

Post Diploma in Textile Processing
Curriculum & Syllabus

SEMESTER – I								
S No	Category of Course	Code No	Course Title	Hours/week			Total credit Hrs/week	Credits
				L	T	P		
1	Programme Core	25PDTP101	Textile Fibre and Yarn Manufacturing	3	0	0	3	3
2	Programme Core	25PDTP102	Fabric and Garment Manufacturing	3	0	0	3	3
3	Programme Core	25PDTP103	Technology of Preparatory Processing of Textiles	3	0	0	3	3
4	Programme Core	25PDTP104	Technology of Dyeing-I	3	0	0	3	3
5	Programme Core	25PDTP105	Textile Fibre & Chemical Analysis Laboratory	0	0	3	3	1.5
6	Programme Core	25PDTP106	Preparatory Textile Processing Laboratory	0	0	6	6	3
7	Programme Core	25PDTP107	Textile Dyeing Laboratory - I	0	0	6	6	3
Total Credits								19.5
SEMESTER - II								
S No	Category of Course	Code No	Course Title	Hours/week			Total credit Hrs/week	Credits
				L	T	P		
1	Programme Core	25PDTP201	Technology of Dyeing-II	3	0	0	3	3
2	Programme Core	25PDTP202	Technology of Printing-I	3	0	0	3	3
3	Programme Core	25PDTP203	Textile Testing & Quality Control	3	0	0	3	3
4	Programme Core	25PDTP204	Personality Development and Entrepreneurship	3	0	0	3	3
5	Programme Core	25PDTP205	Textile Testing Laboratory	0	0	6	6	3
6	Programme Core	25PDTP206	Textile Dyeing Laboratory-II	0	0	6	6	3
7	Programme Core	25PDTP207	Computer Colour Matching Laboratory	0	0	3	3	1.5
Total Credits								19.5




SEMESTER - III								
S No	Category of Course	Code No	Course Title	Hours/week			Total credit Hrs/week	Credits
				L	T	P		
1	Programme Core	25PDTP301	Technology of Printing –II	3	0	0	3	3
2	Programme Core	25PDTP302	Technology of Finishing	3	0	0	3	3
3	Programme Core	25PDTP303	Advances in Textile Processing	3	0	0	3	3
4	Programme Core	25PDTP304	Ecology & Pollution Control in Textile Industry	3	0	0	3	3
5	Programme Core	25PDTP305	Project Work	0	0	8	8	4
6	Programme Core	25PDTP306	Textile Finishing Laboratory	0	0	6	6	3
7	Programme Core	25PDTP307	Textile Printing Laboratory	0	0	6	6	3
8	Internship	25PDTP308	Internship (3 – 4 weeks)	0	0	0	0	2
				Total Credits				24




SEMESTER - I

Course Title	: TEXTILE FIBRE AND YARN MANUFACTURING				
Course Code	: 25PDTP101	L	T	P	C
Course Category	: PROGRAMME CORE	3	0	0	3

Course Objectives :**To enable the students:**

1. To classify textile fibres and interpret their essential and desirable characteristics.
2. To illustrate the cultivation, production and properties of natural and man-made.
3. To describe the manufacturing processes, properties & applications of synthetic fibres.
4. To explain the cotton, woollen and worsted spinning system.
5. To comprehend the Rotor, Friction, Air-Jet & Vortex spinning and classification of yarns.

Unit - I Introduction to Textile Fibres**09 Hours**

Fibres- Definition, Classification of fibres, characteristics of Textile fibres; Types of polymerization: addition and condensation, orientation- Concept of Crystallinity, Amorphous region. Fibre density, Glass transition temperature and melting point; Identification of Textile Fibres.

Unit - II Natural & Regenerated Fibers**09 Hours**

Cultivation & Production of Cotton, Wool, and Silk and their Physical & Chemical properties. Manmade Fiber production techniques: Wet Spinning, Dry Spinning & Melt Spinning; Manufacturing process of viscose fibre, Cellulose acetate and Lyocell and their Physical and Chemical properties.

Unit - III Synthetic Fibers**09 Hours**

Manufacturing process of Polyester, Nylon, PAN, PE and PP fibre and their Physical and chemical properties. Introduction to elastomeric and high performance fibres (Spandex, Aramid and carbon fibres) - Properties and Application. Concept of drawing, crimping & texturizing.

Unit - IV Yarn Manufacture**09 Hours**

Introduction to fiber blends and objectives of blending; Flow chart of spinning for carded & combed yarn; processes involved in cotton spinning – Ginning, Blow room, Carding, Drawing, combing, speed frame, ring frame & winding process- objectives and passage of material. Introduction and process flow chart of woollen and worsted yarn.

Unit - V Advanced Spinning and Yarn Classification**09 Hours**

Principle and working of Rotor, Friction, Air-Jet and Vortex spinning; Classification of various types of yarns; Yarn faults, causes and their remedies; Properties of yarn affecting the dyeing printing process; Yarn Numbering system and basic calculations.

Total 45 Hours**Text books:**

1. S P Mishra, A Text Book of Fibre Science and Technology, New-Age International Ltd, New Delhi, 1996




2. E.P.G. Gohl & L. D. Vilensky, Textile Science, CBS Publication
3. V.B. Gupta, V.K.Kothari, Manufactured Fibre Technology, Springer Netherlands, 1997
4. A.A. Vaidya, Production of Synthetic Fibres, Prentice-Hall of India, New Delhi, 1988

References:

1. J Gordon Cook, Hand Book of Textile fibres, Vol.I and II, Woodhead Publishing Limited, 1984
2. M. Lewin and E.M. Pearce, Hand Book of Fibre Chemistry, Merce Dekker Inc., 1998
3. V.A Shenai, Textile Fibre, Sevak Publications, Mumbai
4. R.W. Moncrieff, Manmade Fibres, Butterworth, London
5. V.R Gowariker, N.V Viswanathan and J.Sridhar, Polymer Science, New Age International Ltd., New Delhi, 1996.
6. B.L. Deopura, B. Gupta, Man-Made Fibres, New Delhi; Indian Institute of Science, 1999
7. F. Sadov, Chemical Technology of Fibrous Material, Mir Publishers-MOSCOW
8. J. Iredale, Yarn preparation: A Handbook of Intermediate Technology, 1982

Course Outcomes:

At the end of the study of this course, the students will be able to

CO1: Classify various types of fibres and interpret their essential and desirable characteristics.

CO2: Illustrate the cultivation, production and properties of natural and man-made fibres.

CO3: Describe the manufacturing processes, properties & applications of synthetic fibres.

CO4: Explain the cotton, woollen and worsted spinning system.

CO5: Comprehend the Rotor, Friction, Air-Jet & Vortex spinning and classification of yarns.

Course Title	: FABRIC AND GARMENT MANUFACTURING				
Course Code	: 25PDTP102	L	T	P	C
Course Category	: PROGRAMME CORE	3	0	0	3

Course Objectives :

To enable the students:

1. To classify the woven, knitted, and non-woven fabrics, and define winding and warping.
2. To classify looms, weaving motions and to identify weaves and defects of fabric.
3. To explain knitting and non-woven manufacturing process and their applications.
4. To describe the process of Garment manufacturing and identify the Garment components, trims and accessories.
5. To select the appropriate stitch, seams and sewing machines for stitches for Garment




manufacturing.

