SEMESTER – V

S. No.	Name of the Subject	No. of hrs per week	Marks		
			Internal	External	Total
	Theory				
5.1	Weaving Technology & Textile Calculation - IV	4	20	80	100
5.2	Fabric Structure – IV	4	20	80	100
5.3	Chemical Processing of Textiles – III	4	20	80	100
5.4	Principles of Textile Testing – I	3	20	80	100
5.5	Principles of Management and Entrepreneurship	4	20	80	100
	Practical				
5.6	Chemical Processing Practice – III & CCM	6	20	80	100
5.7	Weaving Technology Practice – IV & CATD	6	20	80	100
5.8	Textile Testing Practice – I	3	20	80	100
	Total	**34**	**160**	**640**	**800**

SEMESTER –VI

S. No.	Name of the Subject	No. of hrs per week	Marks		
			Internal	External	Total
	Theory				
6.1	Weaving Technology & Textile Calculation - V	4	20	80	100
6.2	Fabric Structure - V	4	20	80	100
6.3	Chemical Processing of Textiles - IV	4	20	80	100
6.4	Principles of Textile Testing - II	4	20	80	100
	Practical				
6.5	Chemical Processing Practice – IV & CCM	6	20	80	100
6.6	Weaving Technology Practice – V & CATD	6	20	80	100
6.7	Textile Testing Practice - II	3	20	80	100
6.8	Project Work	3	20	80	100
	Total	**34**	**160**	**640**	**800**

S.No.	CLASS	Total Marks
1.	First Year	1000
2.	Second Year (IIIrd + IVth Sem.)	1600
3.	Third Year (Vth + VIth Sem.)	1600
	Grand Total:	**4200**

SEMESTER – V

5.1 WEAVING TECHNOLOGY & TEXTILE CALCULATION – IV

Schema:

1. The subject is divided into five units.
2. Each unit is given a weightage of 16 marks

UNIT- I:

1. Shuttle less weaving machines.
2. Rapier weft insertion technique – Single and Double Rapier – Mechanism and working principle.
3. Projectile weft insertion technique – Mechanism and working principle.
4. Air- jet weft insertion technique - Mechanism and working principle.
5. Water – Jet insertion technique - Mechanism and working principle.
6. Introduction to Multi- phase Weaving technique.

UNIT- II:

1. Jacquards – Structure and function of different parts of a jacquard. Working principle of electronic jacquard.
2. Single lift Single Cylinder jacquard – Mechanism and working principle.
3. Double lift Single Cylinder jacquard – Mechanism and working principle.
4. Double lift cylinder jacquard – Mechanism and working principle.
5. Open shed jacquard - Mechanism and Working principle.

UNIT- III:

1. Inverted hook jacquard - Mechanism and Working principle.
2. Cross Border jacquard - Mechanism and Working principle.
3. Self – twilling jacquard - Mechanism and Working principle.
4. Leno jacquard - Mechanism and Working principle.

UNIT – IV:

1. Diameter of yarns.
2. Ashenhurst's formula for estimation of diameter of yarns.
3. Pierce's formula for estimation of diameter of yarns.
4. Relative diameter of yarns.

UNIT- V:

1. Calculation on Cover of cloth.
2. Warp Cover, weft cover and cloth cover- Derivation and calculation.
3. Fractional Cover, Percentage cover and Cover factor – Calculation for light medium and heavy fabrics.

5.2 FABRIC STRUCTURE – IV

Schema:

1. The subject is divided into five units.
2. Each unit is given a weightage of 16 marks

UNIT – I:

1. Extra warp and extra weft – designing and comparison.
2. Extra Warp figuring technique using healds, healds with dobby – Continuous, intermittent and spot styles – anchoring of spot effects – Planting – Stitching with dedicated weft threads.
3. Extra Warp figuring technique using healds, healds with dobby – Continuous, intermittent and spot styles – anchoring of spot effects – Chintzing – Stitching with dedicated warp threads.
4. Combination of extra warp and extra weft.

