

DRAFT STUDY MATERIAL



Hand Block Printer

(Qualification Pack: Ref. Id. HCS/Q7201)
Sector: Handicraft and Carpet Sector

(Class XI)



PSS CENTRAL INSTITUTE OF VOCATIONAL EDUCATION

(A constituent unit of NCERT, under MOE, Government of India)

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Preface

Vocational Education is a dynamic and evolving field, and ensuring that every student has access to quality learning materials is of paramount importance. The journey of the PSS Central Institute of Vocational Education (PSSCIVE) toward producing comprehensive and inclusive study material is rigorous and time-consuming, requiring thorough research, expert consultation, and publication by the National Council of Educational Research and Training (NCERT). However, the absence of finalized study material should not impede the educational progress of our students. In response to this necessity, we present the draft study material, a provisional yet comprehensive guide, designed to bridge the gap between teaching and learning, until the official version of the study material is made available by the NCERT. The draft study material provides a structured and accessible set of materials for teachers and students to utilize in the interim period. The content is aligned with the prescribed curriculum to ensure that students remain on track with their learning objectives.

The contents of the modules are curated to provide continuity in education and maintain the momentum of teaching-learning in vocational education. It encompasses essential concepts and skills aligned with the curriculum and educational standards. We extend our gratitude to the academicians, vocational educators, subject matter experts, industry experts, academic consultants, and all other people who contributed their expertise and insights to the creation of the draft study material.

Teachers are encouraged to use the draft modules of the study material as a guide and supplement their teaching with additional resources and activities that cater to their students' unique learning styles and needs. Collaboration and feedback are vital; therefore, we welcome suggestions for improvement, especially by the teachers, in improving upon the content of the study material.

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About the book

The Handicraft and Carpet Industry Skill Council is among the most innovative and rapidly developing industries, including Glass Craft, Leather Craft, Handloom, Clay Craft, Terracotta Craft, and others. "Hand Block Printing" is one of the important areas in this industry, and it is designed to equip students with in-depth knowledge and hands-on ability in Hand Block Printing. This book is intended to equip students with the skills, instruments, and environmentally friendly techniques needed to succeed in the handicraft industry. As the need for skilled hand block printer, especially in the areas of Apparel, Home Furnishing, Made-Ups, and Handicrafts.

The book for the occupation of "Hand Block Printer" is designed in six overall Module, adhering to student-centered and practically oriented learning experience. It is designed with consultation from subject specialists, industry partners, experienced craftsmen, and academicians to make it a motivating and effective teaching-learning tool for students of vocational education. Proper care has been exercised to ensure alignment of the content with the National Occupational Standards (NOS) of the job role so that students learn the required knowledge and skills according to the performance criteria laid down in the specific Qualification Pack (QP). The NOSs for the job role Hand Block Printer covered through this book are as follows:

1. HCS/N7201: Prepare for carrying out hand block printing as per given specifications
2. HCS/N7202: Carry out hand block printing as per given specifications
3. HCS/N7203: Contribute to achieve quality in hand block printing
4. HCS/N9908: Working in a Team
5. HCS/N9912: Maintain work area and tools
6. HCS/N9913: Maintain health, safety and security at workplace

Screened and approved by experts in the industry, this book guarantees good-quality material meeting NOS standards alongside addressing all the necessary areas of Hand Block Printing. It not only focuses on traditional printing techniques but also includes modern innovations and environmentally friendly processes in harmony with international sustainability visions.

The book is structured into six Module as below:

Module 1 Introduces the handicraft sector in India, its history, significance, diverse craft traditions, and its contribution to culture, employment, and the economy, Module 2 Explains the elements and principles of design, including line, shape, colour, texture, balance, rhythm, harmony, and proportion, to create aesthetically appealing handicraft products, Module 3 Familiarizes learners with the tools and materials used in handicraft production, their applications, maintenance, and safe handling practices, Module 4 Provides practical knowledge of hand block printing techniques, covering block

preparation, fabric selection, colour application, printing processes, and quality standards, Module 5 Focuses on product development by integrating design concepts, material selection, innovation, market trends, and finishing techniques to create functional and marketable handicraft products and Module 6 Emphasizes health, safety, and security at the workplace, including safe work practices, hazard prevention, the proper use of protective equipment, and maintaining a healthy working environment.

This book integrates theoretical knowledge with practical exercises and real-life case studies to develop creativity, enhance problem-solving skills, and in still environmental responsibility in learners. It is a must-have learning resource for hand block printer artisans to learn both traditional craftsmanship and modern market trends.

I extend my gratitude to all the contributors for sharing their precious knowledge, expertise, and time and also positively responding to our request for development of the present book. I hope this book will be useful for students and teachers who will opt for this job role. I shall be grateful to receive suggestions and observations from readers which would help in bringing out a revised and improved version of this book.

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Module 1**Introduction to Handicraft Sector in India****Introduction**

The handicraft sector is a significant part of India's cultural heritage and economy. It is largely a cottage industry that provides a livelihood for many people in rural areas. Handicrafts refer to a variety of products made by hand, such as pottery, bamboo craft, papier-mache, printing and painting, etc. Before the industrial revolution, all goods were handmade, crafted locally from natural materials and were inherently sustainable. While industrialisation brought faster and cheaper production, it often came at a high environmental cost. In recent decades, there has been a global shift back towards sustainable and eco-friendly products, rekindling interest in handicrafts items. India, a land of diverse cultures and rich traditions, continues to celebrate its centuries-old roots through the stunning arts and crafts that have been passed down through generations. These traditional crafts are not only a testament to India's cultural heritage but also form the very foundation of its identity, captivating the world with their beauty and intricate craftsmanship.

Indian handicrafts have gained international recognition, making them a significant reason why tourists from all over the globe flock to experience the country's artistic brilliance. This unit explores the importance of the handicraft industry. It discusses the current scenario and various types of handicrafts in India. It also introduces fashion jewellery, including its history, origin, and scope. Finally, it highlights the key characteristics and cultural significance of fashion jewellery.

Learning Outcomes

After completing this module, you will be able to:

- Explain handicraft and handloom industry in India
- Explain hand block printing in India and its scope
- Discuss characteristics and cultural importance of hand block

Module Structure

Session:1 Handicraft and Handloom Industry

Session:2 Hand Block Printing in India

Session:3 Characteristics and Cultural Importance of Hand Block Printing

Session: 1 Handicraft and Handloom Industry

India boasts a rich cultural heritage where art and craft are integral to everyday life. Among the most dynamic contributors to this legacy are the handicraft industries, which not only celebrate the creativity of Indian artisans but also preserve the country's diverse traditions. These industries play a vital role in India's socio-economic framework, providing employment to millions and promoting sustainability through the use of natural and recycled materials. This session includes introduction to handicraft industry, scenario of handicraft and different type of handicrafts in India.

1.1.1 Introduction to Handicraft and Handloom

Handicraft Industry

Handicrafts are handmade items created by skilled craftsmen, using traditional techniques and locally available materials. These crafts reflect local culture and practices, while also being eco-friendly and socially responsible. In India, handicrafts go beyond material value; they represent the spirit of self-expression and creativity. Known as the land of crafts and craftsmen, India's folk arts and crafts are deeply woven into daily life, from ceremonial uses to home decor. They provide a medium for expressing emotions and preserving cultural heritage.



Fig. 1.1: Types of Handicrafts

Handloom Industry

A 'handloom' is a manually operated loom that is used to weave cloth, without the use of any electricity. Hand weaving is done on pit looms or frame looms.

The handloom industry in India is a cottage industry that produces a variety of hand-woven products. Handloom production relies on human skill rather than machines, consuming minimal resources. This makes it an eco-friendly alternative to industrially manufactured fabrics. It is known for its high-quality craftsmanship and is a symbol of Indian culture.



Fig. 1.2: Handlooms

India's handloom weavers are known for their unique hand-weaving techniques. They are based out of small towns and villages of the country and transfer skills from one generation to the next. The handloom industry is the country's largest cottage industry, with approx. 2.8 million looms. The handloom sector supports handicrafts by producing some of the world's finest textiles. Famous handloom fabrics such as Banarasi silk, Kanjeevaram and Chanderi saris show India's rich textile-craft tradition.



Fig. 1.3: Loom

Difference between Handloom and Handicraft

Handloom

- Handloom refers to a manually operated loom (usually made of wood) used to weave fabric by interlacing two sets of yarns.
- Handlooms are primarily used to produce woven textiles and fabrics.
- Handloom fabrics are made using traditional weaving techniques and are considered more sustainable and environmentally friendly.
- Handloom products are unique, as no two handwoven fabrics are exactly alike, reflecting the skill and craftsmanship of the weaver.
- Handloom fabrics are generally more absorbent and breathable, making them comfortable to wear.
- Handlooms do not require electricity; they are operated entirely by human effort, making them an environmentally friendly and pollution-free method of fabric production.

Handicraft

- Handicrafts refer to products made entirely or mostly by hand, using traditional skills and techniques.
- Handicrafts can be made from various materials such as clay, wood, metal, textiles, bamboo, using various techniques.
- Handicrafts may be functional or decorative. They are commonly sold in markets, fairs, gift shops, and online.
- Handicrafts reflect the culture, skills, and traditions of different communities and regions.

1.1.2 Scenario of Handicrafts in India

Indian handicrafts are a special part of our culture and traditions. These handmade items are not just beautiful, but also have a deep connection with our rituals, festivals and daily life. They show the rich diversity of our country our languages, customs and lifestyles. In the past, handicrafts were an important part of daily life. People used to decorate their homes with handmade items and wear clothes with beautiful embroidery. Even today, Indian artisans are known all over the world for their fine work, especially in textiles, embroidery and decorative items.

However, things are changing now. The use of plastic and machine-made items has reduced the demand for handmade products. Many artisans are finding it hard to cope with new market trends. They also face problems like: Lack of money, limited knowledge of modern technology and no proper marketing support. To help them, it is important to train them in marketing

and design, give them financial support and use online platforms like Arts of India to sell their products worldwide

Handicrafts and Economy: Handicrafts are also very important for India's economy. Many families earn their livelihood through this work, often passing the skill from one generation to another. The government has recognised the importance of handicrafts and supports them through schemes and subsidies. It also provides job opportunities and organizes exhibitions and fairs in India and abroad to promote their work.

Sustainability and Global Demand: As the world is moving towards eco-friendly and sustainable products, Indian handicrafts are gaining attention. These products are made by hand, are environmentally friendly, useful as well as decorative and full of traditional stories and meanings. This makes handicrafts a valuable industry for the future.

Wide Variety of Crafts: India has a large variety of handicrafts, made by hand using traditional methods. Each region of India is known for its own special craft. For example:

- **Kashmir** – Pashmina shawls
- **Rajasthan** – Blue pottery
- **Uttar Pradesh** – Chikankari embroidery
- **West Bengal** – Terracotta dolls
- **Odisha** – Pattachitra paintings

These crafts are made with great skill and reflect our culture and traditions.

Source of Employment: Handicrafts are a big source of employment in India. More than 70 lakh people are involved in this work, especially in villages and small towns. Many women, tribal people and poor families depend on handicrafts for their livelihood.

Growing Demand in Domestic and International Markets: Indian handicrafts are loved both in India and other countries. They are in high demand for their beauty, quality and uniqueness. Products like wooden toys, handmade jewellery, carpets and fabrics are exported to the USA, UK, Germany, France and UAE.

Support from Government: The government is helping artisans in many ways:

- Giving training to improve skills
- Providing financial help and loans
- Organizing fairs, exhibitions and online platforms to sell products
- Starting schemes

Use of Online Platforms: Today, many artisans are using digital tools and e-commerce websites to sell their products and help them reach more customers directly, without middlemen.

Future of Handicrafts: With more training, digital support and government help, handicrafts can become stronger. More youth are also joining this field as a career. Promoting handicrafts in schools and colleges can help keep our traditions alive and support more families.

India's handicraft sector is full of skilled people and traditional art. It creates jobs, brings income to the country, and keeps our culture alive. With good support, it can grow and improve the lives of many artisans.

Cultural Significance of Handicraft

Handicrafts hold great cultural significance as they represent the traditions, skills and creativity of a community. They are often made using techniques passed down from generation to generation, helping to preserve the history and heritage of a region. Each craft reflects the lifestyle, beliefs and customs of the people who make it, showcasing the rich diversity of different cultures. Handicrafts also play an important role in festivals, religious ceremonies and daily life, giving them a deep social and spiritual meaning. In many places, they provide a source of income, especially for rural communities and women, helping support families and preserve local economies. Unlike machine-made products, handmade items are unique and carry a personal touch, reminding us of the value of skill and tradition in a modern world. Overall, handicrafts are a meaningful part of our culture and identity, and they help keep our heritage alive.



Fig. 1.4: Cultural Significance of Handicraft

- 1. Preservation of Cultural Heritage:** Handicrafts often carry centuries-old traditions passed down through generations. They reflect the beliefs, customs and practices of a community or ethnic group and serve as tangible links to a region's history. For example, Indian handloom textiles like Banarasi or Kanchipuram saris preserve ancient weaving techniques and motifs. It helps in maintaining identity and continuity in a rapidly globalising world.

- 2. Expression of Identity and Diversity:** Each handmade craft reflects the cultural identity, lifestyle and values of its community. From patterns and materials to techniques, handicrafts highlight regional diversity.
- 3. Social and Ritual Significance:** Many handicrafts play vital roles in ceremonies, festivals and rites of passage. For example, Japanese origami is often used in religious ceremonies, while African masks are central to traditional rituals and storytelling. It impacts on reinforces communal bonds and social structures.
- 4. Economic Empowerment and Sustainability:** Craft production provides livelihoods, especially in rural and marginalised communities, often empowering women and artisans. For example, fair-trade handicrafts help sustain local economies in countries like Peru, India and Kenya. It promotes sustainable development and reduces urban migration.
- 5. Educational and Skill-Building Value:** Learning handicrafts preserves endangered skills and fosters creativity, patience and discipline. For example, apprenticeships in traditional pottery or woodcarving help younger generations learn ancestral knowledge. It supports lifelong learning and cultural transmission.
- 6. Resistance to Mass Production:** Handicrafts stand as symbols of authenticity and individuality in an era dominated by machine-made goods. For example, a handmade quilt tells a personal or cultural story that cannot be replicated by machines. It encourages sustainable consumerism and appreciation of craftsmanship.

1.1.3 Types of Handicrafts in India

In India, craft is not just an art form; it is a way of life. The country's diverse culture, languages and customs have nurtured a variety of art forms that make India's handicraft heritage exceptionally rich and varied. From textiles to pottery, woodwork to metal art, each region has developed its own unique techniques, ensuring that the crafts remain alive and relevant. These handcrafted products, which range from everyday items to ornate masterpieces, allow artisans to earn a livelihood through their creative expression. Every region of India has its own unique craft, and each tells a story that reflects the local history, culture and the daily life of the people. The importance of Indian handicrafts goes beyond their aesthetic value. They embody the country's rich history, ancient skills and the evolution of local and regional traditions. The intricate Warli art of Maharashtra, the colourful block prints of Rajasthan or the exquisite Pichhwai paintings of Rajasthan, all showcase the remarkable talent of artisans who have been perfecting their skills for centuries. These crafts not only preserve the artistic traditions of their regions but also contribute to the preservation of the unique cultural identity of each community. Over the years, these traditional crafts have

found a global audience, with tourists, collectors and designers seeking out authentic handcrafted goods. Whether it's intricate jewellery, handwoven textiles or decorative pottery, Indian handicrafts are in demand worldwide, contributing significantly to the country's export economy. Moreover, the rise of e-commerce platforms has made it easier than ever to explore and purchase these traditional treasures online, giving artisans a wider reach and allowing them to sell their creations to customers across the world. India is a land of incredible diversity, and this is reflected in its handicrafts. There are more than 50 traditional folk and tribal crafts across the country, each one as unique as the region from which it originates. These crafts span across a wide range of art forms, from painting and sculpture to pottery and textile arts. Techniques like block printing, weaving and tie-dyeing have been mastered over centuries, producing some of the finest fabrics in the world, such as the silk of Kanjivaram, the cotton of Varanasi and the wool of Kashmir.

As we delve deeper into the cultural significance of India's traditional handicrafts, we also discover how these art forms continue to evolve. Artisans and designers are constantly innovating, bringing traditional crafts into the contemporary world. Many designers today work with artisans to integrate these ancient art forms into modern-day fashion, home decor and accessories, making them more accessible and appealing to global markets. Beyond just their artistic value, these crafts also offer a sustainable way for artisans to earn a living. The ability to work from home or in small workshops, often as part of family businesses, provides economic stability and an opportunity to maintain a connection to tradition and culture. Many craftspeople, particularly in rural areas, rely on these handicrafts as their primary source of income, and their work is essential in preserving the diversity and richness of Indian culture. Handicrafts are diverse, culturally rich and often made using traditional techniques passed down through generations. They reflect the local heritage, resources and artistic expressions of different communities.



Fig. 1.5: Type of Handicrafts in India

Categories of the Major Types of Handicrafts

1. Wood Crafts

Wood crafts are a significant part of India's rich handicraft heritage, showcasing the skilled craftsmanship of artisans across different regions. These crafts involve carving, painting and polishing to produce both functional and decorative items. Utilising carving or joinery techniques to create decorative or functional wooden items.

- **Wood Carving** – Decorative wood sculptures or panels (e.g., Kashmir walnut woodwork).
- **Furniture Making** – Traditional wooden furniture (e.g., Sheesham or rosewood).



Fig. 1.6: Wood craft

2. Pottery & Ceramics

Pottery and ceramics are ancient forms of art and craft involving the shaping and firing of clay into objects such as vessels, tiles, sculptures and decorative items. While the terms are often used interchangeably, they have subtle differences based on material and technique. Pottery refers specifically to items made from clay that are shaped and then fired at relatively lower temperatures in a kiln. These items can be functional or decorative.

Ceramics is a broader term that includes all objects made from inorganic, non-metallic materials (like clay) that are hardened by heat, shaping and firing clay into functional or decorative forms.

- **Terracotta** – Low-fired clay crafts (e.g., Molela plaques, tribal figurines).
- **Blue Pottery** – Glazed, non-clay ceramics (e.g., Jaipur Blue Pottery).
- **Earthenware** – Basic clay pottery used for cooking/storage.



Fig. 1.7: Pottery & Ceramics

3. Metal Crafts

Metal crafts in India are a vibrant and historic part of the country's handicraft tradition. These crafts involve shaping, moulding, engraving or casting metal into both decorative and functional objects. The techniques vary widely based on region, culture and purpose. Metal crafts are art forms where artisans use different metals (like brass, bronze, copper, silver, gold and alloys) to create a variety of objects. Creating items from metals like: Dhokra (Lost-Wax Casting), tribal metal casting technique, Brassware- Lamps, utensils and idols (e.g., Moradabad metalware), Bidriware- Inlay work with silver on zinc alloy (e.g., Bidar, Karnataka).



Fig. 1.8: Metal Crafts

4. Jewellery & Beadwork

Jewellery and beadwork are integral to Indian handicrafts, reflecting deep cultural significance and regional diversity. These crafts range from luxurious gold and silver ornaments to tribal and folk jewellery made from beads, shells, bones and natural materials. Jewellery in India is more than an adornment. It is symbolic of social status, tradition and identity. Beadwork adds intricate colour and texture, often used in tribal jewellery and fashion accessories.

- **Traditional Jewellery** – Kundan, Meenakari, Tribal jewellery.
- **Beadwork** – Beaded necklaces, earrings and embroidery.



Fig. 1.9: Jewellery & Beadwork

5. Natural Fibre Crafts

Natural fibre crafts are handicrafts made from plant-based fibres. They are eco-friendly, sustainable and deeply rooted in India's rural and tribal cultures. These crafts use fibres like jute, bamboo, sabai and moonj grass, cane and date palm to create both decorative and utility items.

- **Basketry & Mat Weaving** – From bamboo, cane and grass (e.g., Assam, Odisha).
- **Jute Products** – Bags, rugs and home decor items.
- **Coir Crafts** – Items made from coconut husk fibre (e.g., Kerala).



Fig 1.10: Natural Fibre Crafts

6. Stone Crafts

Stone crafts in India are among the oldest and most revered art forms, dating back to ancient civilizations like the Indus Valley. These crafts involve intricate carving, sculpting, engraving and polishing of various types of stone for both art and architecture, to create decorative and functional objects.

- **Marble Inlay** – Precious stone inlay on marble (e.g., Agra's Pietra Dura).
- **Soapstone & Sandstone Carving** – Sculptures, panels and decorative pieces.
- **Granite Sculptures** – Used in temples and traditional structures.

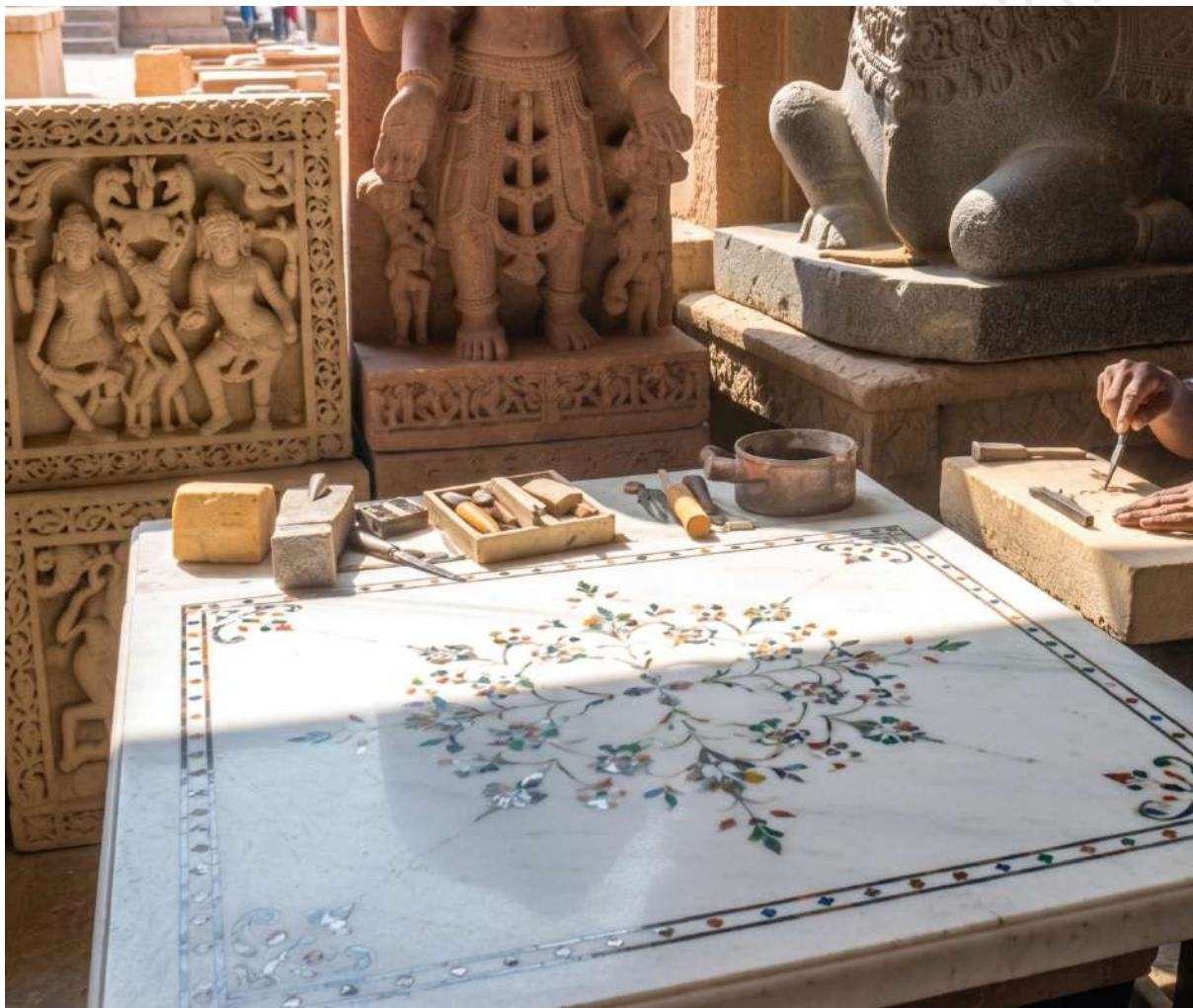


Fig. 1.11: Stone Crafts

7. Painting

Paintings are rich and diverse forms of Indian handicrafts that reflect the country's vast cultural, religious and historical heritage. They are practised across different regions, each with its own distinct styles, techniques, themes, and purposes. Indian calligraphy evolved alongside the development of various scripts and religious traditions, and is prominently seen in

manuscripts, architectural inscriptions, and coins. It has been expressed through scripts such as Devanagari, Arabic, Persian, and Sanskrit. India's visual art traditions also extend to multiple surfaces, including walls, cloth, paper, wood, and palm leaves, demonstrating the creativity and adaptability of artisans across centuries.

- **Madhubani** – Folk art from Bihar.
- **Pattachitra** – Scroll painting from Odisha and West Bengal.
- **Warli** – Tribal art from Maharashtra.
- **Pithora** – Tribal Art from Gujarat and Madhya Pradesh.
- **Gond Painting** – Tribal Art of Madhya Pradesh.
- **Miniature Paintings** – Detailed art on small surfaces (e.g., Mughal, Rajasthani).



Fig. 1.12: Painting

8. Paper Crafts

Paper crafts in India showcase artistic creativity through folding, cutting, layering and sculpting paper. These crafts are often used for decoration, religious rituals, packaging and also for storytelling. Traditional Indian paper crafts are eco-friendly and often made with handmade or recycled paper. Paper crafts involve the artistic transformation of paper into decorative or functional objects. In India, they are commonly associated with festivals, rituals, puppetry and giftware.

- **Papier Mache** – Moulded, painted paper pulp items (e.g., Kashmir).

- **Origami** – Paper folding (Japanese origin).
- **Paper Quilling** – Rolled paper to form intricate designs.



Fig. 1.13: Paper Crafts

9. Leather Crafts

Leather crafts in India are a blend of traditional skills and contemporary designs, creating durable and artistic products. These crafts use animal hides into soft, treated and shaped by hand into functional and decorative items. Indian leather crafts are well-known for their quality, intricate tooling and cultural motifs. These crafts are prominent in many Indian states, reflecting local culture and expertise.

- **Mojaris & Juttis** – Traditional leather footwear.
- **Bags & Journals** – Handcrafted and painted leather goods.



Fig. 1.14: Various Product of Leather Craft

10. Textile & Fabric Crafts

India's textiles have long held cultural, social, and economic importance. Skilled artisans, natural resources, and traditional knowledge made India a global leader in textile production, supported by royal and community patronage that shaped regional styles. Industrialisation challenged handicrafts, yet weaving, embroidery, and block printing remain valued for their artistry and sustainability. The global focus on eco-friendly products has renewed interest in these crafts, promoting rural employment and development.

Textiles evolved from protective clothing to symbols of identity and status, enriched over centuries by trade and foreign influences. Handloom weaving, though labour-intensive, produces artistic fabrics reflecting regional heritage, while power looms allow mass production. Key centres include Varanasi, Chanderi, Maheshwar, Bhagalpur, Pochampalli, Paithani, Yeola, Wardha, Kanjeevaram, and Sambalpur.

Textile and fabric crafts are an important part of India's rich cultural heritage. These crafts are made using natural fibres and traditional techniques like hand-weaving, dyeing, printing, and embroidery. Different regions of India have their own unique styles and patterns that reflect their local traditions. Famous examples include colourful block prints, soft handloom fabrics, and detailed needlework.

These crafts highlight the creativity and skill of Indian artisans. They also help preserve age-old traditions that have been passed down through generations. Along with showcasing culture, textile crafts provide livelihood and support to many families across the country.

- **Embroidery:** Embroidery is the art of decorating fabric or other materials using a needle to apply thread or yarn. It often includes other materials like beads, sequins and pearls. They are used to embellish clothing, home textiles and accessories with intricate patterns or motifs.
- **Weaving:** Weaving is the process of interlacing two sets of yarns or threads (warp and weft) at right angles to form fabric. It is used to produce cloth for garments, furnishings and industrial use. Common weaves include plain, twill and satin.
- **Tie & Dye:** Tie and dye is a resist dyeing technique where fabric is tied in patterns and then dyed. The tied areas resist the dye, creating patterns. It is very popular in traditional and modern clothing, especially in regions like India (Bandhani), Africa and Indonesia.
- **Applique & Patchwork:** Applique is sewing small pieces of fabric onto a larger piece to form a pattern or picture, and Patchwork is joining pieces of fabric together into a larger design, often geometric and then

sewn into one fabric. Commonly, it is used in quilts, decorative items and folk textiles.

- **Knitting & Crochet:** Knitting is creating fabric by interlocking loops of yarn using knitting needles, and crochet is similar to knitting but done using a single hook to pull loops through other loops. It is used to make garments, accessories, home décor and toys. Crochet tends to create more textured patterns.
- **Block Printing:** Block printing is a traditional method of printing patterns on fabric (or paper) using hand-carved wooden blocks. Each block is carved with a specific design, dipped in dye or ink and then pressed onto the fabric to create a repeated pattern. A traditional technique used widely in countries like India and China for fabrics, wall hangings and paper products.



Fig. 1.15: Textile & Fabric Crafts

Activities

Activity: Make a Poster on Handicrafts of India

Material Required:

- Chart sheet
- Colourful pens, markers or paints
- Pictures of different Handicrafts in India
- Glue

Procedure:

- Research the history and cultural significance of handicrafts in India.
- Design a poster showcasing iconic handicrafts, their regional origins and unique features.
- Decorate the poster with the pictures of handicrafts.
- Display posters in the classroom.

What Have You Learned?

A. Fill in the Blanks

1. The handloom industry in India is considered a _____ industry, relying on traditional weaving techniques and minimal resources.
2. Handicrafts in India are environmentally friendly products made using _____ materials and traditional techniques.
3. _____ is a resist dyeing technique where fabric is tied and dyed to create patterns, commonly seen in regions like Gujarat and Rajasthan.
4. The craft of _____ involves low-fired clay works such as Molela plaques and tribal figurines.
5. Unlike machine-made goods, _____ items are unique and reflect the personal skill and cultural identity of the artisan.

B. Short Answer-type Questions:

1. Explain the difference between handicraft and handloom
2. Why are handloom products considered eco-friendly?
3. Name any two famous handloom fabrics of India.

4. Name any two materials commonly used in handicrafts.
5. Give two examples of natural fibre crafts.

C. Long Answer-type Questions:

1. Describe the different categories of handicrafts in India.
2. Explain how handicrafts help in preserving India's culture and traditions.
3. Discuss the current scenario of the Handicrafts Industry in India.

Session: 2 Hand Block Printing in India

Hand block printing is one of the oldest and most culturally rich forms of textile decoration in the world. This section explores its ancient roots, regional evolution and its role in global trade. Hand block printing is not just a technique, it is a living cultural heritage that reflects ancient innovation, regional identity and global influence. From temples to trade routes, from rural artisans to royal courts, its journey spans centuries and continents. This session explores about history and origin of hand block printing in India, regional variation of hand block printing and scope of hand block printing.

1.2.1 Introduction to hand block printing

Hand block printing is a traditional textile printing technique that involves carving intricate designs onto wooden blocks, applying dye to the blocks and then stamping the designs onto fabric. Also, block printing refers to the printing technique of pressing and stamping fabric with carved wooden blocks filled with colour. This method has been practiced for centuries in countries such as India, China and Japan, also remains a highly valued form of artistic expression today. India has some of the earliest records, particularly in Rajasthan and Gujarat. Historical references and archaeological findings show evidence of block-printed fabrics as early as the 4th century BCE. In China, block printing on textiles dates back to the Han Dynasty (c. 200 BCE). It later evolved into printing on paper as well. Egypt also practiced early forms of block or stamp printing, using natural dyes and symbolic patterns on linen used for both clothing and ceremonial purposes.

Woodblock printing remains one of India's leading heritages crafts and enjoys a strong visual identity worldwide, block printing didn't actually originate in India. In fact, it all started in China. And although China gave birth to woodblock printing about 4,000 years ago, India adopted and raised the art form. In India, hand block-printed textiles reached their highest visual expression and commercial potential. India developed an unrivalled mastery in the secrets of natural plant dyes and mordants. This expertise enabled Indian printers to create unique designs and a colour palette that became the envy of the world. Here, the tropical climate helped dyes bloom to their deepest expression. Only in India could one find such intoxicating reds, rich blues and saturated blacks.

Role in International Trade

Block-printed textiles became a prized export commodity in global trade. Indian prints were highly sought after along the Silk Route, especially in Central Asia, Persia and Southeast Asia. During European colonial trade (17th–19th century), Printed cottons from India were exported to Europe, Africa and the Middle East. These textiles influenced local fashions and

inspired chintz and toile designs in European decorative arts. Port cities like Surat and Masulipatnam became global hubs for block-printed fabric trade.

Characteristics of Hand Block Printing

- Involves skilled craftsmanship using carved wooden or metal blocks.
- Unique, handmade designs with slight variations, adding to its charm.
- Use of eco-friendly dyes and traditional motifs.
- Popular in fabrics like cotton, silk and linen for clothing, home décor and accessories.

1.2.2 History and Origin

Hand block printing in India has a rich history that dates back thousands of years, with evidence of its existence as early as the Indus Valley Civilization (around 3000 BCE). Over time, different regions of India developed their unique styles of block printing, each reflecting local culture, traditions and techniques. It is a beautiful ancient form of printing, that has slowly become a trend and heritage in modern India. It is first known to have originated in Rajasthan in India, some 500 years ago in Bagru. Other places like Sanganer, Ahmedabad, Pethapur and Farukhabad also have a colourful history of hand block print origins. By the 12th century CE, hand block printed fabrics had become an important part of India's internal and international trade. Gujarat and Rajasthan emerged as significant centers due to royal patronage, skilled artisan communities and access to raw materials like cotton and natural dyes. The Mughal period (16th–18th century) was a golden age for hand block printing. With imperial support, intricate floral motifs and refined aesthetic sensibilities were developed. The art became both an export commodity and a symbol of cultural expression, particularly in garments, furnishings and ceremonial textiles. The art of block printing has been cherished and kept alive by the Chippa Community. They have passed this ancestral art with its heritage process through centuries. It is now a legacy that this community keeps safe and running across India.

The history of block printing in India is integral to the country's cultural heritage. Originally employed for ceremonial purposes at weddings and religious festivals, hand block printed cotton fabric textiles have transcended into various facets of everyday life. Whether it's adding a touch of elegance to casual outings or infusing travel adventures with vibrant colours dresses, these textiles are a staple in modern living.

Moreover, block print fabrics also plays a crucial role in home decor projects, including crafting pillows, cushions and various kitchen items. Their classic appeal doesn't just make homes more beautiful but also shows India's rich culture. From clothing to art projects and even the packaging of gifts, block print textiles continue to weave themselves into the fabric of everyday life,

reflecting creativity, tradition and community spirit. Beyond aesthetics, hand block print serves as a source of livelihood for artisan communities across India. By preserving this age-old tradition, these artisans contribute to the preservation of cultural heritage while sustaining their families and communities economically. Colour vibrancy and availability of a vast range of designs signifying various cultures are the highlights of Indian block printing. Birds, flowers and geometrical shapes are all part of the traditional motifs. Each design can reflect a whole lot of culture and traditions originating in different parts of the country.

Regional Variations of Block Printing in India

Block printing in India is a deeply ingrained and age-old tradition that reflects the country's cultural diversity and regional variations. This technique, which involves the use of hand-carved wooden blocks to stamp intricate patterns onto fabric, has evolved across centuries, giving rise to several regional styles. These styles are shaped by the availability of materials, local climate, cultural influences and artistic practices. The art of block printing in India is not only a form of textile decoration but also a means of storytelling, cultural expression and preservation of heritage. Below is a detailed exploration of some of the most renowned block printing styles from various regions in India.

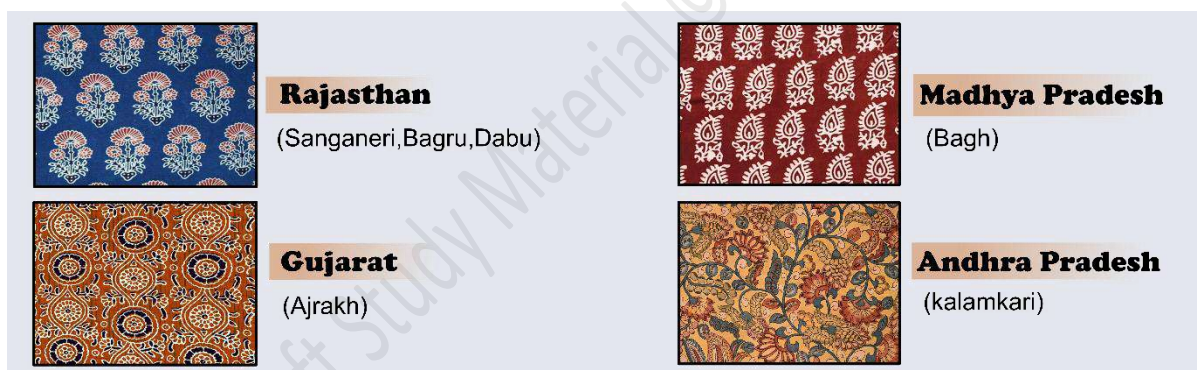


Fig. 1.16: Regional Variations

1. RAJASTHAN – SANGANERI & BAGRU PRINTING

a) Sanganeri Printing Style

- **Origin & History:** Sanganeri block printing traces its origins back to the Mughal period, around the 16th century. This style developed in Sanganer, a small town near Jaipur and became particularly popular during the reign of the Mughals. The prints gained prominence not only in Rajasthan but also across India and abroad due to their fine quality and intricate designs. The tradition was later widely promoted during British colonial rule when there was a demand for exported textiles.
- **Technique:** The main technique used in Sanganeri printing is calico printing, where the outlines of the designs are first printed onto the fabric and then the internal sections are filled in with colors. Another

technique used is doo-rookhi, which involves printing on both sides of the fabric. This double-sided printing technique gives the fabric a unique, uniform texture and an enriched visual appeal.

- **Features:** Sanganer prints are known for their delicate, detailed and fine floral patterns. Common motifs include roses, peacocks and intricate vine designs. The patterns are often small and very detailed, contributing to a fine, elegant look that makes the fabric appear light and graceful. The background is typically white or light-colored, which enhances the clarity and brightness of the designs. Sanganer prints predominantly use soft, pastel colours such as shades of red, blue, yellow, green and pink. Both natural and synthetic dyes are employed to achieve these soft, pastel tones. The dyes are generally derived from plants, minerals and other natural sources, which help give the fabric a vibrant yet understated quality. Sanganer prints are often used in fine clothing, including sarees, dupattas and bedsheets and are highly valued in both domestic and international markets. They have a strong association with royal patronage and have become an iconic symbol of Rajasthani textile art.



Fig. 1.17: Sanganer Print

b) Bagru Printing Style

- **Origin & History:** Bagru printing has been practiced for over 400 years in the Bagru region, primarily by the Chippa community. This art form is closely tied to the rural culture of Rajasthan and has roots in the early days of Indian printing, influenced by both Mughal and local traditions. Bagru printing was historically used for making garments and home textiles for local communities. Over time, it gained popularity due to its bold and earthy aesthetic.

- **Technique:** The primary technique used in Bagru printing is resist dyeing, particularly through the dabu method. In this method, a resist paste made from mud, gum and lime is applied to the fabric before dyeing. This prevents the dye from adhering to certain areas, leaving behind a pattern. Another method, called seyali Bagru, involves printing directly onto fabric using natural dyes. After the printing, the fabric is washed, dried and dyed multiple times.
- **Features:** Bagru prints are distinguished by their bold, larger motifs, which include flowers, vines, geometrical patterns and animals. The designs are meant to be viewed from a distance, with a simplicity and visibility that contrasts with the intricate nature of other block printing styles. The patterns are often repetitive and feature larger geometric shapes, such as squares, triangles and diamonds. Bagru prints are predominantly made using earthy tones, such as indigo (blue), red, ochre (yellow-brown) and black. These colors are derived from natural dyes such as indigo, pomegranate and madder, which contribute to the rustic and organic feel of the fabric. The simple yet striking aesthetic of Bagru prints reflects the rural traditions and natural environment of Rajasthan. The method of resist dyeing is sustainable and eco-friendly, making Bagru prints popular in modern textile design as well.



Fig. 1.18: Bagru Print

b) Dabu Printing

- **Origin & History:** Dabu printing is an ancient mud-resist hand block printing technique that originated in **Rajasthan**, particularly in regions such as Akola and Bagru. Practiced for centuries, it is renowned for its distinctive mud-resist dyeing process, where a mixture of clay, gum, and natural materials is applied to fabric before dyeing to create intricate patterns. Traditionally, Dabu-printed textiles were widely used for garments and home furnishings, especially during festivals and

ceremonial occasions. The craft continues to thrive today through the efforts of skilled artisans who preserve its rich heritage.

- **Technique:** The primary technique in Dabu printing involves applying a paste made of mud, lime, wax and gum to the fabric. Sawdust is often sprinkled onto the paste to prevent smudging. After the paste is applied, the fabric is dyed, washed and dried multiple times, allowing the resist paste to create a faded pattern on the fabric. The entire process is time-consuming and requires considerable skill and patience.
- **Features:** Dabu prints are characterised by their soft and faded patterns, which have an organic, natural look. The mud-resist technique gives the prints a distinct texture, and the design edges appear soft and blurry, with no harsh lines. The patterns are often inspired by nature and local motifs, such as florals and geometric shapes. Indigo and black are the most commonly used colours in Dabu printing. These colours, derived from natural dyes, give the fabric a deep, earthy and rustic appearance. The colour palette is kept simple, maintaining the organic and sustainable nature of the technique. Dabu printing, with its eco-friendly process and organic look, holds cultural significance in Rajasthan. It is closely linked to the region's rural life and the cycles of nature, reflecting the sustainable ethos of traditional textile arts.



Fig. 1.19: Dabu Print

2. GUJARAT – AJRAKH PRINTING

- **Origin & History:** Ajrakh block printing originated in Sindh (now in Pakistan) and was brought to Kutch, Gujarat, by the Khatri Muslim community around 4000 years ago. It was traditionally used for men's turbans and lungis. Ajrakh printing is one of the oldest and most complex block printing techniques in India, with roots that go back over 4,000 years. This method was historically practiced by the Sindhi people and later spread to Gujarat (Kutch) and Rajasthan (Barmer).

Ajrakh prints are rich in symbolism and have been used for ceremonial garments, as well as home textiles.

- **Technique:** The Ajrakh printing process involves multiple steps. These steps include printing, washing, dyeing and drying the fabric. Each layer of the design is created with a different block and the blocks must align perfectly to create a seamless pattern. Natural dyes such as indigo (blue), madder (red) and pomegranate (yellow) are used to colour the fabric.
- **Features:** Ajrakh prints are famous for their symmetrical, geometric and floral designs, often featuring elaborate borders and motifs that repeat across the fabric. The process is intricate, involving multiple layers of printing with different blocks, each block used for a specific color or part of the design. The geometric precision and complex nature of the designs set Ajrakh apart from other forms of block printing. Ajrakh prints typically use natural dyes, including indigo, madder, black and white. These colours, derived from plant and mineral sources, contribute to the eco-friendly and sustainable nature of the technique. Ajrakh prints hold significant cultural value, especially in Gujarat's Kutch region. The technique is often used for traditional garments worn during festivals, weddings and other ceremonies. Ajrakh printing is a symbol of craftsmanship and cultural identity, connecting modern artisans to their ancient roots.



Fig. 1.20: Ajrakh Print

4. ANDHRA PRADESH – KALAMKARI

- **Origin & History:** Kalamkari printing is an ancient Indian art form that dates back to at least the 3rd century BCE. The name "Kalamkari" is derived from the Persian words kalam (pen) and kari (work), meaning "pen work." Traditionally, Kalamkari was used to create religious textiles, such as temple hangings and sacred cloths. The two main styles of Kalamkari Machilipatnam and Srikalahasti are distinguished by their methods of creation. Kalamkari prints often depict intricate scenes from Indian mythology, especially from the Ramayana and Mahabharata. They include vivid depictions of gods, goddesses, animals and natural elements, telling stories through fabric. The Machilipatnam style uses block printing, while the Srikalahasti style involves freehand

painting with a bamboo pen. Both styles require a great deal of skill and precision.

- **Technique:** In the Machilipatnam style, hand-carved blocks are used to print the designs on fabric, while in Srikalahasti, artisans use a bamboo pen to paint the designs. The fabric undergoes multiple steps, including washing, treating, dyeing and painting, to create the final design.
- **Features:** Natural dyes from plants, roots and minerals are used to create vibrant, lasting colors. The palette is often rich, with reds, yellows, greens and browns being the most common. Kalamkari prints are deeply rooted in religious and cultural traditions. They are primarily used in temples for sacred purposes and are considered an important form of storytelling through art. These prints are also popular in modern fashion and home décor, offering a glimpse into India's spiritual and artistic heritage.