Unit - I Weaving Preparatory Process 09 Hours

Classification of various types of fabrics (Woven, Knitted & Nonwoven); Outline of the weaving preparatory process, such as winding and warping; Outline of the sizing process with its objectives and ingredients used; Beaming, drawing and denting in loom.

Unit - II Woven Fabric Manufacture 09 Hours

Classification of looms, passage of warp on loom; Introduction to Primary, Secondary and auxiliary motion in weaving; Introduction of elementary weaves and derivatives (Plain, twill, satin, sateen); Study of various types of fabric defects and their remedies.

Unit - III Knitting and Non-Woven Manufacture 09 Hours

Introduction of knitting, Classification of Knitted fabrics and types of knitting machines, Circular knitting machines and parts, Flat bed knitted machine and parts; Comparison between general properties of woven, Non-Woven and knitted fabrics; Introduction to Non-Woven: Definition & Classification, Types of Nonwoven Manufacturing Process techniques. Web formation Techniques; Application and characteristics of Knitted and Non-Woven fabrics.

Unit - IV Introduction of Garment Manufacture 09 Hours

Differentiate between garment, clothing, and apparel; Classification and selection of garments, Sequence of garment manufacturing process in the apparel industry with objective of each process; Basic Garment components and types; (Collar, Cuff, Plackets, Pockets, sleeve, and yoke); Introduction of trims and accessories used in garments (with an emphasis on care labels)

Unit - V Garment Sewing Machines 09 Hours

Federal Classification of Stitches and seams; Classification of Sewing Machines; Basic parts of Single Needle Lock Stitch Machine (SNLS) and their functions.

Total 45 Hours

Text books:

1. S.P Mishra, Fibre Science and Technology, New Age International Private Limited.
2. Abhijit Majumdar, Principles of Woven Fabric Manufacturing, CRC Press Taylor & Francis.
3. N. Anbumani, Knitting Fundamentals, Machines, Structures and Developments, Age International Private Limited.
4. T. Karthik, Prabha Karan C.R. Rathinamoorthy, Nonwovens: Process, Structure, Properties And Applications, WPI Publishing
5. T. Karthik, P. Ganessan, & D. Gopalakrishnan, Apparel Manufacturing Technology, CRC Press Taylor & Francis.
6. Carr H., and Latham B., The Technology of Clothing Manufacture, Blackwell Science Ltd., Oxford.

References:

1. Hanton, WA, Mechanics for Textiles: Student an Introduction to the study of mechanics for Textiles student, 1960.
2. Greenwood, Hony., Handbook of weaving and manufacturing, 2nd Edition, 1954.



3. Rama Verma, Handloom weaving, 1959.
4. David Ezakia, Preparatory Process for weaving with calculation: including Development of the modern Power Loom”
5. Z Grosicki, Watsons Textile Design and Colour , 2nd Edition

Course Outcomes:

At the end of the study of this course, the students will be able to

CO1: Explain the classification of woven, knitted, and non-woven fabrics, and define winding and warping.

CO2: Explain the classification of loom, weaving motions, and identify weaves and defects of fabric.

CO3: Describe the knitting and non-woven manufacturing process and their applications.

CO4: Explain the process of Garment manufacturing and identify the Garment components, trims, and accessories.

CO5: Discuss how to select the appropriate stitch, seams, and sewing machines for stitches for Garment manufacturing.

Course Title	: TECHNOLOGY OF PREPARATORY PROCESSING OF TEXTILES				
Course Code	: 25PDTP103	L	T	P	C
Course Category	: PROGRAMME CORE	3	0	0	3

Course Objectives :

To enable the students to

1. Explain the preparatory process of cotton materials.
2. Discuss the preparatory process of protein fibres.
3. Describe the pre-treatments of synthetic fibres.
4. Explain the working of various dyeing machines.
5. Discuss the defects and remedies in preparatory process.

Unit - I Preparatory Processes of Cotton Material

09 Hours

Morphological and chemical aspects of Cotton; Composition of Raw Cotton; Dry Preparatory Process Viz. Mending, Stitching, Shearing & Cropping, Spotting and Singeing. Need for preparation of Grey Goods for dyeing and printing. Desizing, scouring and bleaching cotton with Hypo Chlorites, Hydrogen Peroxide and Sodium Chlorite; Comparative study of various methods of bleaching.

Unit - II Preparatory Process of Protein Fibres

09 Hours

Morphological, Chemical aspects and composition of raw Wool and Silk; Methods of scouring Wool (Suint, Emulsion, Solvent and Freezing) and its machines; Milling of Woolens. Methods of Degumming silk with soap, mild alkali and enzymes.

Unit - III Study of Pre-treatments of Protein and Synthetic Fibres

09 Hours

Bleaching of Wool with Hydrogen Peroxide; Bleaching of Silk with Hydrogen Peroxide. Setting process for woolens viz. Potting, Crabbing and Decatising. Need for preparatory treatment for important manmade fibres viz. Polyester, Nylon and Acrylic; Methods of




Scouring and Bleaching for Polyester, Nylon, Acrylic.

Unit - IV Study of Different Textile Wet-Processing Machines 09 Hours

Description and working of Singeing M/c, Kier and J-Box.; Preparatory process sequences for different cotton Materials (for white, to be Dyed in pale and medium shades and / or to be printed goods). Working & Principle of machines like Hydroextractor, Winch & Scutcher.

Unit - V Study of Auxillaries and Defects & Damages 09 Hours

Working of continuous and semi-continuous bleaching ranges ; A review of chemical auxiliaries used in preparatory processing of textile viz. Surfactants, sequestering agents, wetting agents, detergents and optical brighteners. Defects & damages caused in Singeing, desizing, Scouring and Bleaching.

Total 45 Hours

Text books:

1. C.V. Kaushik and Mr. Antao Irwin Josico, Chemical Processing of Textiles, NCUTE
2. E.R. Trotman, Textile Scouring and Bleaching, London, Griffin, 1968
3. V.A Shenai, Technology of Textile processing Vol. II, III & VI
4. V.A Shenai, Technology of Dyeing, Sevak Publications, 1996
5. J. N. Shah, Guide to Wet Textile Processing Machines, Elsevier Science & Technology

References:

1. V.A Shenai, Technology of Bleaching and Mercerizing, Sevak Publication, Bombay, Vol. - 3, 3rd edition, 2003
2. Steven A.B, Textile Bleaching, Pitman and Sons, London.
3. Asim Kumar Roy Choudhury, Textile Preparation and Dyeing, Oxford and IBH Publishing Co. Pvt. Ltd., 2006.

Course Outcomes:

At the end of the study of this course, the students will be able to

CO1: Describe the preparatory process of cotton materials.

CO2: Discuss the preparatory process of protein fibres.

CO3: Describe the pre-treatments of synthetic fibres.

CO4: Explain the working of various dyeing machines.

CO5: Discuss the working of continuous and semi continuous bleaching machines, chemical auxiliaries and defects and remedies in preparatory process.



