B

Accredited By NAAC

SHIVAJI UNIVERSITY, KOLHAPUR.

Revised Syllabus of

(B.Text. **(TT/MMTT/TPE/TC/FT)** Sem –I & II)

To be introduced from the academic year 2010-11

(i.e. from June 2010) Onwards

(Subject to the modifications will be made from time to time)

FIRST YEAR B. TEXT. – SEMESTER - I
1.1   APPLIED PHYSICS (TT/MMTT/TPE/TC/FT)

Lectures	:	4 Hours / Week.
Theory Paper	:	100 Marks, 3 Hours.
Subject Total	:	100 Marks.

1. **Elasticity:** Load, stress, strain, Hooke's Law of elasticity. Elastic behaviour of solids in general - some peculiar traits, working stress and factor of safety. Factors affecting elasticity. Types of elasticity, work done per unit volume in a strain. Relation between Y, η and K. Poission's ratio, relation between Y, k and Poission's ratio and the relation between Y, η and Poission's ratio he . Twisting couple on a cylinder, Torsional pendulum

2. **Viscosity:**   Newton's Law of viscosity, streamline & turbulent flow, critical velocity, significance of Reynold's number, Poiseuille's equation for flow of liquid through a tube. Experimental determination of η for a liquid - Poiseuille's method, Motion in a viscous medium, terminal velocity, Stoke's law, Stokes method. Ostwald's viscometer, variation of viscosity with temperature. Applications of viscosity in textiles.

3. **Surface Tension:**   Molecular theory of surface tension. Free energy of a surface & surface tension. Excess pressure inside a liquid drop & soap bubble. Relation between radii of curvature, pressure & surface tension. Shape of liquid meniscus in a capillary. Energy required to raise a liquid in a capillary tube. Measurement of surface tension. Factors affecting surface tension. Applications of surface tension in textiles.

4. **Friction:**   Laws of friction, Angle of friction, Sliding & Rolling friction. Necessity of friction. Derivation of relation $T2/T1 = e^{\mu\,\theta\,(Theta)}$ (where T1 & T2 are incoming & outgoing tensions respectively, θ (Theta) is the angle of friction, μ is the co-efficient of friction). Mechanism of friction. Applications of friction in textiles.

5. **Optics:** Introduction to reflection, refraction, Laws of refraction, refractive index, total internal reflection, interference & diffraction. Review of simple & compound microscope, expression for magnifying & resolving power. Electron Microscope: Principle, Construction & working. Scanning & transmission electron microscope, its applications in textiles.

6. **Polarisation**: Polarisation, Brewsters law. Double refraction, Nicol prism, production of plane, circularly & elliptically polarised light. The colour of crystal plates in polarized light, Quarter & half wave plate. Birefringence and Polarising microscope.

7. **X-ray**: Origin of continuous & characteristic x-ray spectrum, properties, production of x-rays and its applications. X-ray diffraction - Bragg's law of X-ray diffraction, Bragg's x-ray spectrometer spectrometer, Miller indices. Determination of crystal structure by X-ray diffraction technique.

8. **Photoelectric Effect:** Concept, Einstein's equation of photoelectric effect. Factors influencing the photoelectric effect. Study of various photocells. Use of photosensors in the textile field.

Reference Books:-
1. Elements of Properties of Matter by D.S. Mathur
2. Engineering Physics by B.L. Theraja
3. Modern Physics by B.L. Theraja
4. Engineering Physics by R.K. Gour & Gupta
5. Basic Applied Physics by R.K. Gour.
6. Physics for Engineers by M.R. Srinivasan.
7. Text Book of Optics by Brijlal & Subramanyam
8. Optics by A.K. Ghatak
9. College Physics by Bueche Fredrick J
10. Fundamentals of Physics by Halliday Resnick
11. Perspectives of Modern Physics by Arthur Beiser
12. The general properties of Matter by F. H. Newman
13. University Physics by Hugh D. Loung

FIRST YEAR B. TEXT. – SEMESTER - I

1.2   TEXTILE MATHEMATICS-I (TT/MMTT/TPE/TC/FT)

Lectures	:	3 Hours / Week.
Theory Paper	:	100 Marks, 3 Hours.
Subject Total	:	100 Marks.