UNIT- II:

1. Basic of Patent – Satin, Design, draft, peg-plan, and beaming.
2. Tapestry – Traditional and modern tapestries.
3. Basic of non – reversible Weft Tapestry – 3 picks, 4 picks – Design, draft, peg-plan, and beaming and interlacing diagram.
4. Basic weaves of reversible Weft Tapestry – 3 picks, 4 picks – Design, draft, peg-plan, and beaming and beaming and interlacing diagram.
5. Simple combined warp and weft tapestry.

UNIT- III:

1. Count of graph paper – Factors influencing the selection of appropriate count of graph paper.
2. Figured single cloth – Structure of cloth with different weave combination – use of Straight tie and straight draft.
3. Figure warp backed cloth – Structure of cloth – Use of sectional harness in simplification of graph development process and punching technique.
4. Figured weft backed cloth – Structure of cloth – Separation of two series of weft for simplifying graph development process and punching technique.

UNIT – IV:

1. Figure double cloth – use of similar colours in warp and weft – Use of different colours in warp ad weft – Structure of cloth – Design development and punching process for straight harnessing with straight draft – Structure of cloth.
2. Figure double cloth – Design development and punching process for straight harnessing with sectional draft – Structure of cloth.
3. Figure double cloth – Structure of cloth - Design development and punching process for sectional harnessing with sectional draft – Structure of cloth.

UNIT – V:

1. Leno and gauze fabrics – Salient features; Bottom douping and top douping.
2. **Open, Crossed and plain sheds in leno weaving, Positive and negative Easer arrangements and Shaker Device.**
3. Indication of leno structures, drafting plan and lifting plan of straight and pointed draft structures.
4. Stripe and Check effect; plain, twill and leno combination;
5. Cord effect, Net leno.

REFERENCE BOOKS

1. Watson's Textile Design and Colour by Z. Crosiciki
2. Watson's Advanced Textile Design by Z. Crosiciki
3. Structural Fabric Design by James W. Klibbe
4. Fabric Structure by James Golak
5. Woven cloth construction by R. Mark
6. Grammar of Textile Design by H. Nisbet
7. Woven structure and Design by Dori Goernar

5.3 CHEMICAL PROCESSING OF TEXTILES – III

Schema:

1. The subject is divided into five units.
2. Each unit is given a weightage of 16 marks

UNIT – I

1. Brief description of Structural Parameters of polyester making it difficult to Dye
2. Need, Principle and Methods of Heat Setting Polyester
3. Approaches for dyeing,– Various methods of dyeing Polyester involving use of chemical and Thermal Energy (Carrier Dyeing and H.T.H.P. Dyeing)
4. Thermo sol method of dyeing polyester

UNIT – II

1. Brief description of parts and working of HTHP Beam dyeing machine, Jet Dyeing machine and Soft Flow dyeing machines
2. Outlines of the common defects and damages while dyeing Polyester on above machines
3. Process sequences for. Polyester/cotton, Polyester/Viscose

UNIT – III

1. Structural aspects of Polyamides ($Nylon_6$ and $Nylon_{66}$) affecting their dyeing behaviour
2. Dyeing of Polyamides with Disperse, Acid, Metal complex and Reactive dyes; Process details including time, Temperature and pH; Functions of chemicals used
3. Structural aspects of Acrylic affecting their dyeing behaviour
4. Introduction to Method of Dyeing Acrylic with Cationic and Disperse dyes.

UNIT – IV

1. Introduction to Textile Printing, Differences in Dyeing and Printing
2. Brief outlines of methods of Printing viz. Block Printing, Screen Printing, Rotary and Flat bed Screen Printing and Transfer Printing with their merits and demerits.
3. Brief outlines of Styles of Printing viz. Direct, Resist and Discharge Printing

UNIT – V

1. Photographic Preparation of Printing Screens
2. Important Printing paste ingredients and their role
3. Outlines of Methods of Fixation commonly used in Printing of Textiles (Steaming, Ageing and Curing)

Reference Books:

1. Technology of Textile processing Vol. II, III & VI by Dr. V A Shenai
2. Scouring and Bleaching by E R Trotman
3. Chemical Processing of Textiles –by Dr. C V Kaushik and Mr. Antao Irwin Jojico
4. An Introduction to textile printing by W Clarke.