Course Title	: TECHNOLOGY OF DYEING – I				
Course Code	: 25PDTP104	L	T	P	C
Course Category	: PROGRAMME CORE	3	0	0	3

Course Objectives :

To enable the students to

1. Define the basic terms in dyeing.
2. Describe the process of dyeing with direct, azoic and sulphur dyes.
3. Explain the process of dyeing with vat and reactive dyes.
4. Describe the mechanism and dyeing of protein fibres.
5. Explain the working of dyeing machines.

Unit - I Dyes and Pigments**09 Hours**

Definition of Dyes, Pigments, Auxochrome and Chromophore; Classification of dyes with respect to their application on Textile Fibres. Criteria for selection of dyes; Basic concepts involved in dyeing such as substantivity, Solubility, affinity, theory of dyeing & role of Zeta Potential in Cotton; Basic parameters of dyeing viz. Percentage of shade, Percentage of exhaustion, percentage expression and effects of MLR.

Unit - II Application of Direct, Azoic and Sulphur Dyes**09 Hours**

Principles and methods of application of Direct Dyes with function of chemicals used and effect of process conditions; After treatments of cotton dyed with Direct dyes. Principle and methods of application of Azoic with function of chemicals used and effect of process conditions; Principle and methods of application of Sulphur Dyes with function of chemicals used and effect of process conditions.

Unit - III Application of Vat and Reactive Dyes**09 Hours**

Classification of Vat dyes in accordance with their chemical constitution; Principle and methods of application of vat dyes on cotton; Principle and methods application of Solubilized vat dyes on cotton

Classification of Reactive dyes. Concept of Mono functional and Bi-functional Reactive dyes; Principle and methods of application of Reactive dyes on cotton.

Unit - IV Dyeing of Wool and Silk**09 Hours**

Structural concept of wool and silk in relation to their dyeing i.e. amphoteric character and iso-electric region; Dyeing of wool with Acid dyes and Metal Complex dyes; Dyeing of Silk with Acid dyes & Metal Complex dyes

Unit - V Working Principle of Wet Processing Machines**09 Hours**

Description and working of various machines used for wet processing viz. Jigger, Winch, Cabinet hank dyeing machine, Yarn Package dyeing machine and Padding Mangle.

Total 45 Hours**Text books:**

1. C.V. Kaushik and Antao Irwin Josico, Chemical Processing of Textiles, NCUTE
2. Trotman E.R, Textile Scouring and Bleaching, Griffin, London, 1968.
3. V.A Shenai, Technology of Textile processing Vol. II, III & VI
4. V.A Shenai, Technology of Dyeing, Sevak Publications, 1996




5. J. N. Shah, Guide to Wet Textile Processing Machines, Elsevier Science & Technology
6. M.V. Sapatnekar., Chemical Processing of Textiles

References:

1. V.A Shenai, Technology of Bleaching and Mercerizing, Sevak Publication, Bombay, Vol. - 3, 3rd edition, 2003
2. Steven A.B, Textile Bleaching, Pitman and Sons, London.
3. Asim Kumar Roy Choudhury, Textile Preparation and Dyeing, Oxford and IBH Publishing Co. Pvt. Ltd., 2006
4. E.R.Trotman, Dyeing and Chemical Technology of Textile Fibres, CBS Publishers & Distributors Pvt. Ltd.
5. R.R.Chakarvarty, Glimpses of Textile Processing
6. R.S. Bhagwat, Hand book of textile processing machinery

Course Outcomes:

At the end of the study of this course, the students will be able to

CO1: Discuss on Classification of Dyes, Basic concepts & parameters used in dyeing.

CO2: Explain the application of direct, azoic and sulphur dyes on cotton.

CO3: Describe the application of Vat, solubilized vat and reactive dyes on cotton.

CO4: Discuss the application of acid and metal complex dyes on protein fibres.

CO5: Discuss the working of various processing machines.

Course Title	: TEXTILE FIBRE & CHEMICAL ANALYSIS LABORATORY				
Course Code	: 25PDTP105	L	T	P	C
Course Category	: PROGRAMME CORE	0	0	3	1.5

Course Objectives :

1. To enable the students to
2. Analyse water samples.
3. Estimate the purity of various chemicals used in processing industry.
4. Identify various textile fibres.
5. Analyse the blend of yarn and fabric.

LIST OF PRACTICALS /ACTIVITIES

1. Analysis of water samples for assessment of various types of hardness.
2. Estimation of Soda Ash sample assessment of its percentage purity.
3. Estimation of Caustic Soda sample for assessment of its percentage purity.
4. Estimation of Bleaching powder sample for assessment of its percentage purity.
5. Estimation of Hydrogen peroxide sample for assessment of its percentage purity.
6. Estimation of Sulphuric acid sample for assessment of its percentage purity.
7. Estimation of Hydrochloric acid sample for assessment of its percentage purity.
8. Estimation of Sodium hydrosulphite sample for assessment of its percentage purity.
9. Identification of textile fibres by microscopic test.
10. Identification of textile fibres by burning test.
11. Identification of textile fibres by solubility test.
12. Analysis of blended yarn and fabric comprising of cotton, viscose and polyester.




Total 30 Hours**Course Outcomes:**

At the end of the study of this course, the students will be able to

CO1: Analyse water samples.

CO2: Estimate the purity of various chemicals used in processing industry.

CO3: Identify various textile fibres.

CO4: Analyse the blend of yarn and fabric.

Course Title	: PREPARATORY TEXTILE PROCESSING LABORATORY				
Course Code	: 25PDTP106	L	T	P	C
Course Category	: PROGRAMME CORE	0	0	6	3

Course Objectives :

To enable the students to

1. Desize the cotton fabrics.
2. Scour and bleach the cotton, wool and synthetic fabric.
3. Degum the raw silk.

LIST OF PRACTICALS /ACTIVITIES

1. Desizing of cotton fabric by Acid Steeping Method.
2. Desizing of cotton fabric by Enzyme Method.
3. Scouring of cotton yarn/fabric.
4. Bleaching of cotton yarn/fabric with Hypochlorite Method.
5. Bleaching of cotton yarn/fabric with Hydrogen Peroxide Method.
6. Optional Whitening of bleached cotton fabric by optical brighteners.
7. Degumming of Silk yarn/fabric.
8. Bleaching of Silk yarn/fabric.
9. Scouring of woolen yarn/fabric.
10. Bleaching of woolen yarn/fabric.
11. Bleaching of pure synthetic fabric with sodium chlorite.

Total 60 Hours**Course Outcomes:**

At the end of the study of this course, the students will be able to

CO1: Desize cotton using various methods.

CO2: Scour cotton and wool.

CO3: Bleach cotton, silk and wool yarn/fabric.

CO4: Bleach synthetic fibres.



Course Title	: TEXTILE DYEING LABORATORY – I				
Course Code	: 25PDTP107	L	T	P	C
Course Category	: PROGRAMME CORE	0	0	6	3

Course Objectives :

To enable the students to

1. Dye the cotton materials using various dyes.
2. Analyse the effect of all the dyeing parameters.
3. Dye the protein fibre using acid and metal complex dyes.
4. Match the given shade.