India's block printing tradition is incredibly rich and varied. Each region has developed its own unique style based on local customs, climate and materials. From the fine floral details of Sanganeri to the deep indigo patterns of Ajrakh and the storytelling art of Kalamkari, every form of block printing represents a special part of India's culture and history. These traditional methods continue to inspire modern designs while keeping the legacy of handmade textiles alive.



Fig. 1.21: Kalamkari

5. MADHYA PRADESH- BAGH & BATIK PRINTING

a) Bagh Printing

- **Origin and History:** Bagh Printing is a traditional Indian hand block printing technique originating from the village of Bagh in Dhar district, Madhya Pradesh. It is renowned for its unique geometric, floral and paisley designs printed on fabrics using natural dyes.

Bagh printing is believed to be over 1000 years old and has roots tracing back to Block printing traditions of Rajasthan and Gujarat. The

technique was brought to the Bagh region around the 17th century by the Khatri community, traditional Muslim textile printers and dyers, who migrated from Sindh (present-day Pakistan).

Named after Bagh village, which means “garden” in Hindi possibly referencing the lush, floral designs or the greenery near the Baghini River, whose water is crucial for dyeing. In the late 20th century, artisans like Ismail Sulemanji Khatri helped modernize and popularize the craft, winning national and international awards.

- **Technique:** Bagh printing follows a multi-step, labour-intensive process, involving fabric preparation in which fabric (usually cotton or silk) is soaked in a solution of goat dung, castor oil and soda ash for several days to remove starch and impurities, washed and dried multiple times for better dye absorption. Design and Block Carving in which wooden blocks (typically teak or sheesham wood) are hand-carved with intricate patterns, designs are often inspired by Mughal, Persian and local tribal art. Printing is done by hand, dipping blocks into natural or vegetable-based dyes and pressing them firmly onto the fabric, red and black are the most dominant colours, derived from alizarin (for red) and iron acetate (for black).

Dyeing and washing after printing, fabrics are dried in the sun and then washed in flowing river water, final treatment involves boiling with alizarin and dhavda flowers to fix the colour and add vibrancy.

- **Features:** Motifs of bagh print includes geometric shapes, floral vines, paisleys, jali patterns and religious symbols, colour palette were traditionally limited to red, black and white, though modern variants may use other natural colours, uses natural dyes and traditional methods that are environmentally sustainable and each design carries a regional, spiritual or cultural significance, making the textile a narrative of heritage.

Bagh printing represents a perfect blend of heritage, artistry and sustainable craft. Despite modernization, it has preserved its traditional charm and continues to thrive through artisan innovation and global recognition.

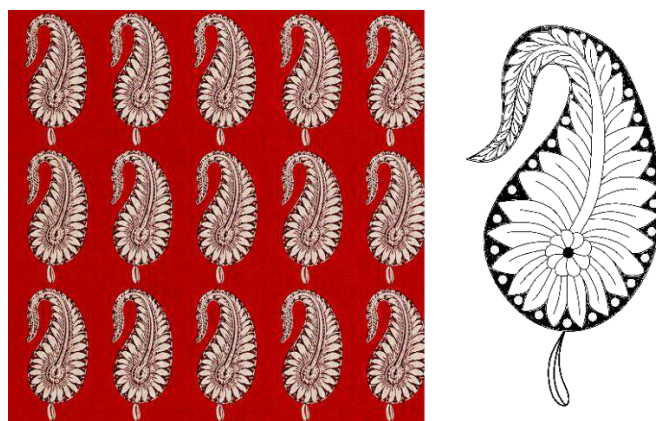


Fig. 1.22: Bagh Print

b) Batik Printing

- **Origin and History:** While Batik is most famously associated with Indonesia, India also has a long and rich history of Batik printing, with unique regional styles and traditions. Batik printing in India dates back over 2,000 years. Historical evidence, including murals and cloth fragments, suggests the use of wax-resist dyeing techniques as early as the 1st century CE, particularly during the Gupta period. India is believed to be one of the earliest centers of resist-dyeing, including tie-dye (bandhani) and wax-resist techniques. Indian merchants and artisans likely influenced and exchanged techniques with regions such as Indonesia and China through the ancient trade routes.

Centers of Batik in India are Gujarat which is one of the primary centers for batik in India, practiced traditionally by the Khatri community, known for vibrant colours, floral and geometric motifs and intricate detailing. Rajasthan which is similar to Gujarat, has a deep-rooted textile culture. Batik here is often part of a broader tradition of resist dyeing common in the production of dupatta, sarees and home décor fabrics. Madhya Pradesh is a prominent center for contemporary batik revival, especially in Ujjain and Bhopal, artists use both traditional and modern motifs, often combining hand-drawn (tulis) and block-printed methods.

In the 20th century, Batik saw a revival in India, particularly through the efforts of Rabindranath Tagore at Visva-Bharati University in Santiniketan, West Bengal. Batik was introduced into the curriculum as part of efforts to revive traditional Indian crafts. Indian artists adopted Batik not just for textiles, but also for artistic expression, leading to the creation of batik paintings and wall hangings. Indian Batik is now a recognized art form worldwide, known for its rich designs and adaptability. The fusion of ancient techniques with modern designs makes Indian batik distinct from its Southeast Asian counterparts.

- **Techniques:** There are several main techniques used in batik printing like hand-drawn Batik (Batik Tulis) in which designs are drawn manually on fabric using a “Tjanting” (a pen-like tool filled with hot wax). This is the most time-consuming and intricate method, allowing for fine detail. Stamp Batik (Batik Cap) uses copper stamps to apply wax patterns quickly and uniformly. Suitable for mass production, but still considered authentic. Screen Printing Batik is a modern method where wax is applied using silk screens, often used for commercial or fashion fabrics. Splash or Crackle Batik in which wax is applied and then cracked to create fine, vein-like lines after dyeing. Gives a distinctive cracked effect on the fabric.



Fig. 1.23: Batik through Tjanting

- **Features:** Areas covered in wax resist dye, allowing for multicoloured patterns. Multiple layers of wax and dye create complex, vibrant designs. Traditional batik often includes motifs with deep cultural or religious meaning. Traditional batik uses natural dyes and cotton or silk fabrics. The wax-resist method creates long-lasting prints that don't easily fade.



Fig. 1.24: Batik Print

Hand block printing in India has been deeply influenced by geography, culture and historical trade routes. Each region developed its distinct identity, reflecting the artistic and aesthetic sensibilities of its people. Today, these traditional printing techniques continue to thrive, blending heritage with contemporary fashion.

C. Nandna Print

- Origin and History:** Nandna print is a mud resist block-printing craft of Madhya Pradesh practicing at Tarapur village of Jawad Tahsil. This is one of the very few crafts being practiced in its original form. The fabric thus printed is then worn by the women from the local Bhil tribes as their traditional attire. But what sets Nandna prints apart from the other printed fabrics is its intact rustic look and ancient motifs, equally revered by the contemporaries. The craftsmen use naturally derived dyes on cotton fabric and age old block designs inspired from the nature. Traditionally, there are four motifs namely, Mirch (chilli), Champakali (magnolia bud), Amba (mango) & Jalam buta (creeper web) used in the printing of Nandna. Champakali buti was common amongst the unmarried women of the tribe whereas the skirts or ghagras with Amba print were worn during marriages and pregnancy. Followed by tradition, the brothers also used to gift Nandna printed dresses to their sisters on occasions such as Raksha Bandhan and Diwali. Nandna textiles and techniques are now incorporated into other garments, bedspreads, tablecloths, other furnishings and upholstery.
- Techniques:** Nandna involves a mud resist dyeing process with 18 steps. The technique is used to print thick and heavy-duty cotton fabric with limited colours and motifs. The motifs of Nandana are few, and they are set against a backdrop of deep, dark, and rich colours that suit the rugged use by the hard-working community.

The technique used in Nandna Print is mud-resist printing, followed by dyeing in natural colours such as indigo, dhavda, and harad. There are four main stages in the Nandna printing process: Fabric Preparation, Printing, Dyeing and After-treatment. In fabric preparation, the fabric is soaked in castor oil for 48 to 72 hours to remove contamination and starch. In the printing stage, artisans print the fabric with wooden blocks using a mud paste and then allow it to dry. The mud paste is prepared from clay, gum, and lime. Natural mordants such as alum are used to obtain red shades with alizarin, while pomegranate peel and indigo are used to get green or black colours. After printing, the artisans dye the mud-printed fabric in natural colours like indigo, starting from lighter shades and moving to darker ones. Next, the mud is removed by boiling the fabric in water, followed by colour fixing with pomegranate skin and flowers. The final stage involves washing the dyed fabric in running water to remove excess colour. After this, the fabric is dried, finished, and packed.

- Features:** The process of multiple dyeing of mud-printed fabric is carried out in an indigo solution or dye tank, locally known as “*Naand*” in Hindi, meaning a pot or pit. Since the fabric is repeatedly dipped in this indigo dye tank, the term “Nandna” is derived from the word *Naand*. This name reflects the repeated indigo dyeing process and gives identity to the Nandna craft of hand block printing, which is practiced exclusively in Tarapur.



Fig. 1.25: Nandana Print

1.2.3 Scope of Hand Block Printing

Hand block printing is an ancient craft that continues to hold immense cultural, economic and artistic value. In recent years, it has seen a resurgence in popularity, both in traditional and contemporary forms, expanding its scope in various areas. Below are some of the key aspects that define the scope of hand block printing today:



Fig. 1.26: Scope of hand block printing

1. Fashion and Apparel Industry

- **Traditional Wear:** Hand block prints are widely used in traditional Indian garments like sarees, dupattas, kurtas and lehengas. Popular prints such as Ajrakh, Bagru, Sanganeri, Bagh, Nandna and Bhairavgarh Prints have become synonymous with Indian ethnic wear.
- **Contemporary Fashion:** Hand block prints have made their way into modern fashion, with designers incorporating these prints into contemporary silhouettes like dresses, tunics and shirts. The timeless appeal of these prints blends well with global fashion trends, adding authenticity and sustainability to modern collections.
- **Eco-Friendly and Sustainable Fashion:** As sustainability becomes more important in the fashion industry, hand block printing offers an environmentally friendly alternative to mass-produced textiles. The use of natural dyes and handmade techniques contributes to reducing the carbon footprint.

2. Home Decor and Furnishings

- **Curtains, Cushion Covers and Bed Linen:** Hand block prints are popular for home textiles, adding a natural, earthy feel to interiors. Fabrics like cotton, linen and silk are used for creating curtains, bedspreads, pillow covers and upholstery.
- **Wall Hangings and Tapestries:** Printed textiles often find their way into art and décor pieces such as wall hangings, tapestries and rugs. The unique, intricate designs of block printing bring a distinct cultural touch to interior spaces.
- **Table Linen:** Tablecloths, napkins and runners with hand block prints are commonly used in both traditional and contemporary settings.

3. Art and Craft

- **Exhibition and Collectables:** Hand block printing is increasingly recognised as an art form, and printed fabrics are showcased in galleries and craft exhibitions. The handcrafted nature and intricate designs of these prints make them collectable items, often framed and displayed as art pieces.
- **Cultural Preservation:** Hand block printing helps preserve ancient techniques and cultural traditions, passing them on to younger generations while simultaneously adapting them to modern needs and tastes.

4. Export and International Market

- **Global Demand:** Hand block-printed fabrics have found a niche market internationally, especially in countries that appreciate artisanal and sustainable fashion. Exporters from India send block-printed textiles to Europe, the USA, Australia and other parts of the world, where they are valued for their unique craftsmanship.
- **Boutiques and Luxury Brands:** Some luxury boutiques and fashion houses incorporate hand block prints in their collections, recognising the value of traditional craftsmanship in luxury items.

5. Environmentally Conscious Fashion

- **Sustainable Fashion Movement:** Hand block printing plays a crucial role in the growing sustainable fashion movement. Since the process involves fewer chemicals and many artisans use natural dyes, it aligns with the demand for eco-friendly textiles.
- **Slow Fashion:** As an alternative to fast fashion, hand block printing is a part of the slow fashion movement, which focuses on quality over quantity, as each piece of block-printed fabric is unique and labour-intensive.

6. Local Economies and Rural Employment

- **Empowering Artisans:** Hand block printing provides livelihoods to artisans in rural areas of India, particularly in regions like Rajasthan, Gujarat and Madhya Pradesh. Artisans, often from traditional craft communities, benefit from a steady source of income by producing block-printed textiles.
- **Support for Craftsmanship:** The craft helps keep traditional skills alive, allowing artisans to pass down their knowledge to the next generation. With the right support, such as training programs and fair-trade practices, hand block printing can continue to thrive.

7. Customisation and Personalised Products

- **Bespoke Orders:** With the rise of personalised and customised products, hand block printing has a strong scope in custom orders for clothing, home décor and accessories. Many designers and brands offer bespoke services, where clients can choose patterns, colours and designs for personalised hand block prints.
- **Wedding and Festive Wear:** Hand block-printed textiles are often custom-designed for weddings and festivals, adding a personal touch to garments and décor.

8. Educational and Training Opportunities

- **Craftsmanship Training:** Several institutions and craft organisations offer workshops and training in hand block printing, encouraging new generations of designers and artisans to take up this craft.
- **Academic Programs:** Educational programs in textile design, fashion and sustainable crafts now include hand block printing as part of the curriculum, helping students understand the historical and modern relevance of the technique.

9. Collaboration with Other Crafts

- **Fusion of Techniques:** Hand block printing is being combined with other traditional crafts like embroidery, weaving and painting to create unique fusion pieces. This collaboration between different crafts helps expand the creative scope of hand block printing.
- **Interdisciplinary Projects:** Collaboration with contemporary artists, designers and businesses brings new life to traditional block printing, helping it evolve in new and exciting ways.

10. Innovation & Fusion with Modern Trends: Hand block printing is evolving with modern techniques to appeal to contemporary markets:

- **Fusion with Western Wear:** Block prints on denim, jackets, T-shirts and jumpsuits.
- **Newer Fabric Choices:** Organic cotton, bamboo fabric and silk blends featuring hand block prints.
- **Mixed Techniques:** Combining block printing with embroidery, screen printing and digital printing.

11. Tourism & Craft-Based Economy

Hand block printing plays a vital role in India's cultural tourism:

- **Handicraft & Textile Tours:** Rajasthan, Gujarat and Madhya Pradesh attract tourists interested in learning about block printing.
- **Workshops & Learning Centres:** Many organisations offer workshops for travellers and designers to learn block printing.
- **Government & NGO Initiatives:** Efforts to preserve and promote traditional hand block printing through skill development programs. Artisan-based tourism is a growing sector, contributing to rural livelihoods.

12. Digital & E-Commerce Expansion

The rise of online marketplaces has opened new avenues for block-printed textiles:

- **E-commerce Platforms:** Amazon, Etsy, Flipkart, Ajio and other sites sell block-printed apparel and home décor.
- **Social media & Direct Selling:** Artisans and small businesses sell directly via Instagram, Facebook and independent websites.
- **Collaborations with Designers & Brands:** Emerging collaborations between artisans and contemporary designers are revitalising the craft.

Digital reach has boosted global visibility and sales for artisans and small businesses. Ongoing innovations are making hand block printing relevant in contemporary fashion and lifestyle products. The scope of hand block printing is vast and dynamic, extending beyond traditional textiles to global fashion, home décor, art and sustainable design.

As global demand for sustainable and artisanal products increases, hand block printing will continue to play a significant role in the world of fashion, craftsmanship and eco-conscious living.

Activities

Activity: Make India's Map on chart paper showing the regional variations of Hand block printing.

Material Required:

- Chart sheet
- Colourful pens, markers or paints
- Pictures of different regional hand block printing styles in India
- Glue and scissors

Procedure:

- Research the history and regional variations of Hand block printing in India.
- Draw or trace an outline map of India on the chart paper.
- Identify regions known for specific block-printing styles.
- Place pictures or symbols of each printing style on the corresponding region of the map.

- Add brief labels or captions to explain each style.
- Display the completed map in the classroom.

What Have You Learned?

A. Fill in the Blanks

1. Hand block printing involves pressing and stamping fabric with _____ filled with dye.
2. The Bagru and Sanganeri styles of block printing originated in the Indian state of _____.
3. The _____ community has played a crucial role in preserving and practicing the art of hand block printing in Rajasthan.
4. The traditional Ajrakh printing technique uses natural dyes like indigo and madder and originated in the _____ region of Gujarat.
5. In the Dabu technique, a resist paste made from mud, gum and lime is applied to the fabric before dyeing to create _____ areas.

B. Short Answer Questions

1. List the features of hand block printing.
2. Name the important historical centres of block printing in India.
3. What type of motifs are commonly used in traditional block prints?
4. Which natural colour is most commonly used in Dabu printing?
5. Name the two main styles of Kalamkari.

C. Long Answer Questions

1. Describe the different types of hand block printing techniques used in India.
2. Compare and contrast Sanganeri and Bagru printing in terms of origin, technique and features.
3. Explain the process and cultural significance of hand block printing.
4. Explain the history, technique and cultural value of Ajrakh printing.
5. Describe the two traditions of Kalamkari and highlight their key differences.
6. Discuss the scope of hand block printing in the fashion and apparel industry.

Session: 3 Characteristics and Cultural Importance of Hand Block Printing

Indian block printing, a centuries-old art form, has managed to retain its charm and relevance even in modern times. This traditional technique, which involves carving intricate designs onto wooden blocks and stamping them onto fabric, is not just a method of textile decoration but a cultural narrative that speaks volumes about India's rich heritage. This session delves into the characteristics and cultural importance of hand block printing.

1.3.1 Characteristics of Hand block Printing

Hand block printing is a highly skilled and artistic craft that has been practiced for centuries. It is known for its intricate designs, eco-friendly approach and rich cultural significance.

Below are some of the key characteristics that define hand block printing:

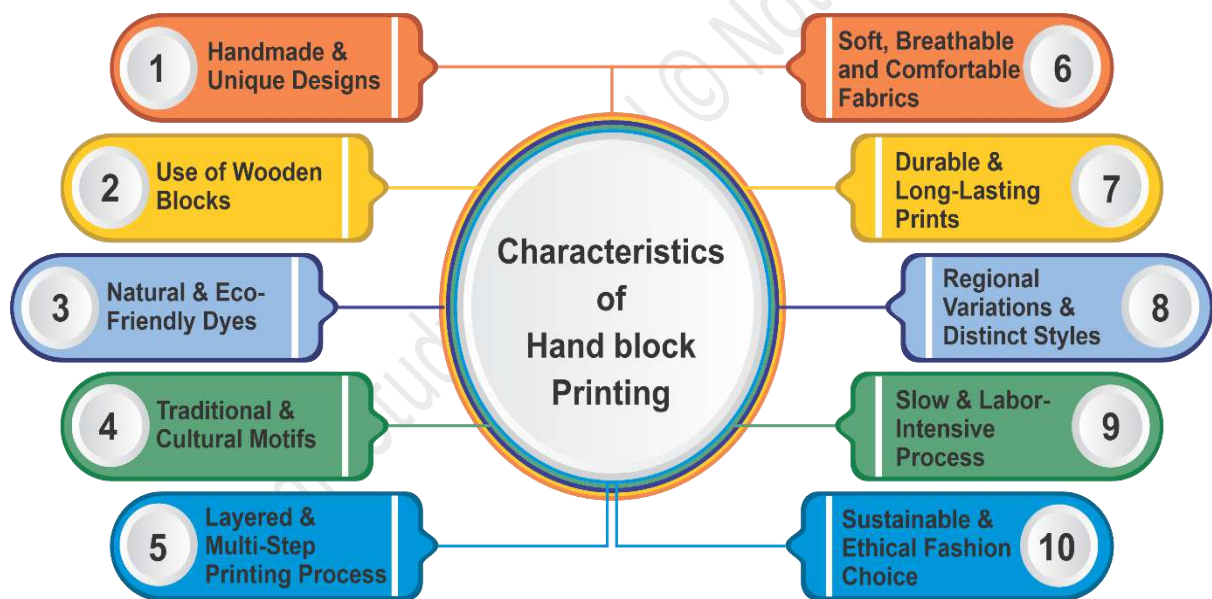


Fig. 1.27: Characteristics of Hand Block Printing

1. **Handmade & Unique Designs:** Each print is crafted by skilled artisans, making every piece unique. Slight variations in design and colour add to the authenticity and charm of hand block prints.
2. **Use of Wooden Blocks:** Designs are hand-carved onto wooden blocks made of teak, rosewood or sheesham. Different blocks are used for different parts of the pattern (outlines, fillers and details).
3. **Natural & Eco-Friendly Dyes:** Many traditional block prints use natural dyes derived from plants, minerals and even insects (e.g.,

indigo, turmeric, madder root). These dyes are non-toxic and environmentally sustainable.

4. **Traditional & Cultural Motifs:** Patterns often reflect cultural influences, including: Floral and paisley motifs (Sanganeri & Kalamkari), geometric and symmetrical designs (Ajrakh), nature-inspired patterns (Bagh) and mythological themes (Kalamkari)
5. **Layered & Multi-Step Printing Process:** Complex designs require multiple blocks and colours. The process includes pre-washing, dyeing, printing and final washing to set the colours.
6. **Soft, Breathable and Comfortable Fabrics:** Usually printed on natural fabrics like cotton, silk and linen. The fabric retains its softness since the dyeing and printing processes are gentle.
7. **Durable & Long-Lasting Prints:** The colours and patterns remain vibrant even after multiple washes. Traditional mordant techniques help fix the dye for better durability.
8. **Regional Variations & Distinct Styles:** Each region in India has developed its own unique hand block printing style:
 - Sanganeri & Bagru (Rajasthan) - Delicate floral prints.
 - Ajrakh (Gujarat & Rajasthan) – Geometric symmetry with deep red, blue and black tones.
 - Bagh (Madhya Pradesh) – Bold red and black prints with intricate designs.
 - Tarapur (Madhya Pradesh) – Mud resist Indigo prints with traditional tribal motifs.
 - Bhairavgarh, Ujjain (Madhya Pradesh) – Wax resist block batik print with floral & geometrical prints.
 - Kalamkari (Andhra Pradesh) – Mythological and temple art designs.
9. **Slow & Labour-Intensive Process:** Unlike machine-printed fabrics, hand block printing takes time and precision. Artisans require years of experience to master the craft.
10. **Sustainable & Ethical Fashion Choice:** Promotes slow fashion and reduces the environmental impact of mass production. Supports rural artisans and traditional craftsmanship.

Hand block printing is a timeless art form that embodies creativity, heritage and sustainability. The combination of handcrafted beauty, natural dyes and intricate designs makes it a valuable textile tradition that continues to thrive in modern fashion and home decor.

1.3.2 Cultural importance of Hand block Printing

The cultural significance of Indian block printing in contemporary society is multifaceted, intertwining history, craftsmanship and identity in a way that continues to captivate and inspire. One of the most compelling aspects of Indian block printing is its ability to preserve and celebrate regional identities. This cross-cultural appreciation not only helps in preserving these traditional crafts but also fosters a sense of pride and continuity among the artisans who create them.

Moreover, the resurgence of interest in sustainable and ethical fashion has brought Indian block printing into the limelight. In an era where fast fashion dominates, the slow, meticulous process of block printing offers a refreshing contrast. Each piece of fabric is a labour of love, reflecting hours of skilled craftsmanship.

This emphasis on quality over quantity resonates with modern consumers who are increasingly conscious of the environmental and social impact of their purchases. By choosing block-printed textiles, they are not only acquiring a beautiful piece of art but also supporting sustainable practices and fair trade.

In addition to its aesthetic and ethical appeal, Indian block printing holds significant cultural value as a medium of storytelling. The motifs and patterns often carry symbolic meanings, representing everything from religious beliefs to social customs. For example, the tree of life motif is a common design that symbolizes growth, fertility and immortality.

In contemporary settings, these symbols serve as a bridge between the past and the present, allowing individuals to connect with their heritage in a meaningful way. Wearing or displaying block-printed textiles becomes an act of cultural expression, a way to honour one's roots while embracing modernity.

Furthermore, the adaptability of Indian block printing has ensured its relevance in today's diverse fashion landscape. Designers are continually experimenting with traditional techniques to create innovative and contemporary designs.

The versatility of block printing allows it to seamlessly blend with various styles, making it a favourite among designers and consumers alike. The cultural significance of Indian block printing in modern times is also evident in its role as a source of livelihood for many artisans.

In rural areas, where employment opportunities can be limited, block printing provides a vital source of income. Organizations and cooperatives are working tirelessly to support these artisans, ensuring that their skills are passed down to future generations. By promoting block printing, they are not only preserving a cultural heritage but also empowering communities.

Cultural Importance

Hand block printing holds deep cultural significance in India and beyond. It is not just a textile printing technique but a reflection of history, tradition and artistic expression.

The craft has been passed down through generations, carrying cultural narratives, regional identities and spiritual symbolism.

Below are some key aspects of the cultural importance of hand block printing:

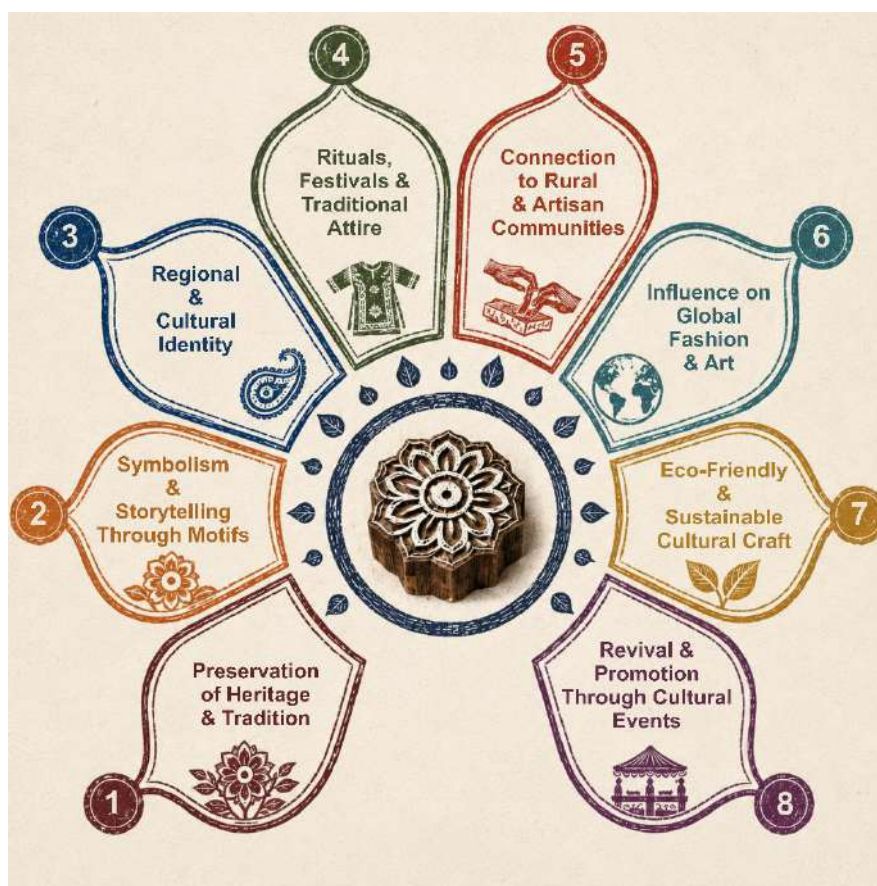


Fig. 1.28: Cultural Importance of Hand Block Printing

1. **Preservation of Heritage and Tradition:** Hand block printing is an ancient craft, dating back to the Indus Valley Civilization (2500 BCE) and flourished under the patronage of the Mughals and Rajput kings. Each region in India has developed its own distinctive style and motifs, reflecting local traditions, folklore and influences from different dynasties. It is a key part of India's textile heritage, celebrated for its intricate craftsmanship and historical value.
2. **Symbolism and Storytelling through Motifs:** Many hand block printing patterns have deep cultural and symbolic meanings: Floral & Paisley of Sanganeri and Kalamkari represent nature, prosperity and divine blessings. Geometric & Symmetrical Designs of Ajrakh reflect balance, cosmic order and spiritual harmony. Peacock & Elephant

motifs of Bagru and Bagh symbolises royalty, wisdom and good fortune. Mythological & Religious Themes of Kalamkari depict scenes from Hindu epics like the Ramayana and Mahabharata. These motifs serve as a form of storytelling, keeping ancient myths and traditions alive in wearable art.

3. **Regional and Cultural Identity:** Each state in India has developed its own unique block printing tradition, which showcases the cultural identity of the region: Ajrakh (Gujarat & Rajasthan) – A 4,000-year-old craft linked to Sindhi and Mughal influences. Bagh Prints (Madhya Pradesh) – Inspired by tribal art and nature-based themes. Sanganeri & Bagru (Rajasthan) – Known for Mughal-era floral designs. Kalamkari (Andhra Pradesh) – Rooted in temple art and storytelling. The craft is deeply embedded in the cultural fabric of these communities, passed down through generations of artisans.
4. **Rituals, Festivals and Traditional Attire:** Hand block printed fabrics are commonly worn during religious ceremonies, festivals and weddings. Ajrakh prints are worn by Sindhi and Kutchhi communities during special occasions. Kalamkari textiles are used as temple backdrops and ritual cloths in South India. Bagru & Sanganeri prints are popular for Rajasthani traditional attire during fairs and festivals. Many prints are believed to bring good luck, protection and spiritual blessings.
5. **Connection to Rural and Artisan Communities:** Hand block printing sustains thousands of artisans in rural India, particularly in states like Rajasthan, Gujarat and Madhya Pradesh. Many artisan families have been practicing this craft for generations, preserving ancient skills and techniques. The craft is a source of cultural pride and economic empowerment, especially for women and marginalised communities.
6. **Influence on Global Fashion and Art:** Indian hand block printing has influenced global fashion trends for centuries: It was highly sought after in Persia, Egypt and Europe during the Mughal and Colonial periods. European chintz prints were inspired by Indian block-printed cotton fabrics in the 17th and 18th centuries. Today, luxury designers and international brands incorporate block prints in contemporary fashion and interior décor. The fusion of traditional Indian printing with modern styles continues to bridge cultures across the world.
7. **Eco-Friendly and Sustainable Cultural Craft:** Many traditional hand block printers use natural dyes made from plants, minerals and herbs. Unlike machine printing, which relies on chemicals and synthetic colours, hand block printing promotes slow fashion and sustainability. This aligns with India's cultural values of harmony with nature and sustainable living.
8. **Revival and Promotion through Cultural Events:** Various Indian and international organizations promote hand block printing through craft fairs, exhibitions and workshops: Events like Dastkar, Kala Ghoda Arts Festival and Jaipur Literature Festival showcase artisan-made block

prints. UNESCO and textile museums worldwide recognize Indian hand block printing as an intangible cultural heritage. Government initiatives like "Make in India" and "Handloom Day" support local artisans.

Hand block printing is more than just a textile technique—it is a living cultural heritage that connects history, art, tradition and craftsmanship. It embodies the spirit of Indian culture, representing a deep-rooted connection between artisans, nature and storytelling.

In conclusion, the craft of Indian block printing is much more than a textile decoration technique; it is a cultural treasure that continues to thrive in modern times. Its ability to preserve regional identities, promote sustainable practices, tell stories, adapt to contemporary trends and provide livelihoods makes it an invaluable part of India's cultural fabric. As we move forward, the timeless art of block printing will undoubtedly continue to inspire and enchant, weaving its way into the hearts and homes of people around the world.

Activities

Activity: Exploring Characteristics, Scope and Cultural Importance of Hand Block Printing

Material Required:

- Chart sheet or poster boards
- Colour pens, markers or paints
- Pictures of different Handicrafts in India
- Glue
- Printed handouts or access to classroom reference material
- Fabric samples or images (optional)
- Internet access (optional)

Procedure:

1. The class is divided into three groups, with each group assigned a specific topic related to hand block printing.
 - a. Group 1: Characteristics of hand block printing
 - b. Group 2: Scope of Hand Block Printing
 - c. Group 3: Cultural Importance of Hand Block Printing
2. Each group studies the given textbook material or teacher-provided handouts and conducts research related to their assigned topic. Based

on their understanding, they prepare a chart that summarizes the information along with relevant pictures, motifs, maps and examples.

3. Each group presents their prepared chart to the class for about 2–3 minutes. During the presentation, the teacher or classmates may ask one question per group to encourage interaction and better understanding.
4. All the charts are displayed on the classroom walls, creating a mini exhibition on hand block printing.

What Have You Learned?

A. Fill in the Blanks

1. Hand block printing often uses _____ dyes derived from plants, minerals and insects.
2. The _____ motif commonly represents growth, fertility and immortality.
3. Hand block printing is a part of the _____ fashion movement that emphasizes quality over quantity.
4. Artisans use hand-carved _____ blocks to create intricate patterns.
5. The Ajrakh style of block printing is primarily associated with _____ and Rajasthan.

B. Short Answer Questions

1. What makes each piece of hand block printed fabric unique?
2. How does hand block printing contribute to rural employment in India?

C. Long Answer Questions

1. Discuss the cultural importance of hand block printing in India.
2. Describe the modern scope and relevance of hand block printing in fashion, home décor and sustainability.

Module 2 Elements & Principles of Design

Introduction

Design is the heart of all visual and creative expressions, especially in traditional crafts like hand block printing. A strong understanding of design allows artists and artisans to create patterns that are not only visually appealing but also meaningful and culturally rich. This unit focuses on building the foundational knowledge needed to appreciate and apply design in textile arts. It explores the core elements of design, introduces the concept of colour theory and explains different colouring techniques that bring block-printed textiles to life. The elements of design such as line, shape, form, colour, texture, value and space serve as the visual tools used to construct any artwork. These elements help determine the overall look, feel and balance of a design. Whether creating a traditional floral motif or a modern abstract pattern, each element plays an essential role in the final composition. Knowing how to analyze and apply these elements allows designers to experiment with both traditional and contemporary aesthetics. In addition to understanding the elements themselves, it is also important to learn how colours interact. Colour theory provides a framework for choosing and combining colours effectively. It helps in creating harmony, contrast and emotional impact in a design. Whether using natural dyes in earthy tones or experimenting with bold and bright hues, the choice of colour influences how a design is perceived and appreciated. Once the elements and colours are chosen, the next step is applying these ideas through colouring techniques. In block printing, colours can be layered, blended or enhanced using various methods to achieve rich and dynamic effects. Artists often use traditional tools like wooden blocks, but may also incorporate hand-painting, resist dyeing or mixed media techniques to enrich the surface.

Altogether, this unit provides a complete foundation for students and artisans to understand how good design is created. By exploring design elements, mastering colour combinations and applying creative colouring methods, learners can build a strong visual language. This not only helps preserve the beauty of traditional block printing but also encourages innovation in textile design for today's world.

Learning Outcomes

After completing this module, you will be able to:

- Analyze different elements & principle of design
- Implement the concept of colour theory & its application
- Explain placement of design in block printing

Module Structure	
Session:1	Elements & Principles of Design
Session:2	Concept of Colour Theory
Session:3	Placement of Design

Session: 1 Elements & Principles of Design

Design is the foundation of all visual arts and crafts and understanding its components is essential for any creative practice. In hand block printing, where each impression is made carefully by hand, a deep knowledge of design elements enhances the visual appeal, function and cultural relevance of the work. This session explores the core elements of design, the guiding principles that organize them and how these are thoughtfully applied in the placement of block prints on fabric.

2.1.1 Elements of Design

Elements of design are the basic building blocks or tools used to create any visual composition. They help artists and designers organise ideas, create balance and communicate meaning effectively. The main elements of design include line, shape, form, space, texture, value, colour.

1. **Line:** Line is the simplest element of design. It is a mark made by a pointed tool (like a pen, pencil or brush) and can vary in thickness, length or direction. Lines can be used to define shapes, create texture, direct the viewer's eye and even suggest movement. For example:
 - a. **Vertical lines** suggest strength, height or stability (e.g., in buildings or trees).
 - b. **Horizontal lines** give a feeling of calm, rest and stability (e.g., horizons, tables).
 - c. **Diagonal lines** can add energy or movement, giving a sense of action or direction.
 - d. **Curved lines** can be soft, flowing and more natural, often seen in organic designs (e.g., flowers, waves).

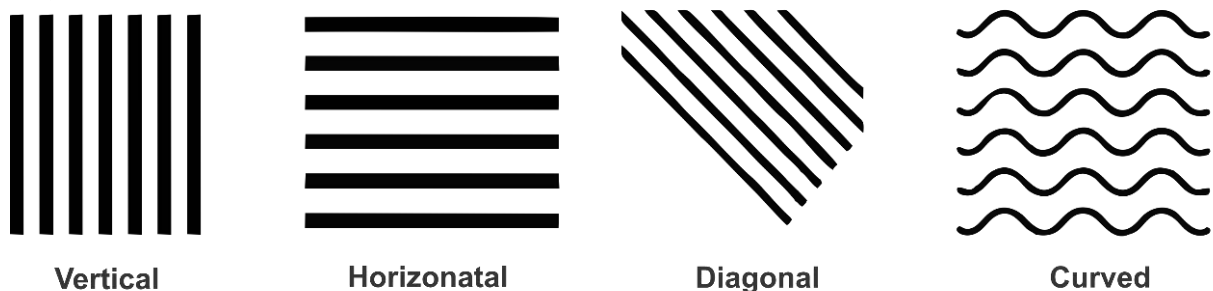


Fig. 2.1: Types of Lines

2. **Shape:** Shape refers to a two-dimensional space, which can be geometric (like circles, squares and triangles) or organic (like the shapes of leaves or clouds).

Shapes are used to create the basic structure of a design. Geometric shapes are often used in modern, formal designs, while organic shapes have a more natural and free-flowing look. Shapes help define an object or space, divide sections and can be symbolic (e.g., circles for unity, squares for stability).

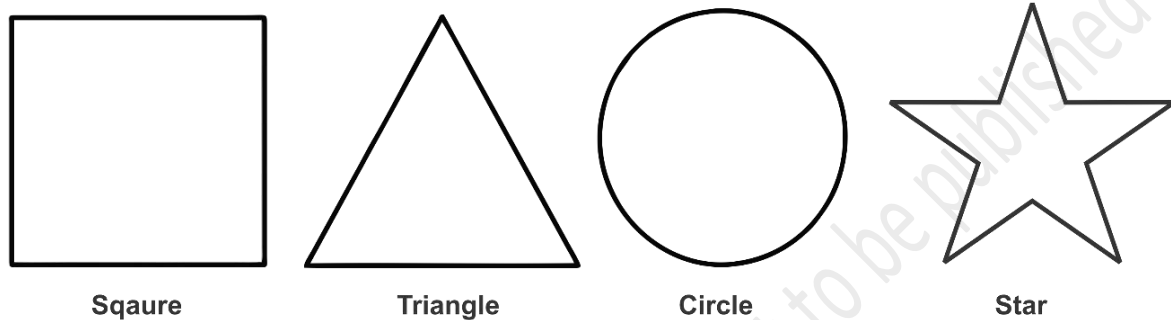


Fig. 2.2: Types of Shape

3. **Form:** Form refers to a three-dimensional shape. Unlike shapes, which are flat, forms have depth, width and height.

Forms add dimension to a design, making it look more realistic or lifelike. For example, a cube is a form that comes from a square shape, while a sphere comes from a circle. Forms are often used in sculptures, architecture and product design.

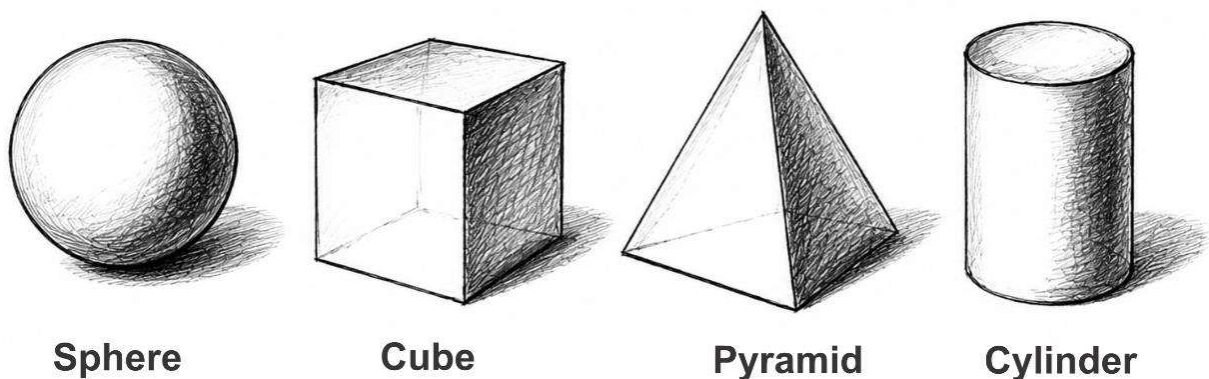


Fig. 2.3: Types of Form

4. **Space:** Space refers to the area around, between and within objects in a design. There are two types of space:
- Positive space:** The area filled with elements, like shapes or objects.
 - Negative space:** The empty areas around and between elements.



Fig. 2.4: Positive & Negative Space

Space helps organize a design. It can be used to create balance, to guide the viewer's eye and improve the overall composition of a design. For example, leaving enough negative space around elements gives them room to "breathe," making the design feel less cluttered.

5. **Texture:** Texture refers to how a surface feels or appears to feel. There are two types of texture:
 - a. **Tactile texture:** Texture you can feel, like the rough surface of a brick or the soft texture of fabric.
 - b. **Visual texture:** Texture you can see, but not touch, such as patterns that suggest roughness or smoothness.

Texture adds depth, interest and realism to a design. It can make an object feel more real or it can be used creatively for visual impact. For example, a textured surface can create a rustic or vintage feel, while smooth textures give a modern, sleek appearance.

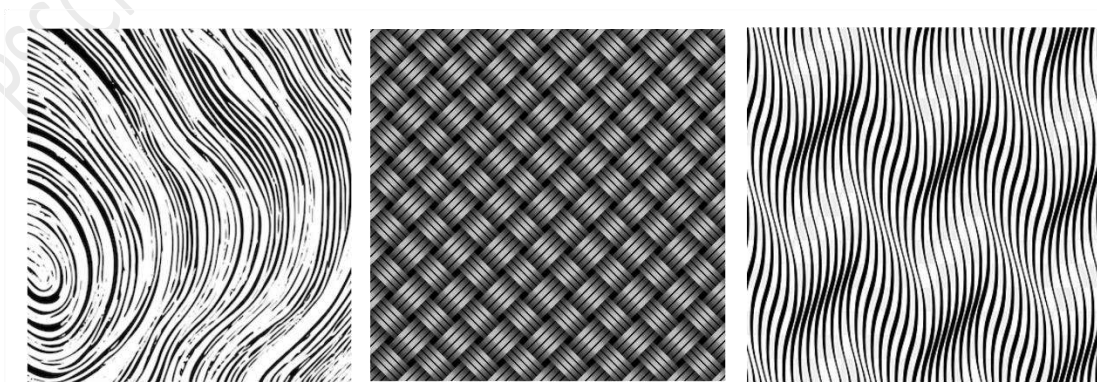


Fig. 2.5: Texture

6. **Colour:** Colour is one of the most powerful elements in design. Colours can evoke emotions, set a mood or communicate certain ideas. For example, red can represent passion or urgency, blue can convey calmness or trust and yellow can be cheerful or energetic.

Colours help grab attention organize information and create aesthetic harmony. Using the right colour combinations can make a design look more appealing, while poor colour choices can make a design feel disorganized or unprofessional.



Fig. 2.6: Colour

7. **Value:** Value refers to the lightness or darkness of a colour or tone. Value helps create contrast, depth and emphasis in a design. Lighter values can create highlights and darker values can create shadows. High contrast between light and dark values makes elements stand out and grabs the viewer's attention. For example, dark shadows behind an object can make it appear three-dimensional, while light colours can create a sense of airiness or openness.



Fig. 2.7: Value

2.1.2 Principles of Design

While the elements are the tools, the principles of design are the rules that guide how those tools are used. They ensure that the design is aesthetically pleasing and functionally appropriate. These principles include balance, contrast, rhythm, emphasis, unity, harmony and proportion.

1. **Balance:** Balance is the distribution of visual weight in a design. A well-balanced design feels stable and harmonious.
 - **Symmetrical balance:** Elements are arranged equally on both sides of a central axis. It feels formal, stable and traditional (e.g., architectural facades).
 - **Asymmetrical balance:** Different elements are placed on either sides of a central axis, but they achieve visual balance through contrast, colour, size or placement. This type of balance creates a dynamic and informal appearance.

- **Radial balance:** Elements are arranged around a central point, like the spokes of a wheel or petals of a flower.

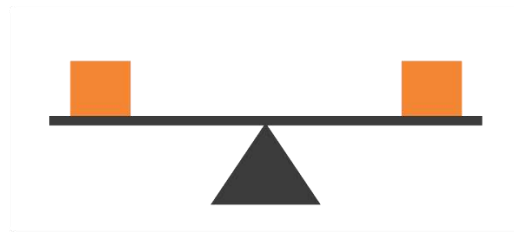


Fig. 2.8: Balance

2. **Contrast:** Contrast refers to the difference between two or more elements in a design (such as light vs. dark, large vs. small or smooth vs. rough). Contrast adds variety, interest and emphasis. It helps draw attention to specific areas of a design and makes other parts recede into the background. For example, high contrast between text and background ensures readability.