5.4 PRINCIPLES OF TEXTILE TESTING

Schema:

1. The subject is divided into Five Units
2. Each unit is given a weightage of 16 Marks

UNIT – I:

1. Importance and objectives of Textile Testing, Role of textile testing in quality control.
2. Sampling techniques – factors governing sampling – Random and biased samples
3. Elementary Statistics – Testing of sample and collection of data; Analysis of data to ascertain mean, mode, median, range, percentage mean range and frequency distribution.
4. Measures of Central Tendency and Measures of Dispersion – Standard deviation, Percentage mean deviation, coefficient of variation, standard error, confidence limits.

UNIT – II:

1. Atmospheric conditions - Absolute humidity – Relative humidity, Standard testing atmosphere. Measurement of atmospheric condition.
2. Instruments used for determination of relative humidity – Wet and dry bulb hydrometer – Thermo hygrography – Electrolytic hygrometer.
3. Measurement of Moisture Regain and Moisture Content – Moisture testing oven – Shirley Moisture Meter – Corrected invoice weight.
4. Effect of Moisture Regain on fiber properties – Factors affecting Moisture Regain in textile materials – Standard regain value of textile fibers.

UNIT – III:

1. Measurement of linear density (count)
2. Warp reel and weighing balance method.
3. Direct reading count balances.
4. Knowles balance
5. Quadrant balance
6. Beesley's balance

UNIT – IV:

1. Study of twist – Definition of twist – Twist direction – Amount of twist - Twist factor and twist multiplier.
2. Twist angle – function of twist in yarn structure – Twist and yarn strength – Effect of twist on fabric properties.
3. Measurement of twist – Sampling of yarn for twist testing - : Straightened fiber method, Twist contraction method..
4. Twist-Untwist method for folded yarn – Microprocessor twist tester

UNIT – V:

1. Yarn evenness – Study of yarn evenness and its importance on process and product quality.
2. Classification of yarn irregularity – Expression of irregularity.
3. Measurement of yarn evenness by Visual examination, Cutting and weighing method.
4. Electronic capacitance method, Uster evenness tester, Uster – Classimate System – Yarn faults.

5.5 PRINCIPLES OF MANAGEMENT AND ENTREPRENURSHIP

Schema:

1. The subject is divided into Five Units
2. Each unit is given a weightage of 16 Marks

UNIT – I

1. History of Handloom Industry
2. Socio Economic importance of Handlooms
3. Organizational structure of Handloom Industry
4. Primary Handloom Weavers' Cooperative Society, Establishment, objectives and functions

UNIT – II

1. Government of India's Schemes for upliftment of Handloom Weavers
2. Functions of WSCs and IIHTs
3. Cluster Development initiative for Handloom Industry
4. Scopes of Handloom Exports
5. Importance of Product diversification and Value addition in Handloom products

UNIT –III

1. Definition of Marketing, Micro and Macro Marketing
2. Modern Approach, Classification of market
3. Objects and importance of marketing
4. Principles of marketing, Marketing mix
5. Market Planning, Market information and its importance
6. Branding and image creation, importance of geographical indication.