LIST OF PRACTICALS /ACTIVITIES

1. Dyeing of cotton with direct dyes.
2. After treatments of cotton dyed with direct dyes using cationic dye fixing agent.
3. Study of effect of temperature on dyeing of cotton.
4. Study of effect of MLR on dyeing of cotton.
5. Study of effect of electrolytes on dyeing of cotton.
6. Dyeing of cotton with azoic dyes.
7. Dyeing of cotton with vat dyes.
8. Dyeing of cotton with reactive dyes.
9. Dyeing of cotton with sulphur dyes.
10. Dyeing of cotton with solubilised vat dyes.
11. Dyeing of silk and wool with acid dyes.
12. Dyeing of silk and wool with metal complex dyes.
13. Practice on Shade Matching (self-shade).

Total 60 Hours

Course Outcomes:

At the end of the study of this course, the students will be able to

CO1: Dye the cotton materials using various dyes.

CO2: Analyse the effect of all the dyeing parameters.

CO3: Dye the protein fibre using acid and metal complex dyes.

CO4: Match the given shade.




SEMESTER - II

Course Title	: TECHNOLOGY OF DYEING-II				
Course Code	: 25PDTP201	L	T	P	C
Course Category	: PROGRAMME CORE	3	0	0	3

Course Objectives :

To enable the students to

1. Explain the process and methods of polyester dyeing.
2. Describe the principle and working of HTHP dyeing machines.
3. Explain the concept and process of dyeing polyamides and acrylics.
4. Describe the process sequence of blends, functions of textile auxiliaries.
5. Determine the fastness properties of textiles.

Unit - I Dyeing of Polyester**09 Hours**

Brief description of Structural parameters of polyester making it difficult to dye; Need, Principle, Methods of Heat setting Polyester & its effect on dyeing behavior; Approaches for dyeing-Variou methods of dyeing Polyester involving use of chemical and thermal energy; Carrier dyeing and H.T.H.P. dyeing of polyester.

Unit - II Working of HTHP Dyeing Machines**09 Hours**

Brief description of parts and working of HTHP Beam dyeing machine, Jet Dyeing Machine, Soft Overflow dyeing machines; Thermosol method of dyeing polyester; Outlines of the common defects and damages while dyeing polyester on above machines.

Unit - III Dyeing of Polyamides & Acrylics**09 Hours**

Structural concepts of polyamides (Nylon6 and Nylon66) affecting their dyeing behavior; Dyeing of Nylon with Disperse, Acid & Metal complex dyes; Process details include time, temperature, pH and functions of chemicals used; Structural concepts of Acrylic affecting their dyeing behavior; Introduction to Method of Dyeing Acrylic with Cationic and Disperse dyes.

Unit - IV Introduction of Blends, Auxillaries And Garment Dyeing**09 Hours**

Introduction and objectives of blending; Process sequence of blended textiles comprising of P/C, P/V, Acrylic/Wool & P/W; Function of Auxiliaries used in dyeing, viz. Levelling agents, exhausting agents, wetting agents, acid liberating agents, dispersing agents & Retarders; Working of Garment dyeing machines.

Unit - V Colour Fastness**09 Hours**

Concept of fastness and grey scale; Determination of Washing Fastness of Dyed materials; Determination of Light Fastness of Dyed materials; Determination of Rubbing Fastness of Dyed materials; Determination of perspiration Fastness of Dyed materials. Common defects observed in dyeing and their remedies.

Total 45 Hours**Text books:**



1. V.A. Shenai, Technology of Dyeing –VI, Sevak Publications
2. Vaidya & Trivedi, Processing of Polyester Cellulosic Blends
3. K. V. Datye and A. A. Vaidya, Chemical processing of synthetic fibers and blends, Wiley-Interscience
4. C.V. Koushik and Mr. Antao Irwin Josico, Chemical Processing of Textiles, NCUTE
5. Jitendra Kumar, Textile Chemical Processing Vol. I, Pankaj Publication International

References:

1. Schmidlin, Processing Synthetic Fibres
2. F. Sadov, Chemical Technology of Fibrous Materials, Mir Publishers, 1978
3. K. Wood John, The Chemistry of Dyeing, Legare Street Press
4. Arthur D. Broadbent, Basic Principles of Textile Coloration, Society of Dyers and Colourists, 2001

Course Outcomes:

At the end of the study of this course, the students will be able to

CO1: Explain the process and methods of polyester dyeing.

CO2: Describe the principle and working of HTHP dyeing machines.

CO3: Explain the concept and process of dyeing polyamides and acrylics.

CO4: Describe the process sequence of blends, functions of textile auxiliaries.

CO5: Determine the fastness properties of textiles.

Course Title	: TECHNOLOGY OF PRINTING – I				
Course Code	: 25PDTP202	L	T	P	C
Course Category	: PROGRAMME CORE	3	0	0	3

Course Objectives :

To enable the students to

1. Prepare the fabrics and designs for printing.
2. Describe the working of block and screen printing.
3. Explain the working of various mechanized printing techniques.
4. Discuss print paste formulation, styles of printing and Direct style printing process.
5. Explain the process of Direct style of printing with natural dyes.

Unit - I Introduction to Textile Printing**09 Hours**

Introduction to Printing; Preparatory processes for Printing; Introduction to Non-Mechanized and mechanized printing; Design, Colour, Layout and repeat in printing textiles.

Unit - II Preparation Process of Block & Screens**09 Hours**

Block making and working with blocks in printing textiles; Principle of making hand screens; Equipment and working with hand screens printing; Preparation of Printing Screens; Advantages and disadvantages of blocks and screens.




Unit - III Working of Printing Machines**09 Hours**

Working of Semi-automatic, fully automatic flatbed screens printing machines; Working of rotary screen printing machine, making of rotary screens; Advantages and disadvantages of the above printing machines.

Unit - IV Printing Ingredients, Styles And After Treatments**09 Hours**

Study of various ingredients used in print paste formulation; Introduction to styles of printing, direct, discharge and resist; After treatments of printed textiles viz. ageing, steaming and curing; Introduction to pigment printing and function of various ingredients.

Unit - V Printing of Cotton With Synthetic and Natural Dyes**09 Hours**

Direct style printing of cotton with direct dyes, reactive dyes and pigments; Advantages and disadvantages of pigment printing. Natural dyes used in printing, its limitations and advantages over synthetic dyes; Printing with Natural dyes.

Total 45 Hours**Text books:**

1. V.A. Shenai, Technology of printing, Bombay: Sevak publication., 1982
2. R. S. Prayag, Textile Printing.
3. Asim kumar Roy Choudhary, Principles of Textile Printing, CRC Press
4. D.G. Kale, Textile Printing

References:

1. R.S. Bhagwat 1999, Handbook of Textile processing machinery
2. W. Clarke, An Introduction to Textile printing, Newnes-Butterworth

Course Outcomes:

At the end of the study of this course, the students will be able to

CO1: Prepare the fabrics and designs for printing.

CO2: Describe the working of block and screen printing.

CO3: Explain the working of various mechanized printing techniques.

CO4: Discuss print paste formulation, styles of printing and Direct style printing process.

CO5: Explain the process of Direct style of printing with natural dyes.

Course Title	: TEXTILE TESTING & QUALITY CONTROL				
Course Code	: 25PDTP203	L	T	P	C
Course Category	: PROGRAMME CORE	3	0	0	3

Course Objectives :**To enable the students:**

1. To elaborate the fundamentals of textile testing, including sampling, statistics, atmospheric conditions.
2. To illustrate the various testing methods of yarn count, yarn evenness testing




techniques, and their influence on fabric quality.