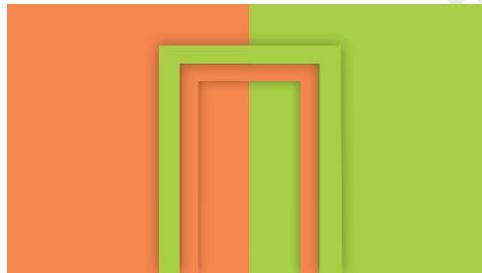


Fig. 2.9: Contrast

3. **Emphasis:** Emphasis is the creation of a focal point in a design. It is about making one element stand out more than the other. Emphasis draws attention to a specific part of the design. This can be achieved through contrast, placement or scale. In textiles, emphasis might appear as a central motif or a border with bolder patterns.

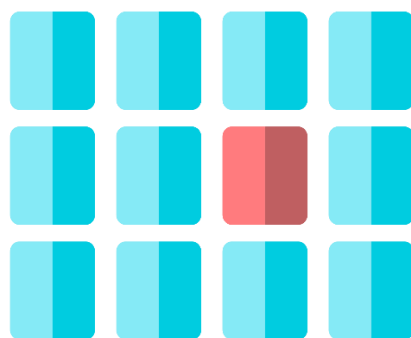


Fig. 2.10: Emphasis

4. **Movement:** Movement is the path the viewer's eye takes through the design. Good design guides the viewer's eye naturally through the artwork, creating a sense of flow. Movement can be created through the use of lines, shapes, colour and the arrangement of elements.

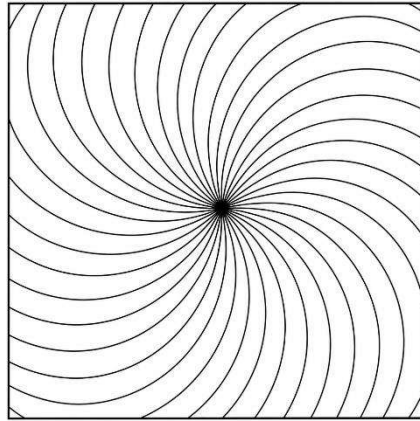


Fig. 2.11: Movement

5. **Pattern:** A pattern is the repetition of visual elements, such as shapes, colours or lines. Patterns add rhythm, consistency and unity to a design. For example, a repeating pattern on a website background can give it a cohesive, structured feel.



Fig. 2.12: Pattern

6. **Rhythm:** Rhythm is the repetition or alternation of elements to create a sense of movement or flow. Rhythm keeps the viewer engaged and creates a visual tempo. Like music, rhythm in design can make a composition feel dynamic or soothing, depending on how the elements are arranged.



Fig. 2.13: Rhythm

7. **Unity:** Unity means that all parts of a design work together to create a cohesive and complete look. Unity makes the design feel organized and all elements feel like they belong together. A lack of unity can make a design look chaotic or disconnected.

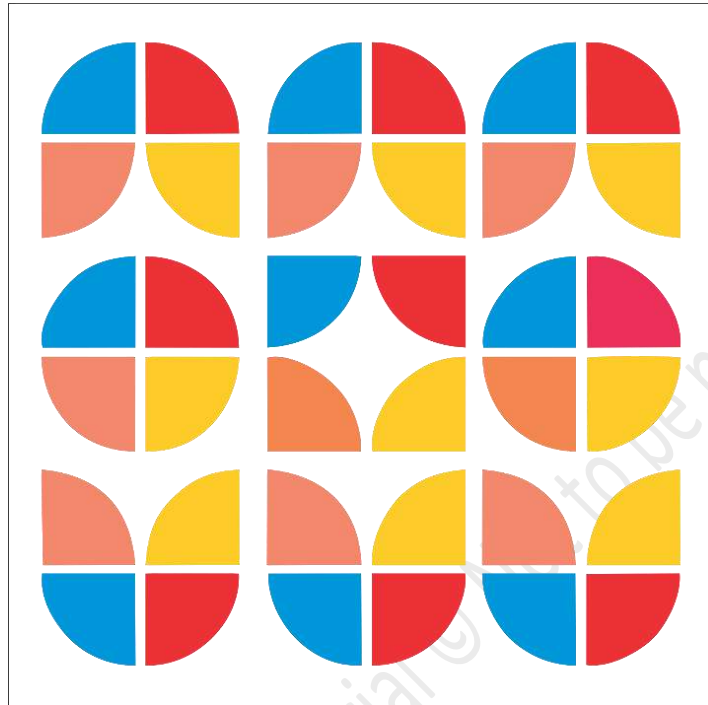


Fig. 2.14: Unity

Inspiration of Designs in Traditional Hand Block Printing

Designs of hand block prints are inspired by various sources such as nature, monuments, stone carvings, traditional paintings and the surrounding environment. For example, Bagh print designs are derived from local culture, nature, forests, animals and the Bagh Caves located near Bagh town in Dhar district. Common motifs include animals such as tiger and deer, *Teer-Kaman* (bow and arrow), floral designs like flowers and leaves and patterns inspired by the Bagh Caves. Similarly, Bagru and Sanganer prints are influenced by the cultural activities of royal dynasties and their surroundings. These prints mainly use motifs of animals such as elephants and horses, weapons like *bhala* and *talwar*, and floral patterns inspired by monuments and palaces. Ajrakh print motifs are derived from daily life activities such as agriculture, fishing and animal husbandry, along with cultural symbols, and commonly include floral and geometrical patterns.

Activities

Activity 1: Hand Block Printing Project.

Materials Required:

1. Plain cotton fabric or thick drawing paper
2. Wooden block / sponge / potato block (or paper stamp)
3. Fabric or Poster colours
4. Tray or Palette
5. Old newspapers or cloth for protection

Procedure:

1. Students select a block or create a potato block with a simple motif such as a flower, leaf or geometric shape.
2. Apply colour to the block and print it on paper or fabric.
3. Select 2–3 colours. Apply colour evenly on the block and print the motif carefully on the surface.
4. Create few patterns to experiment with the design elements.
5. Allow the print to dry and label the design elements used.

Activity 2: Exploring Block Orientation and Alignment**Materials Required:**

1. Plain cotton fabric or thick drawing paper
2. Wooden block / sponge / potato block (or paper stamp)
3. Fabric or Poster colours
4. Tray or Palette
5. Old newspapers or cloth for protection

Procedure:

1. Print the same block in different directions (straight, tilted, rotated).
2. Try different alignments such as straight rows, zig-zag and scattered layouts.
3. Observe how the design changes with each orientation.
4. Compare the prints and discuss which arrangement looks balanced and attractive.

Activity 3: Concept Board on Design Elements in Block Printing**Materials Required:**

1. A3 or A4 sheet
2. Pencil, eraser, ruler
3. Colour pencils or markers
4. Pen/Fine liner

Procedure:

1. Divide the sheet into 7 sections, one for each design element: Line, Shape, Form, Space, Texture, Value, Colour.
2. In each section, illustrate the concept through a small drawing or example.
3. Label each drawing and write a brief definition of the element below it.

4. Use colours to enhance clarity and presentation.

What Have You Learned?

A. Fill in the Blanks

1. _____ refers to the repetition of visual elements like shape or colour in a design.
2. The area around and between design elements is known as _____.
3. _____ balance uses identical elements arranged on both sides of a central axis.
4. _____ refers to the lightness or darkness of a colour.
5. A _____ is the part of the design that catches the viewer's attention first.

B. Short Answer type Questions

1. Define the terms - Elements of design, Principles of design.
2. List the various elements and principles of design.
3. Give an example of effects created by each of the different types of lines.
4. Differentiate between positive space and negative space in design.
5. What is the difference between symmetrical and asymmetrical balance?
6. What is meant by emphasis in a composition?

C. Long Answer type Questions

1. Discuss the importance of line, shape, and form in creating a visually appealing design.
2. Describe how space and texture contribute to the overall impact of a design.
3. Discuss the various principles of design and their importance in organizing visual elements effectively.
4. Compare and contrast symmetrical, asymmetrical, and radial balance with examples from textiles.
5. Explain how traditional hand block prints are inspired by nature, culture, and surroundings.

Session: 2 Concept of Colour Theory

Colour plays a powerful role in visual communication and design. It influences not only the aesthetic appeal of a composition but also its emotional tone, functionality and cultural context. In the art of hand block printing, where colours are applied manually using carved wooden blocks, a solid understanding of colour theory is essential to achieving harmony, contrast and visual storytelling. This session delves into the colour theory and how they guide the creative choices in traditional and contemporary block printing practices.

2.2.1 Colour Theory

Colour theory is based on scientific and artistic observations of how colours interact and how the human eye perceives them. At its core, colour theory helps artists, designers and craftsmen select and combine colours in a way that enhances visual appeal and conveys intended messages. There are two primary systems used to form colours additive and subtractive colour mixing each relevant to different media and applications.

Additive colour formation is based on the mixing of coloured light. This system is used in digital displays such as computer monitors, televisions and LED lights. The primary colours in the additive model are red, green and blue (RGB). When these colours of light are combined in various intensities, they produce all other colours, including white light when mixed equally. For instance, combining red and green light results in yellow, while red and blue make magenta. This system is essential in digital design, screen printing and photography, where light is the medium of expression.

Colours are classified into three main groups based on how they are created:

Category	Definition	Examples
Primary Colours	The base colours that cannot be created by mixing other colours.	Red, Blue, Yellow
Secondary Colours	Formed by mixing two primary colours in equal parts.	Orange (Red + Yellow), Green (Blue + Yellow), Purple (Red + Blue)
Tertiary Colours	Created by mixing a primary colour with a neighbouring secondary colour on the colour wheel.	Red-Orange, Yellow-Green, Blue-Violet

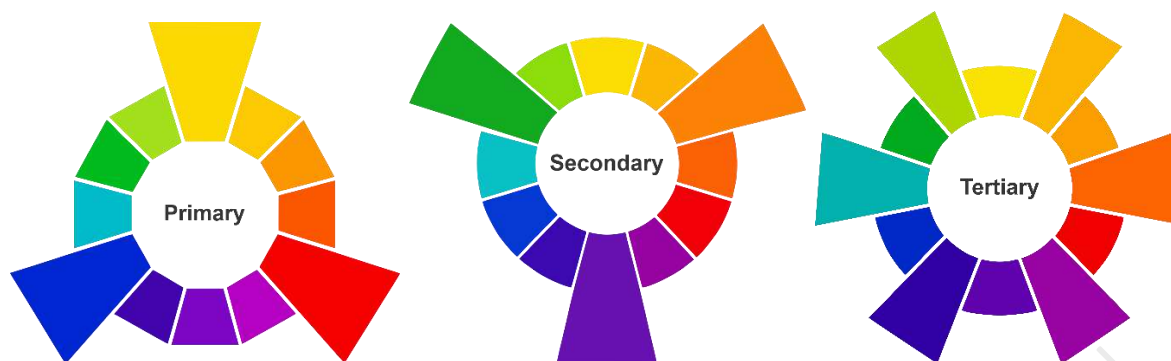


Fig. 2.15: Primary, Secondary and Tertiary Colours

In contrast, subtractive colour formation is based on the mixing of pigments, dyes or inks. This method is widely used in painting, textile printing and all forms of surface design involving physical materials. The primary colours in this model are cyan, magenta and yellow (CMY). When combined, these pigments subtract (or absorb) certain wavelengths of light and reflect others, thus producing visible colour. Mixing all three in full intensity results in black or a dark neutral tone. Subtractive colour theory is especially relevant to hand block printing, where dyes are absorbed into the fabric and layered to create intricate patterns.

Colours are also organized and understood through primary, secondary and tertiary categories. In traditional painting and textile work, the RYB model (Red, Yellow, Blue) is often used. These primary colours cannot be created by mixing other colours and form the basis of all other hues. By mixing two primary colours in equal measure, we get secondary colours—green (blue + yellow) orange (red + yellow) and purple (red + blue). Further mixing of a primary with a neighboring secondary colour creates tertiary colours, such as red-orange, yellow-green and blue-violet. These categories are visually represented in a colour wheel, which helps artists identify harmonious or contrasting colour schemes based on spatial relationships between hues.

2.2.2 Different Dimensions of Colour

To use colour effectively in design, it is essential to understand the three dimensions of colour: hue, saturation and value. The three key attributes that define any given colour are:

Hue is the basic name of a colour, what we refer to as red, green, blue, etc. It is the quality that distinguishes one colour family from another. Hue forms the foundation of colour identity and is the most recognizable aspect of colour.

Saturation, also known as chroma or intensity, refers to the purity or vividness of a colour. A highly saturated colour appears bright and rich, while a low-saturation colour appears dull, muted or greyed out. Adjusting saturation helps in achieving different emotional tones for example, bright

colours for festive and youthful themes and soft colours for calm or subtle designs.

Value describes how light or dark a colour appears. It plays a major role in creating contrast and depth in visual compositions. Adding white to a colour results in a tint, while adding black results in a shade. Adjusting value can help certain motifs stand out or recede, creating a dynamic visual flow. In block printing, lighter values might be used for background designs, while darker or contrasting values are used for foreground motifs to ensure visibility and impact.

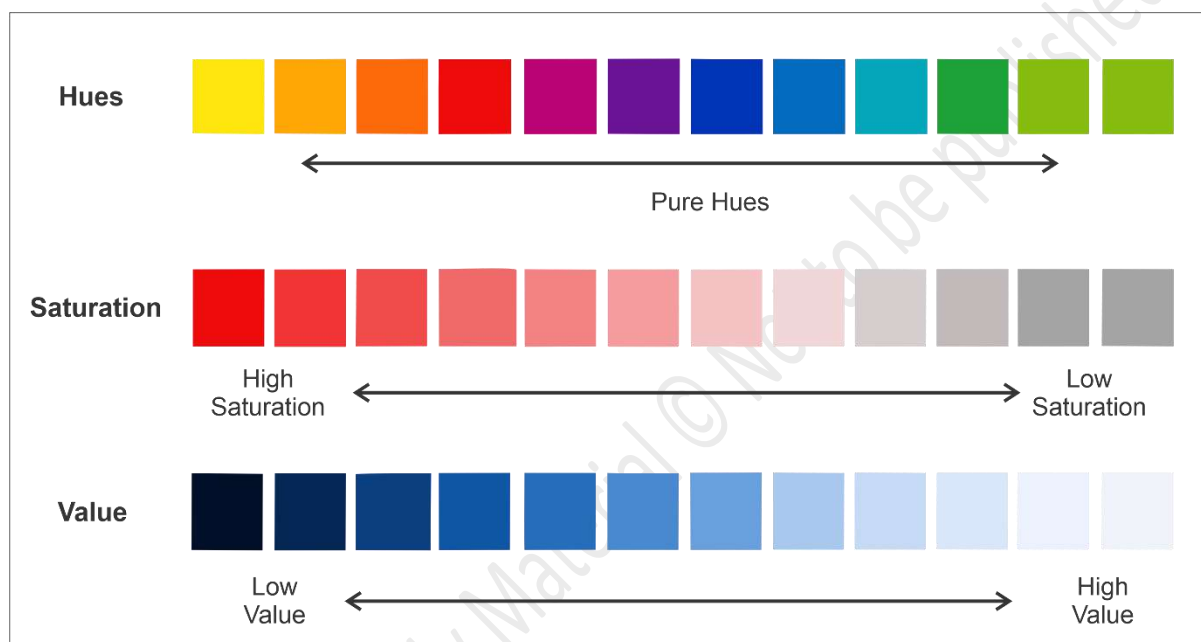


Fig. 2.16: Dimension of Colours

The thoughtful use of these colour dimensions allows block printing artisans to manipulate the viewer's perception and mood. For example, a high-contrast design with deep indigo against a white base can create a bold, dramatic effect, while a pastel palette using light pinks and greens can evoke softness and elegance. Colour choices are often guided by tradition and cultural symbolism, for instance, red for celebration and yellow for spirituality in Indian textile art.

Designers also use colour harmonies that are visually pleasing. Complementary colours, which are opposite each other on the colour wheel (such as blue and orange), create strong contrast and energy. Analogous colours, located next to each other (such as yellow, yellow-green, and green), provide a more cohesive and soothing effect. Triadic colour schemes, consisting of three colours evenly spaced on the colour wheel, balance contrast and harmony and are often used for vibrant yet balanced compositions.

In hand block printing, the understanding of colour theory influences every stage from dye selection and block carving to motif arrangement and final printing. Whether the goal is to achieve traditional vibrancy or modern minimalism, colour remains one of the most expressive and versatile elements of design. Mastering the relationships and effects of colour empowers artisans to create textiles that are not only visually stunning but also emotionally and culturally resonant.

Colouring Techniques used in Block Printing

Block printing is a centuries-old traditional craft in which patterns are transferred onto fabric or paper using hand-carved wooden blocks. The blocks are pressed onto a dye-soaked pad or tray and then stamped onto the surface to create repeated designs. The use of colour in block printing is not only a critical component of the design process but also plays a significant role in determining the visual appeal and longevity of the final print. In this session, we explore the different techniques of applying colour in block printing with a focus on the types of dyes, the fixation processes, the concept of colour fastness and sustainable dyeing methods. Understanding these processes enables students to create vibrant, long-lasting prints while being mindful of environmental impact.

2.2.3 Colour Application in Block Printing

The application of colour in block printing is influenced by two types of dyes: natural dyes and synthetic dyes. Both have distinct qualities and the choice of dye can impact the final product in terms of aesthetics, durability and environmental sustainability.

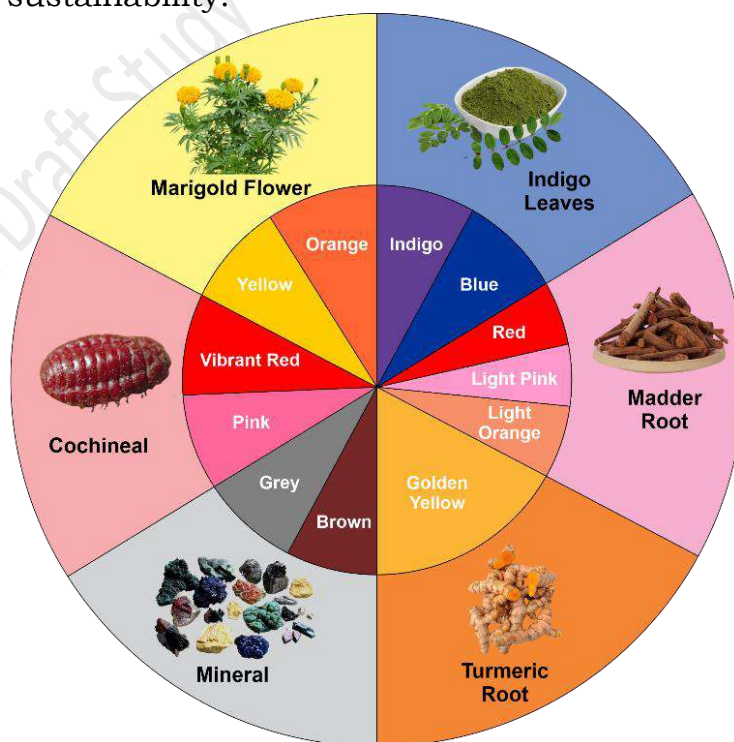


Fig. 2.17: Natural Dyes

Natural Dyes: Natural dyes are derived from a variety of plant, insect and mineral sources and have been used for centuries. These dyes are favoured for their eco-friendly properties and rich, earthy tones. Natural dyes are often preferred in traditional block printing because they add a cultural depth to the craft and are biodegradable and non-toxic.

- **Plant-Based Dyes:** Many natural dyes come from plant sources, including roots, leaves, flowers and fruits. Indigo, for example, produces blue shades that range from light pastel blues to deep indigo, depending on the specific treatment and fermentation process. Madder provides red, pink and sometimes orange tones with different plant parts (roots, stems) used to achieve various intensities of colour. Turmeric is another popular plant-based dye, known for its bright, golden-yellow colour that is often used in Indian textiles. Walnut, on the other hand, gives a warm brown or tan shade, often used in the background of intricate block prints.
- **Insect-Based Dye:** Cochineal is a prominent example of an insect-based dye, extracted from the cochineal beetle. This dye produces vibrant reds and pinks, ranging from bright scarlet to deep crimson. Cochineal has been used for centuries, especially in South America and Mexico and remains a significant component of traditional dyeing processes.
- **Mineral-Based Dyes:** Minerals also provide a range of dyes. Ochre, a clay-based pigment, produces earthy tones ranging from yellow to deep brown. Iron salts are used for creating dark tones and are often used in combination with other dyes to produce muted, deeper colours like grey or brown.

Some Sources of Natural Dyes are:

S. No	Source	Parts	S. No.	Source	Parts
1.	Harad	Flower, Fruit	13.	Neembu	Fruits
2.	Manjishtha	Root	14.	Mehandi	Leaves
3.	Aal	Skin, Root	15.	Ratanjot	Roots
4.	Pitti	Skin	16.	Peepal	Roots, Skin
5.	Neel	Leaves	17.	Harsingar	Flower
6.	Anar	Flower, Fruit skin	18.	Babool	Skin
7.	Mango	Fruit, Fruit skin	19.	Tea	Flowers, Leaves
8.	Panwar	Seeds	20.	Siyajarh	Roots
9.	Sem	Leaves	21.	Haldi	Roots
10.	Genda	Flower	22.	Kattha	Tree's Skin

11	Jamun	Fruit	23.	Tesu	Flowers
12.	Imli	Leaves, Fruits			

List of Some colours from given sources:

S. No.	Sources	Colours
1.	Harad	Yellow, Red, Black
2.	Siyajarh	Red
3.	Manjishtha	Red, Purple, Brown
4.	Aal	Red
5.	Pitti	Red
6.	Neel	Blue
7.	Anar	Yellow
8.	Aam	Green & Yellow
9.	Panwar	Deep Blue
10.	Harsingar	Yellow & Orange
11.	Tea	Deep Red & Maroon
12.	Haldi	Yellow
13	Imli	Black
14.	Tesu	Saffron
15.	Mehandi	Olive Green
16.	Kattha	Brown
17.	Ratanjot	Blue
18.	Neembu	Yellow
19.	Lakh	Maroon

Advantages of Natural Dyes

- **Eco-Friendly:** Natural dyes are derived from renewable resources, making them biodegradable and non-toxic. This makes them a safe choice for both the environment and the artisans involved in the printing process.
- **Unique Tones:** The hues produced by natural dyes tend to be soft and subtle with a complexity that is difficult to replicate using synthetic dyes. They also often age beautifully with colours that evolve over time.

- **Cultural Significance:** Natural dyes are an integral part of traditional textile arts. Many regional block printing techniques, particularly in India, continue to use natural dyes, helping preserve traditional craft practices.

Synthetic Dyes

In contrast to natural dyes, synthetic dyes are manufactured through chemical processes and offer a much broader spectrum of colours. These dyes are widely used in contemporary block printing due to their ease of use, consistency and ability to produce bright, long-lasting colours.

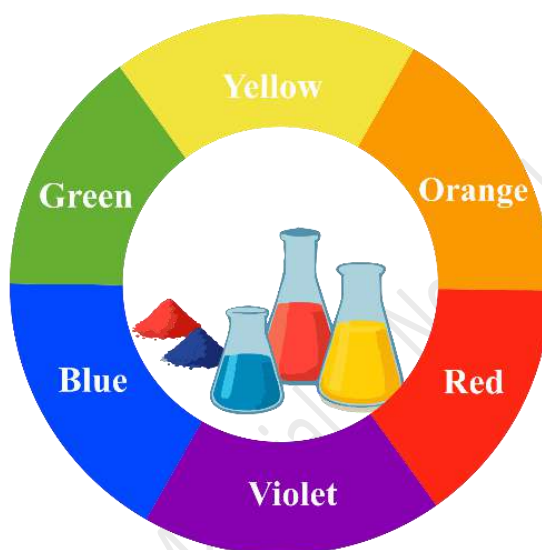


Fig. 2.18: Synthetic Dyes

The use of synthetic dyes in block printing involves a structured and carefully controlled process to ensure vibrant and lasting results. First, the desired dye is selected based on the type of fabric and the colour fastness required.

Synthetic dyes come in various forms such as powders, liquids or pastes and must often be mixed with water or specific chemical agents to create the printing solution. Before printing, the fabric is typically pre-treated or "scoured" to remove impurities, ensuring better absorption of the dye. In some cases, a mordant (a chemical agent that fixes dyes onto fabric) may be applied to enhance colour strength and durability.

Once the fabric is ready, the dye solution is evenly spread onto a tray or a soft surface. The carved wooden printing block is then dipped into the dye and pressed firmly onto the fabric, transferring the colour and design with precision. This step requires skill and care to ensure consistent pressure and alignment, especially when printing complex or repeating patterns.

After the printing is completed, the fabric is left to dry naturally or is dried using controlled heat. To further fix the colours and improve wash-fastness, the printed fabric may undergo a curing process, which could involve

steaming or heating at specific temperatures. Finally, the fabric is washed thoroughly to remove any excess dye, followed by drying and ironing to finish the product.

This modern approach to block printing with synthetic dyes allows artisans to achieve bright, intricate and long-lasting designs with greater efficiency and creative freedom compared to traditional natural dyeing methods.

Types of Synthetic Dyes

- **Azo Dyes:** These are bright and vibrant, typically used for colours like red orange and yellow. Azo dyes are inexpensive and are commonly used in mass-produced textiles.
- **Reactive Dyes:** These dyes form a strong bond with natural fibers such as cotton, producing vivid colours that are resistant to fading. Reactive dyes are popular for cotton block printing.
- **Acid Dyes:** Used primarily for protein fibers like silk and wool, acid dyes are known for their intense, bright shades. These dyes require an acidic environment to fix properly.
- **Disperse Dyes:** These are used for synthetic fabrics such as polyester and are typically applied through heat transfer methods. Disperse dyes produce brilliant colours, especially for synthetic fibers.

Advantages of Synthetic Dyes

Synthetic dyes offer an extensive colour palette, including some colours that are difficult or impossible to obtain with natural dyes, such as neon or fluorescent shades. Synthetic dyes are more predictable and consistent than natural dyes, offering uniform results even in large-scale production runs.

They also tend to be more durable, resisting fading and wear over time. Synthetic dyes are often cheaper to produce than natural dyes, making them an attractive option for commercial printing.

Disadvantages

- **Pollution:** Many synthetic dyes are derived from petrochemicals and may contain harmful compounds that can pollute water bodies when not properly disposed of. The dyeing process often requires significant water resources and chemicals that can be hazardous.
- **Health Concerns:** Some synthetic dyes contain substances that can be harmful to human health, particularly if they are not handled or applied with proper care. Certain dyes may also cause skin irritation.

- **Non-Biodegradable:** Unlike natural dyes, synthetic dyes do not break down easily in nature, contributing to long-term environmental pollution if not disposed of responsibly.

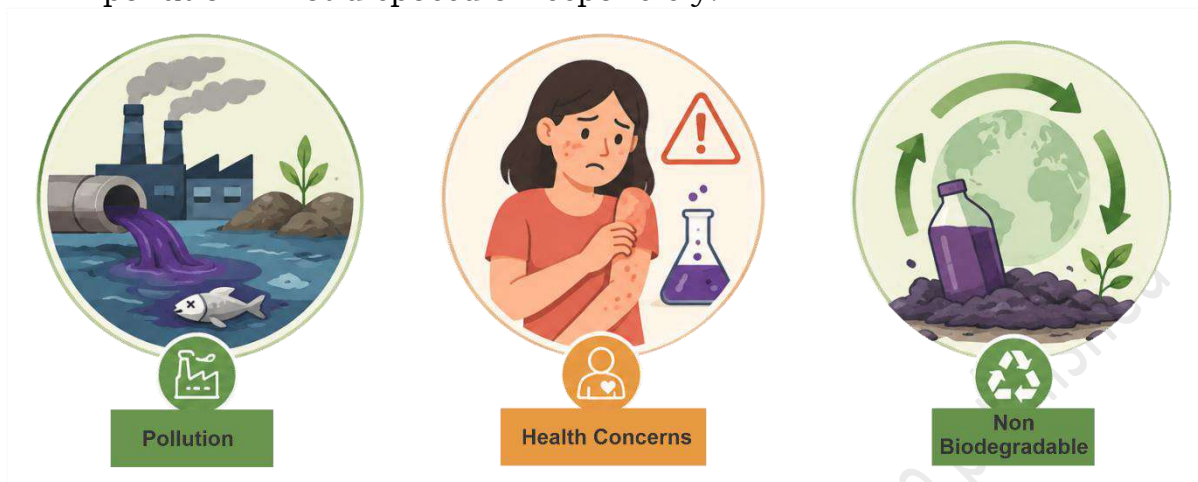


Fig. 2.19: Disadvantages of Synthetic Dyes

Fixation Processes and Colour fastness

Once the dye is applied to the fabric, it must be fixed properly to ensure that the colour does not fade or wash out over time. This process is known as fixation and it varies depending on whether natural or synthetic dyes are used. For natural dyes, the fixation process typically involves mordanting. A mordant is a substance that helps dyes bond more securely with the fibres of a fabric. Mordants are essential for ensuring that natural dyes adhere effectively and resist fading. Commonly used mordants include iron rust, gur (jaggery), fitkari (alum), babool gum, salt (NaCl), and chuna (lime). Mordants are generally metallic salts or compounds containing metals such as aluminium, iron, tin, and chromium.

“Mordant is a metallic salt, having affinity for coloring matter to fix it, without this vegetable colours cannot be fixed on the fabric.”

Some commonly used mordants include alum, which works well with many plant-based dyes; iron, which darkens Colors; and copper, which is used to create unique greenish shades. The fabric is soaked in a mordant solution before being dyed, allowing the dye to bond more effectively with the fibers.

Some practiced mordants are as follows:

- Aluminum
- Tin
- Chromium
- Copper
- Iron

- Potassium

Use of Neutralizing Agents and Colour Fixers:- Neutralising agents and colour fixers are used to fix colours on the fabric and improve washing, light, and rubbing fastness. This process is carried out after printing. In this method, lemon juice is applied over the printed motifs and the fabric is left undisturbed for 24 hours. Lemon juice acts as a natural neutralising agent, helping to stabilise the dye and enhance colour fastness.

COLOUR FIXERS / CARRIERS: Some natural colour fixers / carriers are used to fix the colour on fabric as follows:

- Pomegranate Skin & Flowers
- Natural Acid (NaCl) Salt
- Dunging Liquor (Soil, Chuna Powder, Cow dung, and Water)

WASHING AGENTS: After printing, the fabric is washed thoroughly using a large volume of water and natural washing agents to remove excess dye and impurities. They are as follows:

- Harad
- Reetha
- Amla
- Shikakai



Fig. 2.20: Washing Agents

For synthetic dyes, fixation is often achieved through heat. This can involve steaming the fabric or applying heat through pressing. Heat causes the dye molecules to bond more strongly with the fabric, resulting in long-lasting colour. Cold fixation methods are also used for certain dyes, where chemicals are applied at room temperature to set the colour. The process of colour fastness ensures that the dye will remain vibrant and not bleed or fade during washing, sunlight exposure or friction. Colour fastness is an essential attribute for textiles used in garments or home decor, as it ensures durability and aesthetic longevity. To test colour fastness, the fabric is subjected to several conditions, including washing, exposure to light and rubbing. Fabrics with high colour fastness will maintain their vibrancy over time without significant colour loss.

Moreover, the knowledge of the environmental implications of both natural and synthetic dyes prepares students to make more sustainable and informed choices in their craft. As they explore the use of colour in block printing, they will also be able to experiment with multi-colour layered prints and eco-friendly dyeing techniques, fostering both creativity and environmental responsibility in their designs.

Eco-Friendly Dyeing Techniques

Eco-friendly dyeing techniques in block printing are methods used to apply colour to fabric in a way that does not harm the environment or human health. These techniques focus on using natural, safe and biodegradable materials instead of harsh chemicals. The most common eco-friendly approach is the use of natural dyes, which are made from plants, fruits, vegetables, minerals and insects. Some popular examples include indigo leaves for blue, turmeric root for yellow, madder root for red and pink tones, pomegranate peel for greenish-yellow and walnut shells for brown shades. These dyes are safe to handle, do not cause pollution and break down naturally without leaving harmful residues in water or soil. Another important part of eco-friendly dyeing is the use of natural mordants. Mordants are substances used to help fix the dye onto the fabric so the colour does not wash out. In eco-friendly printing, alum (a type of salt), iron and tannin (from plants like myrobalan or oak galls) are commonly used. These are safer alternatives to chemical fixatives, which can be toxic. Natural mordants help improve the brightness and durability of natural dyes without polluting water sources or harming workers.



Fig. 2.21: Natural Sources of Eco-Friendly Dyes and the Colours They Produce

Eco-friendly dyeing involves reducing the use of water and energy while minimising environmental impact. Many artisans practise cold-water dyeing methods, which conserve energy by eliminating the need to heat water. Fabrics are often soaked in dye baths overnight, allowing colours to set naturally without the use of high temperatures. Water used during the dyeing process is frequently reused, and waste materials such as leftover plant matter or used dye water can be composted or safely disposed of. Instead of chemical detergents, plant-based or herbal soaps are used for washing

fabrics, which helps reduce chemical runoff and water pollution. Along with dyes and mordants, the choice of fabric plays an important role in eco-friendly dyeing. Natural fibres such as organic cotton, silk, and linen are preferred because they absorb natural dyes effectively and are cultivated without harmful pesticides or synthetic fertilisers. This makes the entire process from fibre to finished product more sustainable. Eco-friendly dyeing techniques used in block printing help protect the environment by conserving water and energy, reducing pollution, and supporting traditional, nature-based practices. These methods also promote safer working conditions for artisans and result in vibrant, aesthetically pleasing prints that are environmentally responsible. By learning and applying these techniques, students can actively contribute to environmental preservation while keeping the traditional art of block printing alive.

Activities

Activity 1: Identification of Primary, Secondary and Tertiary Colours

Materials Required

- Block-printed fabric samples
- Plain coloured fabric swatches
- Colour wheel chart
- Drawing sheet / practical record sheet
- Pencil and eraser

Procedure

1. Observe the given block-printed and plain coloured fabric samples carefully.
2. Refer to the colour wheel to recognise different colours used in the fabric.
3. Identify the colours present in each fabric sample.
4. Classify the identified colours into primary, secondary, and tertiary categories.
5. Verify the classification using the colour wheel.

Activity 2: Mixing and Preparation of Secondary and Tertiary Colours

Materials Required

- Poster colours / watercolours (Red, Yellow, Blue)
- Mixing palette

- Paint brushes
- Drawing sheet or thick paper
- Water container
- Cloth or tissue paper

Procedure

1. Take small amounts of two primary colours on the palette.
2. Mix equal quantities to prepare secondary colours:
 - Red + Yellow = Orange
 - Yellow + Blue = Green
 - Blue + Red = Violet
3. To prepare tertiary colours, mix one primary colour with a neighbouring secondary colour.
4. Adjust proportions to observe variations in colour intensity.
5. Apply the prepared colours neatly onto the drawing sheet.

Activity 3: Development of a Shade Card**Materials Required**

- Poster colours / watercolours
- Mixing palette
- Paint brushes
- Drawing sheet / cartridge paper / fabric swatches
- Pencil, ruler, and eraser
- Water container

Procedure

1. Select one or two base colours from the primary or secondary colours.
2. Prepare different tints by gradually adding white to the base colour.
3. Prepare different shades by gradually adding black or a darker colour to the base colour.
4. Create tones by adding small amounts of grey or complementary colour.
5. Apply each variation neatly in small rectangular blocks on the sheet or fabric.
6. Arrange the colours systematically from light to dark.
7. Mount and present the shade card neatly.

Activity 4: To identify and compare the characteristics of natural and synthetic dyes through fabric swatches.

Materials Required:

1. Cotton fabric pieces (10x10 cm)
2. Natural dye sources (e.g., turmeric, indigo, madder)
3. Synthetic dyes (reactive or acid dyes)
4. Mordants (like alum or iron)
5. Bowls, spoons, gloves
6. Labels, stapler or binder

Procedure:

1. Prepare two sets of dyed fabric swatches—one with natural dyes and one with synthetic dyes.
2. Use mordants where needed for natural dyeing.
3. Label each swatch with the dye name, source and fixative used.
4. Staple or bind the swatches into a mini book.
5. Write brief observations on colour richness, texture and eco-friendliness.

What Have You Learned?

A. Fill in the Blanks

1. _____ dyes are made from plant, insect or mineral sources.
2. A _____ is a substance used to fix natural dyes to fabric.
3. Synthetic dyes like _____ dyes are known for their vivid colours and use in cotton.
4. The process of ensuring colours do not fade with washing or sunlight is called _____.
5. _____ printing involves using separate blocks for each colour layer in a design.

B. Short Answer Type Questions

1. What are the advantages of natural dyes in block printing?
2. Explain the three dimensions of colour.
3. Discuss the significance of the colour wheel in design.
4. Describe the sources of natural dyes with suitable examples.

5. Write a short note on synthetic dyes used in block printing.
6. Explain the role of mordants in dye fixation.

C. Long Answer Type Questions

1. Explain the differences between natural and synthetic dyes. Include their advantages and disadvantages.
2. Explain the concept of colour theory and discuss its importance in hand block printing.
3. Discuss colour harmonies and their application in traditional and contemporary block printing.
4. Explain the process of colour application in block printing using natural dyes.
5. Compare natural dyes and synthetic dyes with reference to sources, advantages, and disadvantages.
6. Describe fixation processes and colour fastness in block printing.

Session: 3 Placement of Design

The placement of design plays an important role in enhancing the visual appeal and functionality of a product. In textile and fashion design, strategic positioning of motifs and patterns can completely transform the look of a garment or fabric. Proper design placement ensures balance, harmony and focus within the composition. It helps in highlighting specific area, drawing attention or creating illusions of shape and form. Designers must consider fabric dimensions, garment structure and end use while planning placement. Placement can be symmetrical, asymmetrical, central or all-over, depending on the desired effect. It not only affects aesthetics but also reflects creativity and thoughtful planning. In traditional crafts like hand block printing, placement defines the uniqueness of the product. Understanding the principles of design, placement is essential for every aspiring designer. It lays the foundation for professional and market-ready creations.

2.3.1 Design and its Types

Design is the process of planning and creating something with a specific purpose or function in mind. It involves arranging visual elements like shapes, colours, lines, textures and patterns in an organized way to achieve a desired result. In the context of textiles and fashion, design refers to the creative development of motifs, prints, embroidery or garment styles. A good design combines beauty, function and meaning. It solves problems while also expressing creativity and style. Whether it is a simple pattern on fabric or a complex garment, design gives identity, appeal and value to the final product. The textile art is cherished all over India and also across the globe. Design is the soul of the fabric. Hand block printing, that brings life to the beauty of any fabric, is inspired from age old art forms.

Hand block printing designs are composed of multiple patterns that together form the foundation of the overall composition. More elaborate designs are created by combining smaller motifs and repeating patterns within a block print. Elements such as jaal, bel, buta, and buti are integral components of larger designs and contribute to their visual richness. Each region of India has developed its own distinctive style, texture, and technique of hand block printing, enabling fabric enthusiasts to often identify the geographical origin of a textile simply by observing its design.

In its early stages in India, the tools used for hand block printing were relatively simple and crude. Over time, these tools have evolved and become more refined, significantly enhancing the precision, quality, and aesthetic appeal of the finished prints. Today, the hand block printing industry continues to grow, and the timeless beauty and craftsmanship of hand block printing have established it as a proud and enduring trend in the textile and fashion world.

The types of design are pivotal in the design process. These aspects determine the overall aesthetic, functionality and appeal of the finished piece. The type of design, whether floral, geometric, abstract or traditional motifs, sets the tone for the creation, aligning with the intended cultural, ceremonial or contemporary purpose. For instance, floral patterns in hand block printing often symbolize elegance and, while geometric designs cater to modern tastes.

Types of Designs

Designs for block printing can be derived from a variety of sources, each offering distinctive styles and artistic expressions. These can be broadly categorized as follows:

1. **Natural Designs:** These designs draw inspiration from elements of nature such as trees, leaves, animals, birds and landscapes. They bring a sense of realism and organic charm to the print.



Fig. 2.22: Natural Design

2. **Floral Designs:** Floral patterns include flowers, vines and other botanical elements. These designs are timeless and versatile, often associated with elegance and beauty.



Fig. 2.23: Floral Design

3. **Geometric Designs:** Geometric patterns are based on shapes such as circles, squares, triangles and complex tessellations. They are known for their symmetry, modernity and structured appeal.



Fig. 2.24: Geometric Design

4. **Abstract Designs:** Abstract designs use non-representational forms and patterns, focusing on shapes, colors and textures. These are ideal for creating contemporary and artistic printed pieces.



Fig. 2.25: Abstract Design

5. **Mythological Designs:** Inspired by myths, legends and traditional tales, these designs depict characters, symbols and stories from cultural heritage, adding depth and meaning to printed work.



Fig. 2.26: Mythological Designs

6. **Architectural Designs:** These designs take cues from structural elements like arches, domes, columns and motifs found in architectural landmarks, reflecting cultural and historical significance.

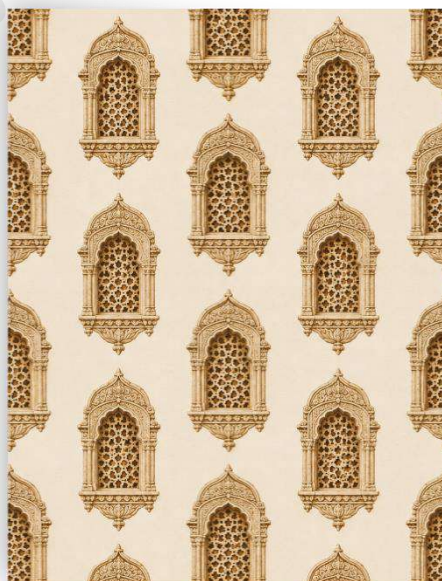


Fig. 2.27: Architectural Designs

7. **Tribal Designs:** These designs are derived from the art forms of indigenous communities, tribal designs are bold and vibrant. They often carry symbolic meanings and represent the cultural identity of a specific region.



Fig. 2.28: Tribal Designs

8. **Stylized Designs:** Stylized patterns involve creative representations of natural or man-made objects with simplified, exaggerated or decorative features. These designs emphasize artistic interpretation over realism.



Fig. 2.29: Stylized Designs

9. **Nursery Designs:** Nursery designs feature child-friendly themes such as animals, toys, alphabets and cartoon-like motifs. They are playful and commonly used in children’s clothing and accessories.



Fig. 2.30: Nursery Designs

2.3.2 Arrangements of Design and Motif

The arrangement of design plays a crucial role in the creation of hand block printing, as it determines the visual flow and harmony of the motifs. Patterns like overall, half-drop, brick and ogee influence how designs are repeated and distributed across the fabric, ensuring a balance between density and open space. A well-planned arrangement enhances the aesthetic appeal, adds rhythm and movement and maintains proportionality in the composition. This thoughtful organization not only elevates the craftsmanship but also aligns the design with its intended purpose, whether for traditional elegance or contemporary sophistication. In this session we will learn all the above aspects of design process. A motif is a dominant, underlying theme or a recurring idea in any artistic work. In visual arts and design, a motif can also be a decorative element created using repetitive patterns. A design often begins with a motif, which is consistently repeated at regular intervals to form a cohesive and visually appealing pattern.

This emphasizes the creative aspect of a work. Repetition of a motif forms a design. A motif may be a singular element or a composition of repeated elements, creating a visual rhythm that can be arranged in various ways. One of the most important aspects of any design is the “family” to which the motif belongs, such as a rose, a square, or a simple paisley. A motif can serve as a distinguishing element that sets a design apart from others. It can be used alone or repeated, and motifs can be arra

Arrangement of Motif

There are several ways to arrange motifs, depending on the desired effect. A motif can be placed widely or closely spaced on the base, creating a neat and balanced composition. It can be arranged randomly or aligned in rows to form stripes or grids. This arrangement of motifs is commonly referred to as a repeat, which establishes rhythm and continuity in the design.

One of the most effective ways to ensure correct motif placement is to drape the garment on the person who will wear it, allowing you to see the actual position, center, and flow of the design. Additionally, the principles of design—such as balance, proportion, rhythm, harmony, and emphasis—can be applied to achieve a visually pleasing and well-composed layout.

The placement of design is dependent on many variables like:

- Customer preference
- Style, size, fabric and base colour of the garment/product
- Shape, size and purpose of the garment
- Creating an overall pleasant and satisfactory appearance.

Placement of designs can be done in many different ways on garments or apparels:

- Equidistant or block pattern:** It is one of the simplest repeat patterns which is formed by placing the motif in a basic grid repeat. If the block repeat is used in a wrong way, it can appear as a complete haphazard. It looks more elegant with simple floral and geometric motifs.

It is considered as one of the most common and simple forms of repeat and is also known as full drop or block surface pattern repeat.