UNIT –IV

1. Market Research
2. Types and Objectives of Market research, advantages
3. Market sampling, Primary and Secondary Data Sources
4. Definition, Importance and objectives of pricing
5. Factors affecting price decision, Single Price and Variable Price
6. Pricing Policy for Handloom Products

UNIT –V

1. Significance of Rural Marketing, Urban and International Marketing
2. Understanding Entrepreneurship, its need and importance
3. Scope of Entrepreneurial development, Types of Entrepreneurs
4. Role of Entrepreneurship in economic development
5. Role of various agencies in promoting Entrepreneurship
6. Introduction to concepts of E. Business

5.6 CHEMICAL PROCESSING PRACTICE – III & CCM

Schema:

1. The activities to be carried out are given in the syllabus.
2. Every student shall be trained in all the listed activities

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1. Demonstration on scouring and bleaching of Polyester, Nylon and Acrylic
2. Demonstration on scouring and bleaching of P/C and P/V blends
3. Dyeing of the given sample of Polyester with Disperse dyes by Carrier method
4. Dyeing of the given sample of Polyester with Disperse dyes by HTHP method
5. Dyeing of the given sample of P/C or P/V with Disperse and Vat / Reactive dyes (Solid / Cross / Reserve Shades)
6. Dyeing of the given sample of Nylon with Acid dyes
7. Dyeing of the given sample of Nylon with Metal Complex dyes
8. Dyeing of the given sample of Nylon with Disperse dyes
9. Dyeing of the given sample of Nylon with Reactive dyes
10. Dyeing of the given sample of Acrylic with Cationic dyes
11. Dyeing of the given sample of Acrylic with Disperse dyes
12. Brief outlines of Colour Physics
13. Introduction to CIE system of colour specification (Meaning of L, a, b, C, H) Standard illuminants and observer
14. Calibration of Spectrophotometer
15. K/S. Data Generation

5.7 WEAVING TECHNOLOGY PRACTICE – IV & CATD

Schema:

1. Every student shall be trained in all the listed activities.
2. Every student shall be examined in all the three units during practice examination.

The student shall practice the following assignments in batches both in FIFTH and SIXTH semester.

UNIT- I

JACQUARD MECHANISM

The students shall practice the following assignments both in fifth and sixth semester.

1. Sketching different parts of SLSC, DLSC, DLDC jacquards and familiarization of their functions
2. Sketching and familiarization of different system and different types of harnessing.
3. Sketching different parts of piano card cutting machine and familiarization of their functions.
4. Sketching lay–out of a jacquard loom and familiarization of mounting jacquard on a loom.
5. Preparing Jala frame to produce extra weft butta design in 40 ends and 40 picks.
6. Harness Calculation – Observing different harness set-up in the lab and calculating width of harness, Number of repeats, harness per inch and width of repeat.
7. Harness Building – Calculating the particulars required for harness building from the given particulars of cloth to be produced.
8. Practice harness building for straight tie, pointed tie, sectional tie, body – border tie.

UNIT- II

FIGURE FABRIC DEVELOPMENT

1. Preparation of designs for different types of figured fabrics as per the calculated width and given length.
2. Preparation of graph designs of various figured fabrics dealt in Fabric Structure – IV, Fabric Structure – V.
3. Punching and lacing of cards – Punching the pattern cards from the graph prepared by using the Piano Card Cutting machine, Lace the punched cards in sequence.
4. Weaving – weave the design from the punched cards they prepared.
5. Developing sample without any defects using punched cards.
6. Preparing the album of samples developed and writing their quality particulars.

UNIT – III:

FABRIC ANALYSIS AND CATD

1. Analysis of compound fabrics – double cloth, Bedford cord, welt, pique, terry, extra warp, extra weft, leno.
2. Extracting fundamental details like count of warp and weft, ends and picks per unit space, warp and weft crimp and weave repeat.
3. Deriving drafting, denting, peg-plan/ tie-up for the weave.
4. Preparation of design for different types of figured fabrics using CATD System.

5.8 TEXTILE TESTING PRACTICE -I

Schema:

1. Every student shall be trained in all the listed activities.
2. Every student shall be examined in all the three units during practice examination.

