

# AMTE-22 CHEMICAL PROCESSING OF TEXTILE MATERIALS-II

## UNIT-1 COLOUR SCIENCE

- 1.1 Beer–Lambert’s law, definitions of various terms associated with it and the mathematical representation, determination of concentration of dye in solution;
- 1.2 Assessment of colour in textile substrates- colour order system, colour atlas, Munsell system,
- 1.3 CIE colour system, tristimulus values, LAB values, psychometric colour parameters,
- 1.4 Whiteness and yellowness indices, colour difference,
- 1.5 Metamerism, K-M equation and its application in colour matching.

## UNIT-2 THEORY OF DYEING

- 2.1 Stages in dyeing and their governing factors, equilibrium dye uptake,
- 2.2 Sorption isotherm and Nernst, Langmuir and Freundlich isotherms,
- 2.3 Definition of dye affinity and its mathematical derivation;
- 2.4 Rate of dyeing and half dyeing time.

## UNIT-3 DYEING

- 3.1 Basic properties of dyes and pigments;
- 3.2 Classification of dyes and principle of application of various dyes;
- 3.3 Basic chemistry, properties, types and technology of application of direct,
- 3.4 Reactive, disperse, acid and basic dyes, after-treatments for these methods;
- 3.5 Processing of denims; determination of washing, light,
- 3.6 Rubbing and perspiration fastness properties.

## UNIT-4 PRINTING

- 4.1 Methods and styles of printing; manual screen printing,
- 4.2 Flat bed and rotary screen printing machines; constituents of printing paste and their roles;
- 4.3 Printing with direct, reactive, acid and disperse dyes; printing with pigments, environmental issues with pigment printing and alternatives.

## UNIT-5 KNIT AND GARMENT PROCESSING

- 5.1 Tube slitting machine, tube reversing machine, need for dimensional stabilization of knits, various stages in dimensional stabilization of tubular and open width knits;
- 5.2 Advantages and limitations of garment dyeing, selection of garment accessories,
- 5.3 Garment dyeing machines, garment washing, various methods of garment printing.

## REFERENCES Books:

1. Cegerra J. Puente P. And Valladepars J., “The Dyeing of Textile Materials”, Textile Institute, Manchester, 1993.
2. Chakraborty J. N. “Fundamentals and Practices in colouration of textiles’, Woodhead Publishing India Pvt Ltd, 2010.