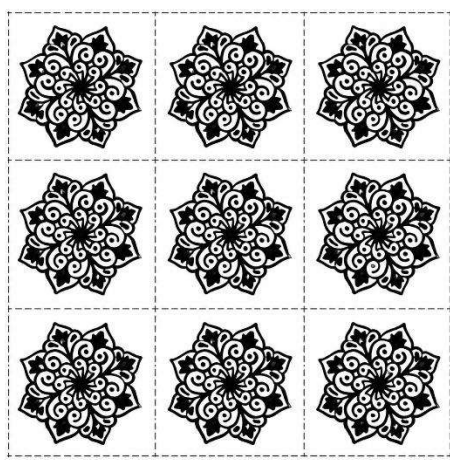


Fig. 2.31: Equidistant or block pattern

- Half Drop Pattern Repeat:** Half-drop repeats are commonly used in surface and fabric design. In this type of repeat, the motif is arranged

in vertical columns, with each alternate column shifted downward by half the height of the motif. This vertical offset creates a more fluid and less formal appearance compared to straight repeats, adding movement and visual interest to the design.

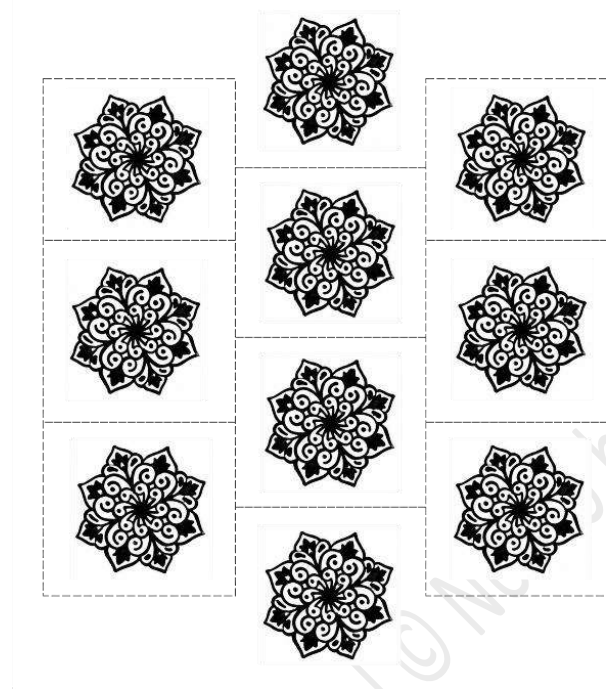


Fig. 2.32: Half Drop Pattern Repeat

- iii) **Brick Pattern Repeat:** This pattern is similar to the vertical half drop pattern. Here the motif is placed in a horizontal column format instead of vertical column. The repeat unit is offset by half in the next horizontal row resembling a brick wall. This brick repeat also allows a design to look less formal.

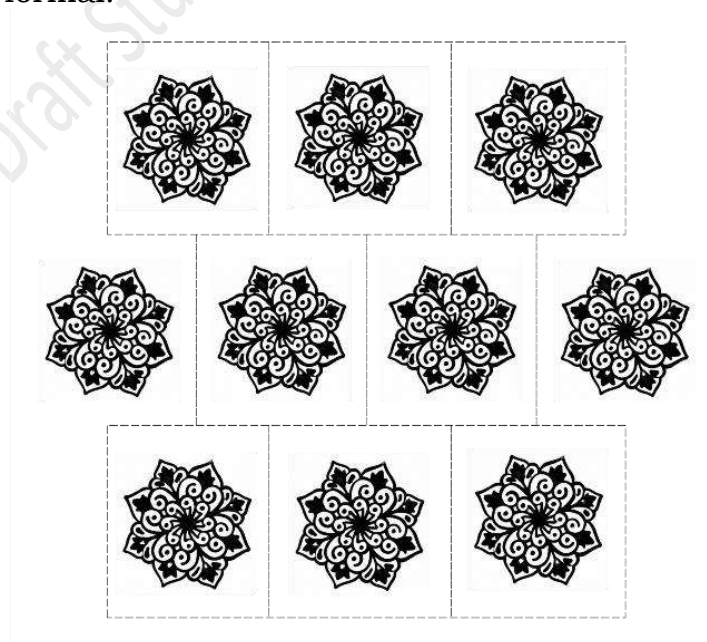


Fig. 2.33: Brick Pattern Repeat

- iv) **Mirror Repeat:** As the name itself depicts, in this type of repeat, the motif is arranged in mirror image form. It provides an interesting look if done correctly. To create this repeat, the motif is duplicated horizontally and vertically to get an overall mirrored repeat on the surface or design.

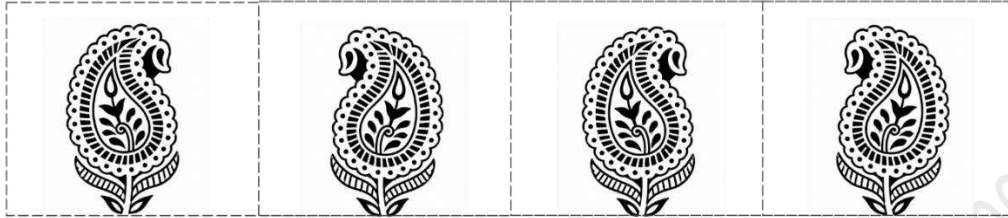


Fig. 2.34: Mirror Repeat

- v) **Ogee Pattern Repeat:** An ogee repeat is much similar to the diamond repeat in shape but ogee is more rounded on two sides with the other two sides coming to points. In a diamond repeat, the ogee shapes in a half-drop or half-brick arrangement or with more complex overlaps and combinations of smaller motifs.

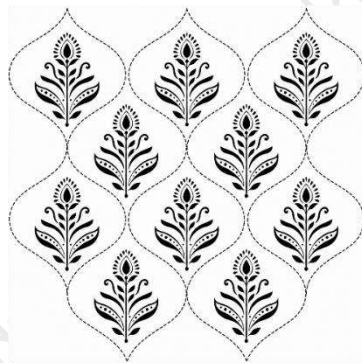


Fig. 2.35: Ogee Pattern Repeat

- vi) **Diamond Pattern Repeat:** The diamond repeat is a repeat of pattern in diamond shapes and is frequently used in embroidery work and textile design. It is created by repeating diamond shape in the grid format resulting in the elements to be arranged in a diagonal row format.

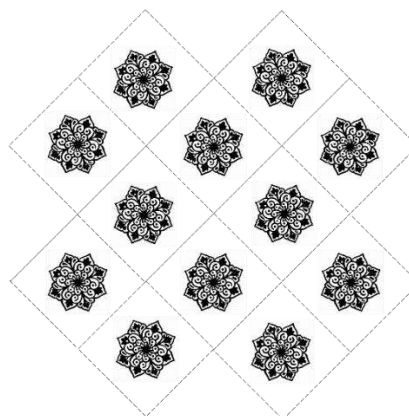


Fig. 2.36: Diamond Pattern Repeat

- vii) **Tossed/ Random Pattern Repeat:** A tossed/random surface pattern repeat has scattered elements of design in a repetitive form. The elements of the design are scattered within the repeat unit in irregular manner. The unstructured nature of a tossed repeat results in an organic or non-linear design. Even the size of the repeated motif in the design can be irregular.

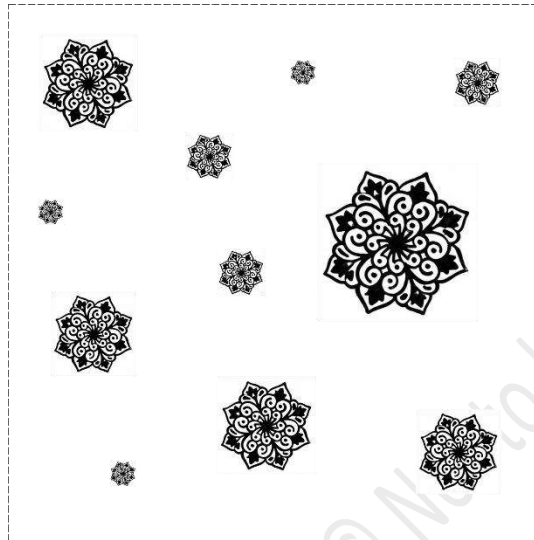


Fig. 2.37: Tossed/ Random Pattern Repeat

- viii) **Stripe Pattern Repeat:** The stripe pattern is a layout with a strong vertical, horizontal or diagonal line format. It could be made with a single motif or a stripe format with single colour or a palette, for a totally different look.

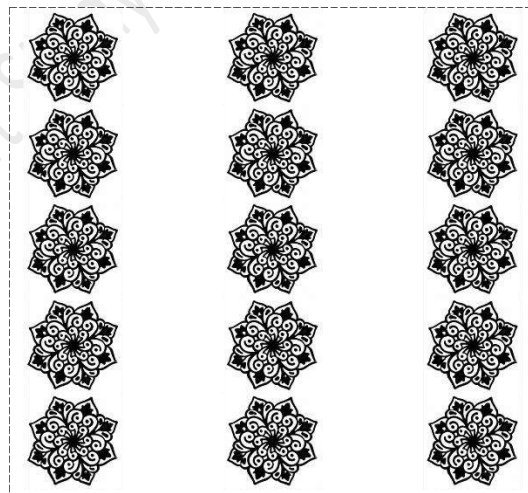


Fig. 2.38: Stripe Pattern Repeat

- ix) **Dot Repeat:** This arrangement is also known as over-all pattern. It is similar in its simplicity to the stripe repeat, the dot repeat is as it sounds – an arrangement of dots which are not dots always but they can be other small motifs arranged with a bit of space between them which appear like dots, as shown below:

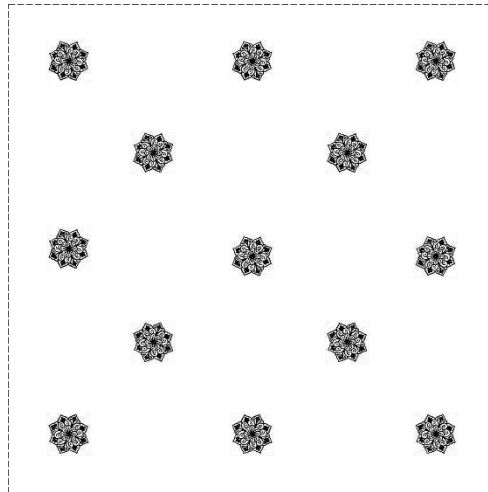


Fig. 2.39: Dot Repeat

It is important to choose a right pattern for repeat in the design as each pattern has its own grace and charm.

The selection of repeat will also depend on the product that is designed and what one is looking for in their end product. But these repeats give an opportunity to experiment different variations in the placement of motifs which helps in achieving a unique variety of surface design patterns.

Principles of design such as repetition and rhythm play an important role in the placement of designs on garments. Repetition refers to the repeated use of a single motif, shape, or element, while a pattern is created through the organised combination of these design elements. For example, in garment design, a single block motif can be used in multiple areas to create visual harmony and continuity. In this case, a peacock motif has been selected and its variations have been applied in different ways—along the neckline, on borders, as bootas, in a drop repeat arrangement, and by enlarging or reducing its size as required. This thoughtful repetition and variation create rhythm in the design, making the garment visually balanced, cohesive, and aesthetically appealing.

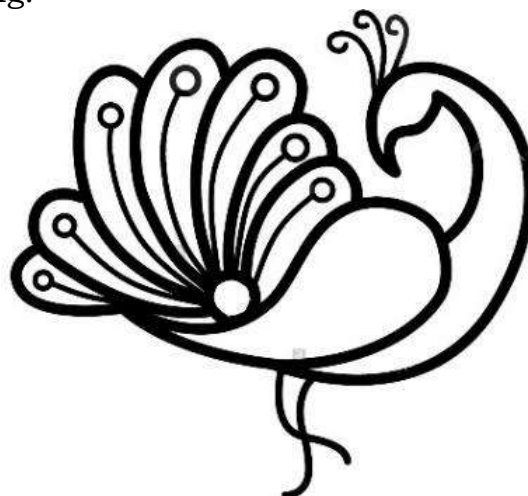


Fig. 2.40: Motif

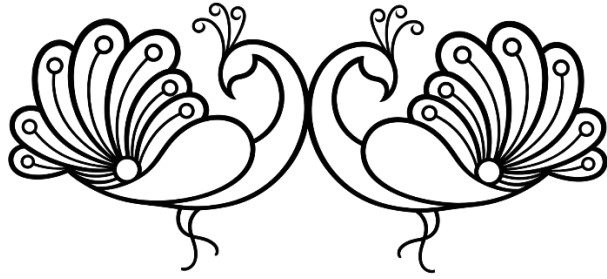


Fig. 2.41: Motif for embroidery (Mirror image)

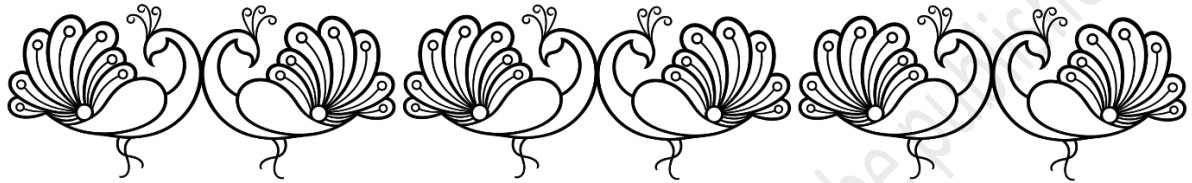


Fig. 2.42: Motif repeated to form a border design

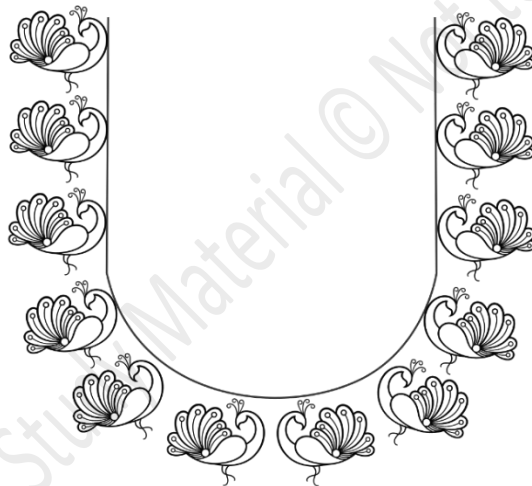


Fig. 2.43: Motif repeat design on neckline

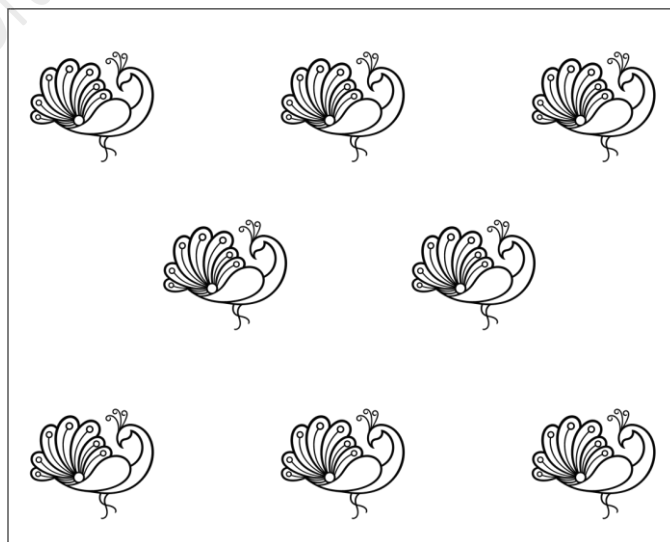


Fig. 2.44: Motif placement for all over design

Thus, from the above example we can clearly understand and develop our own ways of design placement on various garment areas. Other than the above ways, we can also place the designs in unique arrangements as per the customer requirement or designer's creativity.

Activities

Activity 1: Choose a motif and experiment with different placement styles, such as half-drop, mirror repeat and border design.

Materials Needed: A3 sheet, pencil, eraser, ruler, markers

Steps:

1. Begin by drawing a $\frac{1}{2}$ inch margin around the edges of the A3 sheet.
2. Within the sheet, create a 3-inch by 3-inch box and place your chosen motif inside it. Then, arrange the motif in various placement styles, including mirror repeat, half-drop and border design, as discussed earlier in the session.
3. Use a marker to outline the designs clearly.

Activity 2: Exploring Motif Placement on Fabric

Materials Required:

- 6–8 plain cotton fabric pieces (approx. 15" × 15")
- Neel (indigo powder)
- Thick Cotton thread
- All pins
- A few small wooden blocks – border, buti, etc,
- Paper sheets

Instructions:

1. Spread the cotton fabric sample on the table and secure the corners with all pins.
2. Mark the various motif placements using a buti block – block, half-drop, brick, mirror, stripes, etc., on fabric samples using neel and thread.
3. Perform block printing on the fabric on the markings drawn.

What Have You Learned?

A. Fill in the blank

1. The _____ pattern repeat involves placing the motif in a grid format, where the motif is placed equidistantly, often used in simple floral and geometric motifs.
2. The _____ repeat pattern is formed by placing the motif in a vertical column format and offsetting it by half in the next row, making the design look less formal.
3. The _____ pattern repeat resembles a brick wall, with the motif placed in a horizontal column format and offset by half in the next row.
4. A _____ pattern repeat arranges the motif in mirror image form, creating a symmetrical design.
5. The _____ pattern repeat involves repeating diamond shapes in a grid format, resulting in elements arranged in a diagonal row format.

B. Short Answer Questions

1. What is the role of design arrangement in hand block printing?
2. Define "half drop pattern repeat" and its significance in design arrangement.

C. Long Answer Questions

1. Explain the different types of design arrangements in block printing and how they impact the visual appeal and functionality of the final product?
2. Discuss the importance of selecting the right type of repeat pattern (like mirror, brick or ogee) in block printing and how it affects the aesthetics of the fabric.

Module 3	Tools and Materials
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Introduction

In the handicraft industry, where creativity converges with precision, it is essential to understand the working area, machines, tools and materials which will be used throughout to optimize the work output and maintain good conditions. The handicraft industry is a dynamic and intricate sector, encompassing a multitude of processes, from design and fabrication to manufacturing and distribution. A thorough understanding of the tools allows for proper handling, reducing the risk of errors and accidents during production amidst these intricate products created by handicrafts, the safety of workers and the assurance of a hazard-free environment stand as paramount concerns. The first step toward establishing a hazard-free working area is the identification and assessment of potential risks. The diverse nature of activities within the handicraft industry demands a comprehensive analysis of processes, machinery and materials involved. This process involves a collaborative effort, where experts from various domains - including engineering, occupational health and safety - join hands to scrutinize each facet of the production pipeline. From sharp-edged machinery to chemical substances used in dyeing and finishing, every element is evaluated for its potential to cause harm. Once identified, these hazards are meticulously documented, forming the basis for devising strategies to mitigate risks and create a safer working environment.

Key to achieving a hazard-free working area is the implementation of robust safety protocols. These protocols encompass a spectrum of measures, ranging from providing personal protective equipment (PPE) to imparting extensive training to the workforce. Adequate PPE, such as gloves, goggles and ear protection, shields workers from direct exposure to potential hazards. Regular training sessions, on the other hand, empower employees with knowledge about the proper usage of machinery, handling of chemicals and adherence to safety procedures. Such training not only prevents accidents but also cultivates a sense of responsibility among workers to uphold safety standards. In the realm of the handicraft industry, machinery and equipment play a pivotal role. To ensure the safety of workers, regular maintenance of machinery is imperative. This includes routine inspections, timely repairs and adherence to recommended usage guidelines. Additionally, the layout of the workspace should be meticulously planned to facilitate ease of movement, reduce congestion and minimize the risk of tripping or collision. Well-marked emergency exits and fire evacuation plans further contribute to a hazard-free environment. In tandem with preventive measures, the industry must also adopt a proactive stance toward addressing emergencies. This involves devising contingency plans for various scenarios, from bad health to machinery malfunctions. Regular drills ensure that workers are well-prepared to respond effectively in crisis situations.

Sustainability, a growing concern across industries, also intertwines with safety in the handicraft sector. Embracing sustainable practices, such as eco-friendly dyeing methods and responsible waste management, not only minimizes environmental impact but also contributes to a safer workspace. For instance, the reduction of hazardous chemicals not only benefits the environment but also reduces the risk of exposure for workers.

Learning Outcomes	
After completing this module, you will be able to:	
• Elaborate different tools and material used for hand block printing • Demonstrate safe handling of tools and materials • Analyze tools and material according to work flow standards	
Module Structure	
Session:1	Tools and Materials for Hand Block Printing
Session:2	Safe Handling of Tools and Materials
Session:3	Tools and Materials according to Work Flow Standards

Session: 1 Tools and Materials for Hand Block Printing

Knowing about tools and materials before making any product is essential for ensuring quality, safety and efficiency. A thorough understanding of the tools allows for proper handling, reducing the risk of errors and accidents during production. Similarly, choosing the right materials ensures the final product is durable, functional and suited to its intended use. This knowledge also helps in minimizing waste and controlling costs, as it prevents the misuse of resources and avoids unnecessary expenses. Moreover, being familiar with tools and materials supports better planning and decision-making, allowing for smoother workflow and time management. It also fosters creativity and problem-solving, enabling adjustments or improvements during the design and manufacturing process. Ultimately, having this knowledge ensures that the product meets industry standards and fully fills its purpose effectively. This session delves about the tools and material used for making hand block printing.

3.1.1 Tools used for making Hand Block Printing

Hand block printing requires a combination of traditional and modern tools to create intricate patterns on fabric. Here are the essential tools used in the process:



Fig. 3.1: Tools for Hand Block Printing

1. BLOCKS

A block is a carved piece of wood, metal, rubber, or linoleum with a raised design that is dipped in dye or pigment and pressed onto fabric to transfer a pattern. Here are the main types of blocks used for hand block printing:

Wooden Blocks (Printing Blocks)

Wooden blocks are the traditional choice for block printing. They are typically made from durable hardwoods like teak, sheesham (Indian rosewood) or sycamore. These woods are favoured for their ability to withstand the pressure of printing and their capacity to hold fine details. Skilled artisans carve intricate patterns into the wooden blocks, creating reusable and enduring tools. They are made from teakwood or sheesham wood, hand-carved with intricate designs.

Soaked in oil for days to prevent cracking and ensure longevity. Variety of different blocks made for outline, filling and detailing like Outline Block (Rekh Block) which is used for the first impression (main outline). Filler Block (Datta Block) which fills the spaces within outlines with colour or patterns. And background block (Gadh Block) which is used for printing background colours or larger areas.



Fig. 3.2: Wooden Blocks

Linoleum Blocks

Linoleum blocks are a modern alternative to wood. They are easier to carve, making them a great choice for beginners and for designs requiring fine detail. Linoleum is flexible and can be cut into intricate shapes, providing versatility in design.



Fig. 3.3: Linoleum Blocks

Copper & Brass Blocks

Copper & Brass as metals are excellent for carving intricate and dotted designs. Particularly for intricate designs brass strips are used as an alternative to carved wood as the metal edges achieve a crisp and even printed line. Copper and Brass wires of 16-to-18-gauge number are used. The wires are straightened, sliced and hammered into the wood piece according to the design. The block is then filed for smoothening and polishing. Brass blocks making is lengthy and specialised craft and so practiced by only few. These are up to four times more costly than woodblocks; the quality of print and extended life of the blocks, however justifies this expense. Copper blocks yield a more mechanical and hardened effect than those wood and metal blocks, as they give sharp outlines of uniform thickness. Solid masses of colour cannot be achieved with copper blocks as they cannot pick up colour the way wooden blocks can and hence their use is restricted to outlines and delicate touches.



Fig. 3.4: Copper & Brass Blocks

Cast Metal Blocks

Cast metal blocks are difficult to make and are not used much. They are not suitable for solid masses of colour as just like copper blocks, they too give an uneven impression. These are used for batik printing in South East Asia.



Fig. 3.5: Cast Metal Block

Tools for Making Blocks

For all these operations, at each stage, depending on the design to be carved, a different tool is required. Some of the tools used are the same as the ones used for carpentry. However, many variations in tools are also there to make them appropriate for use in woodblock carving. All the tools are hand operated and even today no machine or electric tools are used. (The local names mentioned here are the ones used in Pethapur Gujarat).

Cutting tools for making blocks

- **Vansalo** (adaze) - Vansalo is a kind of an axe used to cut the wood into small pieces.



Fig. 3.6: Vansalo

- **Farasu** (flat blade) - Farasu is a flat blade with a wooden handle used to tear the wood into required thickness.



Fig. 3.7: Farasu

- **Benso/Bhido** (vice) - Benso is a heavy tool made of iron to hold the wood piece in a fixed position so that it does not shift during the cutting process.

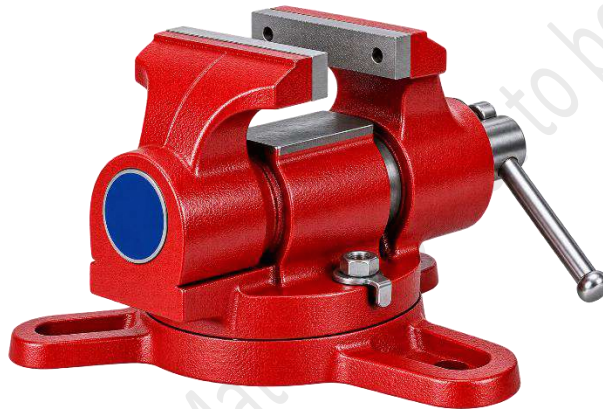


Fig. 3.8: Benso

- **Hand Saw** - Aari/Karvati is a bendable blade with saw edges to cut the wood piece into desired sizes of the block.



Fig. 3.9: Hand Saw

Smoothing tools for making block

- **Small Hand Saw** - Masharvaniaari is a flexible blade made of iron to remove soft wood from the surface by the means of scraping.



Fig. 3.10: Small Hand Saw

- **Randho** (carpenter's plane) - Randho is a wooden block with a steel blade fixed at an inclination of 45 degrees to remove the soft wood and make the surface even.



Fig. 3.11: Randho

- **Chaptikanas** (flat file) - Chaptikanas is a flat narrow iron piece with grained surface to abrade the wood.



Fig. 3.12: Chaptikanas

- **Kakro/Lissopathar** (smoothing stones) - Kakro (coarse grained) and lissopathar (fine grained) are types of river stone used to give a fine polish to the wood piece. This is similar to sand paper polishing.



Fig. 3.13: Kakro

Drawing tools for making block

- **Chalk** - Khari is applied with water on wood to form a white layer so that the design traced on it is clearly visible.



Fig. 3.14: Chalk

- **Tarbaiyo (table)** - Tarbaiyo is a table used as a base for carving.



Fig. 3.15: Tarbaiyo Table

- **Tinchaniyun** (a kind of chisel) - Tinchaniyun is used to transfer the design from paper to the wood piece.

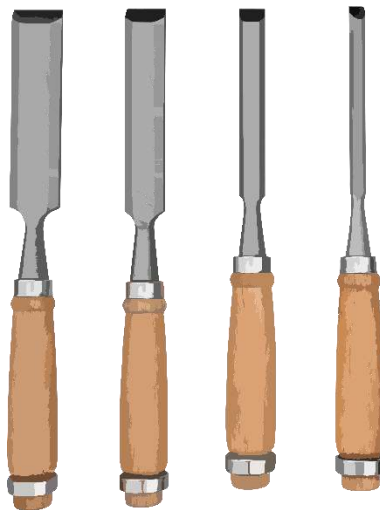


Fig. 3.16: Tinchaniyun

- **Mallet** - Thapdi is a piece of strong wood used to hammer the tinchaniyun to mark design onto wood piece.

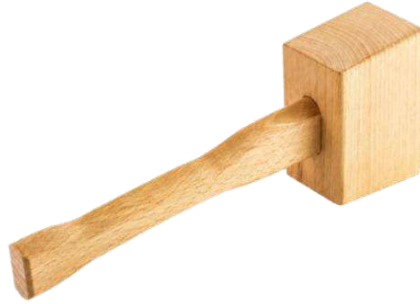


Fig. 3.17: Mallet

- **Nails** - Nails are fixed at all four corners of the block, known as the joining/registration points.



Fig. 3.18: Nails

- **Hammer** - A hand tool with a heavy head and handle, used for striking objects or chisels during carving and shaping work.



Fig. 3.19: Hammer

Carving tools for making block

Carving tools are essential for creating the design on the blocks. They come in various shapes and sizes, allowing for different types of cuts and details. Common tools include gouges, chisels and knives.

- **Havad** (drilling tool): Havad is utilised to remove the negative part of the design before actual carving.

- **Chanpanu** (head/top): Chanpanu is used to hold the hand drill.
- **Kamathi**-Kamathi is a bow kind of a tool with rope tied at both sides of it to help the drilling process.
- **Tankana** (different chisels used for different shapes): Tankanas are carving tools available in different shapes and sizes.
- **Farsi** (chisel): Farsi is a file available in different sizes used to make shallow cuts according to the space between the motifs.

2. PRINTING PAD OR MAT

A printing pad or mat is an important component in the hand block printing process, as it provides a soft and even surface for pressing the block onto the fabric. This cushioned base helps ensure that pressure is distributed uniformly across the block, allowing the design to transfer clearly and consistently. Additionally, it prevents uneven ink distribution and blotching, which can occur if the surface beneath the fabric is too hard or irregular. Using a proper printing pad enhances the quality and sharpness of the printed design.

3. BRUSHES AND ROLLERS BRAYER

Brushes, rollers, and brayers are essential tools in hand block printing that help transfer dye or ink evenly onto the carved block surface. These tools spread the color uniformly across the block's raised design, ensuring the entire pattern is coated with the right amount of pigment. Using brushes or rollers, artisans can achieve a crisp, clean impression when the block is pressed onto the fabric, resulting in sharp, well-defined prints.

4. PRINTING TABLE

In hand block printing, a long, padded table typically ranging from 10 to 20 feet in length is used as the primary workspace for printing. This table is covered with layers of cloth that provide a smooth and even surface. The padding underneath plays a crucial role by absorbing excess dye and offering stability during the printing process. This ensures that the impressions made by the carved blocks are clear, consistent, and free from smudges, allowing for high-quality and precise printing on fabric.

5. COLOR TRAYS & BRUSHES

In hand block printing, wooden or metal trays are used to hold the prepared dye mixtures. These trays serve as shallow containers where the dye is kept ready for use during the printing process. Brushes or rollers are then used to spread the dye evenly onto the surface of the carved printing block. This ensures that the entire design is coated uniformly with colour, allowing for clean, sharp, and consistent impressions when the block is pressed onto the fabric.

6. TROLLEY OR DRYER FOR DRYING

A trolley or dryer is used in hand block printing to facilitate the drying of the printed fabric. After the printing process, the fabric needs to be properly dried before any further steps like washing or fixing the colour are carried out. Traditionally, the fabric is sun-dried by spreading it out in open areas, allowing natural heat to set the dye. In modern setups, heat dryers or trolleys are used to speed up the drying process and ensure uniform drying, especially in large-scale or commercial production environments.

7. WASHING & FINISHING TOOLS

After the printing process, the fabric is washed thoroughly in flowing water or tanks to remove any excess dye and ensure that only the fixed design remains on the material. This step is essential for improving the colourfastness and overall quality of the print. Once washed and dried, the fabric undergoes finishing processes such as ironing and calendering. Calendering involves rolling the fabric under high pressure using heated rollers, which smooths the surface and enhances the fabric's sheen, giving it a polished and refined appearance.

3.1.2 Materials used for Hand Block Printing

Hand block printing requires a variety of materials to ensure high-quality prints and long-lasting designs. Here are the key materials used in the hand block printing process:



Fig. 3.20: Materials for Hand Block Printing

1. FABRIC (Printing Surface)

Hand block printing typically uses natural fabrics such as cotton, silk, linen, or khadi as the printing base. These fabrics are chosen for their ability to absorb dye effectively and hold intricate patterns well. Before the printing process begins, the fabric is thoroughly washed and treated to remove any impurities or starch.

This pre-treatment enhances dye absorption, ensures better colour fastness, and results in clearer and more vibrant prints on the final textile. Hand block printing is traditionally done on natural fabrics that absorb dyes well and provide a smooth printing surface. The most commonly used fabrics and their types are as follows:

a) Cotton: (Most common & versatile) widely used for its absorbency and smooth texture. It takes up dye well and is available in various weights and weaves.

- **Cambric Cotton** – Lightweight and soft, ideal for dress materials.
- **Mulmul (Muslin)** – A fine, delicate cotton, often used for dupattas and sarees.
- **Voile Cotton** – Lightweight and semi-transparent, perfect for summer wear.
- **Poplin Cotton** – Slightly thicker with a smooth finish, used for shirts and kurtas.
- **Chanderi Cotton** – A blend of silk and cotton, has a subtle shine, used for sarees and suits.

b) Silk: Used for luxurious, glossy and detailed prints. Silk is prized for its luxurious texture and sheen. It absorbs dye beautifully, resulting in rich, vibrant prints.

- **Tussar Silk** – Textured silk with a golden sheen.
- **Chanderi Silk** – Lightweight with a translucent look, ideal for sarees and dupattas.
- **Crepe Silk** – Soft and flowy, used for modern printed designs.
- **Matka Silk** – Coarse-textured silk, giving a rustic appeal to prints.

c) Linen: Linen is a durable, absorbent fabric that takes dyes well and features a natural, rustic texture that adds character to prints.

- **Pure Linen** – Made from flax fibers, highly absorbent, used for shirts, sarees and home décor.
- **Cotton-Linen Blend** – A mix of cotton and linen for softness and strength.

d) Khadi: Khadi is hand-spun, hand-woven and eco-friendly.

- **Cotton Khadi** – Hand-spun and handwoven, offering a rich texture.
- **Silk Khadi** – A mix of silk and khadi, used for elegant outfits.
- **Woolen Khadi** – Less common but used in winter collections.

e) Rayon & Viscose: (Soft & Affordable) sometimes used for modern designs. These fabrics offer a balance of absorbency and durability, making them suitable for various applications.

- **Rayon Fabric** – A semi-synthetic fabric that mimics silk but is more affordable.
- **Viscose Blend** – Often mixed with cotton or silk for a smooth drape and better print absorption.

f) Wool & Pashmina: (For Cold Weather Printing)

- **Wool blends** – Used in block-printed shawls and stoles.
- **Pashmina** – Premium handwoven wool, sometimes printed with delicate motifs.

g) Chiffon and Georgette: Occasionally used for block-printed sarees and dupattas due to its light, crêpe-like texture. Chiffon is a lightweight, sheer and airy fabric with a fine, transparent weave and a soft, flowing drape. Georgette, also lightweight, has a slightly crêpe-textured, grainy surface and is less sheer and stronger than chiffon, giving it a fluid yet more structured drape.

2. DYES & COLOURS

In hand block printing, different types of dyes are used depending on the desired effect and fabric type. Vegetable dyes are natural dyes made from flowers, leaves, roots, and minerals, and are known for their eco-friendly properties and earthy tones. Chemical dyes, on the other hand, are synthetic and widely used for producing brighter, more vibrant, and long-lasting prints. For dark-coloured fabrics, discharge dyes are employed, which work by bleaching out specific areas of the fabric to create patterns, allowing lighter designs to appear on dark backgrounds. Each type of dye contributes uniquely to the aesthetic and durability of block-printed textiles.

- **Pigments:** Pigments are widely used in hand block printing due to their vibrant colours and long-lasting properties. They stay on the surface of the fabric rather than being absorbed, which helps maintain the sharpness and brightness of the printed designs over time. Available in

a wide range of colours, pigments are versatile and suitable for printing on various types of fabrics, including cotton, silk, and blends. Their ease of use and durability make them a preferred choice for both traditional artisans and modern textile printers.

- **Natural dyes (eco-friendly and traditional):** Natural dyes derived from plants, minerals and other natural sources, are eco-friendly and have been used for centuries. Common natural dyes include indigo, turmeric and madder root.
 - **Indigo (blue)** – From *Indigofera tinctoria* plant.
 - **Madder (red)** – Derived from madder roots.
 - **Harda (yellow)** – From the myrobalan fruit.
 - Pomegranate peels, turmeric and iron rust for other shades.
- **Synthetic dyes (for brighter and more durable prints):** Synthetic dyes are man-made dyes created through chemical processes, and they play a significant role in modern hand block printing. These dyes are known for their wide range of vibrant colours, consistency and excellent colourfastness, meaning they resist fading even after multiple washes. Unlike natural dyes, synthetic dyes offer greater control over shade, intensity, and repeatability, making them ideal for large-scale textile production. They are especially effective on cotton and other natural fibers and are often used when bright, bold, and long-lasting colours are required in block-printed fabrics.
 - **Pigment dyes** – Used for surface printing.
 - **Reactive dyes** – Strong and long-lasting.
- **Dischargeable dyes:** Dischargeable dyes work by removing the colour from the fabric, leaving a lighter or white design. This technique is often used on dark fabrics to create high contrast prints.

3. MORDANTS (Colour Fixing Agents)

Mordants are chemical substances used in the process of dyeing fabrics, especially with natural dyes, to help fix the dye onto the fiber. They form a chemical bond between the dye and the fabric, making the colors more permanent, vibrant, and colorfast (resistant to washing and light). Mordants help dyes bond with fabric and enhance colour vibrancy. Common mordants include:

- **Alum (Potassium aluminum sulphate)** – Used for red and yellow shades.
- **Ferrous sulphate (Iron salt)** – Produces deep black or brown shades.
- **Copper sulphate** – Used for greenish hues.

- **Tannins (from harda or pomegranate peels)** – Prepares fabric for dye absorption.

4. RESIST MATERIALS (For Special Techniques like Dabu Printing)

In traditional textile printing techniques such as Dabu, resist materials are used to create intricate patterns by preventing the dye from penetrating certain areas of the fabric.

Dabu printing is a unique hand block printing technique originating from Rajasthan, India. In this method, a special mud paste, known as Dabu paste, is carefully applied to the fabric using wooden blocks or by hand. This paste acts as a resist, blocking the dye from colouring those specific areas. The Dabu paste is traditionally made using a combination of clay, wheat chaff (or gum), and lime, which gives it the right consistency and adhesive properties. Once applied and dried, the fabric is dyed, and the paste is later washed off, revealing beautiful undyed patterns against a coloured background.

On the other hand, Batik block printing uses wax as the resist medium. In this process, melted wax is applied to the fabric in specific designs using blocks or a stylus (tjanting). The waxed areas resist the dye when the fabric is immersed in the dye bath. After dyeing, the wax is removed by boiling or scraping, resulting in intricate, often multi-coloured patterns. Both these resist printing methods highlight the richness of India's textile heritage and the ingenuity of using simple natural materials to produce artistic effects.

5. GUM & BINDERS (Fixing Agents)

Gums and binders, also known as fixing agents, play a crucial role in the process of textile printing and dyeing. Their primary function is to help dyes or pigments adhere firmly to the fabric, ensuring improved colour fastness, that is, the ability of colours to withstand washing, rubbing, and exposure to sunlight.

Natural gums like Arabian gum (also called gum Arabic) and Guar gum are commonly used in traditional printing methods. These gums are plant-based and are valued for their sticky, adhesive properties. When mixed with natural dyes or pigments, they help the colour remain on the surface of the fabric during and after the printing process.

In modern pigment printing, synthetic fixative chemicals or binders are widely used. These chemical agents form a film that locks the pigment onto the surface of the fabric. This is especially important because pigments, unlike dyes, do not chemically bond with the fabric fibres on their own. The binder acts as a bridge between the pigment and the textile, ensuring the print stays vibrant and durable even after repeated use. Whether using natural gums in traditional methods or chemical fixatives in modern techniques, these binding agents are essential for producing high-quality, long-lasting printed textiles.

6. WATER & WASHING AGENTS

Water and washing agents are vital components in the textile dyeing and printing process, particularly during the post-dyeing phase. Once the dyeing or printing is complete, it is essential to wash the fabric thoroughly to remove any excess or unbonded dyes that may remain on the surface. The use of clean running water is crucial in this process. It helps rinse out the surplus dye without allowing it to re-deposit onto other parts of the fabric, which can cause staining or uneven colouring.

In traditional practices, fabrics are often washed in flowing rivers or large water tanks to ensure thorough cleaning. Alongside water, mild detergents or natural soaps are used as washing agents. These substances assist in lifting and removing any dyes that have not chemically bonded to the fibres. Using gentle cleaning agents ensures that the fabric is not damaged and the colours remain vibrant. In eco-conscious and traditional practices, natural soaps made from plant oils or ash-based cleansers are preferred to maintain fabric quality and environmental balance. Overall, proper washing with appropriate agents is essential to achieve colourfastness, prevent dye bleeding, and enhance the overall finish of the fabric.

Activities

Activity: Exploring Tools and Materials Used in Hand Block Printing

Objective: To familiarize students with the essential tools and materials used in hand block printing.

Materials Required:

- Sketch pens/markers
- Scissors and glue
- Labels or tags
- Chart Paper
- Reference images or real tools and materials used for hand block printing

Procedure:

Step 1: Introduction & Briefing

- The teacher introduces the various tools and materials used in the hand block printing process.
- Show real tools if available or use images/videos for explanation.
- Briefly explain the purpose and use of each item.

Step 2: Video Presentation

In this step, students watch short, focused videos that visually explain key stages of hand block printing, such as preparing dye paste and printing pad and the process of block printing

Step 3: Hands-On Observation

- Divide students into small groups.
- Let each group observe and handle the actual tools/materials or their samples.
- Encourage them to touch, compare, and ask questions about how each item is used.

Step 3: Chart-Making Activity

- Provide each group with chart paper and art supplies.
- Ask them to:
 1. Create a visual chart of at least 6–8 tools/materials.
 2. Paste or draw pictures of each item.
 3. Label them with names and short descriptions of their function.

Step 4: Presentation

- Each group presents their chart to the class.
- Encourage discussion, comparisons, and sharing of insights.

Step 5: Recap and Reflection

- Summarize the learning outcomes of the activity.
- Ask students reflective questions like:
 - “Which tool was most interesting to you?”
 - “What would happen if one of these materials was missing in the printing process?”

What Have You Learned?**A. Fill in the Blanks**

1. The tool used to remove the negative part of the design before carving is called _____.
2. A _____ or padded surface ensures even pressure and helps transfer the block design clearly onto the fabric.
6. In hand block printing, _____ or rollers are used to spread dye evenly on the block’s surface.

7. _____ cotton is a fine, delicate cotton fabric often used for dupattas and sarees in hand block printing.
8. _____ dyes are derived from plants, minerals, and other natural sources and are known for their eco-friendly properties.

B. Short Answer Questions

1. What is the function of a printing pad or mat in hand block printing?
2. Name any three carving tools used in hand block printing and mention their purpose.

C. Long Answer Questions

1. Explain the role of brushes, rollers, and brayers in the hand block printing process.
2. Describe the tools and materials used in the post-printing process of hand block printing.

Session: 2 Safe Handling of Tools and Materials

Safe handling of tools and materials is an essential part of the hand block printing process. This traditional craft involves the use of sharp tools, wooden blocks, dyes and chemicals that require careful attention and handling. Knowing how to properly use, store and maintain these materials not only ensures the safety of the artisan but also helps in preserving the quality of the tools and the printed fabric. In this session, learners will understand the correct practices for handling printing blocks, cutting tools, dyes and other materials to prevent accidents and maintain a clean organized and efficient workspace.

3.2.1 Handling of tools & materials

By reducing, combining or eliminating unnecessary movement, material handling processes can be simplified. For example, use of gravity to help in movement of material with minimum manual force. The following points should be considered:

- i. **Ergonomics:** The working conditions and facilities should be adapted to support the abilities of a worker, helps in reducing repetitive and strenuous manual labor movements and also emphasize on safety practices. Moreover, the work area should have plenty of space for the task to be accomplished; it should also be clean and ventilated.
- ii. **Space utilization:** Focus must be placed on maximizing efficient use of space within a facility. It is important to keep work areas organized and free of unwanted clutter. One should try to maximize density in storage areas without compromising accessibility and flexibility and to utilize overhead spaces efficiently.
- iii. **System:** All the movements of packages and storage should be coordinated throughout the production cycle i.e. from receiving, inspection, storage, production, assembly, packaging, unitizing and order selection, to shipping, transportation and the handling of returns.
- iv. **Environment:** We should take into consideration the use of energy and its potential environmental impact while designing the system and including/implementing the practices of reusability and recycling processes wherever possible. We should also try to incorporate safe practices for handling of hazardous materials.
- v. **Automation:** Automation should be introduced to improve operational efficiency, responsiveness, consistency, predictability, automated material handling technologies as and when feasible or possible and wherever required.

Handling of Tools

- Wooden Printing Blocks should be handled gently. Do not drop or hit them to avoid breakage or misalignment.
- Clean blocks with a soft brush or cloth after use to remove dried dye and preserve details.
- Store blocks in a dry, ventilated area to prevent warping or mold growth.
- Use measuring tools and spatulas carefully to avoid injury from sharp edges.
- Ensure printing tables are stable and clean to avoid accidents while working.

Handling of Dyes and Chemicals

- Always read labels and understand the properties of the dyes, fixers, and binders you are using.
- Mix dyes in well-ventilated areas to avoid inhaling harmful fumes.
- Store all chemicals and dyes in clearly labelled, sealed containers away from sunlight and heat.
- Dispose of the leftover dyes, mordants, or fixers safely, according to environmental guidelines.
- Never touch or taste chemicals. Use designated tools like spoons or spatulas for handling.

Handling of Fabric and Drying Process

- Pre-wash fabric to remove starch or dust before printing to ensure better dye absorption.
- While drying, make sure fabrics are hung in clean, shaded areas, away from dust or insects.
- Use iron or calendaring machines carefully—check temperature settings and avoid direct contact with hot surfaces.

