पंडित दीनदयाल उपाध्याय शेखावाटी विश्वविद्यालय सीकर

SYLLABUS

B.A. PART-II

EXAMINATION-2024

14. Textile Craft

B.A. Part-II 2020

SCHEME : B.A/B.Com PART-II

			Duration	Max mark	Min mark
1.	Theory:	Paper-I	3Hrs	30	22
		Paper-II	3 Hrs	30	
2.	Practical :	Paper-I	3Hrs	35	25
		Paper-II	3 Hrs	35	
3.	Submission	Paper-I		35	25
		Paper-II		35	

Paper-I : Weaving Theory-I

UNIT-I

Yarn numbering system –Indirect (cotton, metric, woollen and worsted count) and Direct (Tex and Denier)

Yarn Twist and their types, Balance of fabric

Methods of fabric construction: Braiding &Lacing, knitting, felting and weaving

UNIT-II

Types of loom- Shuttle & Shuttle less; introduction to shuttleless looms- airjet, waterjet, projectile and rapier loom

Preparation of Warp and Weft for weaving

Draft, Peg plan, Weave, Repeat, Design

UNIT-III

Derivatives of Plain weave- Rib and Basket
Derivative of twill weave- Regular, Irregular, Left hand, Right hand,
Pointed and curved twill
Fabric defects, Selvedge, Types of Selvedge's

Paper-II: Dyeing Theory –I

UNIT-I

Difference between dyeing and printing
Mechanical finishes- basic process of beating, singeing, napping, calendaring and embossing.

UNIT-II

Stages of Dyeing (fibre, yarn & fabric)
Wool dyeing and silk dyeing
Dyeing machines- Jigger and Winch dyeing machine

UNIT-III

Steps of printing- preparation of cloth & colour

Methods of Direct printing- Block & Roller printing

Thickeners and types of thickeners

Practical (Paper-I)

1. Thread count and Balance of the cloth
2. Weave samples of derivatives of plain and twill weave

Practical (Paper-II)

1. Introduction to motif, repeat and layout
2. Block printing- samples preparation
3. Batik-spot, crack, scratch and painting (samples)

Submission (Paper-I)

1. Assessment of samples
2. Preparation of weave samples

Submission (Paper-II)

1. Any one article using block
2. Any one article using batik

Examination Scheme:

One Major Problem: 20 Marks

One Minor Problem: 15 Marks

Reference books :

Sahnai, V.A. (1989) Theory of Dyeing, Sevak publications. Mumbai

Trotman, E.R. (1985) Technology of Dyeing, John wiley & sons Inc London. London

Pryag, R.S. (1994) Technology of Printing, India publisher.

Pryag, R.S. (1995) Technology of Finishing, India publisher.

Bucker, (1998) Textiles, Abhishek spublications.

Kulkarni, M.M., Weaving technology, Virindra publication, Jalgon

Unit 3: Homogeneous linear differential equations, Simultaneous differential equations. Exact linear differential equations of nth order. Existence and uniqueness theorem.

Unit 4 : Linear differential equations of second order. Linear independence of solutions. Solution by transformation of the equation by changing the dependent variable/the independent variable, Factorization of operators, Method of variation of parameters, Method of undetermined coefficients.

Unit 5: Partial differential equations of the first order. Lagrange's linear equation. Charpit's general method of solution. Homogeneous and non-homogeneous linear partial differential equations with constant coefficients. Equations reducible to equations with constant coefficients.

Reference Books :

1. R.S. Senger, Ordinary Differential Equations with Integration, Prayal Publ. 2000.
2. D.A. Murray, Introductory Course in Differential Equations, Orient Longman (India), 1967.
3. E.A. Codington, An Introduction to Ordinary Differential Equations, Prentice Hall of India, 1961.

Paper – III: Numerical Analysis and Vector Calculus

Teaching : 3 Hours per Week

Duration of Examination : 3 Hours   **Max. Marks:**   **40 (Science)**
                                                           54 (Arts)

> **Note:** (i) This paper is divided into FIVE Units. TWO questions will be set from each Unit. Candidates are required to attempt FIVE questions in all taking ONE question from each Unit. All questions carry equal marks.
> (ii) Non-Programmable Scientific Calculators are allowed.

Unit 1: Differences. Relation between differences and derivatives. Differences of a polynomial. Newton's formulae for forward and backward interpolation. Divided differences. Newton's divided difference, Lagrange's interpolation formula.

Unit 2: Central differences.Gauss's, Stirling's and Bessel's interpolation formulae. Numerical Differentiation. Derivatives from interpolation formulae. Numerical integration, Derivations of general quadrature formulas, Trapazoidal rule. Simpson's one-third, Simpson's three-eighth and Gauss's quadrature formulae.

Unit 3: Relation between the roots and coefficients of general polynomial equation in one variable, transformation of equations, Descarte's rule of signs, solution of cubic equations by Cardon's method, biquadratic equations by Ferari's method.
Numerical solution of Algebraic and Transcendental equations, Bisection method, Secant method, Regula-Falsi method, Iteration method, Newton- Raphson Method (derivation of formulae and rate of convergence only).

Unit 4: Gauss elimination and Iterative methods (Jacobi and Gauss Seidal) for solving system of linear algebraic equations. Partial Pivoting method, ill conditioned systems, Numerical solutions of ordinary differential equations of first order with initial condition using Picard's, Euler and modified Euler's method.