1. Matrix:

Rank of matrix (Normal form of matrix, Echelon form of Matrix)

Solution of simultaneous linear equations (Homogeneous & Non

Homogeneous) Characteristic equation, eigen values, eigen vectors.

Caley Hamilton's theorem.

2. Successive Differentiation:

Introduction, standard results, Leibnitz rule.

3. Partial Differentiation:

Introduction, total differentiation, Euler's theorem on homogeneous function.

Jacobean (J.J'=1) only, Errors & approximation.

4. Curve Tracing:

Rules & examples of curve tracing in Cartesian and Polar Equations only.

5. Introduction of Statistics:

Definitions of Population, Variable, Attribute, Census Survey, Sample Survey,

Random sample. Raw statistical data, collection, classification, Frequency

distribution, class limits & boundary, class width, mid point. Histogram,

Frequency polygon, Frequency curve.

6. Measures of central tendency:

Arithmetic Mean (A.M.), Median, Mode, Combined Mean & Computation

Partition values : Quartiles deciles and percentiles & Computation

7. Measures of dispersion:

Range, Quartile deviation, Mean deviation, Standard deviation as Absolute measures of dispersion, Coefficient of range, quartile deviation, mean deviation, coefficient of variation as Relative measures of dispersion, consistency of data & computation

8. Measures of Skewness & kurtosis:

Skewness, types, Karl Pearson's & Bow ley's coefficient of skewness & Computation. Kurtosis definition and types only. (No Examples of Kurtosis)

9. Probability:

Random experiment, sample space, event, types of events, Venn diagram Definition, laws of probability & examples.

Reference Books:

1. A textbook of applied mathematics Vol.-I & II by P.N. & J.N. Wartikar.
2. Higher engineering mathematics by B.S. Grewal.
3. A textbook of applied mathematics by Bali, Saxena & Iyangar.
4. Mathematical Statistics by J.E. Fruend.
5. Probability & Statistics for engineers by Johnson.
6. Statistical methods by Kumbhojkar.

FIRST YEAR B. TEXT. – SEMESTER - I
1.3 ELECTRICAL SCIENCE (TT/MMTT/TPE/TC/FT)

Lectures	:	3 Hours / week.
Practical	:	2 Hours / Week.
Theory Paper	:	100 Marks, 3 Hours.
Term Work	:	50 Marks.
Subject Total	:	150 Marks.

1. D.C. Circuits: Units-6

Basic electrical quantities, voltage, current, power energy, co-relation between electrical, mechanical & thermal quantities, ohm's law with its limitation, Kirchhoff's current and voltage law, current division rule. Resistance temperature coefficient (Numerical Problems on with two variables).

2. Magnetic Circuits: Units-4

Concepts of magnetic circuits, MMF, Reluctance, Magnetic flux density, magnetic field strength, definitions and units, comparison of electrical and magnetic circuits, leakage and fringing, Self and mutual inductance, eddy current & hysteresis loss, material used for core of electrical machines. (Numerical on series magnetic circuits)

3. A.C. Fundamentals: Units-4

Faraday's law of electromagnetic induction, Generation of single and three phase quantity, phasor representation, Concept of R.M.S. and Average value, peak value, constructional diagram of three phase alternator. (Simple Numerical).,

4. A.C. Circuits: Units-5

Concept of inductive reactance, capacitive reactance, phasor representation of pure R, L, C, & series RL, RC, RLC Circuits, impedance, only concept of parallel resonance, (Numerical problems of series RL, RC, RLC Circuits)

5. Transformer: Units-5

Operating principle of a transformer types of transformers E.M.F. equation of transformer, concept of K, ideal transformer phasor diagram of ideal transformer on no load, phasor diagram of actual single phase transformer on no load, loaded condition with Resistive load, Efficiency and regulation of transformer by direct

loading of transformer, condition of max efficiency. Concept of auto-transformer, On Load Tap Changing Transformer (OLTC). (Simple Numerical on transformer). Testing of transformer, No load test, short circuit test. Concept of percentage impedance.