Workspace Safety and Cleanliness

- Keep the work area organized and clutter-free to avoid tripping or spills.
- Wipe any dye or water spills immediately to prevent slipping.
- Ensure good ventilation in the workspace, especially when using chemical dyes or fixatives.
- Keep a first-aid kit easily accessible in case of cuts, burns, or chemical splashes.
- Educate all workers or students on emergency procedures like eye-washing or fire response.

Safe Storage of Tools and Materials

- Store printing blocks vertically or flat, in a padded box to prevent damage.
- Dyes and fixatives should be stored out of reach of children or unauthorized persons.
- Always close containers tightly after use to avoid contamination and evaporation.

Safe handling of tools and materials is not only about protecting oneself from harm it is also about respecting the craft and maintaining the quality of the work. By following proper safety measures and developing good work habits, artisans and students can enjoy a safe, efficient, and rewarding block printing experience. A clean and well-maintained workspace reflects professionalism and ensures the longevity of tools and health of the worker.

Safe handling of tools and materials is of paramount importance in the hand block printing industry, where workers are constantly engaged in a wide range of tasks involving various tools and materials. Proper handling of tools and materials not only ensures the quality and efficiency of the production process but also safeguards the well-being of the workers. Adhering to strict safety protocols minimizes the risk of accidents, injuries and occupational hazards, creating a conducive working environment.

One of the fundamental aspects of safe tool handling is proper training. All workers, regardless of their experience level, should receive comprehensive training on the correct usage of tools and equipment. This includes understanding the purpose of each tool, its potential hazards and the appropriate safety measures. New employees should undergo thorough orientation sessions to familiarize themselves with the tools and materials specific to their roles. Additionally, regular refresher training should be conducted to reinforce safety protocols and introduce any updates in tools or procedures.

Personal protective equipment (PPE) is another essential element of safe tool and material handling. Workers should be provided with the necessary PPE, such as gloves, safety goggles, ear protection and aprons, depending on the tasks they perform. For instance, when handling sharp cutting tools or working with potentially harmful chemicals, proper PPE ensures that employees are shielded from potential risks.

Proper tool maintenance is crucial for both safety and efficiency. Tools and equipment should be inspected regularly to identify signs of wear, damage or malfunction. Any defective tools should be promptly repaired or replaced to prevent accidents caused by faulty equipment. Dull blades or worn-out parts can lead to unintended accidents due to increased force required during usage. Regular maintenance not only extends the life of tools but also contributes to the overall safety of the work environment.

Organization and workspace design play a role in promoting safety. Workstations should be organized and clutter-free, with tools and materials properly stored when not in use. Clearly labeled storage areas for tools and materials help prevent confusion and ensure that workers can locate what they need without risking unnecessary accidents. Properly organized workspaces also minimize the risk of tripping, falling or mishandling tools due to cramped or cluttered conditions. Communication among team members is vital for safe tool and material handling. If there are changes in procedures, tools or materials, these updates should be communicated effectively to all relevant personnel. Encouraging open dialogue about safety concerns and sharing best practices can create a culture of safety consciousness throughout the organization.

The handicraft industry relies heavily on the skilled and diligent work of its employees, making their safety a top priority. Safe handling of tools and materials not only prevents accidents and injuries but also enhances the overall efficiency and quality of production processes. Through proper training, the use of personal protective equipment, regular maintenance organized workspaces and effective communication, the handicraft industry can create a work environment where workers feel valued, protected and empowered to contribute to the success of the business while staying safe.

3.2.2 Cleaning and Maintenance of tools

Cleaning and Maintenance of tools:

Regular cleaning and maintenance of tools goes a long way in increasing the life and efficiency of tools. Thus, the output or quality of work is also ensured if we take care of our tools and equipment. High levels of dust interfere with efficient production and require cleaning and maintenance operations that may otherwise spoil materials and finished products. Proper cleaning procedure and maintenance protocols are an immediate, low-cost measure to enhance overall cleanliness, consistency and contamination control within workstations. Best practices should be followed with application of specific techniques of wipe down and particle control. Some of the most common contamination include solid dust, liquid, bacteria, fungus, human skin cells and hair, spills and leaks, lint, fibers and more.

Improved conditions usually mean increased output, higher productivity and quality. There are simple and inexpensive ways to control most of the environmental problems. Maintenance of tools often result in cost savings, productivity benefits and increased safety of workers.

Points to be considered in cleaning and maintaining the tools are as follows –

- Avoid placing the materials and tools on the floor to avoid any damages or accidents.

- Keep all the tools and material at their designated places. Make use of racks, shelves which are properly marked for this purpose.
- Keep the work area free of any unwanted material like extra set of cartons, bins etc.
- The floor should be made anti slippage with the help of anti-skid mats or tiles.
- Ensure regular cleaning all the tools after every use.
- Keep all the tools and material back into their covers after use. This will not only prevent them from dust but will also prevent any accidents or injuries.
- Allocate proper space for operation, outputs and inputs.
- A regular system of inspecting, cleaning and repairing is an essential part of cleaning and maintenance of tools.

It is very important to handle the equipment carefully and safely in the hand block printing industry and train all workers in a manufacturing unit to follow the same effectively.

Clothing and Personal Protection

Clothing and personal protective equipment must be worn wherever prescribed. Close-fitting clothing should be worn near machinery with moving parts. Loosely draped garments like scarves, dupatta, bows, ribbons and loose sleeves are dangerous use of an overcoat is advised to be worn in such cases. Long hair should be tied up tightly and covered with a cap. Jewellery, watches and rings should not be worn. There are personal protective equipment such as hair protectors, ear protectors, gloves, safety glasses and shoes.

Types of Personal Protective Equipment

Latex Gloves

Purpose: - To avoid any chemical contamination while handling Chemicals.

User Department: - Chemical Store, Washing, ETP, STP



Fig. 3.21: Latex Gloves

Acid-Alkali Hand Gloves:

Purpose: - Used for handling Acid/Alkali



Fig. 3.22: Acid-Alkali Hand Gloves

Chemical Splash Safety Goggle / Mechanical Safety Goggles

Purpose:- For protection of eyes against chemicals.



Fig. 3.23: Safety Goggle

Different types of Masks:**Organic Vapour Mask**

Purpose: - For protection against organic chemical vapours.

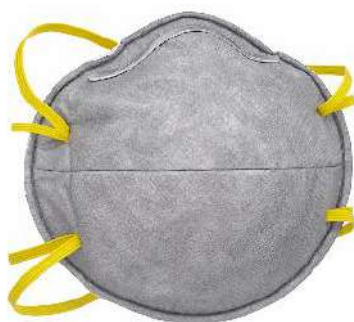


Fig. 3.24: Organic Vapour Mask

Particulate Respirator

Purpose:- For protection against chemical dust.



Fig. 3.25: Particulate Respirator Mask

Chemical Mask

Purpose: Used for protection against high concentration of organic vapours.



Fig. 3.26: Chemical Mask

Dust Mask

Purpose: - For protection against normal dust particles.



Fig. 3.27: Dust Mask

Gum Boot

Purpose: -For protection of feet while working in wet processes. (For Washing & ETP operators)



Fig. 3.28: Gum Boot

Ear Muff or ear plugs

Purpose: - For protection of ears while working in high sound intensity areas.



Fig. 3.29: Ear Muff

Leather Apron

Purpose: - For protection of body while working at high temperature areas.



Fig. 3.30: Leather Apron



Fig. 3.31: Personal Protective Equipment

Clear demarcations and sign boards:

Clear demarcation of areas is required at places where there is possibility of hazards or accidents.

Prohibited areas which are marked are as follows-

1. Storage of chemicals
2. Operation of machinery
3. Presence of water on the floor
4. Loud noise areas: areas with high sound intensity.
5. High voltage current.
6. Release of poisonous fumes or gases.

There are threats based on the nature of the operations and workers have to be trained to understand these hazards and take proper precautions.

3.2.3 Storing the material safely and correctly

Safe working practices, risk assessments, maintaining standards are recommended practices in the industrial environment. The factors of risk are high since the workers constantly interact with numerous machineries, processes and practices. The risk can be decreased by evaluating and

registering them by training the workers, introducing and practicing safety measures, conducting emergency incident practice drills, displaying signboards and ensure following of all standard procedures applicable at the workplace.

Health and safety at work is the responsibility of both employers and the employees. Manufacturers are required by law to follow strict rules and regulations to make sure that the workers are protected from possible dangers and using machinery and handling materials. The workers must follow all safety rules and instructions to keep themselves and those around them safe.

The dangers, hazards or risks involved in making a product can be identified, described and listed. This is known as risk assessment. At the workplace, it is essential to know what might cause harm or injury to people or the environment, therefore safety precautions and systems can be put in place to prevent accidents.

The following precautions need to be followed:

- Carry out risk assessments.
- Display warning notices, safety rules and fire exit signs.
- Ensure that machinery, equipment, tools and materials are stored safely, have safety guards, are safe to use and are regularly tested for their safety standards.
- Ensure that chemicals used in manufacturing processes are recorded, stored and used safely and correctly. One must also ensure safe disposal or recycle of the used chemicals.
- Regular checks must be conducted for ensuring that the environment is safe with hygienic work areas and sufficient ventilation to remove dust and fumes and has also has noise-level control systems.
- Install storage racks, shelves and containers. For heavy items use wooden pallets. For light items use overhead space by installing overhead racks along walls that are less frequently used. Gain productive space by introducing multi-level racks which saves the floor space.
- Clean and free floor space results in easy accessibility to work items and tools and improved inventory control.
- Provide a place for each tool and work item- Consider the quantity, size, shape and weight of the necessary items in order to select the most appropriate means and place of storage.
- Identify tools that are most frequently used. Place the most frequently used tools such as spot guns and scissors which are constantly used in a location where they can easily be reached without leaning. Avoid placing materials on the floor. Provide a place for each tool and work item.

- One should not lift loads that are higher than guidelines of lifting. We must make sure that the lifting operations are more efficient and safer.
- Workers must ensure reporting hazards and potential risks/ threats to supervisors or any other authorized personnel.
- Follow organization procedures for shutdown and evacuation when required.
- Workers must follow environmental control measures such as cleaning regularly and properly, do not spread dust, make local ventilation cost-effective and replace a dangerous substance with a safer one.

Guidelines for safe storage of chemicals:

- All containers, bins and bottles of chemicals should be well labelled.
- Only authorized personnel should be allowed to handle the chemicals and they should also be aware about handling instructions.
- Chemical material should always be stored in designated areas that are designed and constructed for that use.
- The storage location should be out of direct sunlight and heat.
- The chemical storage areas should also be away from high occupancy areas.
- Away from emergency exit and evacuation areas.
- The storage area where chemicals are kept should be designed with floors which are not affected by chemicals or do not absorb the chemicals.
- Mostly we require some kind of ventilation facility like a mechanical exhaust fan for providing adequate ventilation and avoid collection of highly flammable or toxic fumes in the work area in the event/time of a chemical leak or a spill.
- All chemical storage areas should be secured /locked when the factory is not in operation and only authorized personnel should be allowed to handle the chemicals.
- Operations involving smoke and heat should not be performed near the chemical storage.
- Electrical supply, switches, wiring etc. should preferably be outside the chemical storage areas.
- Equipment such as generators, boilers, etc. should not share the same space as chemical storage.
- Provision of fire extinguisher should be there but these should also be kept outside the storage room and not inside.
- While storing chemicals, their nature and compatibility issues should be kept in mind. For example, chemicals which are corrosive or

oxidizing in nature should not be stored with flammable material. There should be a distance of at least 5 meters between such chemicals if a separate storage is not possible.

One must ensure availability of any absorbent material near the storage area to remove/absorb any liquid chemical from the floor or other surfaces after a chemical spill or leak. Sand may be used for this purpose, although commercial adsorbent products are preferable. In addition to this, one should also ensure availability of equipment such as shovels, a container and suitable PPE protective gloves, eyewear, etc. depending upon the extent of the spill and the hazards of the particular chemical.

Proper usage of materials to minimize waste:

Some amount of manufacturing waste is always generated in almost every manufacturing unit. Thus, it becomes mandatory to establish and implement practices for minimizing waste generation. Different production processes in hand block printing industry such as washing/drying, warp preparation, weaving, dyeing, printing, finishing, quality control and warehousing etc. result in waste-generation. Some types of commonly observed wastes in textile and handicraft industry include fibre waste, yarn waste, fabric scraps, chemicals, untreated dye solutions, finishing agents, cutting and stitching waste etc. Wet finishing processes use up to 200 liters of water per kilogram of fibre. Thus, the largest chunk of waste in this sector is water (as per volume).

Following are the ways to minimize the generation of waste:

1. **Efficient Inventory Management:** One can reduce manufacturing waste, by controlling the excess or not required materials being used in the manufacturing or other process. Inventory should be managed efficiently and only required quantity of raw material should be procured to minimize wastage.
2. **Reduce Packing Materials:** Product packing may be redesigned to ensure that minimum amount of materials is used. Incorporation of reusable or recyclable packing content should be incorporated for packing.
3. **Recover and Reuse:** Recover waste from onsite and offsite locations. Recycling is another popular choice. Recycle materials like fabric, paper, plastic and metal regularly and avoid recycling hazardous materials as they rarely have any environmental benefits.
4. **Establish a Preventative Maintenance Schedule:** Regular maintenance should be performed. It is more beneficial to control the costs to prevent a breakdown instead of reacting to a breakdown later.
9. **Label and Organize the Warehouse Properly:** All the locations of inventory, tools, supplies and assets necessary to manufacturing and

other processes must be clearly marked throughout the warehouse. This may result in decreased time being spent on searching for the right tool needed for an urgent repair. One should always replace the faded tags and repaint the floor lines regularly.

10. **Minimize Water Usage:** Industrial sludge and wastewater make up a significant portion of manufacturing waste streams. One can reduce these elements by minimizing water usage in the operations like dyeing and finishing processes. Installing a treatment system to recycle waste water can contribute to minimize this type of waste. Employees should also be encouraged to cut down on drinking water from plastic water bottles as it adds up to major portion of plastic waste generated. Switching to drinking water in glasses or promoting the use of reusable bottles in the workplace is an easy solution to the problem.
11. **Volume Reduction:** Volume reduction refers to the segregation techniques that remove the hazardous portion of waste from the non-hazardous portion. As a result of using volume reduction technique, there is a considerable reduction in the volume and the cost of waste disposal.

They can be broadly divided into two categories waste concentration and source segregation. The former may increase the likelihood of the material being reused or recycled and the latter consists of different types of materials within the waste being treated separately so that the cloth value in the bulk can be recovered.



Fig. 3.32: 3R's of Waste Management

Disposal of waste at designated locations:

Proper waste disposal within the apparel industry plays a pivotal role in safeguarding the environment. The industry's rapid growth has resulted in escalating waste generation, often encompassing fabric scraps, dye chemicals, packaging materials and more. By adopting efficient waste management practices, significant environmental benefits can be achieved.

Implementing recycling and upcycling initiatives can reduce the accumulation of fabric remnants. Reusing scraps for new products or donating them to crafters minimizes landfill contributions. Responsible disposal of dye chemicals and other hazardous materials prevents water and soil contamination. Employing biodegradable and eco-friendly packaging materials diminishes the burden on landfills and ecosystems.

Furthermore, raising awareness and educating stakeholders about sustainable practices fosters a culture of environmental responsibility. Collaborations with waste management experts can optimize waste segregation and recycling processes. Government regulations and industry standards can also be instrumental in enforcing proper waste disposal practices.

Ultimately, embracing proper waste disposal techniques in the apparel industry not only curtails environmental degradation but also promotes a circular economy. By reducing waste, conserving resources and minimizing pollution, the industry can contribute to a healthier planet for current and future generations.

One should follow the following ways of waste disposal:

- The types and amounts of hazardous wastes generated should be identified and segregated and the waste disposal method for each category of waste should be determined.
- Sorting of waste makes sure that the recyclable items are put to correct use and not go in waste. The responsibility of keeping a track of the bins and finding a feasible solution for elimination, reduction or reuse of the waste generated should be carefully assigned to selected employees and workers and there should also be clear cut policy for this.
- Hazardous and nonhazardous wastes should not be mixed. Disposal of hazardous waste that cannot be treated or recycled should be done at a secure, permitted and designated place which has no access to the general public or any unauthorized personnel.
- Industrial shredders can be used to reduce waste by condensing cloth material, wood, rubber and plastics to a fraction of their original size.
- Bins/Containers containing hazardous waste should always be kept covered only except when workers are transferring hazardous waste into them.
- Fabric waste from checking, cutting and sewing departments should also be stored at a designated area and should be disposed as per the disposal schedule.
- The benefits of reducing the volume of solid waste generated at a craft cluster include a positive effect on the environment, an economic advantage to the industry and better community relations.

In conclusion, the handicraft industry navigates a complex landscape, balancing innovation, creativity and efficiency. Amidst these adverse conditions, the safety of its workforce and the establishment of a hazard-free working area emerge as non-negotiable priorities.

Through meticulous risk assessment, stringent safety protocols, maintenance of machinery and a holistic approach to well-being, the industry upholds its commitment to creating an environment where employees can flourish without compromising their safety. As the industry continues to evolve, so too will its commitment to the well-being of those who breathe life into its creations.

Activities

Activity: Create a Safety Poster on Handling Tools and Materials in Hand Block Printing

Objective: To help students understand and recall safety measures while handling tools, dyes, fabrics, and chemicals used in hand block printing.

Materials Required:

- Chart paper or A3 drawing sheets
- Sketch pens or markers
- Old magazines (for cutting relevant images)
- Glue stick
- Scissors (handled under supervision)
- Ruler and pencil
- Sample labels for dyes or tools (optional)

Procedure:

1. Divide the students into small groups of 3–4 members.
2. Ask each group to choose one of the following topics:
 - Handling of Tools
 - Handling of Dyes & Chemicals
 - Handling of Fabric & Drying Process
 - Workspace Safety
 - Storage and Maintenance
3. Guide them to design an informative poster that includes:

- A catchy title (e.g., “Handle with Care!” or “Stay Safe, Print Smart!”)
 - At least 3 do’s and don’ts related to their chosen topic.
 - Simple illustrations or pictures (drawn or cut from magazines).
4. Encourage them to use color coding to highlight safety tips (e.g., red for dangers, green for safe practices).
 5. Once completed, have each group present their poster to the class, explaining their safety topic.
 6. Display the posters in the classroom/lab to reinforce learning.

What Have You Learned?

A. Fill in the Blanks

1. Wooden printing blocks should be cleaned with a _____ after use to remove dried dye.
2. Always store dyes and chemicals in _____ containers, away from heat and sunlight.
3. A _____ workspace helps reduce the risk of slips, trips, and accidents.
4. Personal protective equipment like _____ should be worn while handling chemicals.
5. Mixing dyes should always be done in a _____ area to avoid inhaling harmful fumes.

B. Short Answer Questions

1. Why is clear demarcation important in a workplace, especially in hazardous areas?
2. What is the purpose of conducting a risk assessment in an industrial setting?

C. Long Answer Questions

1. Describe at least five safety precautions to be followed in a workplace handling chemicals?
2. How can a hand block printing unit minimize the generation of waste? Mention five strategies.

Session: 3 Tools and Material According to Work Flow Standards

Analysing tools and materials according to workflow standards is an important aspect of working with handicraft materials. Achieving excellence in this field requires a deep understanding of how the right tools and materials can enhance the creative process, efficiency and the overall quality of the final product.

3.3.1 Tool Selection and Evaluation

Selecting and evaluating the right tools is essential for achieving high-quality and safe results in hand block printing. The choice of tools affects the quality of the print, the safety of the worker, the speed of production, and the durability of both tools and printed products.

When selecting tools for hand block printing, the following factors should be considered:

- **Compatibility with Material:** Ensure that the tool works well with the type of fabric, dye, or chemical being used.
- **Evaluation Criteria:** Inspect for cracks, wear, or damage. E.g., Broken printing blocks lead to incomplete prints.
- **Performance Testing:** Assess whether the tool gives the desired output clarity of print, even dye application, etc.
- **Ease of Use:** Evaluate whether the tool is causing strain, discomfort, or difficulty during work.
- **Safety Check:** Ensure tools do not have sharp, unguarded edges or loose parts.
- **Purpose and Functionality:** Begin by understanding the specific tools required for your craft. Each tool should serve a distinct purpose and its functionality must align with your workflow.
- **Quality and Durability:** High-quality tools are essential for consistent results. Tools should be made of durable materials to withstand continuous use. Investing in well-made tools will pay off in the long run.
- **Ergonomics:** Consider the ergonomics of your tools. Comfortable and ergonomically designed tools reduce fatigue and increase productivity during long crafting sessions.
- **Maintenance and Sharpening:** Regular maintenance and sharpening of tools are necessary to keep them in optimal working condition. Dull or damaged tools can hamper the workflow and compromise the quality of the work.

Proper tool selection and regular evaluation in hand block printing ensure precision, reduce waste, improve safety, and enhance productivity. Training workers to choose and maintain the right tools promotes quality workmanship and professional growth.

3.3.2 Material Assessment

Material assessment involves evaluating the quality, suitability, and readiness of materials used in the hand block printing process. This step is essential to ensure consistent quality, minimize errors, and meet market standards.

Why Material Assessment Is Important

- Ensures fabric compatibility with dyes and printing techniques
 - Helps maintain colour fastness, print clarity, and overall durability
 - Prevents wastage of expensive dyes and raw materials
 - Ensures the final product is market-ready and high-quality
1. **Quality:** The quality of any product is a crucial factor. Assess the texture, strength and colour of the fabric to ensure it meets your project requirements.
 2. **Dye and Colourfastness:** Analyse the dyes for their compatibility with fabric, colourfastness and eco-friendliness. Ensure that the colours do not fade or bleed over time.
 3. **Additional Materials:** In the handicraft industry, you may use other materials such as beads, threads and decorations. Choose materials that complement the product and serve the intended purpose, keeping in mind their quality and compatibility.

Material assessment is a foundational step in the hand block printing process. It ensures that each component from fabric to dyes and tools is appropriate, high quality, and ready for use. A well-conducted assessment helps avoid costly mistakes and ensures the creation of beautiful, durable, and sellable printed products.

3.3.3 Workflow Standards & Workspace Organization

Proper workflow and an organized workspace are essential for achieving consistent, high-quality results in hand block printing. A well-structured environment ensures safety, efficiency, and minimal wastage.

Workflow standards: Workflow standards are the step-by-step guidelines followed to maintain consistency, quality, and safety during the printing process.

Benefits:

- Ensures uniform print quality
 - Reduces errors and rework
 - Increases production efficiency
 - Promotes safe and hygienic practices
1. **Standardized Processes:** Develop a set of standardized processes for your craft. This includes precise measurements, cutting techniques and assembly procedures. These standards should help streamline your workflow and minimize errors.
 2. **Time Management:** Time is often a critical factor in the handicraft industry. Analyze your workflow to identify areas where time can be saved without compromising the quality of the final product. This may involve batching similar tasks, improving efficiency or automating certain steps.
 3. **Quality Control:** Establish a system for quality control, including regular checks during different stages of production. This ensures that every piece you create meets the highest quality standards.
 4. **Workspace Organization:** A well-organized workspace helps maintain productivity, hygiene, and safety.
 5. **Tool Accessibility:** Keep tools organized and easily accessible. A well-organized workspace reduces the time spent searching for tools and materials, thus improving efficiency.
 6. **Safety Measures:** Implement safety measures to protect yourself and others. This includes proper storage of sharp tools, ensuring proper ventilation for chemicals and maintaining a clean and hazard-free workspace. Some safety guidelines to be followed are as follows:
 - Use gloves and aprons when handling chemicals
 - Maintain adequate ventilation near dye stations
 - Keep flammable materials away from hot dryers or irons
 - Store sharp tools in proper holders

Cleanliness & Maintenance

1. **Daily Tasks:** Sweep, clean dye spills, organize tools
2. **Weekly Tasks:** Inspect blocks for cracks, check drying racks
3. **Post-Printing:** Clean trays, brushes, and dry them completely

Implementing strong workflow standards and keeping the workspace well-organized are key to consistent, high-quality hand block printing. This ensures not only beautiful outcomes but also a professional, safe, and efficient working environment.

By analysing tools and materials according to workflow standards, not only the quality of the products is enhanced but it also increase the efficiency and productivity. This meticulous approach to craftsmanship sets the foundation for excellence in the industry and allows creating stunning, durable and distinctive pieces that reflect mastery of the craft.

Activities

Activity 1: Tool Inspection & Evaluation Task

Material Required:

- A variety of hand block printing tools (new, slightly worn, and visibly damaged)
- Tool evaluation checklist sheets (printed)
- Pens/markers for marking observations

Procedure:

1. Provide students with a set of tools printing blocks (some perfect, some damaged), trays, squeegees, brushes, farru pads, wooden blocks, etc.
2. Students must inspect each tool and fill a checklist:
 - Any cracks or chips?
 - Is the handle comfortable?
 - Is the block surface even and clean?
 - Is the tray stable?
 - Any sharp edges?
 - Does the tool match the type of fabric/dye being used?
3. Students present a “Tool Fitness Report” with:
 - Tools safe to use
 - Tools needing repair
 - Tools to be discarded
 - Suggestions for maintenance

What Have You Learned?

A. Fill in the Blanks

1. Proper _____ and regular _____ of tools ensure precision and enhance productivity.

2. _____ with dyes and printing techniques is crucial during material assessment.
3. High-quality tools should be made of _____ materials to withstand continuous use.
4. A well-organized workspace ensures safety, efficiency, and reduces _____.
5. Workflow standards help maintain _____, _____, and safety during production.

B. Short Answer Questions

1. Why is ergonomic design important in tool selection for hand block printing?
2. Mention any two safety measures that should be followed in a hand block printing workspace.

C. Long Answer Questions

1. Explain the process of tool selection and evaluation in hand block printing. Why is it important?
2. Discuss how workflow standards and workspace organization contribute to the success of hand block printing.

Module 4**Process of Making Hand Block Printing Products****Introduction**

Hand block printing is one of the oldest and most beautiful forms of textile decoration. This traditional art involves the use of hand-carved wooden blocks to print patterns on fabric. The process requires skill, patience and careful coordination of multiple steps. It begins with the pre-treatment of fabric, followed by designing, dye preparation and printing. Each step plays a crucial role in achieving a high-quality finished product. The blocks are dipped in dye and pressed onto the fabric in a repetitive manner to create continuous patterns. Natural or chemical dyes are used depending on the design and fabric type. After printing, the fabric is dried, steamed, washed and finished. This chapter will guide learners through each stage of the hand block printing like block making, preparation of hand block printing, different techniques and the whole process of making hand block printing.

Learning Outcomes	
After completing this module, you will be able to:	
• Explain different techniques of hand block printing • Discuss the process of making blocks • Explain the preparation for hand block printing • Describe process of making hand block printing	
Module Structure	
Session:1	Techniques of Hand Block Printing
Session:2	Process of Making Blocks
Session:3	Preparation of Hand Block Printing
Session:4	Process of Hand Block Printing

Session: 1 Techniques of Hand Block Printing

Hand block printing is a traditional method of decorating fabric by using carved wooden blocks. Over time, artisans have developed different techniques to create a variety of patterns, textures and effects on cloth. Some of the common techniques include direct printing, resist printing like Dabu, discharge printing and pigment printing. Each method uses different materials and steps to produce unique results.

These techniques not only reflect the creativity of the crafts person but also represent the rich cultural traditions of different regions in India. In this session, students will learn about the main techniques used in hand block printing, how each technique is performed, and what makes them unique. This understanding will help them appreciate the art of block printing and recognize its significance in the world of textiles.

4.1.1 Techniques of Hand block printing

Hand block printing in India has evolved into various types, each distinguished by its unique methods, materials and designs. The major techniques and application of hand block printing found across different regions of India are as follows:

- Direct block printing
- Resist Block printing
- Discharge block printing

1. Direct Block Printing

Direct block printing is one of the most traditional and widely practiced methods, where carved wooden blocks are directly pressed onto the fabric using dyes or pigments. Each block is carefully dipped into colour and stamped with precision to ensure accurate alignment and repeats.

The cloth is first bleached and then dyed in the desired base colour, unless a lighter background is preferred.



Fig. 4.1: Direct Block Printing

Thereafter, the fabric is printed using carved wooden blocks, beginning with the outline blocks and followed by the blocks used for filling colour. Printing begins with the borders and then progresses to the body of the cloth. Popular textile traditions such as Bagh from Madhya Pradesh and Bagru from Rajasthan use this method extensively. Cotton or silk fabrics are typically chosen for this technique. Direct block printing is a simple yet highly effective technique, commonly used for creating geometric, floral, and repetitive patterns with clarity and precision.

Characteristics:

Direct block printing is the most common and traditional method of printing designs directly onto fabric using wooden blocks. This technique has several unique features:

- **Design Motifs:** Common motifs include floral patterns, animal figures, leaves, birds, and geometric shapes. These motifs are often inspired by nature and local culture.
- **Use of Colours:** In Sanganeri block printing, bright and vibrant colors like red, blue, yellow, and green are printed on white or light-coloured fabrics. In contrast, Bagru block printing uses earthy tones like rust, black, maroon, and indigo on cream, beige, or dyed fabrics.
- **Multi-Colour Printing:** Direct block printing can use 1 to 12 different colours in a single design. Each colour needs a separate block, and the blocks must be carefully aligned to complete the pattern.
- **Regional Styles:** This technique varies from region to region. For example, Sanganeri printing is known for fine floral detailing and bright colours, while Bagru printing features bold patterns and natural tones.
- **Fabric Types:** Usually, cotton and silk fabrics are used for direct block printing because they absorb colour well and hold the design clearly.
- **Natural & Synthetic Dyes:** Both types of dyes are used. Traditional printers often prefer natural dyes, but synthetic dyes are now common due to their brighter colours and fastness.

Highlights: - Direct Block Printing

Places of Practise	Use of Colors	Motifs Used	Characteristics
Sanganer (Rajasthan)	Pigment & Chemical, 1 to 12 colors prints	Floral, Animal	Bright colors on white or light background
Bagh & Jobat (MP)	Natural colors, 2 to 3 colors with dyeing	Floral, Animal & Geometric	Dyed Background
Bhairavgarh (Ujjain – MP)	Pigment & Chemical, 2-4 Colors	Floral & Geometric	White & Light Background
Kukshi (MP)	Pigment & Chemical	Floral, Animal & Geometric	White & Light Background
Bhuj (Gujarat)	Natural, 2-4 Colors	Floral, Animal & Geometric	Dyed Background

2. Resist Block Printing

Resist block printing is a method of printing patterns on fabric by preventing certain parts of the fabric from absorbing dye. It is called “resist” because some areas are made to resist the dye. In this technique, a special paste (like wax, mud or rice paste) is applied to the fabric using a carved wooden block. The design on the block transfers the paste onto the cloth. After this, the fabric is dyed. The parts of the fabric that were covered with the paste do not take in the dye and remain their original colour, while the rest of the fabric gets coloured. Once the dyeing is complete, the paste is removed and the pattern becomes visible. This method is used to create beautiful patterns, usually with light or white designs on a darker background. An example of this technique is Dabu printing, which uses mud-paste as the resist material. Resist block printing is a creative and traditional way of decorating fabric.



Fig. 4.2: Resist Block Printing

On the other hand, Batik block printing uses wax as the resist medium. In this process, melted wax is applied to the fabric in specific designs using blocks or a stylus (tjanting). The waxed areas resist the dye when the fabric is immersed in the dye bath. After dyeing, the wax is removed by boiling or scraping, resulting in intricate, often multi-coloured patterns. Both these resist printing methods highlight the richness of India's textile heritage and the ingenuity of using simple natural materials to produce artistic effects.



Fig. 4.3: Image of Resist Block Printing

Characteristics:

Resist dye printing is a technique where certain parts of the fabric are protected from dye using a resist material like mud, wax, or paste. The dye does not reach these protected areas, creating beautiful patterns.

Here are its main characteristics:

- **Colour Scheme:** This method often uses deep indigo, black, and earthy tones that give the fabric a rich and natural look.
- **Use of Natural Dyes:** Resist printing mostly uses natural dyes made from plants, minerals, and other natural sources.
- **Design Motifs:** Common patterns include floral designs, vines, and abstract motifs, often inspired by nature and traditional art.
- **Symmetry & Geometry:** The designs are usually symmetrical and include geometric shapes, giving the fabric a neat and balanced look.
- **Traditional Colours:** The most commonly used colours are deep red, blue, black, and white, which stand out well on both light and dark backgrounds.

Highlights: - Resist Block Printing

Places of Practise	Use of Colors / Material	Motifs Used	Characteristics
Bagru (Rajasthan)	Mud & Natural Colors	Floral, Animal & Geometric	Indigo, Black & Earthy Tones
Bhairavgarh (Ujjain – MP)	Wax, Chemical & Natural	Floral, Geometric	Dyed Background
Tarapur (MP)	Mud & Natural Color	Floral, Animal & Geometric	Indigo & Nature Inspired Tones

3. Discharge Block Printing

Discharge block printing is a traditional craft technique used to print light, detailed patterns onto dark natural fabrics like indigo, navy, or black cotton. An artisan dips a hand-carved wooden block into a special color-removing paste and stamps it firmly onto the dark cloth. When the stamped fabric is exposed to heat or steam, the paste activates and bleaches away the background dye strictly where the wooden block touched.

This leaves behind a clear off-white pattern or a bright new color if pigment was mixed into the paste while keeping the rest of the fabric dark. Because the design is created by removing dye directly from inside the fibers rather than coating the surface with heavy paint, the printed cloth stays completely soft, lightweight, and breathable, ensuring the pattern will never crack or peel off in the wash.



Fig. 4.4: Discharge Block Printing

Characteristics:

Discharge printing is a technique where colour is removed (or discharged) from dyed fabric to create patterns. A special chemical is used to bleach out the colour in specific areas, forming light designs on a darker background.

- **Suitable Fabrics:** This method works best on natural fabrics like cotton and silk, which absorb and release dye effectively.
- **High Contrast Designs:** Discharge printing creates sharp and clear patterns because it removes colour instead of adding it. The contrast between the dark background and the light design makes it look striking.
- **Intricate Detailing:** Fine and detailed designs can be made using this method, which makes it popular for artistic and decorative prints.
- **Limited Colour Range:** The colours that appear after discharge depend on the dye used. Sometimes, it leaves a white or pale shade, while in other cases, a base colour may appear.

- **Chemical Use:** It uses discharge pastes or reducing agents that must be handled carefully, as they can be harmful if not used properly.
- **Pre-dyed Fabric:** The fabric is usually dyed first in a dark shade (like black, navy, or maroon) before the design is discharged.
- **Not Ideal for Synthetic Fabrics:** Discharge printing is not suitable for synthetic fibres, as the chemical may not remove the colour effectively.

Highlights: - Discharge Block Printing

Places of Practise	Use of Colors / Material	Motifs Used	Characteristics
Bagru (Rajasthan)	Natural Colors	Floral, Animal & Geometric	Indigo, Black & Earthy Tones
Bhuj (Gujarat)	Natural Colors	Floral & Geometric	Earthy Tones, Dark Colors



Fig. 4.5: Image of Discharge Block Printing

Create Multi-Colour Block Prints

Creating multi-colour block prints is a technique in block printing where more than one colour is used to make a single, detailed design. This method adds depth, richness and beauty to the artwork. In this process, different blocks are carved for each colour in the design. Each block prints a separate part of the pattern and when all are combined, they create one complete image with layers of colour. The first step is to plan the design carefully and decide which parts will be printed in which colours. Then, separate blocks are made for each colour layer. These blocks must be aligned perfectly so that when they are printed one after another, the design appears neat and balanced.

Printing usually begins with the outline block, typically stamped in a dark colour to define the motif. Once the outline is completed, the filling blocks are used to add different colours and complete the design. After each colour is applied, it is essential to allow the fabric to dry thoroughly before printing the next colour to prevent smudging, bleeding, or colour overlap. This prevents the colours from smudging or mixing. Artists use special marks, called registration marks, to help line up each block in the same position every time. This helps to make sure that the layers fit together properly. If the blocks are not aligned well, the final print may look uneven or messy.



Fig. 4.6: Multi-Colour Block Printing

Activities

Activity: To identify the Printing Technique

Materials Needed:

- Fabric samples or printed images
- Worksheet or notebook
- Pen/pencil

Instructions:

- Select three fabric samples (or images) – one each of Direct, Resist, and Discharge block printing.
- Examine the colour usage, motifs, and background style.
- Write down which technique each sample belongs to and justify the answers.

What Have You Learned?**A. Fill in the Blanks**

1. Hand block printing is done using _____ blocks dipped in dye.
2. _____ block printing involves removing colour from a dyed fabric to create designs.
3. The _____ technique uses mud, wax or paste to prevent dye from reaching certain areas of the fabric.
4. In _____ printing, separate blocks are carved for each colour used in the design.
5. The city of _____ in Rajasthan is famous for Sanganeri block printing.

B. Short Answer Questions

1. What are registration marks and why are they important in multi-colour printing?
2. What is a resist material? Give one example.
3. Which type of dyes work best for discharge block printing?
4. Why is the outline block usually printed first in multicolour block printing?
5. Explain the main differences between direct block printing and resist block printing.

C. Long Answer Questions

1. Describe the step-by-step process of creating multi-colour blocks.
2. Compare direct block printing, resist printing, and discharge printing. Mention differences in materials, techniques, and visual outcomes.

Session: 2 Process of Making Blocks

Woodblock making, which is most prominently used today will be discussed in this section. The designs may vary considerably from place to place but the method of block making is much the same everywhere.

Pethapur in Gujarat, Jaipur in Rajasthan, Banaras and Farrukhabad in Uttar Pradesh, and Serampur in Bengal are among the famous block-making centres in India. The blocks produced in these regions are prepared by skilled engravers, traditionally belonging to specific artisan communities, often associated with the carpenter caste. In Gujarat, the Gujjars, Prajapatis, and Mistrys of the Suthar community are known for this craft; in Kutch, the Purgars are prominent block makers; and in Rajasthan, the Kharaudis are well known for their expertise.

Traditionally, printing blocks were small and light, allowing greater control and accuracy during the printing process. The concept of larger blocks is a recent innovation, seen in prints over the last four decades. Today, blocks can be as large as 8 × 10 inches. Though this allows the printer to work faster, larger blocks are very cumbersome to use. Unless the printer is highly skilled, there is a high risk of the print quality getting compromised with large blocks.

The printing blocks, called buntas, buntis, pur, biba or bilal in different regions, are generally made from well-seasoned wood and are usually rectangular or square in shape. These days, circular or oval blocks are also available.

A complex block can take from a few days to a few weeks to complete, depending on the intricacy and fineness of design. The blocks usually last for 1000-1500 meters of fabric depending on the quality of the wood used and the care taken for the upkeep of the blocks. After use they need to be cleaned thoroughly with a brush and water to remove any dye or resist paste deposits.

Types of Wooden blocks

Wooden blocks have traditionally been classified into three main types, based on their use. They are the outline block, the background block and the filling block known as rekh, gadh and datta in the north and west of India and masa, kappu and tapki in the south.

Rekh/Masa: Rekh is the outline block (from the Hindi word rekha, which means line), which defines the form of pattern. Normally rekh is considered as the key block, which gets printed first in order to give cues to other blocks to fit in. These blocks are carved in relief and usually comprise fine lines. Being the most intricate block, their carving needs to be even. They require great skill, concentration, consistency and take the longest to carve. In some

cases rekh is split into two blocks in order to print two colours. This kind of block is known as chirai (split) block.

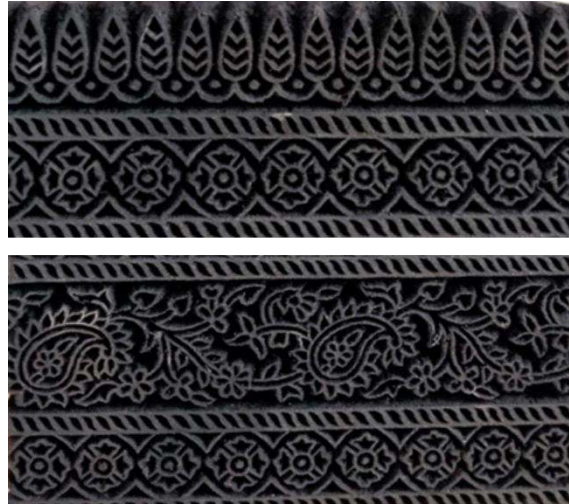


Fig. 4.7: Rekh/Masa Block

Gadh/Kappu: The background block is called a gadh. Gadh is sometimes treated as the key block and printed first. Here, instead of the design protruding out, it is carved in the intaglio style. It is the opposite of outline block making. These blocks are used for getting colours in the background of the fabric.



Fig. 4.8: Gadh/Kappu Block

Datta/Tapki: Dattas are the filling or relative blocks and could be more than one depending on the number of colours in the motif. These are carved in bold relief according to the colours used in the designs. In resist printing, the datta blocks are used for applying the resist paste and then they correspond exactly to the shape and size of the rekh and gadh blocks.

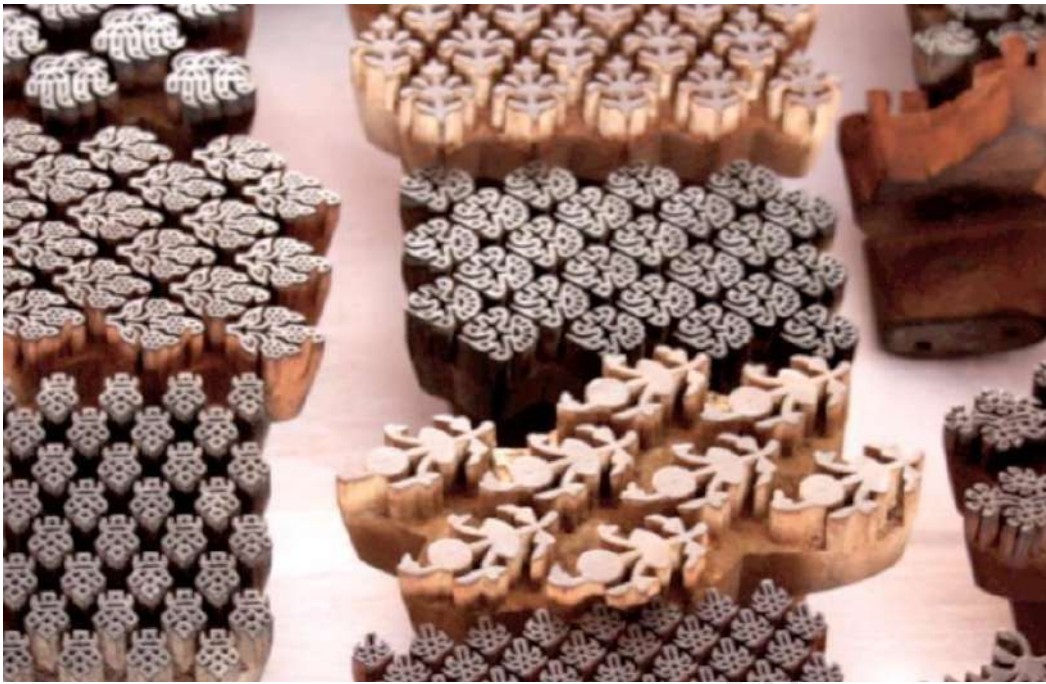


Fig. 4.9: Datta/Tapki Block

Depending on the design, a combination of these three types of blocks would be needed for completing any design. The number of blocks needed to complete a design depends upon the number of colours used. So, if there are four colours in a design then four blocks would be needed for that design. Usually, the outline and background blocks are only one each as they are normally printed in a single colour each but filling or relative blocks could be two or more depending on the number of colours used in the design.

Block Making process involves

The process given below is followed in Pethapur, Gujarat, which is one of the main and important centres for block making in India even today.



Fig. 4.10: Process of making Blocks

1. Purchase of wood

Purchasing wood is the first step in block making. The quality and type of wood purchased depends on the availability of wood, type of blocks to be prepared and the printer's requirement. Across India, teak is the most preferred material for carving intricate designs. It's fine grain pattern and hardness makes it less susceptible to flaking and cracks; it easily withstands repeated hand use and is termite and decay resistant. Thus it is very durable. There are two different kinds of wood pieces available in the market, patli (scantling), used for block making and gorva (circular piece of wood), used for making furniture.

2. Preparation of wood

After purchasing the wood, the logs are cut into smaller pieces and then seasoned. The seasoned wood lengths are cut into horizontal pieces of approximately 3-inch thickness. They are then scrapped with a plane to obtain a flat, smooth and even surface. Further levelling of the wood pieces is done by scrapping and rubbing with rough riverstone, smooth riverstone, sand and water. This gives the woodblock its final glossy smooth texture. These days the block-makers use emery paper for smoothening as well. The smoothened block is known as kaplo and it is now ready for the carving process. First the kaplos are scrubbed thoroughly with wet balls of khaddi and then kept aside to dry. Khaddi is a white chalk made by the block-makers themselves. They mix khaddi powder, clay, water and gum in a mud vessel and let it stand for six months for decomposition. When fermentation is complete, it emits a foul smell. The mixture is then filtered and balls are made from it and are sun-dried and hardened. The khaddi ball, when rubbed on the wooden block, leaves a white coat. The block-maker either draws the design on it directly or traces on to it.