3. To discuss the yarn properties such as strength, twist, and their measurement techniques using various testing machines.
4. To perform the test methods for evaluating fabric strength, air permeability, thickness, pilling, and abrasion resistance.
5. To evaluate the fabric handle and appearance through crease recovery, drape, bending tests, and quality control concepts.

Unit - I Introduction of Textile Testing 9 Hours

Objectives of textile testing; Importance and Methods of Sampling; Elements of Statistics, Measures of Dispersion; Standard Atmospheric Conditions, Humidity and its effect on Textile Testing; Determination of Moisture Regain & Moisture content.

Unit - II Yarn Count Determination & Evenness Testing 9 Hours

Count Testing Methods viz. Analytical Balance, Knowle's Balance; Determination of count by Quadrant Balance and Beesley's Balance; Evenness testing using visual Examination, Cutting & weighing method; Evenness testing using Electronic Capacitance Methods; Factors affecting Yarn evenness its impact on fabric properties.

Unit - III Principle of Twist And Yarn Strength Tester 9 Hours

Concept of CSP and RKM and effects of yarn twist; Measurement of twist by Straightened Fibre Method; Tensile Testing of Yarn-terms and definitions; Principle of strength testing e.g. C.R.L., C.R.E., and C.R.T.; Lea strength & single Yarn Testing Machines and Instron Strength Testing equipment.

Unit - IV Testing of Fabrics 9 Hours

Tensile & Tear strength testing; Bursting strength Testing; Pilling tendency and its measurement using I.C.I. Pilling Test; Measurement of abrasion resistance; Measurement of Air Permeability.

Unit - V Fabric Quality And Performance Evaluation 9 Hours

Measurement of Crease Recovery; Measurement of Bending Length; Measurement of Thickness Measurement of Drape; Concept of Kawabata & FAST, Total Quality Control (TQC), Total Quality Management (TQM) and Acceptable Quality Level (AQL).

Total 45 Hours

Text books:

1. J.E. Booth, Principle of Textile Testing, Butterworth Publications, London, 1989
2. B.P Saville, Physical Testing of Textiles, Textile Institute, Manchester, 1998
3. V. K. Kothari, Testing and Quality Management, Progress in Textile Technology Vol.1, IAFL Publications, New Delhi, 1999
4. P. Angappan, Textile Testing, S. S. M. Polytechnic College, 2017
5. D. Gopalakrishnan, P. Vinayagamurthi, P. Kandhavadi, Textile Testing, Daya publishing House, 2020

References:

1. Ruth Clock and Grace Kunz, Apparel Manufacture, Sewn Product Analysis, Upper Sadle River Publications, New York, 2000
2. Pradip V. Mehta, Managing Quality in the Apparel Industry, NIFT Publication, India,



1998

3. Sara J. Kadolph, Quality Assurance for Textiles and Apparels, Fair child Publications, New York, 1998
4. K. Slater, Physical Testing and Quality Control, The Textile Institute, Vol.23, No.1/2/3 Manchester, 1993
5. Textile testing web course content <https://nptel.ac.in/courses/116/102/116102029/#>

Course Outcomes:

At the end of the study of this course, the students will be able to

- CO1:** To elaborate the objectives of textile testing and apply sampling, statistical tools, and humidity control in testing processes.
- CO2:** To illustrate the count and evenness testing using various methods and assess their impact on fabric quality.
- CO3:** To discuss the yarn strength, twist, and tensile properties using appropriate testing principles and instruments.
- CO4:** To assess the fabric strength, thickness, air permeability, abrasion, and pilling resistance using standard procedures.
- CO5:** To evaluate the fabric performance characteristics such as crease recovery, drape, and bending, and understand quality control systems.

Course Title	: PERSONALITY DEVELOPMENT & ENTREPRENEURSHIP				
Course Code	: 25PDTP204	L	T	P	C
Course Category	: PROGRAMME CORE	3	0	0	3

Course Objectives :

To enable the students to

1. Develop self-awareness, goal setting, and stress management skills.
2. Articulate personality and communication for professional growth.
3. Apply entrepreneurship traits and generate business ideas.
4. Prepare business plans and navigate compliance.
5. Appraise finance, marketing, and start-up support schemes.

Unit - I Individual Behaviour And Social Management**09 Hours**

SWOT-Analysis: Self-Assessment, Identifying Strengths & Limitations; Attitudes, Types of Attitudes, Factors Affecting Attitudes; Human Behaviour, Motivational Theory. Stress Management: Types of Stress, Meditation, and Concentration Techniques;

Unit - II Personality And Communication**09 Hours**

Introduction to Personality: Personality Determinants, Theories in Personality; Communication Skills: Communicating Clearly, Understanding and Overcoming Barriers, Cross-cultural communication in global textile trade. Presentation Skills: Preparation of Presentation, Project Reports, and Resume.

Unit - III Fundamentals Of Entrepreneurship**09 Hours**



Meaning and importance, Scope in the Textile Industry; Types of Entrepreneurs and start-ups, Traits of successful entrepreneurs; Business Idea Generation techniques, Identifying market gaps.

Unit - IV Business Plan Development

09 Hours

Components of a business plan: executive summary, marketing, operations, finance etc.

How to prepare a model business plan; Target market and customer segments, Competitor analysis; Types of business ownership: proprietorship, partnership, LLP, Pvt. Ltd.; Registrations, licenses, GST, and compliance

Unit - V Finance, Marketing & Start-up Support

09 Hours

Sources of finance: personal savings, loans, investors, government schemes; Basics of digital and traditional marketing; Pricing, promotion, branding; Overview of start-up India, MSME schemes, and other government initiatives

Total 45 Hours

Text books:

1. Barun K Mitra, Personality Development and Soft Skills, Oxford University Press
2. Nandini Srinivasan, Professional Ethics and Personality Development,
3. Gopaldaswamy Ramesh, The Ace Of Soft Skills: Attitude, Communication And Etiquette For Success, Pearson Education India, 2010
4. Sanjay Kumar & Pushp Lata, Communication Skills, Oxford University Press
5. Vachaspati Mishra, Management and Entrepreneurship in Indian Environment, Himalaya Publishing House Pvt. Limited

References:

1. Edward A. Charlesworth and Ronold G. Nathan, Stress Management: A Comprehensive Guide to Wellness, Ballantine Books, 2004
2. Shiv Khera, You Can Win: A Step by Step Tool for Top Achievers, Bloomsbury Business India, 2018

Course Outcomes:

At the end of the study of this course, the students will be able to

CO1: Identify personal strengths and career goals; manage stress effectively.

CO2: Communicate confidently in personal and professional contexts.

CO3: Generate business ideas and assess market needs.

CO4: Draft structured business plans with strategic insights.

CO5: Utilize financial tools, marketing techniques, and government support for start-ups.



Course Title	: TEXTILE TESTING LABORATORY				
Course Code	: 25PDTP205	L	T	P	C
Course Category	: PROGRAMME CORE	0	0	6	3

Course Objectives :

To Enable the students to

1. Determine the count, evenness, strength and twist of the given yarn.
2. Determine the fabric tensile strength, pilling, thickness and crease recovery.
3. Assess the colour fastness property of the dyed fabrics.