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1. Demonstration of equipments available in the Testing Lab and their functions
2. Notes on Elementary Statistical Tools – Collection of data, Mean, Mode, Median, Standard Deviation, Percentage Mean Deviation, Standard Error and Co-efficient of Variation with their use in Analysis of Test Results .
3. Cross sectional and longitudinal views of different fibres (Demonstration only).
4. Brief notes on Moisture in Textiles and Atmospheric conditions.
5. Determination of Moisture Regain and Moisture Content of the given material by drying and weighing method.
6. Determination of Atmospheric Conditions in the Testing Lab (Relative Humidity and Temperature) – Wet and Dry Bulb Hygrometer.
7. Determination of count – Length and weight method.
8. Determination of count Direct reading – Knowles Balance.
9. Determination of count - from fabric swatch- Beesley's Balance.
10. Determination of count Direct reading – Quadrant Balance.
11. Elementary notes on Twist, its role in Yarn Structure.
12. Determination of Twist per inch in the given sample of yarn using Twist - Untwist Method.
13. Determination of Twist per inch in the given sample of yarn using Straightened Fibre Method.
14. Determination of Crimp in the given fabric swatch.
15. Determination of Weight of given fabric sample in terms of weight / square yard and GSM.

6.1 WEAVING TECHNOLOGY & TEXTILE CALCULATONS – V

Schema:

1. The subject is divided into Five Units
2. Each unit is given a weightage of 16 Marks

Unit I

1. Traditional Design Weaving Techniques of Handlooms - Adai (Warp & Weft) of Kancheepuram, Jala Weaving of Varanasi, Jamdani Weaving of West Bengal, Paithani Weaving of Aurangabad
2. Warp Tie&Dye Technique – Design preparation, design transfer to warp, weaving
3. Weft Tie&Dye Technique – Design preparation, design transfer to weft, weaving
4. Combined Warp and weft Tie&Dye Technique – Design preparation, design transfer to warp and weft, weaving

Unit II

1. Harness ties – London and Norwich systems
2. Types of Harness ties – Straight, Pointed, Sectional, Border and mixed ties
3. Jacquard Design and Harness Calculations – Calculations related to Sett of harness, sett of warp, ends per repeat, size of repeat, number of repeats, symmetrical repeat setting for straight draft and pointed draft, number of cords per hook and casting out.

Unit III

1. Determination of Ends per inch and picks per inch while changing count to maintain the same level of compactness.
2. Determination of Ends per inch and picks per inch while changing weave to maintain the same level of compactness.
3. Determination of Ends per inch and picks per inch while changing count and weave to maintain the same level of compactness.
4. Determination of Count of warp and weft and Ends per inch and picks per inch while increasing / decreasing the weight of fabric to maintain the same level of compactness

Unit IV

1. Cloth calculations – Amount of warp and weft, weight per linear meter, weight per square meter using NE, Worsted, Woolen Yorkshire, Denier and Tex systems for fabrics woven with cotton, silk, worsted, woolen and polyester yarns.

Unit V

1. Costing of Fabrics – Handloom-made, Power-loom-made and Mill-made – involving cotton, polyester, silk, wool, etc.,

6.2 FABRIC STRUCTURE– V

Schema:

3. The subject is divided into Five Units
4. Each unit is given a weightage of 16 Marks

Unit I

1. Advantage of using healds along with jacquard.
2. Figured Extra warp – Structure of cloth – Designing using jacquard with heald.
3. Figured Extra weft – Designing using jacquard without heald but using plain card; Designing using jacquard with heald.
4. Combining Figured Extra warp, Extra weft – Use of two separate jacquards combined with healds.

Unit II

1. Figured Patent satin – structure of cloth – Use of straight tie with healds. Designing, simplified enlargement and punching technique.
2. Figured Patent satin – use of working comber for saving of punched cards – Designing and simplified enlargement and punching technique.
3. Figured piques – Structure of cloth – Use of Straight tie with healds. Designing, simplified enlargement and punching technique.
4. Figured piques – use of working comber board in fast back structures to save punched cards- designing and Simplified enlargement technique.