6. Electrical Machines: Units-6

Principle, construction, operation and characteristics of three phase induction motor, motors used in textile industries, inverter driven motors (VFD), Speed control of three phase induction motor, necessity of starters,. Application of three phase induction motor. Power triangle, effect of reactive power on power system, power factor, its significance, causes of low power factor, factors affecting it and methods to improve the power factor, in concern with Energy saving, Introduction to APFC panel & its advantages. (only theoretical treatment), introduction to stepper motors and servo motor.

7. Luminaries: Units-3

Working of sodium vapour lamp, fluorescent lamp, CFL lamps, Calculation of elimination scheme for different purpose, mercury vapour lamp, concept of Energy Efficient lighting system.

8. Power Quality: Units-3

Concept of power quality, advantages of good quality power, harmonics & its effects, method of harmonic elimination., Introduction to electrical tariffs, simple examples on energy calculations.

9. Introduction to switch gear and protection, instruments:

Concept of ACB, VCB, MCCB, TOD meter

Constraints in electrical control panel

List of Experiments (Any Eight)

   1. Introduction to Electrical Engg. Lab.
   2. Determination of power factor of R L series circuit.
   3. Determination of R & L of a choke coil.
   4. Study of Phasor Relationship of RLC circuit.
   5. Ratio test on single phase transformer.
   6. Direct load test on Single Phase Transformer.
   7. Reversal of Rotation of Three Phase Induction Motor.

8. Speed control of Three Phase Induction Motor.

9. Direct load test on Three Phase Induction Motor.

10. Study of starters (Any two).

11. Study of Wiring Circuits.

12. Study of lamps (Any two).

Reference Books:

1. Elements of electrical Engineering by U.A.Bakshi

2. Electrical Technology by U.A.Bakshi

3. Basic electrical Engineering by B. H. Deshmukh.

4. A text book in electrical technology by B.L.Thareja

FIRST YEAR B. TEXT. – SEMESTER - I

1.4   TEXTILE FIBRES (TT/MMTT/TPE/FT)

Lectures   :   4 Hours / Week.

Theory paper   :   100 Marks.

Subject Total   :   100 Marks.

1) Requirements of Fibres:

Definition of fibre, Difference between staple fibre and filament, Classification of fibres, Essential and desirable properties of apparel grade & technical grade textile fibres, Characteristics of fibre forming polymer, Concepts of molecular weight, Degree of polymerization, Orientation and Crystallinity, Advantages and Disadvantages of natural & man made fibres.

2) Natural fibres:-

Vegetable Fibres:

i) Cotton - Development of fibre in seed, Morphological structure, Physical & chemical properties, applications.

ii) Jute- Retting and extraction process, Structure of jute fibre, Physical & chemical properties, applications

iii) Introduction to other natural fibres like Hemp, Flax, Ramie, Linen, Banana, Pineapple fibres & their applications.

Animal Fibres:

i) Wool- Types of wool, Grading of wool, Morphological structure, chemical composition, Physical & chemical properties, applications

ii) Silk - Types of silk, Production of silk, Chemical composition of silk, Physical & chemical properties, applications.

3) Man Made fibres:-

Definitions of Regenerated & Synthetic fibres, Introduction to methods of fibre formation – Melt spinning, Dry spinning and Wet spinning.

Regenerated Fibres:

     i)   Viscose rayon: Raw Material, Physical & chemical properties, applications, Concept of high wet modulus fibres,

    ii)   Introduction to Acetate & Triacetate fibres.

Synthetic fibres:

     i)   Polyamide: Nylon 6 & Nylon 66 fibres – Raw material, Physical & chemical properties, applications.

    ii)   Polyester (Polyethylene Terepthalate): Raw material, Physical & chemical properties, applications.

    iii)   Polypropylene: Raw material, Physical & chemical properties, applications.

    iv)   Polyacrylonitrile Fibre: Acrylic and Modacrylic fibres - Raw material, Physical & chemical properties, applications.

    v)   Polyurethane: Raw material, Physical & chemical properties, applications.