3. Design transfer

There are three stages for design transfer. This process is followed for natural and freehand designs but geometric designs could be directly drawn and carved on the block using the required tools.

- **Design measurement**-The design drawn on paper is first measured in length and width with the help of a ruler. According to that measurement, lines are drawn on to the block using a metal stylus. Measurements are taken by a compass and points are marked on both sides of the block.
- **Tracing of designs**-Before the khaddi dries up, the piece of graph paper with the design drawn on it is pressed on it. The wood is then left to dry in the sun. This sticks the paper to the block. Sometimes the design is tapped through the paper with a blunt-edged chisel and hammered along the lines of the design, at close intervals, with a mallet (thapdi).

The design appears in the form of small broken lines on the woodblock. In the south, designs are traced on tracing paper and stuck on the smoothened and beeswax-coated wooden blocks. Transferring of design on the wooden block is location specific and varies with block-makers of different regions.

- **Repeat of the design**-While tracing the design it is essential to check that the repeat of the design is getting traced accurately. Even a minor error in carving of block could spoil the finesse and continuity of the design printed.

4. Carving of the Woodblock

After tracing the design on the wood, the carving of the block is done with various sizes of chisels. Bold and larger designs are engraved first and then the finer lines dealt with. The registration points, *mokh*, are made by fixing nails at all four corners of the block just before carving. The top of the nail is then cut and filed away. The process of carving is laborious and it takes two to three weeks to carve an intricate outline block (*rekh*). However, the subsidiary or relative blocks for each colour, (*datta*) take less time. The *gad*h block is carved out as an exact opposite of the *rekh* and *datta* block.

The sequence followed for carving is:

- Drilling holes in the block
- Breaking the holes
- Carving

Holes are first drilled into the wooden block to remove the large extra spaces. The depth of the carving is predetermined, usually at approximately one centimetre.

Once the holes are done, the area is broken down using a straight blunt chisel known as *thasso*. With the big portions gone, all the extra wood from around the design is easier to cut and is removed with different chisels. Usually the block-maker moves from outside to inside. When a rough version of the design is visible, the craftsman focuses on refining it towards its final look.

Chisels used for carving

The most important tools used for carving are the different types of chisels and hand drills.

The special chisels used for carving different shapes are listed below:

- **Golkuthiyun:** Golkuthiyun is a chisel with a blade that can scoop or dig out (*gouge*) and is used for carving curved shapes.

- **Thasso:** Thasso is a flat straight blunt chisel for cutting wood around the drilled holes.
- **Chorsi:** Chorsi is a firmer chisel used for making straight, zigzag lines or shapes.
- **Nakhiyun:** Nakhiyun is a 'V' shaped chisel used for pointed shapes.
- **Balakhi:** Balakhi is a twiggged chisel used for concentric circles.
- **Bhammar:** Bhammar helps in creating solid circles.
- **Edi:** Edi is a solid chisel used for geometric designs.
- **Bhungali:** Bhungali is a hollow chisel.

Method of carving

A distinct method is followed for carving the outline and relative blocks.

- **Carving an outline block (rekh)**-Different methods are used for carving different shapes and for this purpose different chisels, listed above, are used. Curved shapes are done first. Depending on the curve, different shape and size of chisel is used.
- **Carving a relative block/filling block (datta)** - Carving of this block is relatively simpler. As the purpose of these blocks is to fill colour within the outline of the designs, they are carved so that, one colour is covered by one block. Therefore, the parts of design of one colour are carved in one block and the number of filling blocks equals the number of colours to be filled in, in the design outlines. For the carving, the impression of an outline block is traced on to the new smoothened filler block. As per the part of design required, holes are drilled in outer area of the design and then broken using a thasso (blunt chisel). The depth of the carving is marked on the farsi or chisel and the carving is initiated.
- **Carving a block without outline**-Some designs do not have an outline but they could be done in different colours. These types of designs/blocks are known as *addhriya*, meaning hanging without base. For such designs no outline is required. First the designs are traced onto the wood pieces according to the colour and then carving is done. One block per colour has to be made.
- **Carving a border block**-This block is an absolute necessity for saris and bedsheets. The size of the border block is kept 6 x 2 in. or 6 x 1 in. The method of carving this block is quite different as a border block is divided into three parts. The middle section has a different design whereas the upper and lower parts have another. Some border designs have straight lines, which are locally known as laheriya, sutkinar, piping, etc. The carvings are done by hand saw and are finished with a chharidhari.

- **Carving of a background block with stuffing**-Some designs have large spaces for background colours. The blocks may not be able to give an even print for them. So, in earlier times, wool mixed with gum arabic was stuffed into carved places of the background to make them colour absorbent. Extra wool was cut off from the surface, using a blade to ensure clear lines. This block was locally known as gadh and unbharbibu. Today, background blocks are carved in the same way as the relative block and wool is not used, nor any other stuffing material used due to the advances in dyes and thickening agents.

5. Finishing of the woodblock

This comprises different stages like preparing a handle, making air holes, seasoning the wood, taking impression of the block, removal of wood scrap and smoothening the block surface if needed.

- **Preparation of handles:** Blocks made of one piece of solid wood are costly but convenient to handle for printing. The outline block usually has the handle carved out of the same block of wood. The handle is an important part of block making, as it is this part, which helps to trace the family who carved the block. One has only to look at the handle to identify the block-maker as each family uses a signature design in block handle. These blocks are sturdier and more durable but at the same time also more expensive.

The second type of blocks, which are cheaper, are made of two pieces of wood. The handle is attached to the carved block by two screws. The advantage of these blocks is that the handle can be manoeuvred to change position to different positions of printing.

- **Making air holes:** The blocks are usually sloped and narrower on the top and slanting towards the base. For intricate and closely carved designs, it is important to make holes running across the length and depth of the block to allow the trapped air to escape. Else, during stamping, air bubbles could cause smudging and smearing of the colour and spoil the clarity of the design. The passages help the air pass through them and allow the pattern lines to be printed neatly and precisely. Air holes are made using a big hand drill, locally known as pavansardi, which requires two people to handle. The air passages are called pavansar.
- **Seasoning of wood:** After carving, the new blocks are soaked in til (sesame), mustard or coconut oil for 10 to 15 days. The oil gets absorbed into the veins of the woodblock and softens the grain of the timber. This process helps in smoothening out the block edges, protecting it from warping (due to climatic changes or moisture) and increases its lifespan.
- **Taking impression of the block on paper:** To check the correctness of the block, its impression is taken on to paper. Printing ink is applied onto the block with potli and then it is stamped onto paper. An

impression tool (ghassaniyu) is rubbed onto it to check if the levelling and carving of the block has been done accurately and if any minor corrections are needed to be made.

Once the blocks are prepared, they go into the hands of the printer. The printer in his workshop has his simple, locally made equipment like printing table, print paste trays or colour trays and dye vats, if dying is required.



Fig. 4.11: Wood Blocks

Activities

Activity: Design your own Block and simulate the carving process

Materials Required:

- Linoleum blocks or potatoes (for DIY blocks)
- Pencil or marker
- Safe carving tools or plastic knives (for linoleum, small gouges)
- Fabric or Paper for printing
- Fabric paint, pigment dyes, binder, fixer or poster colours
- Mugs, Trays for Printing paste
- Jute, Sponge or brush for printing pad
- Newspaper or old cloth to protect the workspace

Procedure:

1. Sketch a simple pattern on paper. Keep designs basic (geometric shapes, motifs, or borders).

2. Draw the design onto the linoleum or potato block with a pencil or marker.
3. Carefully carve the block to create raised areas for printing. (For potatoes, cut carefully to leave the design raised.)
4. Pour paint or dye into a tray and spread evenly.
5. Press the carved block onto paper or fabric to check the design. Adjust as needed.
6. Apply paint evenly to the block and press firmly onto fabric or paper. Repeat to create patterns or borders.

What Have You Learned?

A. Fill in the Blanks

1. The outline block, known as _____ in North India, is the key block that defines the form of the pattern.
2. The background block carved in the intaglio style is called _____ in North India and Kappu in South India.
3. The chalk mixture called _____ is used for coating the woodblock before tracing the design.
4. The tool _____ is a flat straight blunt chisel used to remove wood around the drilled holes.
5. The air holes made in a woodblock to prevent smudging of the print are called _____.

B. Short Answer Questions

1. What is the purpose of making air holes in a woodblock?
2. Why is teak wood preferred for block making in India?

C. Long Answer Questions

1. Explain the process of carving a woodblock in block printing. Include the tools used and the steps followed.
2. Describe the five main steps involved in the block-making process at Pethapur, Gujarat.

Session: 3 Preparation of Hand Block Printing

The process of hand block printing is a traditional textile art that involves printing patterns on fabric using hand-carved wooden blocks. The process includes several steps such as fabric preparation, block carving, dye making, printing, drying and finishing. Each stage requires skill and precision to ensure the design is clear and long-lasting. This session takes through the complete step-by-step process, and helps understand how raw fabric is transformed into beautifully printed textiles using this age-old method.

4.3.1 Preparation of Fabric

Proper preparation of the fabric is essential to ensure good absorption of dyes and long-lasting prints.



Fig. 4.12: Preparation of Fabric

The key steps in preparing fabric for hand block printing are:

1. **Selection of Fabric:** The best fabrics for hand block printing are those made from natural fibres like cotton, silk, linen and wool, as they absorb dyes easily and hold the colours well. For best results, the fabric should be of high quality and free from any synthetic coatings, finishes

or starch, which can block dye absorption and affect the clarity of the print. Clean and smooth fabric allows the design to come out sharp and vibrant.

3. **Desizing and Degumming (Removing Starch & Impurities):** The raw fabric needs to be cleaned properly beforehand because it often contains starch, dust, and chemicals left from the manufacturing process. To remove these impurities, the fabric is washed in warm water using a mild detergent or soda ash. In traditional methods, natural materials like cow dung, soap nut (reetha), or myrobalan (harad) are used for desizing, especially for cotton fabrics. Desizing helps the fabric absorb dye better. In the case of silk fabrics, a similar cleaning process called degumming is done to remove the gum or sericin from the silk. These preparation steps are important to ensure the colours print clearly and last longer on the fabric.
4. **Bleaching (For Light-Colored Fabrics):** If a pure white or light-coloured base is required for hand block printing, the fabric goes through a bleaching process. This is done using hydrogen peroxide or other natural bleaching agents to remove any natural colour from the fabric and make it brighter. However, this step is not necessary if the desired look is an off-white or naturally coloured fabric, which is often preferred in traditional styles like Bagru printing. The decision to bleach depends on the final colour effect needed for the design.
5. **Mordanting (For Natural Dye Printing):** To help the fabric absorb dyes better and make the prints long-lasting, a mordant or fixing agent is applied before printing. Mordants create a strong bond between the dye and the fabric, improving colour fastness. Common mordants include alum (potassium aluminum sulfate), which brings out bright colours, iron (ferrous sulfate), which produces darker shades, and tannins from natural sources like myrobalan or pomegranate peel, which help in better dye bonding. The fabric is usually soaked in a mordant solution, then dried, and sometimes rewashed before printing. This important step ensures that the colours stay vibrant and do not fade easily after washing.
6. **Drying & Ironing:** Before starting the printing process, the fabric must be completely air-dried to prevent uneven dye absorption, which can affect the quality of the print. Once dry, the fabric is carefully ironed flat to remove any wrinkles and create a smooth surface. This helps in achieving precise and clean prints, as the wooden blocks can be pressed evenly onto the fabric without gaps or smudges.
7. **Stretching & Fixing on Table:** Before printing begins, the fabric is stretched and pinned tightly onto a printing table to prevent any movement while printing. This step is very important as it helps to keep the fabric in place, ensuring that each block is printed accurately and evenly. Proper alignment of the fabric allows the design to come out

neat and continuous, without any misplacement or smudging of the pattern.

Once the fabric is prepared, it is ready for the printing process, where artisans dip wooden blocks into dye and press them onto the fabric to create patterns.

4.3.2 Preparation of Blocks

Hand block printing is a traditional technique that involves using carved wooden blocks to print designs on fabric. The preparation of blocks is an important step that ensures high-quality and precise prints. The key steps involved in preparing blocks for hand block printing are as follows:

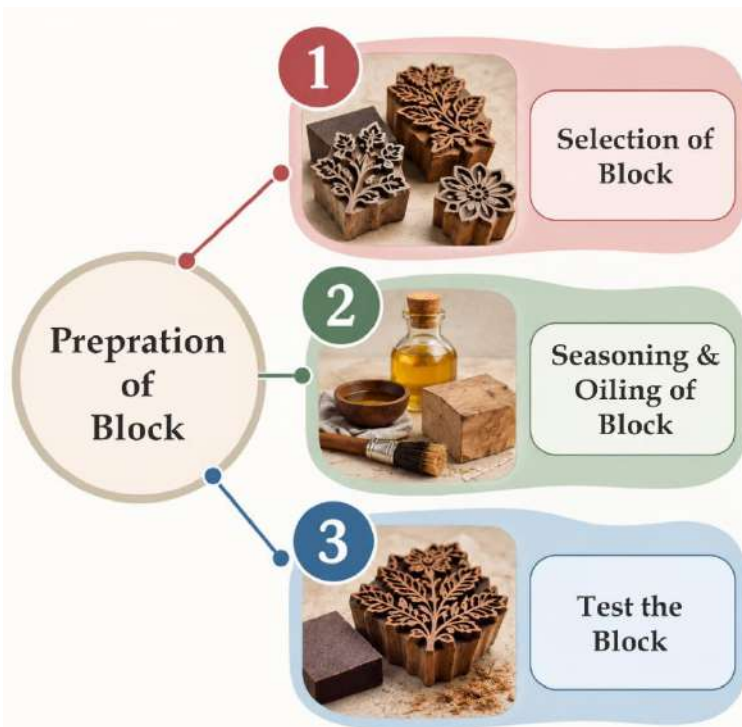


Fig. 4.13: Preparation of Blocks before Printing

1. **Selection of blocks:** In hand block printing, the first step in preparing the blocks is to select the appropriate wooden blocks based on the design and the number of colours to be used. Each colour in the design needs a separate block, and different blocks are made for outlines, fillers, and background patterns. Choosing the right blocks is important to ensure that the final print is clear, detailed, and well-aligned.
2. **Seasoning & Oiling:** Carved blocks absorb moisture during the printing process and it is important that the wood does not warp. To prevent warping, the carved block is soaked in oil (usually linseed oil) for a few days to enhance durability. They drain over wads of fabric for several days more cure. This also helps to soften the wood and keep it from absorbing too much dye.



Fig. 4.14: Seasoning & Oiling

Block carvers then drill tiny holes into areas intended for application of flat colour. Sometimes they stuff cotton into these holes at the time of printing ensures even colour application.

3. **Testing the Block:** Once the block is ready, the block is tested by pressing it onto paper or scrap fabric with ink or dye. Then adjustments are made if required to ensure a sharp and even impression. Proper maintenance and cleaning after each use extend the life of the block, ensuring beautiful prints for years.

To block print a design, artisans fill each element one block and one colour at a time. They also use separate sets of blocks to create the fabric borders. Just like the main design, a border design might require multiple sets of carved wood blocks.



Fig. 4.15: Testing of Block

4.3.3 Preparation of Dye Paste

In hand block printing, the dye paste plays a crucial role in ensuring uniform and long-lasting prints. The preparation of the dye paste involves selecting the right dyes, mixing them with appropriate binders and achieving the

desired consistency. The step-by-step guide to preparing dye paste for hand block printing is as follows:



Fig. 4.16: Steps of Dye Preparation

1. **Selection of Dye Type:** Different types of dyes are used in hand block printing depending on the type of fabric and the printing technique. Natural dyes are made from plants, roots, and minerals, such as indigo, madder, and turmeric, and are commonly used in traditional methods. Pigment dyes are used for surface printing and require a binder to fix the colour onto the fabric. Reactive dyes form a chemical bond with the fabric fibers, making the prints bright and long-lasting, especially on cotton and silk. Vat dyes are used mainly in resist printing techniques like batik and ajrakh, where the dye is absorbed into the fabric after a special chemical process. Each dye type has its own use and effect on the final print.
2. **Preparing the Base Solution:** The method of preparing dyes depends on whether natural or synthetic dyes are being used. For natural dyes, raw materials such as leaves, bark, or flowers are boiled in water to extract the natural colour. This process can take several hours and may also include adding mordants to improve colour strength. On the other hand, for synthetic dyes, the dye powder is dissolved in warm water to make a

concentrated solution. This method is quicker and gives a wide range of bright, consistent colours suitable for modern printing techniques.

3. **Adding Binders & Fixatives:** To ensure that the dye adheres properly to the fabric and produces a clear, long-lasting print, binders and fixatives are added to the dye paste. Binders help achieve the desired viscosity of the paste, while fixatives enhance the colour fastness. Ingredients like urea improve the hygroscopic property, softeners provide smoothness, and oils add a subtle shine to the paste. Gum Arabic or tamarind seed powder is commonly used as a thickening agent to create a smooth, even printing paste.

Alum or myrobalan acts as a mordant, especially when working with natural dyes, helping the colour bond firmly with the fabric. Urea or sodium alginate is also added to improve colour penetration and ensure smooth, uniform printing. Together, these substances play a vital role in improving the quality, clarity and durability of the printed design.

6. **Achieving the Right Consistency:** The dye paste used in hand block printing should have a smooth and creamy texture, and free of lumps, which is important for even and clean printing. It should be neither too thick nor too runny, as an incorrect consistency can cause smudging or uneven colour. To achieve the right texture, water or thickening agents like gum or tamarind seed powder are adjusted carefully. A well-prepared paste ensures that the design prints clearly and the colour spreads evenly on the fabric.
7. **Testing the Dye Paste:** Before starting the actual printing, a small amount of dye paste is tested on a piece of fabric to check the colour intensity and how well the dye is absorbed. This helps ensure that the paste is ready for printing. If the colour appears too light, dark, thick, or runny, adjustments are made by adding more binder, thickener, or water as needed. Testing the paste helps achieve the desired result and avoids mistakes during the final printing.
8. **Final Step: Using the Dye Paste for Printing:** Once the dye paste is prepared, it is either poured into wooden trays or spread onto printing pads to make it easy for printing. The artisan then dips the carved wooden block into the dye paste, ensuring that the block is evenly coated. The block is then pressed firmly onto the fabric to transfer the design. This process is repeated carefully to create intricate and continuous patterns across the fabric.

Colouring Methods in Hand Block Printing

- **Pigment Dyes:** Pigment dyes are prepared by mixing pigment colours with a binder. The paste should not be too thick or too thin. If it is too thick, it can leave a raised or uneven print on the fabric, which may

spoil the design. The prepared colour is usually kept in small plastic buckets with lids, which helps store it safely for a few days.

Pigment colours are very popular today because the process is easy, and the colours can be stored and reused. By mixing two or three colours, new shades can be created. Another advantage is that the colours are clearly visible while printing, and they do not change after drying or processing. Before starting printing, the colour can be tested directly on fabric to see the effect.

Pigment colour contains tiny particles that stay on the surface of the fabric instead of soaking in. This is different from some other dyes like rapid dyes or indigo, which go deep into the fabric.

- **Rapid Fast Colors:** In the Rapid Fast Colour printing process, both the background colour and the design colour are printed together in one step on white or light-coloured fabric. Once the dye is mixed, it must be used on the same day, as it cannot be stored for long. Common colours used in this method are black, red, orange, brown, and mustard. It is a quick method, but changing or mixing new shades is difficult. Also, while printing, it is hard to judge the exact colour quality or depth, so results may vary after drying. This technique is useful for fast production, but it needs careful handling to get good results.
- **Discharge Dyes:** Discharge dyes are used when we want to print on dark-coloured fabric. First, the fabric is dyed with a medium or dark base colour. Then, during printing, a special chemical is mixed with the dye colours. When this is printed on the fabric, the chemical removes (or bleaches) the dark colour from that area and adds the new colour in its place.

In some areas, only the chemical (without dye) can be used to remove the colour and leave it white. The biggest advantage of this method is that it allows bright colours and white designs to be printed on dark fabrics, which is not possible with many other printing techniques.

PREPARATION OF DIFFERENT COLOURS

Preparation of Black Color:

Black colour is traditionally prepared using Behda, Dhavda and copper. To make the black dye, about 5 kg of iron dust is first burnt, then cleaned and mixed with 2.5 kg of jaggery (gur) solution. This mixture is then diluted with 25 litres of water and poured into an earthen pitcher (mitti ka ghada). The pitcher is covered with a thin cotton cloth and left undisturbed for about three weeks to allow fermentation.

After fermentation, the thickened solution is mixed with guar gum (binder) in appropriate proportions for block printing. This black dye solution is locally

known as *Kasam*. The fermentation period typically lasts 10–15 days in summer and around 30 days in winter.

Black Dye paste is also prepared as follows:-

- Iron Sulphate + Harad + Fitkari (Alum)
- Dhavda Flowers (Safflowers) + Iron Sulphate + Harad
- Neel (Indigo) + Iron Sulphate + Harad
- Lal Geru (Red Earth) + Iron Sulphate + Fitkari (Alum)

Preparation of Red Color:

Red colour is traditionally prepared using lime, iron rust, jaggery (gur) and water. For red printing, the fabric is first mordanted with alum (fitkari) and then dyed with either alizarin or manjishtha. To prepare the red dye bath, a solution of alizarin (1 gram per litre) or manjishtha (10 grams per litre) is mixed with 20% alum and boiled until the quantity reduces to half.

After cooling to room temperature, this solution is blended with guar gum paste in a 1:1 proportion to form the red dye paste for block printing. Sometimes *geru* (iron oxide) is also used to achieve a red shade. In some traditional practices, printers use a copper vessel for preparing the mixture, allowing a reaction with copper sulphate that enhances the colour quality.

The other combinations for red color are as follows:

- Dhavde Flowers (Safflowers) + Harad
- Lakh + Hydraulic Acid + Copper Sulphate

Preparation of Blue Color:

For making blue colour, printers traditionally use *neel* (indigo). The dye is prepared using lime water and annatto seeds. In this process, an indigo solution is mixed with saline water and annatto seeds in an earthen pitcher, which is then buried in the earth for 2–3 weeks.

The natural heat from the ground helps the mixture ferment. The prepared paste is mixed with gum and applied to the fabric; it develops into a blue shade upon exposure to air through oxidation. Nowadays, many printers also use a combination of indigo, sodium hydrosulphite, caustic soda and Turkey Red Oil to prepare blue colour in a more controlled and faster manner.

Preparation of Yellow Colour:

Yellow colour is obtained from Harad flowers or Tesu flowers. To prepare it, about 250 grams of Harad flowers are boiled in 2 litres of water until the liquid reduces to half. The mixture is then filtered through a clean, thin cotton cloth to obtain the dye solution.

Other combinations for yellow color are as follows:

- Haldi (Turmeric) + Lemon Juice + Anar Ke Chhilke (Pomegranate Skin) + Alum
- Aam (Mango) (Fruit & Skin) + Alum.

Preparation of Green Colour:

When indigo-dyed fabric is dipped in a turmeric (haldi) solution, it develops a green colour on the surface.

Some other combinations are as follows for green color:

- Iron Sulphate + Haldi (Turmeric) + Anar ke Chhilke (Pomegranate Skin) + Alum + Indigo
- Mango Green Skin + Alum.

Haldi, Mehandi, Tesu, Kesar, Bhangh, Ratanjot, Kattha, Harsingar, Tea Leaves etc. are also used with some combinations. But vegetable colours are costly and time taking because of its processing. These colours cannot be stored for long time because they are spoiled by oxidizing. So it is necessary to prepare vegetable colors as per day's requirement. An important part of the hand block printing process is choosing the most suitable dyeing technique for the design. Some designs work well with easy-to-prepare pigment dyes, while others require the rich, natural tones produced by vegetable dyes. Certain patterns demand the strong colour fastness provided by rapid indigosol or discharge dyes.

After mixing and testing the dyes, it is time to prepare the dye pad.

4.3.4 Making of Colour Tray

For block printing, colour tray is used to put the colour dye paste and regular supply of colour for printing. The printer taps the block onto the colour tray to load the pigment and then presses it onto the fabric for printing. The colour tray is placed on a wheeled trolley, allowing it to be moved easily during the printing process.

Wooden tray: In hand block printing, the wooden tray is an essential tool used to hold the dye pad securely while ensuring even colour application. Made from sturdy wood with slightly raised edges, it provides a stable base for the pad and is often placed on a movable trolley for convenience.

Dye pad: The dye pad layering jute, felt, or sponge to create a soft, cushioned base that can absorb and release colour evenly. A smooth cotton cloth is tightly stretched over the top to ensure uniform colour distribution. The dye paste is then applied to the pad, which acts as a reservoir and enables the

block to pick up just the right amount of colour each time it is tapped onto the surface. Together, the wooden tray and well-prepared dye pad ensure clean, consistent and uniform prints throughout the printing process.

Trolley: The colour tray is placed on a movable trolley equipped with wheels. The printer moves this trolley around the printing table as needed. The trolley typically has two or three racks to hold the colour tray, blocks, rough cloths and other materials. It has two separate levels — the top level is used for the colour tray, while the lower level is used for storing blocks and essential tools such as brushes.

- **Step 1:** For making the colour tray very first dye paste is prepared by mixing thickener, binder and dye. The dye paste should not be very thick (disadvantage: dye will not give even printing) or watery (disadvantage: dye paste will spread over the fabric).
- **Step 2:** Now the tray (palia) is taken which is made of wood, generally the size of tray is 7 inches in breadth and 10 inches in length and 2 inches deep but sometimes sizes can be varies according to size of block. Now, the dye paste is transferred to the tray (palia) from the bucket.
- **Step 3:** After that put a net like square frame made of bamboo sticks called “THARTHARI” (bamboo sticks are tied with nylon thread in form of net)
- **Step 4:** Level of the colour will be equal to the level of tharthari on color tray.
- **Step 5:** When printing less intricate designs, a layer of mulmul fabric is placed on top of the jute fabric, and a layer of georgette is kept above the mulmul. However, for more intricate blocks, the order is reversed — georgette is placed directly over the jute fabric, and mulmul is placed on top of the georgette. This layering helps achieve the right level of softness and support needed for different levels of block intricacy.



Fig. 4.17: Colour Tray

4.2.6 Setting up for Printing

Before starting the printing process, proper setup is essential to ensure high-quality results. The key steps are as follows:

1. Preparing the Printing Table

- Normally two types of printing tables are used by the printers – One is small seating position table (used in Bagh, MP) and second one is large standing position table (used in Sanganer, Bagru & Bhuj etc.)
- A large, sturdy table is used as the base for printing. The surface is padded with multiple layers of jute fabric to create a soft yet firm foundation for even printing.
- On top of this padding, several layers of muslin (markeen) fabric are placed to form the final smooth surface on which the fabric is laid.
- The printing fabric is then stretched tightly and pinned to prevent any movement during the process.
- The table is always kept clean and dry to avoid unwanted stains or marks on the fabric.



Fig. 4.18: Printing Table

2. Preparing the Printing Blocks

- Wooden blocks are checked for any damage or irregularities before use.
- The carved surface of the block is cleaned with a soft brush to remove dust and residues.
- If new blocks are being used, they are soaked in oil for a few days to enhance durability.
- The back of the block is fitted with a handle for easy grip and precise stamping.

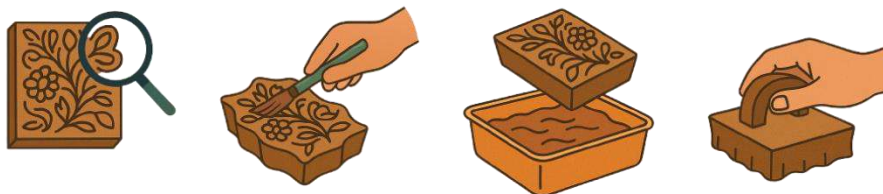


Fig. 4.19: Preparation of Blocks

3. Mixing and Preparing the Printing Paste

- Printing paste is prepared by mixing natural or synthetic dyes with a thickening agent (such as binder, gum arabic or rice starch) to prevent spreading.
- The consistency of the paste is adjusted to ensure smooth application and even absorption into the fabric.
- The color is tested on a small fabric sample to ensure accuracy before starting the main printing process.
- Different bowls are used for different colours to avoid contamination.

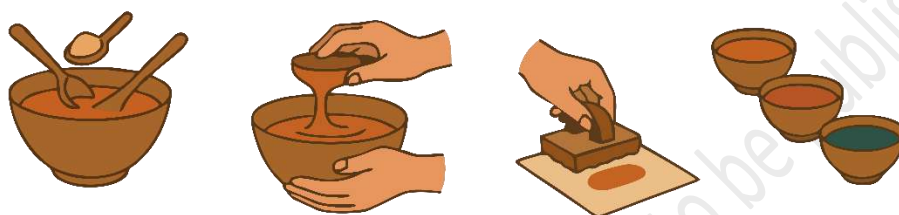


Fig. 4.20: Making of Paste

4. Preparing the Color Tray

- Color Tray consists of three parts- Wire Plate, Woolen Pad, Cotton Fabric Cover and squeeze to spread color even on the pad.
- Dye Solution pour into the tray and spread evenly. Dip woolen pad and cotton cover in dye and squeeze on surface.
- Use separate color tray to different color solution.



Fig. 4.21: Colour Tray

Once the setup is complete, the fabric is laid on the table and the printing process begins.

Activities

Activity: PowerPoint on Hand Block Printing Preparation

Materials Required: Computer or laptop with PowerPoint or Google Slides, Notes, textbooks, images, or sketches of hand block printing

Procedure:

1. Organize the class into groups of 3–5 students. Assign each group a topic: fabric preparation, block preparation, dye paste, colour tray, or printing table setup.
2. Each group researches their topic and creates slides using bullet points, images, and diagrams for clarity.
3. Groups present their slides in class and explain the key steps of hand block printing.

What Have You Learned?

A. Fill in the Blanks

1. The best fabrics for hand block printing are _____ fibers like cotton, silk and linen.
2. The process of removing starch and impurities from fabric is called _____.
3. To prevent wooden printing blocks from warping, they are soaked in _____ oil.
4. The wooden tray used to hold dye paste during printing is commonly known as a _____.
5. A mordant like _____ is used to enhance bright colours when using natural dyes.

B. Short Answer Questions

1. What is the purpose of desizing fabric before printing?
2. Name two common mordants used in hand block printing.
3. Why is the dye paste tested on a small piece of fabric before printing?
4. What are the materials used to make a dye pad?

C. Long Answer Questions

1. Explain the step-by-step process of preparing fabric for hand block printing, from selection to final setup on the printing table.
2. Describe how the dye paste and colour tray are prepared for hand block printing. Include ingredients, consistency, layering and usage.

Session: 4 Process of Hand Block Printing

Hand block printing is a traditional method of decorating fabric using carved wooden blocks and natural or synthetic dyes. The process involves several steps, including preparing the fabric, aligning it on the printing table, applying the dye with precision, drying, and post-treatment. Each step requires careful attention to ensure clear, even, and long-lasting designs. This method combines skill and technique to produce detailed patterns and vibrant colours, making it a valued textile art form even today. The three main stages of Printing Process are as follows:



Fig. 4.22: Stages of Hand Block Printing Process

1. Pre-treatment of Fabric

- Desizing / Degumming
- Scoring
- Bleaching

2. Preparation and Printing of Fabric

- Spreading
- Pinning
- Marking
- Printing

3. Post Treatment of Fabric

- Naturalizing (Whenever Required – i.e. Bagh & Tarapur)
- Dyeing & Mordanting (Color Fixing)
- Washing
- Drying

After printing, the following finishing processes need to be carried out, which includes:

- Quality Check (Visual & Dimensional)
- Ironing
- Packing

Step-by-Step Process of Hand Block Printing

1. Pre-Treatment of Fabric

- The raw fabric is thoroughly washed to remove starch, dust or any other impurities.
- It is often treated with a bleaching agent or a mild detergent.
- This step ensures the fabric absorbs the dye evenly and enhances print quality.
- After washing, the fabric is dried and ironed to remove wrinkles.



Fig. 4.23: Pre-Treatment of Fabric

2. Preparation and Printing of Fabric

- The fabric is stretched flat on the printing table and secured with small pins. Proper tension is important, and the surface is usually padded to ensure evenness.
- Artisans mark alignment points using chalk or thread to maintain consistency of the design across the fabric. These guides help in placing the block accurately for a seamless pattern.
- The dyes or pigments are prepared and kept ready for use.
- Wooden blocks with carved designs are dipped into natural or synthetic dye paste.
- Under the pigment tray, a layer of thick viscous liquid made from binder and glue creates a soft base that helps spread the colour evenly onto the block. A small squeeze tool is used to distribute the dye across the tray.
- The artisan presses the block onto the fabric with even pressure to transfer the design clearly.

- For multi-colour designs, each colour requires a separate block. The blocks are aligned carefully so that the colours fit together to form a complete pattern.
- This process is repeated meticulously, ensuring that each impression aligns perfectly. Skill and precision are essential to achieve a clean, vibrant, and continuous design.



Fig. 4.24: Printing Preparation & Printing

3. Post Treatment (Dyeing & Mordanting, Washing & Drying) (Setting the Print)

Neutralizing: It is done by spreading Lemon Juice over the printed motif, and left out for 24 hours.

Mordanting & Dyeing (Colour Fixing)

- It is done by boiling printed fabric only or with addition of “Anar ka chhilka” or “Anar ke Phool” i.e Pomegranate Skin & Flowers.
- Some natural acids (NaCl) are also used which acts as the color carriers, which helps dye molecules to penetrate inside the fiber.
- After this the printed fabric is leaved for 10-15 days in open/humid atmosphere for fixation of colors over fabric. After printing, the fabric is left to dry naturally under the sun.
- This step ensures the dye is absorbed properly and prevents smudging.
- The drying time depends on the type of dye used and the weather conditions.
- It is rolled in wads of newspapers to prevent the dye from adhering to other layers and steamed in boilers constructed for the purpose. Silks are also steamed this way after printing. After steaming, the material is washed thoroughly in large quantities of water and dried in the sun, after which it is finished by ironing out single layers, which fix the colour permanently.



Fig. 4.25: Mordanting & Dyeing (Color Fixing)

Washing (Fixing the Colour and Removing Excess Dye)

- After printing and post-treatment, fabrics are washed with water and natural detergents such as reetha, amla, and shikakai.
- Initial washing is done in running water from rivers like the Kshipra (Bhairavgarh-Ujjain) or Bagh River (Bagh-Dhar) to allow natural salts and minerals to be absorbed by the fabric.
- This is followed by washing in large stagnant water tanks, repeated 4–5 times for better results.
- A final wash removes any remaining dye or residues.
- Some fabrics are treated with mordants or fixers to enhance colour fastness.



Fig. 4.26: Washing



Fig. 4.27: Drying

Quality Check:

Quality check in hand block printing is done in two ways: visual and dimensional.

- **Visual Method:** The artisan inspects the fabric for visible defects such as holes, cuts, uneven colour spreading, colour variations, or imperfect block impressions.
- **Dimensional Method:** The printed fabric is measured for length, width, and shrinkage to ensure it meets the required specifications.

Finishing & Pressing:

After the printed fabric has dried, it undergoes finishing and pressing. The fabric is trimmed to remove extra threads, and corners and edges are smoothed. Any loose thread pieces are carefully removed.

The finished fabric is then ironed to remove wrinkles and enhance appearance. After pressing, the fabric is folded according to market or buyer requirements, ready for sale or further value addition if needed.

Value Addition in Hand Block Printed Fabrics

Traditionally, printers supplied finished, pressed, folded, and packed printed fabrics. Some buyers or importers, however, required additional embellishments, known as value addition. Earlier, printers focused only on printing, and value addition was outsourced to vendors or buying houses. Today, many printers also perform value addition themselves, which increases product demand and profit margins.

Common Value Addition Techniques:

- Traditional Hand Embroidery
- Computerized Embroidery
- Beadwork
- Sequins Work
- Patchwork
- Appliqué Work

Activities

Activity: To prepare samples of block printing

Materials Needed:

- Cotton fabric samples (prewashed)
- Ready-made wooden blocks
- Pigments, binder, urea, fixer
- Printing tray
- Sponge pads, Jute and muslin fabric
- Newspaper or old cloth (to protect desks)
- Aprons or old shirts for students
- Rough fabric for testing
- All pins to hold fabric in place

Procedure:

1. Secure the fabric on the printing table using pins.
2. Select the wooden blocks: border, buti, and jaal.
3. Mark the fabric to guide block placement.
4. Prepare dye paste and printing pad.
5. Dip the block lightly into the dye tray

6. Press the block firmly onto the fabric to create patterns.
7. Practice creating corners using the border block, placing buti designs, and using the jaal block.
8. Experiment with different placements and arrangements of buti blocks.

What Have You Learned?

A. Fill in the Blanks

1. The fabric is thoroughly _____ before printing to remove starch, dust or impurities.
2. Artisans use _____ or thread to mark alignment points on the fabric.
3. The soft base under the pigment tray is made using a viscous liquid of pigment _____ and glue.
4. The fabric is dried under the _____ to allow the dye to set properly.
5. After steaming, the fabric is _____ to fix the colours permanently.

B. Short Answer Questions

1. What is the purpose of desizing or degumming the fabric?
2. Why is the fabric stretched and pinned on the printing table?
3. Define mordanting.
4. Name two types of quality checks in hand block printing.
5. Give two examples of value addition done on printed fabrics.

C. Long Answer Questions

1. Describe the process of printing using wooden blocks in hand block printing,
2. Explain the steps involved in drying and post-treatment of printed fabric.

Module 5 Product Development

Introduction

Product development in hand block printing is an essential process that enhances the utility and market appeal of traditional printed textiles. It involves converting block-printed fabrics into various finished products like garments, home decor items and accessories. Diversification plays a significant role in this stage, where artisans and designers explore new motifs, s, layouts and types of fabric to keep pace with modern trends. By blending traditional designs with contemporary concepts, hand block printing has expanded into new markets and product categories. This process also includes the use of eco-friendly dyes, fusion of techniques and innovative surface ornamentation to add value. The development phase includes design planning, sampling and collaboration between artisans and designers to ensure uniqueness and market relevance. Finishing is the final and crucial step in product development, involving washing, steaming, ironing, trimming and quality control. These steps help improve the texture, fastness and overall look of the product. With a focus on creativity and craftsmanship, product development ensures that hand block printed items meet both artistic standards and consumer needs.

Learning Outcomes	
After completing this module, you will be able to:	
• Explain diversification of hand block printing • Development of different hand block printing product • Describe finishing of hand block printing products	
Module Structure	
Session:1	Diversification in Application of Hand Block Printing
Session:2	Development of Hand Block Printing Products
Session:3	Finishing of Hand Block Printing Products

Session: 1 Diversification in Application of Hand Block Printing

Hand block printing is one of India's oldest textile art forms, where carved wooden blocks are dipped in dye and stamped onto fabric. Traditionally used for making sarees and dress materials, today this skill has diversified into many product categories to suit modern lifestyles, increase market value and sustain artisan's livelihoods.

Hand block printing has diversified significantly beyond traditional garments, integrating into modern fashion, home décor and various life style products. This expansion is driven by consumer demand for unique, artistic and sustainable items. Hand block printing primary application remains in textile, where it has expanded from traditional wear to modern global style.

Diversification is important because:

- It opens up new markets and customers
- Helps in income generation for artisans
- Keeps the traditional craft alive in a modern, competitive world
- Encourages creative innovation in design and usage

5.1.1 Product Diversification in Hand Block Printing



Fig. 5.1: Product Diversification in Hand Block Printing

1. **Apparel (Clothing):** Hand block printing has moved far beyond traditional garments. Today, it is extensively used in fashionwear across all age groups.

Products include:

- Traditional wear: Sarees, salwar-kameez, dupattas, lehengas and stoles
- Menswear: Shirts, kurtas, Nehru jackets and scarves
- Western & fusion wear: Dresses, tops, skirts, trousers, jumpsuits, tunics and shrugs

Trends in Apparel Diversification:

- Use of block prints in designer wear and boutique collections

- Collaboration with fashion designers for new silhouettes using traditional prints
- Mixing block prints with embroidery, patchwork or digital prints for a fusion look

2. **Home Décor:** Block prints add a natural and artistic feel to interior spaces. This category has seen tremendous growth due to the demand for ethnic and eco-friendly home decor.

Products include:

- Bedding: Bedsheets, pillow covers, comforters, quilts (razai), dohars
- Living Room Textiles: Cushion covers, curtains, throws, floor cushions
- Dining Accessories: Tablecloths, placemats, napkins and table runners
- Kitchen Linen: Aprons, mittens, tea towels

Key Features:

- Use of natural dyes and cotton fabrics makes them sustainable
- Suitable for urban, rural and export markets
- Popular for gifting and festive purchases

4. **Accessories:** Accessories made from block-printed fabrics offer unique fashion elements with an ethnic touch.

Products include:

- Bags: Tote bags, clutches, handbags, laptop sleeves, pouches
- Wearable Accessories: Scarves, stoles, mufflers, bandanas, belts
- Footwear: Block-printed uppers on juttis, sandals and slippers

Why Popular:

- They combine style with tradition
- Affordable and make great gifts
- High demand in both urban and export markets

5. **Stationery & Gift Items:** Block printed paper and cloth products are appreciated for their handmade, aesthetic and eco-friendly appeal.

Products include:

- Paper-based: Notebooks, journals, greeting cards, envelopes, calendars, bookmarks
- Fabric-based: Pen holders, fabric-covered diaries, gift bags
- Gift packaging: Wrapping paper, handmade boxes, tags

Highlights:

- Often made using recycled or handmade paper
- Attractive for festivals, birthdays and corporate gifting
- Supported by NGOs and craft-based enterprises

6. **Lifestyle and Décor:** This segment reflects the use of block printing in creative, non-textile applications and artistic products for interiors and gifting.

Products include:

- Wall décor: Block-printed canvases, fabric wall hangings, tapestries
- Utility décor: Lampshades, coasters, trays, storage boxes, planters
- Personal lifestyle items: Yoga mat bags, eyewear cases, mobile covers organizers
- Seasonal décor: Festive buntings, gift hampers, decorative hangings

Market Trends:

- Growing trend for handmade and artisanal home products
- Strong online sales through platforms like Etsy, Amazon Handmade and craft exhibitions
- Promoted in urban homes, cafes, boutiques and lifestyle stores

5.1.2 Benefits of Product Diversification in Hand Block Printing

- **Increases Market Reach:** By applying hand block printing to clothing, home textiles, accessories, and gift items, artisans can reach a wider audience and cater to diverse consumer needs.
- **Encourages Entrepreneurship:** Diversifying products motivates young artisans and designers to start their own ventures, fostering innovation and small-scale businesses.
- **Boosts Rural Employment:** Expanding the range of products creates more job opportunities in rural craft clusters where hand block printing is traditionally practiced.
- **Preserves and Modernizes Traditional Art:** Combining traditional techniques with contemporary designs ensures that this heritage craft remains relevant and appealing in modern markets.

- **Responds to Global Demand:** Eco-conscious and handmade products are increasingly valued worldwide, and product diversification allows artisans to tap into these growing markets.

Diversification has transformed hand block printing from a single-purpose textile craft into a versatile, multi-dimensional design industry. By creatively applying printing techniques to apparel, home décor, lifestyle products, and accessories, artisans can build sustainable businesses while preserving and promoting their cultural heritage.

Activities

Activity 1: Block printing on existing products

Materials Needed:

- Plain products/ fabrics (cushion covers, table mats, curtains, runners, tote bags etc) (prewashed)
- Ready-made wooden blocks
- Pigments, binder, urea, fixer
- Printing tray, Sponge pads, Jute and muslin fabric
- Newspaper or old cloth (to protect desks)
- Aprons or old shirts for students
- Rough fabric for testing
- All pins to hold fabric in place

Procedure:

1. Secure the fabric on the printing table using pins.
2. Insert newspaper sheets in between the layers, if required, to prevent penetration of colours.
3. Select the wooden blocks: border, buti, and jaal.
4. Mark the fabric with thread and *neel* to guide block placement.
5. Prepare dye paste and printing pad.
6. Dip the block lightly into the dye tray
7. Press the block firmly onto the fabric to create patterns.
8. For multi-colour designs, use different blocks for each colour,
9. Let the printed product dry completely. Optionally, heat-set the fabric using ironing or putting it in sunlight for sometime.
10. In case of a fabric, complete finishing steps like cutting, stitching, or folding to simulate the final product.

Activity 2: Value Addition Brainstorming

Materials Required: Sketchbooks, magazines.

Procedure:

1. Analyze traditional block-printed products.
2. Suggest modern finishes or embellishments that could enhance the design (e.g., sequins on a dupatta, appliqué on a bag).
3. Present ideas with sketches or mock-ups.
4. Discuss how these additions affect marketability and artisan income.

What Have You Learned?

A. Fill in the Blanks

1. Hand block printing is a traditional art form that uses carved _____ to print designs on fabric.
2. In the accessories category, block printed fabric is commonly used for making _____, wallets and scarves.
3. Home furnishing products like bedsheets, curtains and cushion covers are examples of _____ diversification.
4. Lifestyle and décor products include items like wall hangings, _____ and lamp shades.
5. The use of block printing in diaries, bookmarks and gift wraps belongs to the _____ and gift item category.