LIST OF PRACTICALS /ACTIVITIES

1. Determination of count of yarn by Beesley's/Knowles/Quadrant Balances.
2. Determination of count of yarn by using Wrap reel and Physical Balance.
3. Assessment of yarn evenness using visual assessment instruments.
4. Determining the yarn twist on yarn twist testers.
5. Determination of yarn strength by using lea strength tester.
6. Determination of fabric tensile strength by tensile strength tester.
7. Assessment of pilling property by using pilling boxes.
8. Determining crease recovery property of fabric by creasing testers.
9. Determining fabric thickness by thickness gauge.
10. Assessment of abrasion resistance.
11. Determination of class of dye on coloured textile material/dyestuff power.
12. Assessment of washing fastness by ISO-I, II, III, IV & V.
13. Assessment of rubbing fastness of dyed fabric by using Crock meter.
14. Assessment of Sublimation fastness of dyed fabric.
15. Assessment of light fastness of coloured textiles using light fastness tester.
16. Assessment of perspiration fastness of dyed fabric

Total 60 Hours

Course Outcomes:

At the end of the study of this course, the students will be able to

CO1: Determine the count, evenness, strength and twist of the given yarn.

CO2: Determine the fabric tensile strength, pilling, thickness and crease recovery.

CO3: Assess the colour fastness property of the dyed fabrics.



Course Title	: TEXTILE DYEING LABORATORY - II				
Course Code	: 25PDTP206	L	T	P	C
Course Category	: PROGRAMME CORE	0	0	6	3

Course Objectives :

To enable the students to

1. Prepare the synthetic materials for dyeing.
2. Dye the various synthetic materials using appropriate dyes.
3. Match the given compound shade.

LIST OF PRACTICALS /ACTIVITIES

1. Scouring and bleaching of Polyester.
2. Scouring and bleaching of Nylon.
3. Scouring and bleaching of Acrylic.
4. Dyeing of Polyester with Disperse dyes by carrier method.
5. Dyeing of polyester with Disperse-dyes by HTHP method.
6. Dyeing of P/C with disperse and reactive dyes (solid/cross/reserve shades).
7. Dyeing of nylon with acid dyes.
8. Dyeing of nylon with metal complex dyes.
9. Dyeing of nylon with disperse dyes.
10. Dyeing of acrylics with cationic dyes.
11. Dyeing of acrylics with disperse dyes.
12. Practice of shade matching (compound shades).

Total 60 Hours

Course Outcomes:

At the end of the study of this course, the students will be able to

CO1: Prepare the synthetic materials for dyeing.

CO2: Dye the various synthetic materials using appropriate dyes.

CO3: Match the given compound shade.




Course Title	: COMPUTER COLOUR MATCHING LABORATORY				
Course Code	: 25PDTP207	L	T	P	C
Course Category	: PROGRAMME CORE	0	0	3	1.5

Course Objectives :

To enable students to

1. Calibrate the spectrophotometer.
2. Predict the recipe for dyed/printed samples.
3. Asses the metamerism and Fastness of the samples.

LIST OF PRACTICALS /ACTIVITIES

1. Calibration of spectrophotometer.
2. Colour specification (L, a, b, C, H) analysis for the given samples.
3. K/S Data Generation for the dyed/printed sample.
4. Prediction of recipe for the dyed/printed sample using CCM
5. Batch Correction of the dyed sample using CCM.
6. Measurement of delta-E / Matching of shades of the given samples.
7. Pass Fail, Shade sorting & Library.
8. Cost analysis of different recipes using CCM.
9. Metamerism Analysis of different recipes using CCM.
10. Fastness Assessment using CCM.
11. Whiteness index measurement of given white samples.
12. Yellowness measurement of given white samples

Total 30 Hours

Course Outcomes:

At the end of the study of this course, the students will be able to

CO1: Spectrophotometer and its calibration, Colour specification(L,a,b, C, H)

CO2: K/S data, recipe prediction and batch correction

CO3: Pass-Fail analysis, cost analysis and metamerism.

CO4: Fastness assessment, whiteness and yellowness index




III SEMESTER

Course Title	:	TECHNOLOGY OF PRINTING-II				
Course Code	:	25PDTP301	L	T	P	C
Course Category	:	PROGRAMME CORE	3	0	0	3

Course Objectives:

- To enable the students to
1. Explain the process of printing cotton by discharge and resist style.
 2. Discuss the methods of printing silk and wool by direct and discharge style.
 3. Describe the process of printing polyester with disperse dye by direct and discharge and P/C blend with pigment.
 4. Explain the Transfer and Digital printing methods and printing of knitted garments.
 5. Discuss the methods of producing various traditional style of printing.

Unit - I DISCHARGE AND RESIST PRINT ON COTTON 09 Hours

Introduction and Chemistry involved in discharge and resist style of printing, Study of various discharging agents, Methods of producing white and colour discharge effects on cotton dyed with vat, reactive dye and direct dye, Method of producing resist prints on cotton dyed with solubilised vat dye.

Unit - II PRINTING OF SILK AND WOOL 09 Hours

Methods and process sequences of printing with acid & metal complex dye by direct style on silk, Methods and process sequence of printing of wool with acid dye by direct style, Methods of producing white and colour discharge effects on silk.

Unit - III PRINTING OF POLYESTER 09 Hours

Methods of printing polyester with disperse dyes by direct style, Methods of printing Polyester with disperse dyes by discharge style, Methods of printing polyesters/cotton blend with pigments by direct style.

Unit - IV ADVANCE METHOD OF TEXTILE PRINTING 09 Hours

Transfer printing and various machines used in transfer printing on textiles & its limitations, Digital printing- Chemistry and technology, study of various ink-jet system and its merits & demerits, Printing of knitted garments.

Unit - V TRADITIONAL STYLES OF PRINTING 09 Hours

Kalamkari printing, Batik printing, Tie & Dye (Bandhani), Ajrakh Printing, Bagru printing & Sanganeri printing, Khadi (White & Coloured) printing.




Total 45 Hours**Textbooks:**

1. R. S. Prayag, Textile Printing, The Author, 1994
2. Asim Kumar Roy Choudhury, Principles of Textile Printing, CRC Press, 2022
3. Leslie WC Miles, Textile printing, Society of Dyers & Colourists, 1994
4. V.A. Shenai, Technology of printing, Bombay, Sevek publication., 1982

References:

1. W. Clarke, An Introduction to Textile printing, Newnes-Butterworth, 1974
2. A.D. Broadbent, Basic Principles of Textile Colouration, Society of Dyers and Colourists 2001
3. Kale, D.G., Principles of Cotton Printing, The Publication Committee for Prof. D. G. Kale's Book on Cotton Printing, Bombay State, 1957
4. Susan Carden, Digital Textile printing, Bloomsbury Academic, 2015

Course Outcomes:

At the end of the study of this course, the students will be able to

CO1: Explain how to print cotton by discharge and resist style.

CO2: Explain printing of silk and wool by direct and discharge style.

CO3: Describe printing polyester with disperse dye by direct and discharge and P/C blend with pigment.

CO4: Explain Transfer and Digital printing and print of knitted goods.

CO5: Describe different Traditional styles of printing.