Unit III

1. Damask – Salient features – Structure of cloth – Designing, enlargement and punching techniques for fine pitch jacquards.
2. Damask – Structure of cloth – Designing, enlargement and punching techniques for self twilling jacquards, pressure harness and Bannister harness.
3. Contemporary Tapestry – 3 picks – Structure of cloth – 3 picks Tapestry using jacquard and heald method. Designing, simplified enlargement and punching techniques.
4. Contemporary Tapestry – 4 picks – Structure of cloth – 4 picks Tapestry using jacquard and heald method. Designing, simplified enlargement and punching techniques

Unit IV

1. Figured Terry – 3 pick, 4 pick terry – structure of cloth – Graph Designing, punching technique for Straight tie – straight draft jacquard with heald method.
2. Figured Terry – 3 pick, 4 pick terry – Graph Designing, punching technique for Straight tie – sectional draft jacquard with heald method.
3. Figured Terry – 3 pick, 4 pick terry – Graph Designing, punching technique for Inverted hook jacquard with heald method.
4. Figured Terry-3 pick, 4 pick terry-Graph Designing, punching technique for sectional tie-sectional draft jacquard with heald method.

Unit V

1. Study of Traditional Indian Fabrics – Fabric structure, colouring and designing features of Banarasi Brocades and sarees, Kancheepuram Sarees.
2. Study of Traditional Indian Fabrics – Fabric structure, colouring and designing features of Jamdani sarees, Himroo shawls, Palthani Sarees.
3. Study of Traditional Indian Fabrics – Fabric structure, colouring and designing features of Chanderi Sarees, Patola Sarees, Pochampalli Tie-Dye Sarees, Kota Doria.
4. Study of Traditional Indian Fabrics – Fabric structure, colouring and designing features of Riha, Lysemphy, Mekhala, Woolen Shwal, Tweed, Himroo Shwals.
5. Quality particulars of different Fabric- Sarees, Dhoti, Shirting, Dress material, Home Furnishings, Made-ups, Floor coverings.

REFERENCE BOOKS

1. Watson's Textile Design and Colour by Z. Crosiciki
2. Watson's Advanced Textile Design by Z. Crosiciki
3. Structural Fabric Design by James W. Klibbe
4. Fabric Structure by James Golak
5. Woven cloth construction by R. Mark
6. Grammar of Textile Design by H. Nisbet
7. Woven structure and Design by Dori Goernar

6.3 CHEMICAL PROCESSING OF TEXTILES – IV

Schema:

1. The subject is divided into Five Units
2. Each unit is given a weightage of 16 Marks

UNIT – I

1. Process of printing Cotton with Direct dyes, Reactive dyes in direct style with recipe, process conditions and role of chemicals used

2. Process of printing Cotton with Pigments with recipe, process conditions and role of chemicals used

UNIT – II

1. Printing of Silk with Acid dyes and Prematalized dyes ,respective process details and role of chemicals used.

2. Printing of Polyester with Disperse dyes, respective process details and functions of Auxiliaries used.

3. Brief description of methods for Traditional styles of Printing viz. Tie & dye, Kalamkari and Batik printing.

UNIT – III

1. Objects of Textile finishing, Factors affecting selection of Finishes, Classification of finishing processes viz. Mechanical and Chemical finishes, Temporary and Permanent Finishes

2. Brief outline of Mechanical Finishes Processes e.g. Calendaring, and Compressive shrinkage process.

UNIT – IV

1. Description of mercerization – process details and Effect on Structural characteristics
2. Brief introduction of Machines used for Yarn and Fabric Mercerization
3. Brief Outlines of Chemical finishing process for improvement in serviceability viz. Anti crease finishes, Softening and Stiffening, Flame Retardency, Water Proofing & Water Repellency Finishes

UNIT – V

1. Introduction to Bio-finishing
2. Outlines of Harmful Chemicals in Wet Processing of Textiles
3. Introduction to the concept of Eco-friendly Wet processing
4. Brief description of identification of dyes in powder

REFERENCE BOOKS :