Reference Books:-

1. Textile Fibres – Vol.-I by V.A.Shenai
2. Fibre Science And Technology by S.P. Mishra
3. Hand book of Textile Fibres Vol. I & II by Garden & Cook.
4. Man Made Fibres – R.W. Moncrieff.
5. Polymer science- V.Gowariker

FIRST YEAR B. TEXT. – SEMESTER - I
1.5 PRINCIPLES OF YARN MANUFACTURING (TT/MMTT/TPE)

Lectures	:	4 Hours / Week.
Practicals	:	2 Hours / Week
Theory Paper	:	100 Marks, 3 Hours.
Term Work	:	50 Marks
Subject Total	:	150 Marks.

1. Definition of terms – 'Textiles', 'Fibres', 'Yarns' and 'Fabric', flow chart of process involved in conversions of fibres into yarns by presently available methods, object of each process. Flow chart of carded & combed yarn.

2. Essential and desirable properties of fibres as textile raw material.

3. Yarn classification, yarn numbering systems and related calculation (English count, tex, denier, woollen & worsted).

4. Mixing & Blowroom – Objects of mixing & blowroom, Types of mixing, Blowroom Machine sequence .

5. Carding – Objects of carding, construction of carding machine,

6. Drawframe – Concept of drafting, requirement of doubling, objectives of drawframe, construction of drawframe machine,

7. Comber Preparatory – Machine sequences used for comber preparatory, objectives of comber preparatory, construction of machine,.

8. Comber: - Objectives of comber , construction of machine.

9. Speedframe – Objectives of speed frame, delivery package, twisting system, construction of machine.

10. Ring Frame – Objectives of ring frame , construction of machine.

List of Experiments:-

1. A study of different types of tools and gadgets used in spinning such as various types of spanners, Calipers, Hammers, gauges, Screw driver, Pliers, Pullers, Oiling and greasing equipment etc.

Gauges –leaf gauge & filler gauge , Hammer – Nylon ,Brass & Iron hammers , Torque wrench , Pliers- Circlip Plier (outer & inner), Demonstration of all tool & gauges

2. Study of different types of drives and calculations based on the same. Belt drive - Flat and V, Open and Cross, Gear Drive, Simple carrier, compound carrier, Helical, Bevel. Chain and sproket wheel drive. Worm and worm wheel drive, Timer belts.

   Simple examples of speed calculation. Advantages & limitations , Energy consumption (Slipage) , Cross checking the calculated speed by using techno-meter. Importance of safety gears.

3. Study of various types of bearings used on spinning machines and their lubrication. Plain, Journal, Bush, Ball, Roller, Needle and others.

   Application of each type of bearing is demonstrated on machine

   Preparation of cut models of different bearings, Advantages & limitations

4. Processing of material on Blow Room, Carding, Draw frame ,Comber,Speed Ferame & Ring Frame

   For demonstration of spinning process.

   Testing of out put material for hank calculation

5. Introduction to spinning process, sequence, machines (carded/combed).

   Explanation of objects of each machine by conducting mill visit. Visit should be started from cotton godown and finished in yarn godown.

6. Study of Blowroom line - Flow chart - Machine positioning in Blowroom.

   Mill visit for conventional & modern Blow Room. Also sample collection at feed and delivery stages.

7. Study of Card - Dimension, Construction and passage of material .

8. Study of Draw Frame - Dimension, Construction and passage of material .

9. Study of Comber preparatory - Dimension, Construction and passage of material

10. Study of Comber - Dimension, Construction and passage of material .

11. Study of Speed Frame - Dimension, Construction and passage of material .

12. Study of Ring Frame- Dimension, Construction and passage of material .

Reference Books :-

1. The Textile Institute Publication - Manual of Textile Technology – Short Staple Spinning Series by W. Klein

2. 'The Characteristics of Raw Cotton' by P. Lord. The Textile Institute

3. Publication, Manual of Cotton Spinning Vol.II, Part-I.

4. 'Opening and Cleaning' by Shirley. The Textile Institute Publication, Manual of Cotton Spinning Vol. II, Part-II.

