

GENERAL ELECTIVE COURSE
GE 4: DYEING AND PRINTING WITH NATURAL DYES

CREDIT DISTRIBUTION, ELIGIBILITY AND PRE-REQUISITES OF THE COURSE

Course Title & Code	Credits	Credit Distribution of the Course			Eligibility Criteria	Pre-requisite of the Course (if any)
		Lecture	Tutorial	Practical		
GE 4: Dyeing and Printing with Natural Dyes	4	3	0	1		Nil

Learning Objectives

- To provide theoretical and practical knowledge about various natural dyes
- To learn about the characteristics and sources of different natural dyes
- To introduce the extraction and application of natural dyes

Learning Outcomes

The students would be able to:

- Learn about the sources of various natural dyes
- Describe the different methods of extraction of natural dyes
- Explain the different mordants and styles of mordanting
- Learn the process of dyeing and printing with natural dyes

THEORY
(Credits 3; Hours 45)

UNIT I: Introduction to Natural Dyes

14 Hours

This unit lays thrust on history, significance and classification of natural dyes

- History of Natural dyes
- Advantages of natural dyes over synthetic dyes
- Classification of Natural Dyes
 - Based on source: Plant, animal/insect, microbial
 - Based on colour obtained
 - Based on chemical structure: Indigoid, anthraquinone, naphthoquinone, benzoquinone, flavonoid, carotenoid
 - Based on application method: Mordant, Vat, Direct, Acid, Basic, Disperse
- Significant natural dyes: Indigo, Madder, Lac, Cochineal, Turmeric etc.

UNIT II: Extraction Process**15 Hours**

This unit deals with processes involved in the extraction of natural dyes

- Collection, drying and storage of raw materials
- Methods of extraction of colourant- Aqueous, solvent, enzymatic, fermentation, supercritical fluid extraction , microwave and ultrasonic assisted extraction
- Methods of drying - Spray drying, drying under vacuum, freeze drying

UNIT III: Mordants for Natural Dyes**6 Hours**

This unit describes the various mordants and mordanting techniques used in colouration with natural dyes

- Types of mordants
 - Metallic mordants: Alum, Potassium dichromate, Ferrous sulphate, Copper sulphate etc
 - Oil based mordants
 - Bio mordants
- Mordanting methods: Pre Mordanting, post mordanting and simultaneous mordanting

UNIT IV: Dyeing and printing with natural dyes**10 Hours**

This unit deals with application of natural dyes on textiles using dyeing and printing

- Preparation of fabric – bio scouring
- Mordanting - exhaust method, padding method
- Dyeing – Dye concentration, pH, time and temperature
- Printing - Role of thickening agents, Styles of printing - direct, resist , mordant and discharge
- Botanical printing
- Use of natural dyes in Indian textile crafts - Kalamkari, Bagh, Dabu, Ajrakh

PRACTICAL
(Credits 1; Hours 30)

1. Extraction of various natural dyes using different methods
2. Preparation of shade card using combination of mordants and natural dyes on different fibres.
3. Dyeing with selected natural dyes on natural and synthetic fabrics
4. Printing with selected natural dyes on natural and synthetic fabrics: Direct, Resist and Mordant style
5. Eco printing

Essential Readings

- Gulrajani M L & Gupta D, Natural dyes and application to textiles, Department of textile technology, Indian Institute of Technology, New Delhi, India, 1992
- Kumbasar. E.P.A “ Natural Dyes” 2017, IntechOpen
- Singh. H.B and Bharati. K.A ‘Handbook of Natural dyes and pigments’ 2015, Woodhead Publishing, India
- Kumbasar. E.P.A “ Natural Dyes” 2017, IntechOpen
- Vankar. P.S “Natural dyes for textiles”2017, Woodhead Publishing

Suggested Readings

- Daniel.M, Bhattacharya. S.D, Arya. A,Raole. V.M. “ Natural Dyes: Scope and Challenges” 2021, Scientific Publishers, India
- Mohanty.B.C ,Chandramouli.K.V., Naik.H.D “ Natural dyeing processes of india” 1987 , Calico Museum of Textiles