1. Technology of Textile processing Vol. – IV, VI, & X by Dr. V.A. Shenai
2. Dyeing and Chemical Technology of Textiles Fibres by E.R. Trotman
3. Chemical Processing of Textiles by Dr. C.V. Kaushik and Mr. Antao Irwin Josico
4. An introduction to Textile Printing by W. Clarke
5. A handbook of Textile Finishing by A.J. Hall
6. Chemical Finishing of Textiles by W.D. Schindler and P.J. Hauser

6.4 PRINCIPLES OF TEXTILE TESTING –II

Schema:

1. The subject is divided into Five Units
2. Each unit is given a weightage of 16 Marks.

UNIT-I

1. Tensile testing of Textiles – Introduction – Terminology and definitions.
2. The load and elongation curve – The stress and strain curve.
3. Elastic recovery – Instantaneous and time dependent effects.
4. The mechanics of Strength testing machines – CRL, CRE & CRT.
5. Factors influencing yarn strength – Factors affecting the test results obtained from testing instruments.

UNIT – II

1. Pendulum lever principle (CRT) – single yarn strength tester,
2. Lea strength tester, Inclined plane principle (CRL) and Strain gauge principle.
3. Instron Tester, Ballistic strength tester.
4. CSP and Corrected CSP – Merits and demerits of single thread testing and tea strength testing.
5. RKM values, comparison of lea and single thread strength.

INIT – III

1. Fabric strength testing – Types of test, sample preparation, Strip test & grab test.
2. Tearing strength test, Elmendorf tearing strength tester.
3. Pendulum lever; Ballistic strength tester.
4. Bursting strength testing.
5. Abrasion resistance – serviceability – Types of abrasion – Testing of abrasion resistance – Martindale abrasion tester.
6. Pilling of fabric and its causes - Measurement of pilling by using ICI pilling box tester.

UNIT – IV:

1. Crease resistance and crease recovery – measurement of crease recovery – Shirley crease recovery tester.
2. Fabric stiffness, handle and drape – Bending length, Flexural rigidity, Bending modulus – Shirley stiffness tester.
3. Fabric drapes – Drape co-efficient and drape meter.
4. Crimp of yarn in fabric – Crimp and fabric properties – Measurement of crimp percentage by using Shirley crimp tester.
5. Fabric shrinkage and its measurement..
6. Fastness testing of fabrics – Wet and Dry Rubbing fastness.
7. Estimation of weight of fabric by direct weighing method and comparing with calculated weight.

UNIT – V:

1. Fabric defects and identification.
2. Inspection of fabrics – Method of grading – American 10 point system – 4 point system.
3. Quality related terminology – Quality Management System; Quality circle, Quality policy; Quality plan; Quality assurance, Quality control; TQM and Six Sigma.
4. Concept of Quality assurance – TQM – ISO – Six Sigma Elements and Advantages.
5. Acceptance Quality Level (AQL), Military Standards – MIL-STD-105E, American National Standards Institute – ANSI/ ASQ – Z1.4.

6.5 CHEMIAL PROCESSING PRACTICE – IV & CCM

Schema:

1. Every student shall be trained in all the listed activities.

2. Every student shall be examined in all the three units during practice examination.

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1. Printing of given sample of cotton in Direct Style with Direct dyes
2. Printing of given sample of cotton in Direct Style with Reactive dyes
3. Printing of given sample of cotton with Pigments
4. Printing of given sample of cotton with Reactive Dyes to produce a suitable design for Dress material in 3 colour
5. Printing of given sample of cotton with Reactive Dyes to produce a suitable design for Table cloth in 3 colour
6. Printing of given sample of cotton with Reactive Dyes to produce a suitable design for Bed sheet in 3 colour
7. Printing of given sample of Silk in Direct style with Acid dyes
8. Printing of given sample of Silk in Direct style with Metal Complex dyes
9. Printing of given sample of Silk in Discharge style with Acid dyes to produce white discharge effect
10. Formulation and Batch correction
11. Colour maker and Shade Library
12. Quality assurance
13. Exercises on Colour Difference
14. Pass-Fail and Shade sorting
15. Fastness rating using CCM

6.6 WEAVING TECHNOLOGY PRACTICE – V & CATD

Schema:

1. Every student shall be trained in all the listed activities.
2. Every student shall be examined in all the three units during practical examination.