Course Title	:	TECHNOLOGY OF FINISHING				
Course Code	:	25PDTP302	L	T	P	C
Course Category	:	PROGRAMME CORE	3	0	0	3

Course Objectives:

To enable the students to

1. Explain the various mechanical finishes and heat setting.
2. Elaborate the chemical finishes resins, anti-crease, wash and wear etc.
3. Describe the functional finishes like waterproof, Soil Release finishing, etc.
4. Explain the applications of special finishes.
5. Discuss the concept and application of protective finishes.

Unit - I INTRODUCTION AND MECHANICAL FINISHING**09 Hours**

Introduction, objective of finishing and its classification, mechanical finishes viz calendering, raising, sanforising, peach finishing, beetling. Heat setting- objectives and its




mechanism.

Unit - II INTRODUCTION TO CHEMICAL FINISHING 09 Hours

Resin finishing, mechanism of creasing, type of resins, anti-crease, wash and wear, DP resin finishing. Mercerization, and structural changes taking place during mercerisation, yarn and fabric mercerizing machine

Unit - III INTRODUCTION TO FUNCTIONAL FINISHING 09 Hours

Concept, mechanism, and application of - waterproof finish, water repellent finish, Soil Release finish, anti-pilling finish, softening finish, scrooping, stiffening, and weighting

Unit - IV APPLICATION OF SPECIAL FINISHES 09 Hours

Aroma finish, Bio-polishing, Foam finish, Weight reduction of PET, micro encapsulation techniques and moisture management finish

Unit - V INTRODUCTION TO PROTECTIVE FINISHES 09 Hours

Concept and application of - UV protective finish, Antimicrobial finish, flame-retardant finish, flame-proof finish, mildew-proof finish, rot proof finish, anti-static finish and insect repellent finish.

Total 45 Hours

Textbooks:

1. V.A. Shenai, Technology of Textile finishing, Sevak Publications 1990
2. R.S. Prayag, Technology of finishing, The Author, 1994
3. A.J.Hall, Textile finishing, Elsevier, 1966
4. W.D.Schindler and P.J.Hauser, Chemical finishing of textiles, Woodhead Publishing Limited, Cambridge England, 2004.

References:

1. Pietro Bellini , Ferruccio Bonetti , Ester Franzetti , Giuseppe Rosace , Sergio Vago Reference Books Of Textile Technologies: Finishing, ACIMIT, 2001
2. Roberts Beaumont, The Finishing of Textile Fabrics (Woollen, Worsted & Others Cloth), Scott, Greenwood & son, 1926
3. Howard L. Needles, Textile Fibres, Dyes, Finishes and Processes, Noyes Publications, 1986
4. Dr. Charles Tomasino, Chemistry & Technology of Fabric Preparation & Finishing, Department of Textile Engineering, Chemistry & Science College of Textiles, 1992



Course Outcomes:

At the end of the study of this course, the students will be able to

- CO1:** Explain various mechanical finishes and heat setting.
CO2: Describe chemical finishes resins, anti-crease, wash and wear etc.
CO3: Explain the functional finishes like waterproof, Soil Release finishing, etc.
CO4: Explain the applications of special finishes.
CO5: Describe the concept and application of protective finishes.

Course Title	:	ADVANCES IN TEXTILE PROCESSING				
Course Code	:	25PDTP303	L	T	P	C
Course Category	:	PROGRAMME CORE	3	0	0	3

Course Objectives:

To enable the students to

1. Explain water-efficient process and combined process of Scouring, Desizing and Bleaching.
2. Explain the Bio-Technological role of enzymes in textile processing.
3. Describe the advanced techniques of dyeing
4. Describe advanced techniques of dyeing and finishing
5. Explain the process and quality control in wet Processing

Unit - I RESOURCE-EFFICIENT PROCESSING TECHNIQUES 9 Hours

Introduction on Combined Processes- Combined desizing and scouring, Combined scouring and bleaching, combined desizing, scouring, and bleaching. Low liquor technique- Foam dyeing & CO₂ dyeing. Ozone Bleaching

Unit - II BIO-TECHNOLOGY IN TEXTILE PROCESSING 09 Hours

Introduction to enzymes, mechanism of enzyme action, pre-treatments- enzymatic desizing, enzymatic degumming, enzymatic scouring and enzymatic bleaching, Finishing-Bio-finishing and use of enzymes in denim washing, Merits and de merits of enzyme processing

Unit - III ADVANCEMENT IN DYEING TECHNIQUES 09 Hours

Automatic dispensing machine for textile dyeing, Right first time dyeing, low salt and Salt Free Dyeing of Cotton Fabric with Reactive Dyes, Low-temperature dyeing and its Benefits, Air Dyeing.

Unit - IV ADVANCEMENT IN PRINTING AND FINISHING TECHNIQUE 09 Hours



Laser and high-density printing technique, Concept and applications of nanotechnology and ultrasonic technique, Plasma technology- concept of plasma and its applications, Liquor ammonia mercerization

Unit - V **PROCESS AND QUALITY CONTROL IN WET PROCESSING** **09 Hours**

Introduction and objectives, process and quality control in pre-treatments, dyeing, printing, and finishing, Introduction and objectives- Computer color matching (CCM) and its role in quality control.

Total **45 Hours**

Textbooks:

1. S.R. Karmakar, Chemical Technology in the Pre-Treatment Processes of Textiles, Elsevier, 1999
2. Subramanian Senthilkannan Muthu, Sustainable Coloration of Textiles, Springer Cham, 2025.
3. Mohd Yusuf, Mohammad Shahid, Emerging Technologies for Textile Coloration, CRC Press, 2022.

References:

1. R. S. Prayag, Textile Printing, The Author, 1994
2. Dr. S.K. Nema, Prof. P.B. Jhala, Plasma Technologies for Textile and Apparel, Woodhead Publishing India Pvt Ltd, 2015
3. A K Samanta, Colorimetry Book, Tech Open UK Published, 2022.
4. Abhijit Majumdar, Apurba Das, R Alagirusamy, V K Kothari , Process Control in Textile Manufacturing, Woodhead Publishing, United Kingdom, 2012.
5. Luqman Jameel Rather, Aminoddin Haji, Mohd Shabbir, Innovative and Emerging Technologies for Textile Dyeing and Finishing, 2021
6. <https://www.datacolor.com/>

Course Outcomes:

At the end of the study of this course, the students will be able to

- CO1:** Describe resource-Efficient process and combined process of Scouring, Desizing and Bleaching.
- CO2:** Explain the Bio-Technological role of enzymes in textile processing.
- CO3:** Describe Advanced Techniques of dyeing.
- CO4:** Explain advanced Techniques of dyeing and finishing.
- CO5:** Describe process and Quality Control in Wet Processing



Course Title	:	ECOLOGY & POLLUTION CONTROL IN TEXTILE INDUSTRY				
Course Code	:	25PDTP304	L	T	P	C
Course Category	:	PROGRAMME CORE	3	0	0	3

Course Objectives:

To enable the students to

1. Discuss about Environment, types of pollution and their harmful effects, types of pollutants.
2. Explain different types of air pollution and their sources.
3. Describe water pollution-classification, sources and characteristics of waste water
4. Explain ETP, Tolerance level of effluents, solid waste reduction and disposal
5. Describe about noise pollution, its parameters, eco standards & eco labels

Unit - I INTRODUCTION OF ENVIRONMENT AND POLLUTION**09 Hours**

Environment, Types-Natural and manmade Environment, Components of Environment, Segments of Environment, Atmosphere, Pollution-Types of pollution, Overview of environmental pollution in Textile Industries, Environmental pollution & its harmful effects, Pollutants, Types, Brief description on pollutants in Textiles.