5. 'Opening Cleaning and Picking' by Dr.Zoltan S. Szaloki, Institute of Textile Technology, Virginia.

6. 'Cotton Opening and Picking' by G.R. Merril.

7. 'Cotton Ginning' Textile Progress, The Textile Institute Publication.

8. 'Fundamentals of Spun Yarn Technology' by Carl A. Lawrence

9. 'Cotton Growing and Marketing', J.S. Parmar, Tecoya Trend Publications.

10. 'Cotton Varieties' by Parmar, Tecoya Trend Publication.

11. Blowroom and Carding- Training Programme conducted by NCUTE, IIT, Delhi.

12. Carding by F. Charanlay. The Textile Institute publication, Manual of cotton spinning series Vol-III.

13. Essential calculations of practical cotton spinning by T.K. Pattabhiraman.

14. Principles of Roller drafting & Irregularity of the drafted sliver by G A R Foster. The Textile Institute publication, Manual of cotton spinning vol-IV part I.

15. 'Blowroom',' Carding','Drawframe, Comber -by Prof.A.R.Khare.

FIRST YEAR B. TEXT. – SEMESTER - I

1.6 PRINCIPLES OF FABRIC MANUFACTURING (TT/MMTT/TPE)

Lectures	:	4 Hours / Week.
Practical	:	2 Hours / Week
Theory Paper	:	100 Marks, 3 Hours.
Term Work	:	50 Marks
Subject Total	:	150 Marks.

I) INTRODUCTION

1. Nature of textile industry in India
2. Applications/classification of fabrics
3. Yarn numbering systems: cotton counts, metric count, Tex, denier, calculations
4. Weaving processes: objects of all processes. Different kinds of fabrics: Grey, mono-colour, bi-colour, warp or weft stripes, checks.
5. Process flow charts for various fabrics

II) ORDINARY WINDING

1. Need: - Limitation of ring spinning to make big packages and good yarn, yarn faults in spinning, their consequences on subsequent processes and fabric quality, objects of winding process
2. Machines: - Types of winding machine, precision winding, drum winding, merits and demerits.
3. Machine Details: - Construction and working of winding machine, yarn path, details of machine zones such as creel, knotting, clearing, winding, functions and details of important accessories such as unwinding accelerator, pre-clearers, tensioners, yarn clearers, kink remover, cradle weighting, drum drive, types of packages produced.
4. Knotting: types of knots, characteristics of good knot, comparison, applications,
5. Classimat classification of yarn faults, its use.
6. Common package faults: - patterning, conditions for patterning, anti-patterning devices, soft packages, wild yarn, snarls etc.

7. Geometrical aspects: - Cone angle, angle of wind, wind per double traverse, surface speed, traverse speed, winding speed, calculations

8. Calculations: winding speed, production/spindle & per machine, and efficiency.

III) PIRN WINDING

1. Objectives: - rewound weft, its advantage, need

2. Details semi automatic and automatic pirn winding machines w. r. t drive to spindles, traverse, tensioning yarn path.

3. Pirn build: - length of wind, chase length, diameter, bunch, tail ends etc their importance during weaving process.

4. Calculations: - Average pirn diameter, winding speed, production / spindle / & per machine, efficiency, number of looms fed by spindle.

IV) FABRIC FORMING

1. Various methods of fabric forming: - Weaving, knitting, braiding, non-woven, brief description of all methods and processes involved in it. Applications of fabrics from various methods,

2. Outline of weaving mechanisms: - Classification of weaving machines, Basic motions, primary, secondary and auxiliary, objects,

3. Primary motions: Detailed study of -shedding, picking, and beat-up

4. Secondary motions: Detailed study of take up and negative let-off.

5. Auxiliary motions: - Detailed study of weft fork, anti crack, oscillating backrest, and warp-protecting motions (loose and fast reed), ring and roller, full width temples.