The students shall practice the following assignments in batches both in FIFFTH and SIXTH semester.

UNIT- I

JACQUARD MECHANIS

The students shall practice the following assignments both fifth and sixth semester.

1. Sketching different parts of SLSC, DLSC, DLDC jacquards and familiarization of their functions.
2. Sketching and familiarization of different systems and different types of harnessing.
3. Sketching different parts of piano card cutting machine and familiarization of their functions
4. Sketching lay-out of a jacquard loom and familiarization of mounting jacquard on a loom.
5. Preparing Jala frame to produce extra weft butta design in 40 ends and 40 picks.
6. Harness Calculation – Observing different harness set-up in the lab and calculating width of harness, Number of repeats, harness per inch and width of repeat.
7. Harness Building – Calculation the particulars required for harness building from the given particulars of cloth to be produced.
8. Practice harness building for straight tie, pointed tie, sectional tie, body – border tie.

UNIT – II

FIGURED FABRIC DEVELOPMENT

1. Preparation of designs for different types of figured fabrics as per the calculation width and given length.
2. Preparation of graph designs of various figured fabrics dealt in Fabric Structure – IV, Fabric Structure – V.
3. Punching and lacing of cards – Punching the pattern cards from the graph prepared by using the Piano Card Cutting machine, Lace the punched cards in sequence.
4. Weaving – weave the design from the punched cards they prepared.
5. Developing sample without any defects using punched cards.
6. Preparing the album of samples developed and writing their quality particulars.

UNIT – III:

FABRIC ANALYSIS AND CATD

1. Analysis of figured fabrics – simple / ordinary, double cloth, backed cloth, terry.
2. Extracting fundamental details like count of warp and weft, ends and picks per unit space, warp and weft crimp and weave repeat.
3. Deriving drafting, denting, peg-plan/ tie-up for the weave.
4. Preparation of graph for the design of various figured fabrics – The students shall prepare the graph and learn enlargement techniques using CATD System.

6.7 TEXTILE TESTING PRACTICE -II

Schema:

1. Every student shall be trained in all the listed activities.
2. Every student shall be examined in all the three units during practical examination.

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1. Determination of Washing fastness of dyed material following ISO 1,2, 3, 4, & 5 standards
2. Determination of Rubbing fastness of dyed material
3. Determination of Perspiration fastness of dyed material
4. Determination of Light fastness of dyed material
5. Determination of Sublimation fastness of dyed material
6. Visual assessment of Yarn evenness using ASTM Black Boards
7. Assessment of Single yarn strength
8. Assessment of Lea strength of yarn
9. Determination of Ballistic Strength of the given fabric
10. Determination of Tensile Strength of the given fabric
11. Determination of Fabric Tearing Strength using Elmendorf Tear Tester
12. Determination of Crease recovery of the given fabric
13. Bursting strength testing of the given fabric
14. Assessment of Pilling character of fabrics
15. Determination of bending length of the given fabric using Shirley Stiffness Tester
16. Assessment of Abrasion resistance of fabrics using Martindale Abrasion Tester
17. Assessment of Drape character of the given fabric

6.8 PROJECT WORK

1. Every students / group of students shall be assigned a Project Work, He /She /They shall complete their Project Work in consultation with his/ her/ their Project Guide in a manufacturing establishment / organization or in the Institute itself. The Students may also be deputed for floor survey/ study in the Industry during winter vacations if required for the topic allotted to him/ her/ them.

2. The synopsis of work shall be evaluated for 20 marks by the Project Guide.

3. Evaluation of the Project shall be done for 80 marks by the committee of experts as constitution by the Institute.