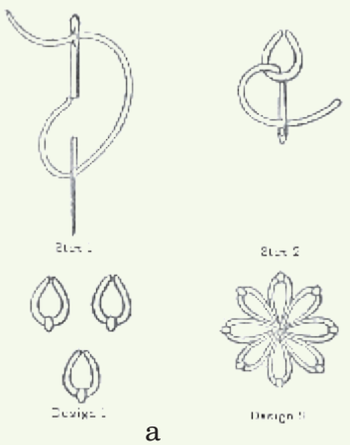
Step 4: Follow the below images for embroidery instructions.

a) Stem stitch embroidery



Source: http://thestitchylife.blogspot.in/2011/02/stem-stitch-tutorial.html

b) Lazy daisy embroidery



a

b

a) Step by step instructions for lazy daisy embroidery

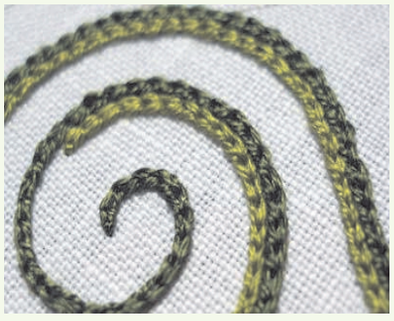
b) Possible Design is only for reference and understanding

Source: http://www.victorian-embroidery-and-crafts.com/chain_stitch_variations.html

Source: http://bigbgsd.blogspot.in/2009/09/100-stitches-40-lazy-daisy-stitch.html

a) Chain stitch embroidery

a



b

a) Step by step instructions chain stitch embroidery

b) Possible Design is only for reference and understanding

Source: http://www.embroidery.rocksea.org/stitch/chain-stitch/zig-zag-chain-stitch/(reference for image a)

Source: http://www.needlenthread.com/2006/10/embroidery-stitch-video-tutorial.chain.html(reference for image b)

Technique 2 - Canadian smocking

Method:

Step 1: Make the graph using tailor's chalk on any satin fabric. Each block is 1 x 1 inch and each cross has 4 points on diagonals

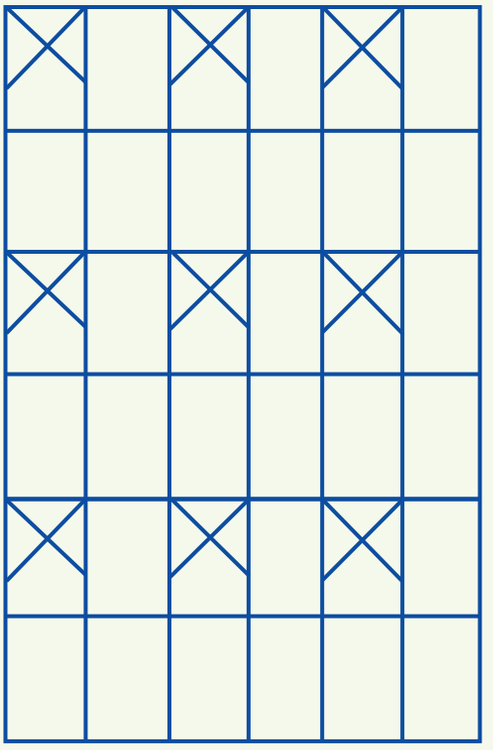
Step 2: Tighten the fabric on wooden frame.

Step 3: Use needle with thread to do embroidery using a matching thread.

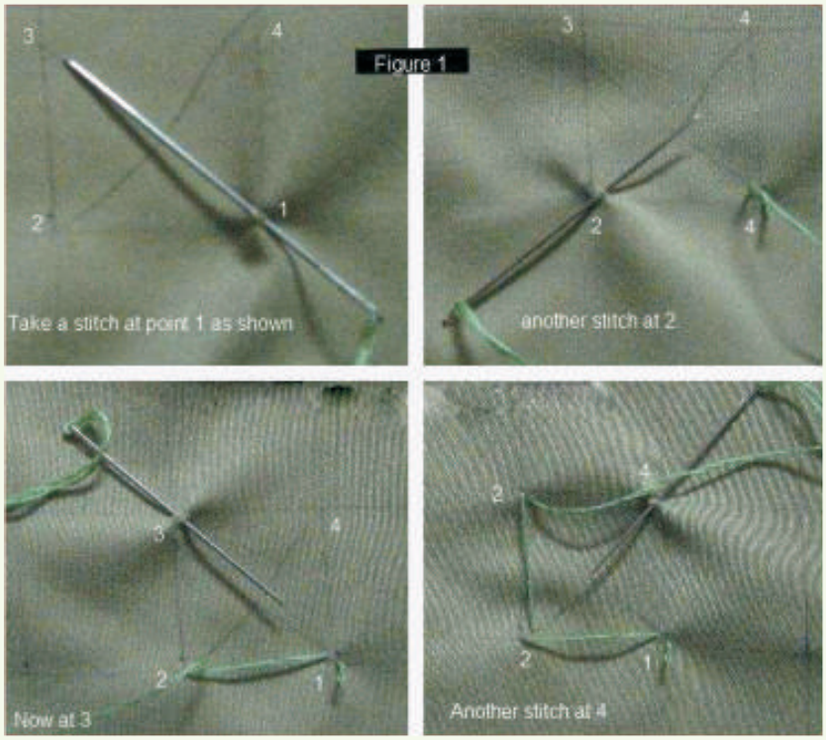
Step 4: Follow the below images for embroidery instructions.

Canadian Smocking

Graph for flower design in Lattice smocking



Source: http://vani-testblog2.blogspot.in/2010/07/designs-from-bee-cottage.html:27 March 2013



Important note:

A number of designs can be developed for practice and all designs should be original ideas.

**Images shown in this practical guide is used for understanding only.

Practical 10

Objective:

- To understand the Textile designers professional practices
- To get an overview of the work systems of Textile design Industry.

Methodology:

- Lecture through audio visual references.
- In order to achieve clarity a demonstration shall be organized in the class through a mock client presentation.
- Students should be asked to work on any one T-shirt design on A4 sheet for a teenage girl/boy and bring to the class.
- The class should be divided in groups of two or more, in each group one student should act as a client and few other can act as designers, they should make a client presentation.
- Through proper reasoning and feedback session the appropriateness of the design should be discussed.
- The Teacher should give focused feedback oriented towards the design/colour/teenage customer group etc.

Lab requirement for a batch of 30 students:

Material and Equipments.

No laboratory practical assignments are assigned since these sub units are theory based and study material and teaching methodology needs to be followed as provided in chapters and teachers manual; however some class room equipment could be used to enhance the learning experience for the students.

Classroom Equipment:

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3. Proper electricity connection.

4. Pen drive of approximately 2GB capacity - One

- The cost of the equipment depends on the local or international brands purchased
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