B. Short Answer Questions

1. Name any two block-printed products used in home furnishing.
2. What is product diversification in hand block printing?
3. Mention one benefit of value addition in block-printed products.
4. Why is diversification important for rural artisans?
5. What does “finishing” involve in hand block printing?

C. Long Answer Questions

1. Explain the importance of product diversification in hand block printing. Give examples of diversified products in apparel, home décor, and accessories.
2. How does value addition improve the market appeal and profitability of hand block-printed items? Provide at least three examples.

Session: 2 Development of Hand Block Printed Products

Planning and designing are critical stages in the hand block printing process, ensuring that the final product is functional, aesthetically appealing, and market-ready. It involves defining the purpose of the product, researching current trends, selecting appropriate materials, tools, and techniques, and integrating sustainability. Product construction follows with concept development, sampling, feedback, and finalizing specifications. In the development phase, hand block printed products—ranging from apparel to home décor, accessories, and stationery—are carefully crafted to meet both artistic and consumer expectations. This systematic approach allows artisans to create innovative, diversified, and eco-friendly products that preserve traditional craft while appealing to modern markets.

5.2.1 Planning and Designing of Hand Block Printed Products

Planning and designing a product involve defining its purpose, researching trends, choosing materials etc. Designing involves planning of product as per the market or buyer requirements. The raw material requirement for the product is estimated according to the design of this stage. The planning and designing involves:



Fig. 5.2: Planning & Designing

- 1. Define Purpose:** Determine the purpose of hand block printing product. Understand the target audience and design accordingly.
- 2. Research and Trends:** Explore current trends in hand block printing product design and its sustainability. Gather inspiration from successful designs and eco-friendly practices.

3. **Budget and Quantity:** Establish a budget for production, considering design complexity and materials. Determine the quantity of hand block printing product required for the intended purpose.
4. **Material Selection:** Choose the type of hand block printing material based on durability, options and environmental impact. Consider incorporating other eco-friendly materials if necessary.
5. **Tools & Techniques:** Research and choose appropriate tools & techniques in the process of product development.
6. **Regulatory Compliance:** Be aware of any regulations or standards related to hand block printing production. Ensure compliance with eco-friendly and fair-trade certifications if applicable.

5.2.2 Describe Product Construction

Product construction involves concept development, sustainability integration, feedback and refinement and finalize design specification.



Fig. 5.3: Product Construction

1. **Concept Development:** Brainstorm and sketch initial concepts for the hand block printing product design.
2. **Sustainability Integration:** Infuse sustainability into the design, considering eco-friendly s, minimalistic patterns and reusable features. Avoid excessive embellishments that may not be environmentally friendly.
3. **Feedback and Refinement:** Share the design with stakeholders, colleagues or potential users to gather feedback. Refine the design based on feedback received.

- 4. Finalize Design Specifications:** Make any necessary refinements and finalize design specifications. Include details such as dimensions, and any other requirements.

By following this comprehensive planning and designing process, you can create aesthetically pleasing, functional and eco-friendly hand block printing products that align with the brand values and appeal to your target audience.

5.2.3 Development of Hand Block Printed Products

Building on the concept of diversification discussed in the previous session, artisans can now focus on developing specific hand block printed products across various categories. The diversification approach allows them to apply traditional block printing techniques to a wide range of items, including apparel, home décor, accessories, stationery, and lifestyle products.

By selecting the product type, materials, motifs, and techniques, designers and artisans can create market-relevant, aesthetically appealing, and functional items that cater to contemporary consumer demands.

APPAREL

1. Skirt

Given below is a detailed guide on the materials required and step-by-step process for making a hand block printed skirt:

Materials Required:

1. **Fabric** – Cotton or silk (as per choice)
2. **Wooden Blocks** – With desired carved motifs
3. **Pigment or Natural Dyes** – Fabric-friendly s
4. **Printing Table** – Padded table for printing
5. **Printing Tray & Sponge** – For even application of
6. **Measuring Tape & Chalk** – For marking fabric
7. **Tailoring Tools** – Scissors, pins, sewing thread, sewing machine
8. **Iron** – For pre- and post-printing
9. **Bucket & Water** – For washing and dye mixing
10. **Lining Fabric or Waistband Elastic** – Optional, based on skirt design

Procedure:

1. Fabric Preparation

- Wash the fabric to remove starch and impurities.
- Dry and iron the fabric to create a smooth surface for printing.

2. Design Selection

- Choose the design/motif for the block printing.
- Select appropriate blocks and schemes based on the theme of the skirt.

3. Block Printing

- Secure the fabric on the padded printing table using pins.
- Insert newspaper sheets in between the layers, if required, to prevent penetration of colours.
- Select the wooden blocks as per the design and product.
- Mark the fabric with thread and neel to guide block placement.
- Prepare dye paste and printing pad.
- Dip the block lightly into the dye tray
- Press the block firmly onto the fabric to create patterns.
- For multi-colour designs, use different blocks for each colour,
- Let the printed product dry completely.

4. Fixing the Colour

- Depending on the dye used, fix the by heat setting (ironing) or washing in a mild solution (as needed).

5. Cutting the Fabric

- Take body measurements (waist, hips and length).
- Use chalk to mark and cut fabric panels according to the skirt pattern.

6. Stitching

- Stitch the side seams of the skirt.
- Add waistband (with elastic or drawstring) and hem the bottom.
- Attach lining if required.

7. Finishing

- Iron the skirt neatly.
- Do a final quality check for print clarity, stitching and fitting.



Fig. 5.4: Block Printed Skirt

2. Stole for women

A stole is a long, narrow piece of fabric worn around the shoulders or neck, often used as a fashion accessory or for modesty. For women, it is typically lighter and more decorative than a shawl and is often worn over traditional or modern outfits. It can be printed, embroidered or embellished with various techniques.

Materials Required:

1. **Fabric** – Cotton, silk, chiffon, linen (approx. 2 meters x 20 inches)
2. **Wooden Printing Blocks** – Carved with motifs of choice
3. **Pigment or Natural Dyes** – Fabric-safe s
4. **Padded Printing Table** – Flat and cushioned surface
5. **Printing Tray & Sponge** – For applying dyes to blocks
6. **Measuring Tape & Tailor's Chalk** – For accurate layout
7. **Water, Bucket & Mild Detergent** – For fabric washing and dye setting
8. **Iron** – For pre- and post-printing
9. **Scissors & Pins** – For trimming edges
10. **Needle & Thread / Sewing Machine** – For hemming if needed

Procedure:

1. Fabric Preparation

- Select lightweight, absorbent fabric (e.g., cotton voile or silk).
- Wash the fabric to remove any starch or chemicals.
- Dry and iron it to ensure a smooth surface.

2. Design and Planning

- Choose the design theme: floral, paisley, geometric, etc.

- Select the appropriate wooden blocks and dye s.

3. Block Printing

- Secure the fabric on the padded printing table using pins.
- Select the wooden blocks as per the design and product.
- Mark the fabric with thread and neel to guide block placement.
- Prepare dye paste and printing pad.
- Dip the block lightly into the dye tray
- Press the block firmly onto the fabric to create patterns.
- For multi-colour designs, use different blocks for each colour,
- Let the printed product dry completely.

4. Drying and Fixing the Colour

- Allow the printed fabric to air dry.
- Fix the colour by either ironing or treating with a dye-fixing solution, depending on the dye used.

5. Finishing the Stole

- Trim edges to straighten them.
- Hem the borders by hand or machine stitching for a neat finish.
- Optionally, add tassels, lace or light embellishments.

6. Final Pressing

- Iron the stole neatly to enhance its look.
- It is now ready for use or sale.



Fig. 5.5: Block Printed Stole

3. Scarves for Men

A scarf for men is a long, rectangular piece of fabric worn around the neck for warmth, style or cultural tradition. It can be made of various materials such as wool, cotton, silk or linen. In addition to being practical during colder seasons, scarves are also popular as fashion accessories and are often decorated using printing, weaving or embroidery techniques. A hand block printed scarf adds a traditional touch to a man's wardrobe.

Materials Required:

1. **Fabric** – Cotton, silk, wool, linen (approx. 1.5–2 meters x 20–25 inches)
2. **Wooden Printing Blocks** – With masculine or geometric designs
3. **Natural or Pigment Dyes** – Suitable for the chosen fabric
4. **Padded Printing Table** – For smooth and clean printing
5. **Printing Tray & Sponge** – For dye application
6. **Water & Detergent** – For washing and preparing fabric
7. **Measuring Tape & Tailor's Chalk** – For layout and cutting
8. **Scissors, Pins, Iron** – For trimming and finishing
9. **Sewing Machine or Needle & Thread** – For hemming the edges

Procedure:

1. Fabric Preparation

- Wash the selected fabric to remove starch.
- Dry and iron the fabric to get a smooth base for printing.

2. Design Planning

- Choose appropriate blocks like stripes, checks, paisleys or geometric patterns.
- Select design and colours that suit men's fashion preferences.

3. Block Printing

- Spread the fabric evenly on the padded printing table.
- Dip the wooden block into the dye using a sponge tray.
- Press the block firmly onto the fabric and repeat in an aligned pattern.
- Allow each section to dry before printing overlapping areas (if any).

4. Drying and Fixing

- Let the printed fabric air dry completely.

- Fix the colours by ironing or using a -fixing solution, depending on the type of dye used.

5. Finishing the Scarf

- Trim the edges evenly using scissors.
- Hem all sides by hand or machine to prevent fraying.
- Optionally, add tassels or fringes at the ends for a decorative touch.

6. Final Pressing

- Iron the scarf for a clean and professional finish.
- Fold and store or package the scarf for use or sale.

HOME DECOR

1. Tabel Runner

A table runner is a long, narrow decorative piece of fabric placed lengthwise or across the centre of a table. It enhances the visual appeal of the table while also protecting it from spills, stains and heat. Usually rectangular in shape, a table runner can be used over a tablecloth or directly on the table surface.

Its size varies depending on the table length, with common widths ranging from 12 to 16 inches. Table runners add colour, pattern or texture to plain tables, highlight centrepieces such as vases, candles or fruit bowls, and are widely used in festive settings, dining décor and weddings.

Materials Required:

1. **Fabric** – Cotton, Linen or Khadi (1.5 to 2 meters, depending on table size)
2. **Wooden printing blocks** – Floral, geometric or traditional motifs
3. **Fabrics/dyes** – Fast (pigment or natural dyes)
4. **Tray or sponge pad** – For applying to block
5. **Brush or roller** – For even application of dye on blocks
6. **Cutting tools** – Scissors or rotary cutter
7. **Ruler and chalk/pencil** – For marking measurements
8. **Measuring tape**
9. **Iron** – For pre and post-treatment
10. **Newspaper or plastic sheet** – To protect the working area
11. **Water and detergent** – For pre-wash and cleaning

12. **Needle and thread/sewing machine** – For hemming edges (optional: lace or border)

Procedure:

Step 1: Pre-Treatment of Fabric

- Wash and dry the fabric to remove starch or dirt.
- Iron the fabric to remove wrinkles for a smooth printing surface.

Step 2: Cutting and Marking

- Cut the fabric to the desired table runner size (e.g., 14 x 60 inches).
- Mark a border area where you do not want prints.
- Fix the fabric on a flat surface using tape or weights.

Step 3: Preparing the

- Pour the fabric into a tray or spread over a sponge pad.
- Use a roller or brush to spread the evenly on the block surface.

Step 4: Block Printing

- Dip the wooden block in the dye (do not overload).
- Press the block firmly on the fabric with even pressure.
- Lift the block gently to avoid smudging.
- Repeat the pattern or alternate blocks as desired across the runner.
- Allow the print to dry for several hours.

Step 5: Fixing the

- Iron the back side of the fabric (if using pigment s) or follow dye-specific fixation instructions.
- Wash gently in cold water if required after 24–48 hours.

Step 6: Finishing

- Hem all sides neatly using needle and thread or a sewing machine.
- Optionally, stitch lace or decorative borders for added appeal.
- Final press the finished runner.



Fig. 5.6: Table runner

2. Cushion Covers

A cushion cover is a removable fabric case designed to encase and protect a cushion or pillow while enhancing the look of furniture such as sofas, beds and chairs. Cushion covers are generally square or rectangular, with common sizes including 16"x16", 18"x18" and 20"x20". They come with different types of closures such as zippers, buttons, envelope-style flaps or tie-ups, depending on the design and functionality.

Materials Required:

1. **Fabric** – Cotton, Khadi, Linen (cut into two square pieces per cover)
2. **Wooden blocks** – Traditional, floral or geometric designs
3. **Fabric colours/dyes** – Pigment or natural dyes
4. **Printing tray or sponge pad** – For applying dye to the block
5. **Brush or roller** – For spreading dye evenly
6. Measuring tape and fabric chalk/pencil
7. Scissors or rotary cutter
8. Sewing thread (matching or contrast)
9. Sewing machine or needle – For stitching
10. **Fasteners** – Zipper, buttons or Velcro (optional)
11. **Iron** – For pre- and post-printing
12. **Newspaper or plastic sheet** – To protect the table surface

Procedure:**Step 1: Pre-Treat the Fabric**

- Wash the fabric to remove starch or impurities.
- Dry and iron the fabric to prepare for block printing.

Step 2: Cut the Fabric

- Cut two square pieces according to cushion size (e.g., 18"x18" + 1" seam allowance = 19"x19").
- One piece will be for the front (printed side) and the other for the back.

Step 3: Prepare for Printing

- Lay the front fabric piece flat on a clean surface.
- Place newspaper or plastic underneath.
- Arrange your design using chalk if needed.

Step 4: Block Printing

- Dip the block into fabric dye using a sponge pad or tray.
- Press the block evenly onto the fabric.
- Lift gently and repeat the pattern as desired.
- Allow the printed fabric to dry completely (at least 4–6 hours).

Step 5: Fix the colour

- Iron the printed fabric on the reverse side to fix the colour.
- Follow any specific fixing methods for the dye used.

Step 6: Stitching

- Place the front and back pieces right sides together.
- Stitch on three sides and part of the fourth (leave an opening for inserting the cushion).
- Turn it inside out and iron the edges neatly.

Step 7: Insert Closure (Optional)

- Add a zipper, buttons or Velcro to the opening.
- Insert the cushion and close.

Optional Decoration:

- Add lace, tassels or piping around the edges for a finished look.



Fig. 5.7: Cushion cover

3. Napkins

A napkin is a small square or rectangular piece of cloth used during meals to wipe the mouth and hands, protect clothing from spills and wrap cutlery or present table décor. Cloth napkins are often used in formal dining settings, restaurants and home décor.

There are many uses of napkins like table setting for aesthetic and hygiene, reusable alternative to tissue paper, can be folded decoratively in fine dining and also used as gift wraps, party favors or home accessories.

Materials Required:

1. **Fabric** – Lightweight cotton, linen or khadi (white or light-ed works best)
2. **Wooden printing blocks** – Floral, ethnic or geometric designs
3. **Fabric s/dyes** – Pigment or natural dyes
4. **Sponge pad or tray** – For dye application
5. **Brush or roller** – To apply on block
6. **Scissors** – For cutting fabric
7. Measuring tape or ruler
8. **Tailor's chalk/pencil** – For marking dimensions

9. **Iron** – For pressing before and after printing
10. **Sewing thread & needle / sewing machine** – For hemming edges
11. **Protective sheet/newspaper** – To cover your work surface

Procedure:

Step 1: Fabric Preparation

- Wash and dry the fabric to remove starch and impurities.
- Iron to ensure a smooth surface.

Step 2: Cutting

- Cut fabric into squares – commonly 12"x12", 16"x16" or 18"x18".
- Add 1 inch extra on each side for hemming.

Step 3: Hemming the Edges

- Fold $\frac{1}{2}$ inch inward on all sides twice.
- Press with an iron and sew using a straight stitch.
- This gives the napkin a neat finish and prevents fraying.

Step 4: Prepare for Printing

- Place the hemmed napkin on a clean surface with newspaper underneath.
- Arrange the design layout (corner print, border or full surface).

Step 5: Block Printing

- Apply to the block using a sponge or tray.
- Press the block firmly onto the fabric.
- Repeat patterns evenly across all napkins.
- Let the napkins dry thoroughly.

Step 6: Fixing the

- Iron the napkins on the reverse side to fix the (if using pigment dye).
- Follow the fixing method recommended for the dye used.

Step 7: Final Touch

- Trim loose threads.
- Iron neatly and stack or pack as a set.

Design Ideas for Napkins:

- Border design (all four sides)
- Motif in one or all four corners
- Centre-placed circle block print
- Matching set with tablecloth or runner



Fig. 5.8: Napkin

ACCESSORIES**1. Bags & Pouches**

Bags are larger fabric containers with handles or straps used to carry items like books, clothes, groceries etc. and pouches are smaller, soft, usually zippered or tied bags used to carry small items such as cosmetics, stationery, coins or accessories.

Materials Required:

1. **Fabric** – Cotton canvas, khadi, jute, denim or thick cotton
2. **Wooden blocks** – For traditional or contemporary designs
3. **Fabric s/dyes** – Pigment or natural dyes
4. **Sponge pad or tray** – To apply dye evenly
5. **Brush or roller** – For application on the block
6. Tailor's chalk and measuring tape
7. Scissors or rotary cutter
8. Thread and sewing machine / hand needle
9. Zipper / drawstring / buttons / Velcro (for pouches)
10. Handles / straps (for bags, made of cloth, rope or canvas)

11. **Iron** – For pre- and post-treatment
12. **Lining fabric** – (Optional) for finishing the inside

Procedure:

Fabric Preparation

1. Wash the fabric to remove any starch or impurities.
2. Dry and iron the fabric to make it flat and smooth.
3. Cut fabric to desired size:
 - Bag (Tote): 15" x 35" (folded in half makes 15" x 17.5")
 - Pouch: 9" x 12" (can vary based on purpose)
4. Spread the fabric flat and place newspaper or plastic underneath.
5. Dip the block in using a sponge or tray and press it firmly onto the fabric.
6. Repeat the print design as desired (full coverage, borders or centre motifs).
7. Let the fabric dry completely for 4-6 hours.

Fixing the

1. Iron the reverse side of the printed fabric to fix the (if using pigment s).
2. Follow dye-specific setting instructions if using natural dyes.

Stitching the Bag or Pouch

For Bags (Simple Tote):

- a. Fold printed fabric in half (right sides facing in).
- b. Stitch the sides and bottom, leaving the top open.
- c. Hem the top edge neatly.
- d. Attach handles/straps (either stitched from same fabric or readymade).
- e. Turn inside out and press.

For Pouches:

- a. Fold the fabric in half and stitch the sides and bottom.
- b. Attach a zipper or drawstring at the top.
- c. Optional: Add lining fabric inside for a cleaner finish.
- d. Turn inside out and press.

Decoration (Optional):

- Add lace, tassels, piping or small embroidery for extra beauty.

Project Ideas:

- Block printed gift bags for festivals
- Personalized pencil pouches for students
- Eco-friendly Shopping bags, lunch bags and laptop bags.



Fig. 5.9: Bag & Pouch

LIFESTYLE & DÉCOR**1. Wall Décor:****Block Printed Wall Art**

Wall art refers to any artistic decoration applied to or displayed on walls, including paintings, murals, stickers, fabric panels or direct prints. Block printed wall art is a process where hand-carved wooden blocks are used to print designs directly onto a wall, creating patterns and motifs as part of home or institutional décor. Wall Art enhances interior design with traditional or modern aesthetics, adds a handmade, artistic touch to living spaces, acts as a focal point in halls, bedrooms, offices, studios or shops, also used in hotels, craft boutiques or cultural institutions.

Materials Required:

1. **Wooden blocks** – Traditional motifs like paisley, floral, geometric, tribal, etc.
2. **Wall-friendly paints** – Acrylic or emulsion paints (quick drying, durable)

3. **Paint tray or sponge pad** – For applying paint evenly on the block
4. **Roller or sponge brush** – To load paint onto blocks
5. **Painter's tape/masking tape** – For marking boundaries or keeping alignment
6. **Ruler / level** – For straight and even alignment
7. **Cleaning cloth & gloves** – For cleanup and protection
8. **Practice sheet / chart paper** – For trial prints
9. **Old newspaper / plastic sheet** – To cover the floor or nearby surfaces
10. **Pencil / chalk** – For marking layout on the wall

Procedure:

Step 1: Wall Preparation

- Ensure the wall is clean, dry and smooth (freshly painted walls should be allowed to dry at least 3–5 days).
- Wipe off dust or oil with a damp cloth.

Step 2: Planning the Design

- Choose the design layout:
 - Full wall pattern (like wallpaper)
 - Borders along edges or ceiling
 - Single motif as a centre piece or above furniture
- Use a ruler and chalk/pencil to lightly mark guidelines for alignment.

Step 3: Preparing the Paint

- Pour acrylic/emulsion paint into a tray.
- Use a sponge or roller to apply paint evenly onto the block surface.
- Avoid overloading with paint to prevent dripping or smudging.

Step 4: Printing on the Wall

- Align the block to the guide marks on the wall.
- Press the block firmly and evenly against the wall using both hands.
- Hold for 3–5 seconds, then carefully pull the block away.
- Repeat the pattern, using tape or ruler to ensure equal spacing.
- Wipe the block clean if paint builds up.

Step 5: Final Touch-Up

- Use a small brush to fix any smudges or incomplete prints.
- Let the wall dry completely for 24 hours.

Optional Ideas:

- Use multiple block designs to create layered or two-tone effects.
- Add mirror work or stencil art around the block prints for fusion décor.
- Use gold, silver or metallic acrylic paint for festive wall printing.

Tips for Success:

- Always practice the design on paper or cardboard before printing on the wall.
- Use light pressure for thin walls (e.g., partition boards).
- Clean blocks after use with warm water and mild soap.



Fig. 5.10: Block printed wall art

2. Utility Decor:**Lampshade**

A lampshade is a cover placed over a light bulb or lamp to soften or direct the light it emits. It can be made of fabric, paper, metal or plastic. When decorated with block printing, lampshades become unique handcrafted décor items. Lampshade softens harsh lighting and diffuses light pleasantly, enhances the

aesthetic appeal of a room, used as home décor (living room, bedroom, study, etc.) and acts as a creative or cultural display in exhibitions, hotels.

Materials Required:

1. **Fabric** – Cotton, khadi or linen (lightweight and light-ed)
2. **Wooden blocks** – Floral, paisley, geometric or traditional designs
3. Fabric colours or natural dyes
4. Printing tray or sponge pad
5. **Brush or roller** – To apply paint to the blocks
6. **Iron** – For setting and smooth finish
7. **Lampshade frame** – Cone, drum or cylinder shape
8. Fabric glue or adhesive
9. **Scissors and pencil** – For cutting and marking
10. **Measuring tape** – To match fabric to the frame size
11. **Optional** – Beads, tassels, lace for decoration
12. **Old newspaper or plastic sheet** – To protect the work surface

Procedure:**Step 1: Prepare the Fabric**

- Select lightweight, natural fabric like cotton or khadi.
- Wash, dry and iron the fabric to remove wrinkles or sizing.
- Cut the fabric according to the shape and size of your lampshade frame, adding 1–2 cm seam allowance on all sides.

Step 2: Block Printing

- Spread the fabric on a flat, protected surface.
- Pour into the tray and apply it to the block using a roller or sponge.
- Stamp the block onto the fabric using even pressure.
- Repeat the motif as desired (full coverage, borders, central motif).
- Let it dry completely (about 4–6 hours).
- Iron on the reverse to fix the (if using pigment dye).

Step 3: Attaching Fabric to the Lampshade Frame

- Apply fabric glue along the top and bottom edges of the frame.
- Carefully wrap the printed fabric around the lampshade frame, pressing it firmly in place.

- Tuck and stick the fabric edges inside the frame to finish the borders neatly.
- Trim excess fabric or overlap to secure tightly.

Step 4: Decoration (Optional)

- Add lace, tassels or beaded trims to the top and bottom edges for a decorative finish.

Step 5: Let It Set

- Leave the finished lampshade to dry for several hours, ensuring the glue has fully set before using.

Creative Variations:

- Try two-tone block prints for layered designs.
- Use eco-friendly natural dyes for sustainable décor.
- Create matching cushion covers, table runners and lampshades for a complete home set.



Fig. 5.11: Lampshade

Storage box

A storage box is a container used to store, organize or protect items, helping keep spaces clean and clutter-free. A block-printed storage box is typically made of fabric or canvas and features hand block-printed designs that enhance its artistic appeal. These boxes are useful for organizing everyday items such as clothes, toys, books, tools and accessories. They are also popular for gift hampers, exhibitions and eco-friendly packaging, combining functionality with aesthetic charm.

Materials Required:

1. **Cotton canvas / jute / thick cotton fabric** – for the outer cover
2. **Lining fabric** – for the inner layer (cotton or polyester)
3. **Wooden blocks** – Traditional or modern motifs
4. Fabric colours / natural dyes
5. **Brush / roller / sponge tray** – For applying to blocks
6. Measuring tape, chalk, ruler
7. Sewing machine / needle and thread
8. **Cardboard / plastic sheet / interfacing** – For box structure
9. Scissors, pins, iron, glue (optional)
10. Velcro or buttons (optional for closure)

Procedure:**Step 1: Cut the Fabric**

- Decide the size of your storage box. Example (for a 6"x6"x6" cube):
 - Outer Fabric:
 - 4 pieces (6"x6") for sides
 - 1 piece (6"x6") for the base
 - Lining Fabric: Same as outer pieces
 - Interfacing or cardboard: Same size for stiffness

Step 2: Block Printing

- Spread outer fabric pieces on a clean surface.
- Apply paint to the wooden block using a sponge or roller.
- Press the block onto the fabric evenly and firmly.
- Repeat the design as needed.
- Let the fabric dry for 4–6 hours.
- Iron the reverse side to fix them.

Step 3: Assembling the Outer Box

- Join the side pieces by sewing them edge to edge.
- Attach the base to the bottom of the four sides.
- Repeat the same with the lining fabric.

- Insert interfacing or cardboard pieces between the outer and lining fabrics for sturdiness.

Step 4: Finishing

- Fold and stitch the top edges of the box neatly.
- Add Velcro, loops or buttons if you want a closure lid.
- Press the box well with an iron to sharpen the shape.

Creative Ideas:

- Create a set of boxes in different sizes
- Use coordinated block prints for a matching home collection
- Add handles, tags or labels for easy identification
- Use seasonal motifs to make festive or themed boxes



Fig. 5.12: Storage box

PAPER BASED HAND BLOCK PRINTED PRODUCTS

Paper-based hand block printing is a technique in which designs carved on wooden blocks are stamped onto paper. It is a creative extension of the ancient textile printing method, adapted for handmade, recycled or artisanal paper products. This practice encourages innovation by blending traditional craftsmanship with modern stationery, décor and packaging applications.

List of Paper-Based Hand Block Printing Products:

- Greeting Cards
- Gift Wrapping Paper
- Book Covers / Notebooks / Journals

- Paper Bags
- Envelopes
- Bookmarks
- Wall Art / Posters
- Tags / Labels
- Lampshade Paper Inserts
- Invitations / Wedding Cards

Materials Used:

- Handmade or recycled paper
- Wooden printing blocks
- Fabric/paper pigments or dyes (non-toxic)
- Printing pad & tray
- Weights or clips (to hold paper in place)

STATIONARY & GIFT ITEMS**1. Bookmark**

A bookmark is a thin, flat strip of paper, card, fabric or other material used to mark a reader's place in a book. Bookmarks help readers easily return to where they left off. When created with hand block printed designs, bookmarks become not just functional, but also beautiful handcrafted items, ideal for gifts, crafts and educational use.

Materials Required:

1. Handmade or thick recycled paper
2. Ruler and pencil
3. Scissors or paper cutter
4. Wooden printing blocks
5. Fabric or paper-friendly pigments
6. Printing tray or shallow plate
7. Sponge or foam pad
8. Brush or roller
9. Hole punch
10. Thread, twine or satin ribbon
11. Glue and embellishments

Procedure:**Step 1: Prepare the Workspace**

- Spread newspaper or a plastic sheet on the table to avoid stains.
- Arrange all materials neatly.

Step 2: Cut the Paper

- Use a ruler to mark and cut the paper into bookmark-sized rectangles (e.g., 5 cm × 15 cm).
- You can use thick handmade paper for better durability.

Step 3: Choose and Prepare the Block

- Select a wooden block with a small motif (floral, geometric, traditional).
- Clean the block if reused.

Step 4: Prepare the Pigment

- Pour printing pigment or paper-safe colours into the tray.
- Place a sponge or soft pad in the tray to hold the dye evenly.

Step 5: Printing the Design

- Dab the wooden block onto the sponge tray to apply the evenly.
- Carefully place the block onto the paper bookmark and press gently but firmly.
- Lift straight up to avoid smudging.
- Repeat the print to make a pattern or place a single motif.

Step 6: Drying

- Let the printed bookmarks air dry completely for 10–15 minutes (or longer, depending on humidity).

Step 7: Finishing Touches

- Punch a hole at the top (optional) and insert a thread or ribbon.
- You may laminate the bookmarks for durability, if desired.

Tips:

- Use contrasting colours for a vibrant look.
- You can experiment with borders or layering prints.

- These bookmarks are great for gifting, return favours, art projects or school craft activities.



Fig. 5.13: Bookmark

2. Envelop

An envelope is a flat, usually rectangular or square paper cover used to enclose a letter, invitation or card. It helps protect the contents and maintains privacy. When made with hand block printed designs, envelopes become artistic, decorative and suitable for gifting or special occasions like weddings, festivals and handmade stationery. Block Printed Envelopes are used for wedding invitations, festive greetings, gifting cash or vouchers, handwritten letters etc.

Materials Required:

1. Handmade or recycled paper sheet
2. Wooden printing blocks
3. Printing pigments or water-based colors
4. Printing tray and sponge pad
5. Pencil and scale
6. Scissors or paper cutter
7. Glue or paper adhesive
8. Bone folder or back of spoon

Procedure:

Step 1: Prepare the Paper

- Take a sheet of handmade or thick recycled paper.
- Cut it into a rectangle approx. 20 cm × 18 cm (size can vary).

Step 2: Plan the Folding Layout

- Use a pencil and scale to mark:
- Central rectangular area: 10 cm × 14 cm (this is the main body).
- Side flaps: 3 cm on left and right.
- Bottom flap: 4 cm.
 - Top flap: 4 cm.

Step 3: Fold the Flaps

- Use a bone folder (or the back of a spoon) to crease the folds neatly along the marked lines.
- Fold side flaps inward, then bottom flap over them.

Step 4: Block Printing

- Before gluing, unfold the flaps and place the paper flat.
- Dip the wooden block in the pigment using a sponge or pad.
- Stamp designs on the front and back side (avoid glue areas).
- Let it dry completely before proceeding.

Step 5: Assemble the Envelope

- Once dry, apply glue to the side flaps.
- Fold the bottom flap over and press gently to stick.
- Leave the top flap open to insert a letter or card.

Step 6: Final Touch (Optional)

- You can decorate the envelope with borders or initials.
- Add a printed logo or message on the flap.



Fig. 5.14: Envelop

3. Wrapping papers

Wrapping paper is decorative paper used to wrap gifts, making them look attractive and festive. It is commonly used for birthdays, festivals, weddings and special occasions. When made using hand block printing, the wrapping paper reflects a unique blend of traditional craftsmanship and creative design, often featuring floral, paisley, geometric or ethnic motifs.

Material Required:

To create hand block printed wrapping paper, you will need:

1. A large sheet of handmade or recycled paper (preferably A2 or A3 size)
2. Wooden printing blocks with desired motifs
3. Printing pigments or water-based fabric colors suitable for paper
4. A sponge or felt pad to spread the pigment evenly
5. A flat printing tray or shallow dish for the color
6. Waste newspapers or plastic sheet to protect your work surface
7. Cloth or tissue paper for cleaning the block
8. A brush or roller (optional) for applying color to the block

Procedure:

Step 1: Prepare the Workspace - Lay out old newspapers or a plastic sheet on a large table or floor to prevent stains and keep your paper clean. Place the paper sheet on top of it and ensure it's wrinkle-free and flat.

Step 2: Prepare the Pigment - Pour a small amount of pigment into the tray. Place the sponge or felt pad in the tray to evenly soak and spread the pigment. This helps to avoid over-inking the block.

Step 3: Prepare the Block - Choose your wooden block with a suitable design. Make sure it is clean and dry. Lightly press it onto the pigment-soaked sponge pad so that the carved areas are covered evenly with color.

Step 4: Begin Printing - Carefully press the inked block onto the paper, starting from one corner. Press down evenly and gently, applying pressure across the block using your palm. Lift it straight up to avoid smudging.

Step 5: Repeat the Pattern - Repeat the same design or combine different blocks to create a repeating pattern across the entire sheet. Align each block carefully if you're making a continuous or symmetrical design. Allow the ink to dry between areas if needed.

Step 6: Drying - Once the entire paper is printed, set it aside to air dry completely. Avoid stacking or folding the paper until the print is fully dry to prevent smudging.

Step 7: Finishing - After drying, you can lightly press the paper using a clean cloth or under a heavy book to flatten any wrinkles. The paper is now ready to be used for gift wrapping.

Tips for Best Results:

- Use contrasting s for bolder designs.
- For festive use, try using metallic pigments like gold, copper or silver.
- You can personalize wrapping paper by printing names, initials or themes.



Fig. 5.15: Wrapping paper

4. Wall Paper

Wallpaper is a decorative material used to cover and decorate the interior walls of homes, offices and other buildings. It enhances the aesthetic appeal of a room and can feature various patterns, textures or designs. When created using hand block printing on paper, wallpapers become unique, artisanal and eco-friendly, often featuring traditional motifs and handcrafted charm. Block Printed Wallpaper used as an accent wall in homes, for wall panels, cabinet liners or backdrops, in boutiques, cafés and craft-themed interiors etc.

Material Required:

To make hand block printed wallpaper, you will need:

1. Large sheets of thick handmade or recycled paper
2. Wooden printing blocks
3. Printing pigments
4. Flat printing tray
5. Sponge or felt pad

6. Soft cloth or tissue
7. Ruler and pencil
8. Old newspaper or plastic sheet
9. Brush or roller

Procedure:

Step 1: Prepare the Paper and Workspace

- Lay down newspaper or a plastic sheet to protect your surface.
- Place your large paper sheet flat on the surface (preferably around A2 or larger size for wallpaper).
- Ensure the paper is smooth and wrinkle-free.

Step 2: Plan Your Pattern

- Lightly mark a grid or guiding lines on the back of the paper using pencil and ruler to help align repeated prints.
- Decide if your design will be repeating, scattered or centralized.

Step 3: Prepare the

- Pour the printing pigment into the tray.
- Place the sponge or felt pad in the tray so it soaks the evenly.

Step 4: Apply the Pigment to the Block

- Press the wooden block gently onto the sponge pad to coat the carved design with.
- Ensure that the is evenly applied and not dripping.

Step 5: Begin Printing

- Start from one corner of the sheet and carefully place the block on the paper.
- Press evenly and firmly with your hands, especially over the carved areas.
- Lift the block straight up to avoid smudging.

Step 6: Repeat the Design

- Repeat the process across the paper based on your layout.
- Use different blocks or s to add layers or variation if desired.

- Wipe the block clean if switching s.

Step 7: Drying

- Allow the printed paper to air dry completely in a clean, dust-free area. This may take several hours depending on the pigment used.

Step 8: Finishing

- Once dry, lightly press the paper under a flat surface to smooth out any warping.
- You can coat the surface with a natural fixative or starch for protection if desired (optional).



Fig. 5.16: Wall Paper

Activities

Activity: Developing a concept for a hand block printed product.

Materials Required:

1. Drawing sheets or chart paper
2. Pencils, erasers and rulers
3. Colour pencils / sketch pens / crayons
4. Glue stick
5. Scissors
6. Notebook or A4 sheets

Instructions:**Step 1: Product Selection**

Choose one product to design such as a stole, cushion cover, bag, table runner, skirt or wall hanging.

Step 2: Define the Purpose

Write a brief note describing:

- Who will use the product (target user)
- Where or how it will be used (occasion/function)

Step 3: Trend Research

Collect three images showing current trends in hand block printed designs (from magazines/internet).

Paste them or redraw the ideas in your notebook as inspiration.

Step 4: Material and Tool Selection

List the fabrics, dyes/colours and tools needed for making the product.

Mention if any materials are eco-friendly (e.g., natural dyes, organic cotton).

Step 5: Concept Sketch

Create a detailed sketch of your design.

Include:

- Motifs and block patterns
- Placement of design
- Measurements
- Colour scheme

Step 6: Final Design Specifications

Summarize your final design by listing:

- Dimensions

- Colour scheme
- Materials selected
- Finishing details (hemming, tassels, lining, piping, etc.)

What Have You Learned?

A. Fill in the Blanks

1. The first step in planning and designing a product is to define its _____.
2. Researching current trends in hand block printing helps ensure the product is both stylish and _____.
3. In the material selection stage, materials are chosen based on durability, options and _____ impact.
4. Feedback and refinement involve sharing the design with _____ to improve the final product.
5. To ensure eco-friendly and ethical production, one must follow _____ and fair-trade certifications.

B. Short Answer Questions

1. What is the importance of planning in developing hand block printed products?
2. Define concept development in product construction.
3. List any two factors to consider while selecting materials for block printed products.
4. What is the role of feedback in refining a product?
5. State two characteristics of a good block print.

C. Long Answer Questions

1. Explain the major steps involved in planning and designing a hand block printing product.
2. What are the main components of product construction in hand block printing?
3. Discuss the diversification of hand block printed products across apparel, home décor and accessories.
4. Explain step-by-step the process of developing any two hand block products.

Session: 3 Finishing of Hand Block Printed Products

The finishing stage of hand block printing is an important part of the product development process. After the initial printing, the fabric undergoes several post-printing processes such as drying, fixation, washing and ironing to enhance durability and appearance. These steps ensure that the printed design remains sharp, vibrant and long-lasting. Once the colour is fixed, finishing touches like trimming, hemming, adding embellishments and quality checks are carried out. This enhances the product's overall look and usability. Proper labelling and packaging are also part of this stage, helping the product stand out in the market. This session also covers storage techniques to preserve hand block printed items for long-term use. This includes folding, wrapping in breathable fabrics, using natural repellents and avoiding moisture. The finishing process adds value and professionalism to the handcrafted product. A well-finished product reflects both the artisan's skill and the care taken during every stage of production.

5.3.1 Post Printing Process

Post printing process refers to the series of steps carried out after the hand block printing is completed on fabric or paper. These steps are essential to fix the colours, clean the fabric and finish it properly so the product is ready to use, sell or wear.

Importance of Post Printing Process

- To make the colours permanent (so they don't wash off).
- To remove extra dye or printing paste left on the fabric.
- To improve the final look and feel of the printed item.
- To ensure the fabric is soft, neat and professionally finished.



Fig. 5.17: Post Printing Process

1. Drying

Purpose: To allow the printed dyes to settle into the fabric before any further processing.

How it is done:

- After printing, the fabric is carefully laid flat or hung up in a clean area.
- It is dried in the shade to avoid fading caused by UV rays in direct sunlight.
- This helps the dye to absorb into the fibres and ensures that the patterns do not smudge.

Why it matters: Wet dyes can run or blur, so proper drying ensures the design remains crisp and neat.

2. Fixation of colour

Purpose: To make the dye or pigment permanently bond with the fabric.

Different methods based on dye type:

- **Natural dyes:** These often require steaming or sun curing (leaving in sunlight for a short, controlled time).
- **Chemical dyes (reactive or pigment dyes):** These may need to be heat set using: A heat press, Ironing or passing through a curing chamber in industrial setups.

Why it matters: If fixation isn't done properly, s will fade or wash out quickly.

3. Washing / Rinsing

Purpose: To remove excess dye that has not bonded with the fabric.

Process:

- The fabric is first rinsed gently in cold or lukewarm water.
- In some cases, traditional artisans wash the fabric in running water (like rivers), which helps remove loose particles naturally.

Why it matters: This process improves fastness (the ability of fabric to retain after wash) and prevents staining during use.

4. Soaping

Purpose: To cleanse the fabric thoroughly and brighten the final colours.

How it's done:

- A mild soap or detergent solution is used to wash the fabric.
- Sometimes Reetha (soap nut) or other natural cleansing agents are used in traditional setups.
- The fabric is soaked and gently scrubbed to remove all printing residue and starch.

Why it matters: Soaping enhances the softness, removes any chemical smell and makes the fabric skin-friendly.

5. Final Rinsing and Drying

Purpose: To give the fabric a last clean water rinse before it is ready.

Process:

- Final rinse in clean water ensures no soap, dirt or dye particles remain.
- Fabric is again air dried, either by hanging or flat drying, depending on the type of material.

Why it matters: Clean and well-dried fabric is more attractive and has a longer shelf life.

6. Finishing

Purpose: To improve the look, texture and usability of the printed fabric.

Process:

- Fabric is ironed or calendared (pressed between rollers) to remove wrinkles and give a glossy finish.
- In some cases, softening agents are used to make the fabric more comfortable to wear.
- Any minor defects or stains are checked and corrected if possible.

Why it matters: Finishing gives a professional, market-ready look and enhances customer appeal.

5.3.2 Adding Finishing Touch

After the drying, washing and fixing of dyes (post-printing process), the finishing stage prepares the item for final use, display or sale. This process enhances the look, texture, usability and presentation of the product.

Once the block printing and post-printing processes are complete, the finishing touches are added to enhance the final look, quality and usability of the product. This step transforms a raw printed fabric into a ready-to-use or sell product that looks professional and attractive.

Purpose of Finishing Touches

- To improve appearance (smooth, polished, vibrant look).
- To enhance texture (softer, better drape).
- To correct minor flaws (stains, uneven edges, etc.).
- To add commercial or functional value (like stitching into a product).



Fig. 5.18: Steps for Adding Finishing Touch

1. Ironing / Pressing

Purpose: To smooth out the fabric and give it a professional appearance.

Process:

- Fabric is pressed using a steam iron or, in bulk production, sent through industrial calendaring machines.
- The pressure and heat also help in setting the fabric's grain and flattening the print surface.

Effect:

- The fabric looks crisp, flat and polished.
- It improves the visual appeal for display and packaging.

2. Trimming and Cleaning

Purpose: To remove physical imperfections and prepare edges for finishing.

Process:

- All loose threads, ink splatters or uneven print borders are trimmed off using fabric scissors or rotary cutters.
- The surface is inspected and light brushing or cloth wiping is done to remove lint or loose particles.

Effect:

- Clean, sharp and professionally finished edges.
- Readies fabric for sewing or conversion into final items.

3. Edge Finishing / Hemming

Purpose: To make the fabric edges neat, durable and decorative.

Process:

- Hemming with a sewing machine or by hand (usually a double fold hem).
- Decorative stitches or piping/lace insertion may be added for aesthetic effect.
- Used For: Scarves, dupattas, table runners, cushion covers, etc.

Effect: Prevents fraying, adds a functional and decorative border to products.

4. Stitching into Final Product

Purpose: To convert printed fabric into a usable product.

Process:

- Patterns are cut and fabric is sewn into usable forms:
- Garments: kurtis, skirts, shirts, etc.
- Home décor: pillow covers, curtains, lampshades.
- Accessories: bags, pouches, bookmarks.

Effect: The hand block printed fabric becomes a market-ready, value-added product.

5. Additional Embellishments (Optional)

Purpose: To enhance the artistic and aesthetic appeal.

Process:

- Add-ons include:
- Tassels or beads on stoles or scarves
- Lace, mirror work or embroidery for fashion or festive items
- Block printed motifs may be highlighted with zardozi, sequins or beads

Effect: Converts basic prints into premium, designer-level pieces.

6. Quality Check

Purpose: To ensure the product meets quality standards.

Process:

- Check for: Consistent color
- No smudges, misprints or fading
- Smooth finish and no defects
- If needed, minor corrections are made—such as re-ironing, stain removal or repairing seams.

Effect: Ensures the product is flawless and reliable for the end user or market.

7. Tagging, Branding & Labelling

Purpose: For identification, marketing and consumer guidance.

Process:

- Brand name tags, care instruction labels and product information tags are stitched or pinned.
- In eco-conscious production, handwritten or recycled tags may be used.

Effect:

- Adds a professional and branded identity to the product.
- Informs buyers how to care for the product (e.g., “Hand wash separately”).

8. Final Packaging

Purpose: To protect and present the product attractively.

Process:

- The finished item is folded neatly and:

- Wrapped in butter paper or muslin cloth
- Placed in a box or eco-friendly pouch
- Sometimes accompanied by thank you notes, craft information or certificates

Effect:

- Increases visual appeal and perceived value.
- Keeps the product safe and clean during storage/shipping.

5.3.3 Storing of hand block printed products

Proper storage of hand block printed products is essential to maintain the, fabric quality and appearance over time. Since these products often use natural dyes, cotton or silk fabrics and handcrafted prints, they need extra care to prevent fading, damage or discolouration.