Unit - II AIR POLLUTION**09 Hours**

Air Pollution-Definition, causes of Air Pollution, Classification, Sources & Characteristics of important Air Pollutants, Sources of Air Pollution in a Textile mill, Air Quality Standards (WHO, ISO14001 and CPCB), Study of Harmful Chemicals used in Textile Industry, Harmful effects of air pollution- Introduction to Carbon footprint, importance of its evaluation in textile industries.

Unit - III WATER POLLUTION**09 Hours**

Water Pollution-Definition and Classification, Various sources of waste water in wet processing. Characteristics of waste water –SS, TDS, DO, COD, BOD, Textiles waste water problems, Chemical recovery and reuse, Zero Liquid Discharge (ZLD) guidelines, Water conservation in Textile Industry, Impact of water pollution on man, marine life & ecology of textiles.

Unit - IV INTRODUCTION TO EFFLUENT TREATMENTS**09 Hours**

Methods of Effluent treatment i.e. physical, chemical and biological treatment, Brief description of design and working of effluent treatment plant, Dye house waste water decolourization and removal of organic pollutants, Tolerance level of effluents in wet processing of textiles, Solid wastes, its sources, various methods of waste reduction, Sludge treatment and solid waste disposal in textile Industry




Unit - V NOISE POLLUTION AND ECO-STANDARDS

09 Hours

Noise Pollution-Definition and harmful effects, Preventive & control of noise pollution in Textile Industry, Noise Pollution parameters, New Challenges towards achievements of strict standards in Textile processing effluents, Eco-standards and Eco-labels for textiles (OEKO-TEX, GOTS, Bluesign), current environment policies related to Textiles Industry.

Total 45 Hours

Textbooks:

1. S.S. Dara & D.D Mishra, A Text book of Environmental Chemistry & Pollution Control, S Chand & Company, 2004
2. S.K. Garg, Sewage Disposal & Air Pollution Engineering, Khanna Publishers, 2018
3. S.C. Bhatia, Pollution Control in Textile Industry, Woodhead Publishing India Pvt Ltd, 2017.
4. Pardeep Singh, Dye Pollution from Textile Industry- Challenges and Opportunities for Sustainable Development, Springer Singapore, 2024.

Reference Book:

1. Anubha Kaushik, C.P. Kaushik, Perspectives in Environmental Studies, New Age International Publishers, 2018
2. M N Rao and H V N Rao, Air Pollution, McGraw Hill Education, 2017
3. A. Thangamani & Shyamala Thangamani, A text book of Environmental Studies, Book Enclave
4. BTRA, Workshop on Environment Pollution & Control in Textile Industry
5. Padmanabh Dwivedi, Environment Pollution and Environmental, Scientific Publishers, 2004

Course Outcomes:

- CO1:** Describe environment, types of pollution and their harmful effects, types of pollutants.
CO2: Explain air pollution-classification, sources and AQS.
CO3: Explain water pollution-classification, sources and characteristics of waste water.
CO4: Explain ETP, Tolerance level of effluents, solid waste reduction and disposal.
CO5: Describe about noise pollution, its parameters, eco standards & eco labels.



Course Title	:	PROJECT WORK				
Course Code	:	25PDTP305	L	T	P	C
Course Category	:	PROGRAMME CORE	0	0	8	4

Course Objectives:

To make the students understand about the practical analysis of industrial and laboratory practices to develop their practical knowledge and skill.

LIST OF PRACTICALS /ACTIVITIES

- Each student is required to submit a project report on a given topic.
- The Project may be carried out in the laboratory of the institute or preferably in a process house under actual working condition.
- The principle object of the project work is to develop the analysis skills & facilitation solutions of the day to day issues at shop floor level. s
- This will also test the ability of the student to co-ordinate knowledge with the actual production activities.

Total 60 Hour

COURSE OUTCOMES

At the end of the study of this course, the students will be able to

CO1: Understand the practical activities in textile industry and develop innovation attitude in further application of study/practices.

Course Title	:	TEXTILE FINISHING LABORATORY				
Course Code	:	25PDTP306	L	T	P	C
Course Category	:	PROGRAMME CORE	0	0	6	3

Course Objectives:

To enable the students to

1. Soft and stiff finishing on cotton
2. Water repellent, crease recovery and weight reduction finish on given sample
3. Carbonisation and scroop finish on P/C blend and silk respectively.
4. Application of functional finishes.

LIST OF PRACTICALS /ACTIVITIES

1. Stiff finishing of given fabric using Starch/PVA




2. Soft finishing of given fabric using softener (Anionic/Cationic/Non-ionic/Reactive/Silicone)
3. Back filling finish for the given fabric sample using a suitable recipe.
4. Water repellent finish on the given fabric sample.
5. Application of Crease recovery finish on given fabric.
6. Weight reduction finish of given polyester material.
7. Carbonisation of given P/C blends.
8. Producing of Scroop finish effect on silk fabric.
9. Application of Flame retardant finish to the given sample.
10. Applications of stain release finish on the given sample.

Course Outcomes:

At the end of the study of this course, the students will be able to

CO1: Perform Soft and stiff finishing on cotton.

CO2: Finish the given sample with water repellent, crease recovery, and weight reduction.

CO3: Do carbonisation and scroop finish on P/C blends and silk fabric.

CO4: Apply functional finishes on given sample.

Total 60 Hour

Course Title	:	TEXTILE PRINTING LABORATORY				
Course Code	:	25PDTP307	L	T	P	C
Course Category	:	PROGRAMME CORE	0	0	6	3

Course Objectives:

To enable the students to

1. Printing of cotton with direct, reactive and pigment
2. Traditional styles of printing on cotton
3. Silk and wool printing with acid dyes
4. Polyester printing with disperse dyes
5. Pigments Discharge printing of cotton and polyester

LIST OF PRACTICALS /ACTIVITIES

1. Printing of cotton cloth in direct style with direct dyes.
2. Printing of cotton cloth in direct style with reactive dyes.
3. Printing of cotton cloth in direct style with pigment colours.
4. Printing in batik style in cotton fabric.
5. Tie & dye style of Printing on cotton fabric.
6. Printing of silk with Acid dyes in direct style.




7. Printing of wool with Acid dyes in direct style.
8. Printing of polyester with Disperse dyes in direct style.
9. Printing of polyester with pigments in direct style.
10. Printing of polyester/cotton blend with pigments in direct style.
11. Discharge printing of cotton fabric with vat colours on direct dyed ground.
12. Discharge printing of cotton fabric with vat colours on reactive dyed ground.
13. Discharge printing of polyester.

Course Outcomes:

At the end of the study of this course, the students will be able to

- CO1:** Print cotton with direct, reactive and pigment.
- CO2:** Print cotton by Traditional styles
- CO3:** Print silk and wool with acid dyes
- CO4:** Print polyester with disperse dyes
- CO5:** Print cotton and polyester with pigments by discharge style.

Total 60 Hours