Note: Examination scheme and mode shall be as prescribed by the Examination branch, University of Delhi, from time to time

GENERIC ELECTIVE COURSE
GE 4: APPRECIATION OF INDIAN TEXTILES

CREDIT DISTRIBUTION, ELIGIBILITY AND PRE-REQUISITES OF THE COURSE

Course Title & Code	Credits	Credit Distribution of the Course			Eligibility Criteria	Pre-requisite of the Course (if any)
		Lecture	Tutorial	Practical		
GE 4: Appreciation of Indian Textiles	4	3	1	0		Nil

Learning Objectives

- To elaborate on characteristic identifying features of various traditional textile crafts.
- To explain the sustainable and ethical practices in the textile craft sector.
- To describe care and maintenance methods for preserving traditional textiles.
- To discuss the challenges and innovations in textile crafts in modern times.

Learning Outcomes

The students would be able to:

- Identify regional variations in textile crafts.
- Relate with the sustainable and ethical practices used in textile crafts.
- Use appropriate care and maintenance practices for textile crafts.
- Assess the contemporary status of textile crafts.

THEORY
(Credits 3; Hours 45)

UNIT I: Indian Heritage Textiles: Overview, Materials, Techniques and Regional Variations **20 Hours**

This unit focuses on the characteristic features of a diverse range of traditional textiles produced across India.

- Embroidered textiles: Phulkari, Kantha, Chikankari, Kasuti, Kashmir Kashida, Gujarat embroidery
- Hand Woven: Banaras brocades, Kanjivaram, Jamdani, Baluchari, Paithani, Chanderi, Maheshwari, Gadwal, Kasavu, Mekhla Chador
- Tie-Dyed: Bandhani, Lehriya, Ikats (Patola, Bandha, Pochampalli, Telia Rumal)
- Painted-printed: Kalamkari, Ajrakh, Dabu, Bagh, Madhubani, Phad and Pichwai

UNIT II: Sustainability and Ethical Practices

Hours

8

This unit emphasizes the importance of sustainable and ethical practices in traditional textile crafts.

- Importance of sustainability in textile crafts (use of natural dyes, recycling of materials, environmental issues)
- Ethical practices: GI Tag, usage of standardization and authentication marks, fair wages to artisans
- Interventions: Government and non-government

UNIT III: Care and Maintenance for Longevity of Heritage Textiles

7 Hour

This unit dwells on best practices for preserving and maintaining traditional textiles.

- Cleaning and finishing
- Handling and storage
- Repair and restoration

UNIT IV: Traditional textiles in contemporary times

10 Hours

This unit addresses the contemporary status of traditional textile crafts.

- Challenges faced by artisans and consumers
- Innovations inspired by traditional textile crafts

TUTORIAL

(Credit 1; Hours 15)

1. Visits to state emporia, craft fairs, and exhibitions such as Dastkar, Dilli Haat, Craft Museum, Hunar Haat.
2. Compare traditional and contemporary forms and products of any one textile craft.
3. Research project on any one Indian textile focus on history, cultural significance, technique, and contemporary relevance.
4. Case study of a designer engaged in innovating and preserving traditional textiles.

Essential Readings

- Fabric Art- Heritage of India. New Delhi: Abhinav Publications Naik S. (1996).
- Shailaja D. Naik, "Traditional Embroideries of India", A.P.H. Publishing Corporation, New Delhi, 1996
- Indian Textiles –by John Gillow and Nicholas Barnard, Om books International, New Delhi.
- The Sari-by Linda Lynton, Thames and Hudson Ltd London.
- Dhamija J. (1989). Hand-woven fabrics of India. Ahmedabad: Mapin Publishing pvt ltd

Suggested Readings

- Crill R., Murphy M. (1991). Tie-dyed Textiles of India. London: Victoria and Albert museum.
- Desai C. (1988). Ikat textiles of India. San Francisco: Chronical Books
- Sheila Paine, “Embroidered Textiles”, Thames and Hudson Ltd., 1990.
- Chattopadhaya, K.D. (1995). Handicrafts of India. New Delhi: Wiley Eastern Limited

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