1. **Clean before Storing:** After using a printed product, it is important to take proper care to maintain its quality. The item should be washed or dry-cleaned, especially if it has been worn or used, to remove any sweat, body oils, or stains, which can cause permanent discoloration. Before folding or storing the fabric, make sure it is completely dry to avoid the growth of mold or mildew, which can damage the fabric and the printed design.
2. **Fold Neatly:** When folding a printed or embellished product, always fold along the natural creases to avoid creating permanent wrinkles. Repeatedly folding the fabric at the same spot can cause the print to crack over time, so it should be avoided. For products with embroidery or embellishments, avoid sharp folds—these areas should be loosely folded or gently rolled to protect the design and maintain the fabric's shape.
3. **Wrap in Natural Fabrics:** To keep printed and delicate fabric items safe, it is best to wrap each item in muslin cloth, cotton sheets, or butter paper. Avoid using plastic bags, as they trap moisture, which can cause fungus growth or yellowing of the fabric over time. Wrapping also helps protect the fabric from dust, insects, and other damage during storage.
5. **Use Silica Gel or Neem Leaves:** For long-term or monsoon storage, it is helpful to place silica gel packets or dried neem leaves with the fabric. Silica gel helps absorb excess moisture, while neem leaves act as a natural insect repellent. This keeps the fabric dry, fresh, and safe from damage caused by dampness or pests.
6. **Store in a Cool, Dry and Dark Place:** To keep hand block printed items in good condition, it is important to avoid storing them in direct sunlight, as it can fade natural dyes and weaken the fabric. Also, high humidity, damp areas, and dusty places should be avoided. The best

storage options include wooden or cloth-lined drawers, covered shelves, or fabric storage boxes and breathable cotton bags that allow air circulation and protect the fabric from damage.

7. Avoid Hanging Heavy Garments: Hand block printed garments like sarees or dupattas should be folded instead of being hung for long periods, as hanging heavy fabrics can cause them to stretch or lose their shape over time. If hanging is necessary, it's best to use padded hangers and cover the item with a cotton cloth to protect it from dust and direct light.

8. Refold and Air Periodically: Every 2–3 months, hand block printed items should be unfolded and refolded along different lines to prevent permanent creases. It's also good to air them in the shade for a few hours to keep them fresh and avoid any musty smell. This simple care routine helps preserve the fabric and print for a longer time.

Example Storage Tips by Product Type

Product Type	Storage Tips
Sarees/Dupattas	Fold in muslin cloth, store flat, avoid hanging
Cushion Covers/Table Linen	Stack in cotton-lined box, with tissue between layers
Garments (Kurti, Skirts)	Fold with acid-free tissue; do not hang for long
Accessories (Bags, Scarves)	Keep in breathable cloth pouches
Wall Hangings/Panels	Roll instead of folding; wrap in acid-free paper

Importance of Proper Storage

- Prevents fading or bleeding of colours.
- Avoids moisture damage (like mildew or mold).
- Protects delicate fabrics from dust, insects and sunlight.
- Maintains fabric strength and print clarity over time.

What to Avoid

- Plastic covers or vacuum-sealed bags
- Sunlight or artificial lights
- Damp basements or attics

- Naphthalene balls (can react with natural dyes; use dried neem or lavender sachets instead)

To protect and preserve the beauty and craftsmanship of hand block printed products:

- Wrap in breathable material
- Store in dry, dark areas
- Use insect repellents like neem
- Avoid long-term folding at the same spot
- Air and rotate regularly

Activities

Activity: To help students understand and present the step-by-step finishing process of hand block printed products including post-printing, finishing touches and storage methods.

Materials Required:

- Chart paper (white or ed)
- Sketch pens or markers
- Ruler, pencils, eraser
- Old magazines or printed images (optional, for pasting)
- Glue stick
- Pencils or crayons
- Scissors

Procedure:

1. Take a chart paper (A3 or full size) – landscape orientation recommended.
2. Divide the chart into three main sections:
 - Post Printing Process
 - Adding Finishing Touches
 - Storing Hand Block Printed Products
3. In each section, use:
 - Headings/Subheadings (e.g., Drying, Fixation, Washing)
 - Bullet points or flowcharts to show the steps

- Simple drawings, icons or images to illustrate tools, fabric or actions
 - Arrows or numbering to show the sequence
4. Highlight important terms like: Soaping, Hemming, Ironing, Neem Leaves, Muslin Cloth using or bold text.
 5. Make the chart neat, full and visually informative.

What Have You Learned?

A. Fill in the Blanks

1. _____ is done to smoothen the fabric and improve its visual appearance.
2. After printing, fabric is dried in the _____ to avoid fading.
3. Wrapping block printed items in _____ helps protect against dust and insects.
4. _____ are used during storage to absorb moisture and prevent mold.
5. Quality check helps ensure the final product is free from _____ and defects.

B. Short Answer Questions

1. Why is soaping important in the post-printing process?
2. Name two common finishing touches added to hand block printed products and their purpose.

C. Long Answer Questions

1. Describe the post-printing process involved in finishing hand block printed fabric.
3. Explain how proper storage of hand block printed products helps in maintaining their quality.

Module 6**Health, Safety and Security at Workplace****Introduction**

The hand block printing industry involves various manual and semi-mechanized processes that require artisans to work with wooden blocks, carving tools, dyes and heated drying equipment. While these activities celebrate India's cultural heritage and promote skilled craftsmanship, they also expose workers to multiple workplace hazards. The potential dangers include chemical exposure from dyes and solvents, ergonomic strain due to repetitive stamping motions, cuts and burns from sharp and hot tools and biological threats from unhygienic conditions.

This unit aims to develop awareness and practical knowledge among learners about maintaining health, safety and security in block printing workplaces. It addresses the importance of hazard identification, fostering a culture of safety, hygiene compliance, proper use of tools and materials and preparedness for accidents or emergencies. Learners will also be introduced to environmental management systems and workplace signage relevant to hand block printing clusters.

Moreover, the unorganized nature of many craft clusters means that awareness of workplace safety and environmental standards remains limited. Therefore, there is a growing need to institutionalize health and safety practices across all levels of hand block printing operations. Establishing a safe, secure and hygienic working environment is vital not only to safeguard the physical and mental well-being of artisans but also to enhance productivity, improve product quality and ensure compliance with national and international standards.

This unit provides a comprehensive overview of the health, safety and security protocols that are essential in the hand block printing industry. It discusses the various types of potential hazards that may exist in block printing clusters, highlights the importance of creating a safety-first culture and outlines systematic approaches to mitigate workplace risks. It also emphasizes hygiene practices, emergency response planning and environmental management that support the sustainable and responsible development of the craft.

By learning and implementing the concepts presented in this unit, learners and practitioners can contribute to creating safer workplaces, fostering professional pride among artisans and promoting the long-term viability of hand block printing as a sustainable livelihood.

Learning Outcomes	
After completing this module, you will be able to: - Analyze potential hazards at workplace - Explain health, safety and security at workplace - Discuss environmental management procedures, and emergency response	
Module Structure	
Session:1	Analysis of Potential Hazards at Workplace
Session:2	Health, Safety and Security at Workplace
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Session: 1 Analysis of Potential Hazards at Workplace

Hazard is a potential source of harm that can cause temporary and permanent damage or may even prove to be fatal if neglected. The first step towards workplace risk assessment is to identify the potential risks/hazards at the workplace. To overcome these hazards in a nominated person is appointed for conducting formal risk assessments; however, it is everyone's responsibility to be careful and mindful of possible and sudden hazards at the workplace and minimize the risk for self and for people around. Not all hazards are obvious and they will be unique to every workplace depending on the type of process flow. This can make it difficult to immediately identify and protect all the employees from it.

Therefore, it is important to study various types of hazards and knowing how to keep work area free from potential hazards.

6.1.1 Types of potential hazards

The handicraft sector plays a significant role in the global economy, providing clothing, textiles and other hand-crafted items to millions of people around the world. However, this industry is not without its hazards, as the various stages of production present potential risks to workers' health and safety. To ensure a safe working environment, it is crucial to identify these hazards and implement appropriate safety measures. This article delves into some common hazards within the handicraft sector and outlines essential safety measures that should be taken to protect workers.



Fig. 6.1: Types of potential hazards

1. **Chemical Hazards:** Any craft cluster involves various chemicals, such as dyes, solvents and finishing agents, which can pose risks to workers. These chemicals can cause skin irritation, respiratory problems and even long-term health issues like cancer.



Fig. 6.2: Chemical Hazard

To address these hazards:

- Provide proper training to workers about the safe handling and use of chemicals.
- Ensure the use of personal protective equipment (PPE) such as gloves, masks and goggles.
- Implement effective ventilation systems to control chemical fumes and dust.

2. **Ergonomic Hazards:** Repetitive tasks, poor posture and improper workstation design can lead to musculoskeletal disorders among apparel industry workers.

Ergonomic Hazards in the Block Printing Industry and Safety Measures

Block printing, a traditional textile art form, involves intricate handwork, repetitive tasks, and prolonged periods of physical activity. While the craft holds immense cultural value, it also poses significant ergonomic hazards to artisans. These hazards can lead to musculoskeletal disorders, chronic pain, and fatigue, ultimately affecting the health and productivity of workers.

- One of the primary ergonomic risks in block printing is the repetitive motion involved in pressing blocks onto fabric. This activity, often carried out for hours, can strain the wrists, elbows, and shoulders.
- Poor posture during printing such as bending over low tables or squatting for long periods can lead to back and neck pain.
- Workers may also experience discomfort due to inadequate lighting, which forces them to strain their eyes and adopt awkward body positions to ensure precision.

To mitigate these risks, several ergonomic safety measures should be implemented in block printing units:

- **Adjustable Workstations:** Providing height-adjustable tables allows workers to alternate between sitting and standing positions, reducing strain on the spine.
- **Anti-fatigue Mats:** These can be placed where workers stand for long durations to minimize stress on the lower body.
- **Proper Seating:** Ergonomically designed stools with back support help reduce fatigue during seated tasks.
- **Frequent Breaks and Stretching:** Encouraging workers to take short breaks and perform light stretching exercises helps reduce the risk of repetitive strain injuries.
- **Training and Awareness:** Educating workers about proper posture, tool handling, and early signs of strain empowers them to take preventive actions.
- **Adequate Lighting and Ventilation:** Well-lit and ventilated spaces reduce eye strain and improve overall working conditions.

By integrating these ergonomic practices, the block printing industry can ensure safer, healthier work environments for artisans, thereby preserving both their well-being and the sustainability of this beautiful craft.

3. **Mechanical Hazards:** Machinery used in the Hand block printing and handicrafts, such as sewing machines and cutting tools, can cause injuries if not used correctly.



Mechanical Hazards

Fig. 6.3: Mechanical Hazard

- Conduct regular maintenance and inspections of machines to ensure they are in safe working condition.
 - Provide proper training to workers on the safe operation of machinery.
 - Install machine guards and safety devices to prevent accidental contact with moving parts.
4. **Fire Hazards:** The presence of flammable materials, such as fabrics and chemicals, increases the risk of fire in the workplace.



Fire Hazards

Fig. 6.4: Fire Hazard

- Install fire detection and suppression systems throughout the facility.
- Maintain clear and unobstructed evacuation routes and conduct regular fire drills.
- Train workers in fire safety procedures and the use of fire extinguishers.

5. **Electrical Hazards:** Electrical equipment is widely used at any workplace and improper use can result in electric shocks, burns or even fires.



Fig. 6.5: Electrical Hazard

- Regularly inspect and maintain electrical equipment and wiring to prevent hazards.
 - Ensure workers are trained to handle electrical equipment safely and know the location of emergency shut-offs.
6. **Noise Hazards:** The constant noise from block stamping can lead to hearing impairment and other health issues.



Fig. 6.6: Noise Hazard

- Provide workers with appropriate hearing protection, such as earplugs or earmuffs.
 - Implement noise control measures, such as enclosing noisy machines or using sound-absorbing materials.
7. **Biological Hazards:** In some instances, biological hazards like bacteria and viruses can be present in the craft clusters, particularly in environments with poor hygiene practices.



Biological Hazards

Fig. 6.7: Biological Hazard

- Maintain proper sanitation and hygiene standards in work areas.
- Provide adequate facilities for hand washing and personal hygiene.
- Educate workers about the importance of maintaining cleanliness and hygiene.

6.1.2 Safety Culture and Training

- Developing a strong safety culture is vital in preventing accidents and promoting a safe working environment.
- Conduct regular safety training sessions for all workers, covering hazard recognition and proper safety procedures.
- Encourage workers to report hazards and near-miss incidents promptly.
- Involve workers in safety committees or discussions to foster a sense of ownership over safety practices.

Potential hazards risks and threats based on nature of operations Identifying potential hazards and risks at workplace involves finding things and situations that could potentially cause harm to people based on the nature of operations. Hazards generally arise from the following aspects of work.

- Physical work environment
- Equipment and Materials
- Working tasks and how the way they are performed

In a craft cluster the work process may have to face different types of hazards. Identification of each of these hazards is necessary. For example, a workplace may have moving parts, noise, hazards associated with manual tasks and psychological hazards at the workplace. Some of them can be explained as follows-

Hazard /Risk	Potential Harm/Loss
Manual Task	Overexertion or repetitive movement can cause muscular strain.
Electricity	Exposure to live electrical wires can cause shock, burns or death from electrocution. Low light can affect the eyesight of the artisans.
Machinery and Equipment	Being caught by moving parts of machinery can cause fractures, bruises, lacerations, dislocations, permanent injuries or can be fatal.
Noise	Exposure to loud noise can cause temporary/permanent hearing damage. (There is no noise pollution in Block Printing)
Working Environment	Falling objects, falls, slips and trips of people can cause fractures, bruises, lacerations, dislocations, concussion, permanent injuries or can be fatal.
Extreme Conditions	Heat can cause burns; heat stroke or fatigue Cold can cause hypothermia or frost bite.
Psychosocial Hazards	Effects of work-related stress, bullying, violence and work-related fatigue can cause depression and anxiety.

6.1.3 Keeping work area free from potential hazards:

Workstations have to be kept free from any potential hazard to ensure the safety of workers and the work place. Therefore, following measures can be followed to maintain the safety and security.

- 1. Environmental Control Measures:** Hazardous substances in one form or another can be found in almost all small and medium-sized enterprises. The hand block printing and handicrafts generates a lot of dust from fabrics being cut and sewn, heat and noise from machinery. There are simple and inexpensive ways to control most of the environmental problems. Improvements often result in cost savings, higher productivity and increased safety of workers.
- 2. Regular and Proper Cleaning:** Dust originates from fabrics and threads, from cutting and sewing to packing operations. It is very common to see small clothing enterprises with ceilings and walls full of dusty cobwebs. One low-cost cleaning method is sweeping the floor carefully with an appropriate broom and accompanying dust pan to prevent dust from spreading. Spraying water on the floor before sweeping will avoid dust remaining airborne.

- 3. Cost-effective Local Ventilation:** Local ventilation should only be considered as a means of reducing chemical hazards when other means have failed.

There are cost-effective ways of improving ventilation:

- **Use proper fans:** Apart from those used for ventilating workstations, fans may be utilized to remove dangerous substances from the workplace. Contaminated air can be pushed or blown outside by having more open windows.
- **Good Lighting for Quality Products:** Good lighting does not necessarily mean more light bulbs and more use of electricity. Natural lighting is usually a better option than the bulbs. But if there is difficulty in arranging for a natural lighting through windows and ventilators, it's important that the bulbs and other sources of artificial lights should be well-maintained. A good lighting arrangement is directly proportionate to an efficient workforce.

Lighting requirements are mainly affected by following factors:

- The type of operation or task to be done.
- The eyesight of the worker, if any worker has very good eyesight then they can work efficiently in dim light too but workers with poor eyesight require optimum and efficient lighting system.
- Area where the work is being done. If the work area has ample day light and clear, open windows then requirement of light is not that important. But during night shifts and in closed areas without adequate windows efficient lighting system is must.

Full use of Daylight

The higher and bigger the window, the more of day light can be accessed. It is important to paint the walls in lighter shades which not just give a sense of space to a room, but the workstation would look illuminated. In a store we should have be very careful with the light as prolonged exposure to light can cause degradation of fabric color/shade.

Activities

Activity: Report on Workplace Hazards in a Block Printing Unit

Material Required:

- Practical file
- Colored pens and pencils

- Ruler
- Eraser
- Photographs or illustrations of workplace hazards

Procedure:

1. Visit a hand block printing unit or research various hazard scenarios.
2. Collect images or draw illustrations of potential hazards.
3. Classify them into chemical, mechanical, ergonomic, fire and biological.
4. Paste and label the images in your file.
5. Write a brief report explaining each type of hazard and how to prevent it.

What Have You Learned?**A. Fill in the Blanks**

1. _____ is a potential source of harm that can cause temporary or permanent damage.
2. _____ dyes can cause skin irritation and respiratory issues.
3. Repetitive stamping and poor posture can lead to _____ disorders.
4. The presence of flammable materials increases the risk of _____.
5. Poor hygiene can result in _____ hazards in the printing unit.

B. Short Answer Type Questions

1. What do you understand by potential hazards? Mention any three types.
2. List steps to maintain a hazard-free work area in a block printing unit.
3. Why is safety training important in the workplace?

C. Long Answer Type Questions

1. Explain the types of hazards commonly found in hand block printing workshops and methods to overcome them.
2. Write a detailed note on the importance of safety culture and how it helps in building a secure work environment.

Session: 2 Health, Safety and Security at Workplace

A healthy worker is a productive worker. Poor health is the most common reason workers take a leave of absence from the workplace. Many illnesses are a result of the lack of knowledge of personal hygiene among workers and can be prevented by following simple rules of hygiene.

The incidences of various illnesses can be considerably reduced by a basic education in health and hygiene. Common health issues faced by the workers should be identified and marked clearly by the management and the workers should be trained for prevention and control of these problems.

The factory management must also remain alert and respond urgently to various health issues that can emerge. Good personal hygiene habits lead to better health and reduced illnesses. Poor personal hygiene can lead to some minor side effects, like body odor, bad breath and greasy skin. However, it can also result in more serious health issues. Hence, workers should be given mandatory training in health and hygiene related issues.

6.2.1 Complying with health & hygiene instructions:

Importance of Personal Hygiene:

Personal hygiene is important mainly because it saves us from illnesses and ensures good health. It also has many other benefits. These include:

- Neat and Tidy appearance
- Improved stamina and efficiency
- Boosts self confidence
- Contributes toward motivation
- Lesser leaves and absenteeism

Unsatisfactory quality and quantity of drinking water, lack of sanitation and hygiene can cause a number of illnesses. These factors can affect individually or in combination also. The diseases caused by poor sanitation and hygiene mostly affect individual employees and are not communicable.

Thus, they can be controlled but there are situations where lack of hygiene and sanitation may simultaneously affect many employees. Such a situation is difficult to control and may result in huge loss of work. The latter is often indicative of poor working conditions in the factory.

The prevention of diseases related to water, sanitation and hygiene is possible with simple control measures at the factory level. Workers must be regularly trained in hygiene and sanitation practices.

The following mentioned are few tips for dealing issues regarding good personal hygiene about workplace health and safety.

Ensuring personal hygiene and care of body:



Fig. 6.8: Personal Hygiene and Care

- **Hand Wash:** Poor hand hygiene increase the vulnerability to bacteria and potential transfer or introduction of microbes such as viruses and fungus. Hence washing hands frequently, wearing gloves etc. should be strictly followed.
- Hands must be washed on regular intervals with an effective hand disinfectant liquid/solution.
- Wear clean uniforms/ Protective clothes during working in the area along with cap, eye glass, face mask and footwear that adequately covers their feet to protect workers and ensure their safety.

Benefits of a healthy lifestyle

The World Health Organization (WHO) defines health as “a state of complete physical, mental and social well-being”. It’s not an exaggeration when we say that health is wealth because it affects a person’s productivity, efficiency, energy and behavior. Some of the benefits of a healthy lifestyle are increased concentration, sharp memory and it also gives an emotional boost.

Minimizing health and safety risks

1. **Identify and reduce the risks** – Once the hazard has been identified at the workplace, appropriate steps for reduction of risk and work-related injuries must be taken.
2. **Reducing workplace stress** – Common causes of workplace stress includes long working hours, heavy workload, job insecurity and

conflicts with co-workers and seniors. Stress can lead to depression, sleeping difficulties and often lowers the ability to concentrate.

3. **Using correct tools and equipment** – Use of correct tools and equipment is advisable. For e.g. to cut the extra thread of seam, use of scissors is safe and efficient than use of a blade or knife.
4. **Wear suitable protective equipment** – Correctly worn equipment such as earplugs, earmuffs, hard hat, safety goggles, gloves or full-face mask can dramatically reduce risk of injury.
5. **Staying sober** – Alcohol and drugs are a contributing factor in around three percent of workplace fatalities. Workers should avoid indulging in such unethical practices at work.

The value of physical fitness, personal hygiene and good habits Performance of a worker is directly related to the health of the worker. Hence it is important to train and educate the workers on good health and hygienic habits.

1. **Physical Fitness:** Physical activities have many health benefits for workers, regardless of whether or not physical fitness is a requirement for their jobs. However, a fit and healthy workforce is one of the most valuable assets of the company. Therefore, employers need to make more effort to encourage physical activity. Periodical health check-ups and workshops should be arranged by the company to maintain good health of the employees.
2. **Personal Hygiene and Good Habits:** Personal hygiene refers to the cleanliness, appearance and habits of employees. Personal hygiene and good habits don't only make workers look and feel good, but also makes their co-workers feel safe and comfortable. Personal hygiene improves employee's confidence and helps in maintaining employee productivity. It promotes a safe and healthy environment at the work place.

Do's and Don'ts of Personal Hygiene at the Workplace

- Workers should clean themselves and should not indulge in littering.
- Workstations should be kept clean and dust free by wiping them regularly.
- Tea and food should always be consumed at designated spaces and all the utensils and crockery should be cleaned immediately and regularly.
- Workers should be trained in proper hygiene and practices and should follow it sincerely.
- All the workers and employees should adhere to organizational hygiene policies.
- Unhygienic practices like sneezing and coughing in open should be avoided.

- Washrooms must be kept clean and workers must wash their hands thoroughly with soap after using wash rooms.

6.2.2 Safe Working Practices and Organizational Procedures:

In small-scale block printing businesses, following safe working practices and organizational procedures is essential to ensure the health, safety, and productivity of workers. Since many processes involve dyes, heavy blocks, hot irons, sharp tools, and repetitive hand movements, a safe work environment helps prevent injuries and keeps the workplace organized.

- **Training and Safety Awareness:** All workers should be properly trained to handle tools and machinery, even if the machines are simple like dyeing vats or printing tables. Introducing basic automation or using tools like lifting trolleys for heavy loads can prevent strain or accidents. Emergency stop switches and safety sensors should be used where possible to avoid accidents during printing or fabric cutting.
- **Following Rules and Regulations:** Every block printing unit must follow its own policies for handling raw materials, avoiding potential hazards, and keeping the workspace safe. Fire safety, proper storage of chemicals, and correct handling of dyes must be practiced at all times.
- **Clean and Organized Work Area:** A tidy printing area helps workers move safely and work efficiently. Dye containers should be closed properly, tools kept in place, and walking paths kept clear. Ventilation is important, especially in dyeing rooms, to avoid harmful fumes.
- **Protective Gear and Posters:** Workers should wear gloves, aprons, masks, and protective footwear while printing or dyeing. Safety posters around the unit showing how to wear masks, lift objects properly, and stay clean remind everyone to maintain good hygiene and safety.

All compliances should be strictly followed. Special care and attention should be paid to health and safety regulations and procedures in case of fire, chemical hazards, bio-hazards, etc.

- Maintain distance from moving machinery and stay within designated areas.
- Maintain a clean, neat and orderly working area
- Proper ventilation facilities must be designed and implemented.
- Safety guards and protective clothing, gloves and footwear worn.

Displaying educational posters is a powerful way to educate workers. It is extremely effective as it delivers a consistent message and using pictures that are a medium of effective communication targeting a specific behavior. Examples, which are used in garment factories include posters of lifting postures, wearing mask properly wherever required, importance of sanitation to promote good health and surroundings etc.

Safety Measures



Fig. 6.9: First Aid Box

- Workers should use and maintain personal protective equipment as instructed.
- They should also carry out their activities in line with approved guidelines and procedures
- Use and dependency on intoxicants such as liquor, cigarettes etc. should be totally avoided in workplace and a healthy lifestyle should be maintained.
- Faults and malfunctions in machinery and equipment should be reported or dealt with urgently and with utmost sincerity.
- Storage of materials and equipment should be done in line with manufacturer and organizational requirements.
- Seek clarifications, from supervisors or other authorized personnel in case of perceived risks.
- Keep checking the workplace and work processes at regular intervals for potential risks and threats.
- Workers must report risk of potential threats, accidents to supervisors or any other authorized personnel in charge.
- Workers should undertake all training and drills related to first aid, firefighting and emergency response very sincerely and should not do it just for the sake of formality.
- In situations where shutdown and evacuation are mandatory or compulsory, workers should follow standard organizational procedures.
- Environmental hygiene should not be neglected – regular checks of waste disposal, drainage, sewage and effluent treatment systems should be instituted.

Hazard Control:

- i. Sharp Objects – The worker should not handle broken sharp objects or broken glass by hand. Use of tongs, forceps, tweezers, magnets or other devices to pick up and discard the broken object is advisable.

- ii. While disinfecting contaminated areas or equipment workers should wear protective gloves such as latex or other watertight gloves, safety glasses or goggles and cleansing wipes.
- iii. If work surfaces or equipment have come in contact with blood or other body fluids for example, a worker's finger has been cut and has bled onto the equipment surface; these surfaces should be cleaned and disinfected immediately. Medical attention must be provided to the concerned worker.
- iv. All the areas such as walls, floors and doors of the work areas should be wiped with clean and sterile sponges and mops. Care should be taken to wet the sponges and mops with sterile disinfectant solution in proper concentration
- v. All exposed surfaces of equipment and glass panels should be sprayed and wiped with sterile solutions. Spillage or leaks if any should be cleaned and mopped immediately using sponge and sterile disinfectant solution.

6.2.3 Good Housekeeping Practices

Efficient production and good working environment are complimentary and go hand in hand for achieving organizational goals. A clean orderly and attractive environment encourages tidy work habits in employees and also boosts their efficiency. Good housekeeping is more than just the cleanliness. It also involves minimizing risks which may cause accidents and hazards.

Good housekeeping is mandatory in every phase of industrial operations. Indoor areas such as work area, reception, washrooms etc. as well as outdoor areas such as lounge, parking lot, garden etc. should be maintained and governed by housekeeping practices as followed in the organization:

Poor housekeeping leads to a sense of chaos, accidents and also gives rise to:

- Excessive clutter of material and waste material in the working area
- Congested aisles
- Tools left on machines, which may be misplaced or lost
- overflowing waste bins, causing unhygienic conditions
- Lockers and workrooms in disorder that may lead to various infections
- Chemicals and Acids in open containers, that may be hazardous
- Broken glass, that may be dangerous and can cause serious injuries
- Open electric wires or air lines across aisles that may be fatal
- Unclean light fittings, windows and skylights, it may cause darkness in the room.

- Accumulated piles of paper and other packing materials, which may hide some important and useful tools.
- Infestation by pests such as rodents and cockroaches

Benefits of Good Housekeeping Practices:

Housekeeping refers to cleaning and organizing a place as well as minimizing risks, accidents and hazards due to unkempt and untidy premises such as loose and dangling wires, overflowing bins and containers, slippery floors etc. Good housekeeping practices help in keeping the premises clean, systematic and hazard free and thus boost the efficiency and productivity of employees.

Some Good Housekeeping Practices:

1. **Regular cleaning and maintenance:** Housekeeping should not be restricted to only few occasions such as inspections and audits, meetings etc. In fact, the entire premises should be cleaned and maintained regularly and frequently.
2. **Repair and check of all electrical switches, wiring and supply:** All power supplies and electrical wiring and switches also fall under housekeeping and should be checked and maintained regularly with utmost sincerity.
3. **Aisles:** Aisles should have clearly marked floor lines to keep them segregated for work areas and storage areas. Also, these should not have any debris, scrap or boxes stacked in their way.
4. **Floors and walls:** These should be clean and free from dust, dirt and marked clearly with signboards and placards wherever necessary. Spilt oil and other liquids should be cleaned up at once. Walls with chips, shavings and floors with dust and similar wastes should never be allowed to accumulate. They should be cleaned frequently.
5. **Well-maintained amenities:** Facilities or amenities such as washrooms and lockers for clothing should be clean and keep up to date. Lunchroom should be clean, well-maintained and inviting.
6. **Waste removal:** There should be a proper waste disposal schedule along with cleaning agents and equipment. There should be adequate facilities to prevent congestion and disorder in the premises.
7. **Maintenance of light fittings:** A good housekeeping program will pay attention to light fittings, its care and maintenance in the premises. It must be an integral part of such a program. Lamp shades and lights become dirty with use and often accumulate dirt and dust around them. This reduces their efficiency and the workers are devoid of essential light

which puts strain on their eyes. Simple cleaning of lamps/bulbs reflectors and tube lights is known to improve the lighting efficiency.

8. **Cleaning of the windows:** Clean window glass help in optimizing the availability of day light and dirty ones keep it out. Improper lighting arrangements at the workstation can lead to eye strain and accidents because of low visibility. Efficient housekeeping ensures that windows are not blocked by stacked materials, equipment or articles on the ledges and are dust free.
9. **Ventilation:** There should be adequate ventilation in the premises. The ventilators and exhaust fans should be clean and free from dust, cobwebs, grease etc.
10. **Fully functional first aid gear:** First aid facilities and equipment should be kept under spotlessly clean conditions and fully stocked so that they are always ready in the event of accidents or illness.
11. **Inspection of fire extinguishing equipment:** Regular inspection of all fire-fighting equipment such as extinguishers and fire hoses are vital for keeping them in good working condition. Fire protection facilities such as door and exits, automatic alarms, smoke detectors etc. must be in excellent working condition. Care should be taken to check and avoid any jammed or blocked fire exits and doors. Doors and exits should always be kept clear of obstructions.

3. Hazards of Poor Housekeeping Practices:

Regular and timely housekeeping has many benefits. However, housekeeping is not practiced regularly and efficiently it may pose serious problems. Some of the hazards and problems associated with poor and irregular housekeeping practices are:

- Untidy and unsafe premises
- Accidents
- Fire Hazards
- Chemical and oil spillage
- Dusty walls and windows
- Slippery floors and handles
- Jammed doors and knobs
- Unkempt, smelly washrooms and change rooms etc.
- Falling and tripping over objects lying on floors, stairs and platforms
- Accidents due to falling objects
- Wet or dirty surfaces causing slipping and falls

- Striking against items kept in undesignated or wrong locations or items
- piled up in stacks near aisles and exits
- Projecting nails, wire or steel rods which may cause injuries such as piercing any body part, tearing skin etc.
- All this leads to a direct bearing on the efficiency and productivity of employees and may bring down their morale too.

By following these practices, small-scale block printing businesses can build a healthier and safer workspace. It not only protects the artisans but also enhances the overall quality and appeal of handmade block-printed textiles.

Activities

Activity 1: Prepare a chart/graphic poster on importance of personal hygiene.

Material Required:

- Chart Sheet
- Colorful Pens & pencils
- Pencil
- Eraser
- Ruler

Procedure:

- Collect all the required information.
- Prepare your chart and get it verified by your teacher.
- Finish it.
- Attach the chart on the drawing board of the classroom.

Activity 2: Prepare a skit on various hazards of poor housekeeping practices and enact it in your class. Also conduct a discussion on the same.

Procedure:

- Plan your skit on any situation related to hazards of poor housekeeping practices.
- Distribute dialogue and roles among all the participants.
- Enact the skit in your class.

What Have You Learned?**A. Fill in the following blanks:**

1. _____ is important mainly because it saves us from illnesses and ensures good health.
2. Hands must be washed on regular intervals with an effective_____.
3. Benefits of a healthy lifestyle are increased concentration, sharp memory and it also gives an_____.
4. Performance of a worker is directly related to the _____ of the worker.
5. _____ leads to a sense of chaos and accidents.

B. Write short answers for the following:

1. Explain Personal hygiene and its importance in a workplace.
2. Describe Safe Working Practices and Organizational Procedures.
3. Discuss Good Housekeeping Practices.

Session: 3 Environmental Management Procedures, Security Details, Potential Accidents and Emergencies

Every organization has an Environmental Management System (EMS) that helps it in achieving its environmental goals. This is done through consistent reviewing, evaluation and improvement of its environmental performance. This approach reduces the risk of non-compliance and improves health and safety practices of the workers.

6.3.1 Environmental Management system

Basic procedures followed under EMS are as follows

- Review of the environmental goals of the organization.
- Analyzing its environmental impacts and legal requirements.
- Setting targets for reduction of harmful impacts on environment and comply with legal requirements.
- Introducing and implementing program to meet these objectives and targets.
- Monitoring and measuring progress in achieving the objectives.
- Ensuring employees' environmental awareness and competence.
- Reviewing progress of the EMS and making necessary improvements.

Potential Benefits of implementing EMS

- Improved environmental performance.
- Enhanced compliance
- Pollution prevention
- Resource conservation
- Increased efficiency leads to reduced costs.
- Enhanced morale of workers
- Enhanced image with public, regulators, lenders and investors.
- Employee awareness of environmental issues and responsibilities.

6.3.2 Potential accidents, emergencies and response:

Emergencies or disasters are not at all welcome in any organization as they effect the health and life of employees and in turn also effect the business.

However, the truth is that despite all the precautions and safety measures, emergencies and disaster can occur anytime and anywhere. Sometimes these emergencies and disaster occur at a time when they are least expected. At such difficult times the corrective measures are necessary to overcome such situations.

An incident/potential accident that can occur during the process of production or services if left un-attended can lead to injuries, complication leading to disability, death or prolonged hospital stay for a worker. Awareness of incidents at workplaces is a key factor in preventing them at yours.

Following are some of the most common causes of accidents at the workplace:

1. Heavy Lifting
2. Fatigue
3. Dehydration
4. Poor Lighting
5. Hazardous Materials
6. Fire Accidents
7. Acts of Workplace Violence
8. Trips and fall
9. Stress
10. Explosions
11. Chemical spills
12. Heat Waves

The best way is to prepare ourselves to respond to an emergency before it happens. Few people can think clearly and logically in a crisis, so it is important to do so in advance, when we have time to prevent any crisis as rightly said “prevention is better than cure”. Industries also run mocks or drills to train people/workers about what to do and how to act in case of emergencies.

Emergency Response Plan

The initial minutes of an emergency are very critical and require immediate action. Promptness in announcing warnings and instructions to employees for evacuation, shelter or lockdown can save their lives. Public emergency services such as police, fire department, hospitals should also be called for immediate action. All employees must be trained in first aid, emergency evacuation, fire drills etc.

Proper risk assessment should be done for developing an emergency response plan for this all potential emergency scenario should be clearly identified. An understanding of potential emergency scenarios can also help us to plan an arrange all resources and procedures required to prevent them in the first place. The emergency plan should be consistent with our performance objectives.

Development and implementation of an emergency plan is vital for every industry. This is specially required for protection of all the employees, visitors, contractors and anyone else visiting and working in the organization. This emergency plan also includes building evacuation through fire drills, sheltering practice from severe weather such as lightning, floods etc. There should also be a provision for shelter - in - place from air borne hazards such as a chemical release. Safety of life should always be the first priority is case of emergencies. Stabilization of the incident and normalization of the situation should be the second priority. Employees should be aware of the action that should be taken to stabilize untoward incident.

For example - Employees should be trained to use the fire extinguisher efficiently for controlling small fire accidents. Containment of a small chemical spill and supervision of building utilities and systems can minimize damage to a building and can help prevent any environmental damage. A plan should be well established and resources should be on hand or quickly available as response to any potential accident or emergency.

6.3.3 Different type of signboards at workplace and their application:

Safety signboards are essential components within the handicraft sector, serving as visual cues to communicate crucial information regarding potential hazards, safe practices and emergency procedures. These signboards play a pivotal role in maintaining a safe and secure working environment for employees, reducing the risk of accidents and injuries. Here's an overview of safety signboards commonly used in the apparel industry:

1. **Caution Signs:** Caution signs are used to warn employees about potential hazards that may not result in serious injury or death but can still cause harm. In the apparel industry, caution signs might indicate areas where there's a risk of tripping, slipping or falling. These signs are usually depicted using a yellow background with black text and symbols.
2. **Danger Signs:** Danger signs are used to indicate situations that could result in serious injury or death. In the context of the apparel industry, danger signs might be used to mark areas with heavy machinery, high-voltage equipment or other life-threatening risks. These signs typically feature a red background, white text and a bold, easily recognizable symbol.

3. **Emergency Exit Signs:** These signs are crucial for indicating the locations of emergency exits and evacuation routes. In the handicraft industry, where factories can be large and complex, these signs guide employees to safety during emergencies like fires or other crises. They usually feature a green background with white text and a pictogram of a person exiting a door.
4. **Fire Safety Signs:** Fire safety signs convey information about the location of fire extinguishers, fire alarms and fire assembly points. These signs help employees respond quickly and appropriately in case of a fire emergency. Fire safety signs are often red or green, with white text and symbols.
5. **Personal Protective Equipment (PPE) Signs:** PPE signs remind employees to wear appropriate protective gear when entering specific areas. In the handicraft industry, where there might be exposure to chemicals, heat or noise, these signs play a crucial role in preventing injuries and maintaining workplace safety.
6. **Chemical Hazard Signs:** For apparel factories that handle chemicals for dyeing, printing or other processes, chemical hazard signs inform workers about the potential risks associated with specific substances. These signs use recognizable symbols and color codes to indicate the type and severity of the hazard.
7. **First Aid Signs:** First aid signs indicate the location of first aid kits and medical facilities within the workplace. These signs ensure that employees can quickly access necessary medical supplies in the event of an injury.
8. **Restricted Area Signs:** These signs are used to restrict access to certain areas that pose a danger to unauthorized personnel. In the handicraft industry, restricted areas might include machine rooms, storage areas with heavy loads or areas with ongoing maintenance work.
9. **Machine Safety Signs:** These signs are placed on machines to provide instructions on safe usage, maintenance and proper procedures. They help prevent accidents caused by incorrect operation or lack of awareness.
10. **Training and Safety Awareness Signs:** These signs serve as reminders for employees to undergo regular safety training and maintain awareness of safety protocols. They encourage a safety-conscious mindset among workers.

In the handicraft industry, safety signboards serve as an integral part of the overall safety management system. They help prevent accidents, reduce downtime due to injuries and promote a culture of safety among employees. It's important for these signboards to be clearly visible, easy to understand and regularly maintained to ensure their effectiveness in promoting workplace safety.



Fig. 6.10: Safety Signs



Fig. 6.11: Warning Signs

Following table shows some types of hazards at workplace and the related safety measures which should be taken care of:

Hazards	Safety Measures
Spreading and Cutting	
Finger and hand injuries from spreading machines	Wear gloves and handle paper tags mindfully.
Finger and hand injury from moving or idle cutting device	Ensure that the finger guard is adjusted to the correct height of the carton to be cut. Learn and use the correct handling techniques for the tool.
Finger and hand injury package lifting area.	Ensure that the two-handed control system is functioning properly. A light sensor should stop the machines when the working area is transgressed.
Finger and hand injury in the press	Safety guards should be checked daily for correct operation
Burns from hot beds	Never attempt to retrieve or adjust the position of components whilst they are being fed or are on the bed
Finger and hands injury in feeding and unloading	A press which has to be controlled using both hands must be operated by the one person. Operators must be well trained and practiced in laying the parts on the feeding belt conveyor
Finger and hand injury during cleaning and repair work	The machine must be switched off, with plug removed and must be stationary before any cleaning or repair work is started
Finger injury from the needle	Correct setting of the finger guard should be checked before work starts
Pulled hair and face injury from the yarn feeder	Long hair should be gathered and pinned up or a hairnet should be worn. A safety guard should be provided for the yarn feeder
Hand and finger injury from fastening devices on hook, eyelet and rivet machines.	Correct setting of the safety guards should be checked. Training must be given in the correct handling

	techniques for holding and feeding materials
Eye injury from breaking needles or buttons at the button sewer or breaking needles at the loop sewer	Proper adjustment of eye shield should be checked before work starts. Cracked or obscured shields should be replaced or safety glasses should be issued.

Hazards	Safety Measures
Contact with Scissors and Needles	
Cuts and pricks from sharp points	Sharp pointed scissors should not be left unprotected. They should be kept in special holders (leather holsters cases) carried e.g. on a belt and stowed away properly after use.
Internal injury from swallowed items	Never store items temporarily in the mouth. There is a danger of swallowing them as a result of coughing sneezing or being startled. Place needles in the proper container or in a needle cushion.
Burns from hand irons	Hand irons should be protected from overheating by a thermostat. Nonflammable material should be used for the working area.
Finger and hand injury from the press	A machine which requires two hands to operate it must never be operated by two people never attempt to adjust the position of parts after the closing process has started a safety bar must be fitted which stops and raises the head when it is touched
Inhalation of solvent vapors, skin damage or reaction to contact with solvents	Ensure adequate ventilation, only the equipment in materials actually required for a given working shift should be present
Fire hazard	An adequate distance must be maintained at least 5 meters from any potential ignition source.
Hazardous chemicals	Safety warning instructions on the container should be observed and appropriate working method adopted

Head injury from overhead transport systems with suspended carriers	Head protection (padded hard hats) should be provided with the transporter rails pass over a walkway the floor should be marked with black and yellow warning strips
Trapped fingers when maneuvering carriers over points	Safety guards should be fitted and proper training in handling method should be given
Falling from raised service platform and access points	Safety guards have to be in place. Specialized equipment should be used for servicing trolleys and proper handling procedures observed
Hand and finger injury from conveyors	Equipment must be guarded and the safety guards must never be removed
Accidental injuries from tripping over the feet of movable hanger stands	Movable hanger stand should be found only in designated areas. They should not encroach on to marked walkways

Activities

Activity 1: Prepare a detailed report on personnel trained in first aid, firefighting and emergency response.

Materials Required:

- Practical File
- Colored pens and pencils
- Ruler
- Eraser

Procedure:

1. Visit a craft cluster.
2. Prepare a questionnaire.
3. Interview people trained for emergency services.
4. Document it and prepare a detailed report of the same.

What Have You Learned?**A. Fill in the following blanks**

1. Every organization has an_____ that helps it in achieving its environmental goals.
2. A good plant layout helps in achieving proper coordination of men, materials and_____.
3. _____are used to warn employees about potential hazards that may not result in serious injury or death but can still cause harm.
4. Fire safety signs convey information about the location of_____, fire alarms and fire assembly points.
5. Restricted areas might include_____, storage areas with heavy loads or areas with ongoing maintenance work.

B. Short answers types

1. Explain any two types of Signboards that are used (with diagrams).
2. Describe health and safety measures taken in a workplace.

C. Long answer type

1. State some potential benefits of implementing EMS.
2. Write in your own words how would your response to an accident or emergency of fire breakout in a corner of the finishing and packing department.

Answer Key

Module – 1

Session: 1

1. Cottage
2. Eco-friendly
3. Tie and dye
4. Terracotta
5. Handmade

Session: 2

1. Carved wooden blocks
2. Rajasthan
3. Chippa
4. Kutch
5. Patterned or undyed

Session: 3

1. Natural
2. Tree of life
3. Slow
4. Wooden
5. Gujarat

Module – 2

Session: 1

1. Pattern
2. Space
3. Symmetrical
4. Value
5. Focal point/Emphasis

Session: 2

1. Natural
2. Space
3. Symmetrical
4. Value
5. Focal point/Emphasis

Session: 3

1. Equidistant or block
2. Half Drop
3. Brick
4. Mirror
5. Diamond

Module – 3**Session: 1**

1. Havad
2. Printing pad or mat
3. Brushes
4. Mulmul or Muslin
5. Natural

Session: 2

1. Soft brush
2. Sealed
3. Clutter-free
4. Gloves
5. Well-ventilated

Session: 3

1. Selection, Evaluation
2. Compatibility

3. Durable
4. Wastage
5. Consistency, Quality

Module – 4

Session: 1

1. Wooden
2. Discharge
3. Resist
4. Multi-colour layered
5. Sanganer

Session: 2

1. Rekh
2. Gadh
3. Khaddi
4. Thasso
5. Pavansar

Session: 3

1. Natural
2. Desizing
3. Linseed
4. Palia
5. Alum

Session: 4

1. Washed
2. Chalk
3. Binder
4. Sun
5. Ironed

Module – 5

Session: 1

1. Blocks
2. Bags
3. Product
4. Coasters
5. Stationery

Session: 2

1. Purpose
2. Sustainable
3. Environmental
4. Stakeholders / Colleagues / Potential users
5. Regulatory compliance

Session: 3

1. Ironing / Pressing
2. Shade
3. Muslin cloth
4. Silica gel packets / neem leaves
5. Smudges

Module – 6

Session: 1

1. Hazard
2. Chemical
3. Musculoskeletal
4. Fire
5. Biological

Session: 2

1. Good hygiene
2. Soap or handwash
3. Energy boost
4. Health
5. Poor housekeeping

Session: 3

1. Environmental
2. Machines
3. Caution signs
4. Fire extinguishers
5. Electrical rooms