6. Calculations: -warp weight, weft weight, fabric weight / sq. m fabric production/loom, weft consumption per loom /day etc.

V) FABRIC STRUCTURE

1. Constructional details: - Warp /weft count, thread densities, width, length, selvedges; light, medium, & heavy constructions, capability of weaving machines to weave different constructions, warp and weft cover, cloth cover, crimp, contraction in warp and weft way during weaving, introduction to interlacement of thread.

2. Presentation of weaves: - Design, draft & its types, peg plans, need, importance, and precautions, practice.

3. Study of weaves: - plain, twill and satin (basic weaves)

List of Experiments:-

1. Study of Weaving preparatory and weaving Processes
2. Study of various types of tools and gauges used in weaving
3. To study different principles of transmission of motion in weaving (Drives)
4. General study of ordinary weaving machine
5. To Study method of fabric analysis
6. General study of precision and drum winding machine
7. To study, dismantling and resetting of tappet shedding mechanism
8. To study, dismantling and resetting of cone over pick mechanism
9. To Study, dismantling and resetting of negative let-off and take-up mechanism
10. Study of weaving accessories and drawing-in
11. Fabric analysis of given fabric sample
12. Fabric analysis of given fabric sample
13. Visit to ordinary weaving machine unit

Term Work -

Term work assessment will be on the basis of regularity of attendance, satisfactory completion of experiments, regular submission of journal and tests conducted.

Reference Books:-

1. Principles of weaving By Marks A.T.C. & Robinson.
2. Textile Colour and Design By Watson.
3. Weaving   By Prof.D.B.Ajgaonkar, Prof.Sriramalu & Prof.M.K.Talukdar.
4. Weaving By Fox.
5. Weaving Mechanism by   N.M. Banerjee.
6. Weaving Mechanism by K.T. Aswani.
7. Winding, Warping & Weaving – A.R. Garde (ATIRA Publication)
8. Weaving Mechanism by Chakrabarty.
9. Winding & Warping by Talukdar M.K.
10. Yarn Preparation-Vol-I by Sengupta.
11. Weaving Calculation by Sengupta.
12. Textile Mathematics-Vol.I by J.E. Booth.
13. Winding by BTRA.
14. Weaving by Unsenko.
15. Fibre to Fabric by P.R. Lord.

<u>**FIRST YEAR B. TEXT. – SEMESTER - I**</u>

1.7   COMPUTER LABORATORY (TT/MMTT/FT)

Practical	:	2 Hours/week
Term Work	:	50 Marks
Subject Total	:	50 Marks

1. Computer Fundamental :-

Basic organization of computer & its functional unit, Memories, System Software, Application Software.

2. 'C' Programming:-

Introduction, Algoritham & flowchart, keywords, statements, Loops.

3. Array:-

Introduction, Array representation, one dimensional array, two dimensional arrays.

4. Structure:-

Introduction, define structure, define structure variable, accessing structure member, array of structure, union.

5. Pointer:-

Introduction, application of pointer, pointer arithmetic, pointer & array.

6. Introduction of 'C++' programming:-

Basic concept of OOP, Application of OOP & C++,characteristic of OOP language.

7. Classe & Object:-

Class type, Data member, Member function, Constructor, Destructor.

8. Function in 'C++':-

Function prototype, inline function, friend function.

9. Inheritance:-

Basic Concept of inheritance, types of inheritance, Virtual function.

Term Work   (Minimum 12 Program)

List of Experiments:-

1. One programs each on Loops, Array, Structure, Pointer, Union.
2. Class & Object
3. Constuctor & Destrucure
4. Function
5. Inheritance & virtual function.

Reference Books:-

1. C++ Programming-   Robert Lafore
2. Let us C –   Yashwant Kanitkar.
3. Let C++   - Yashwant Kanitkar
4. Fundamental of computer-   Rajaraman

FIRST YEAR B. TEXT. – SEMESTER - I
1.7   LANGUAGE LABORATORY   (TPE/TC)

Practicals   :   2 Hours/week

Term Work   :   50 Marks

I)   Communication

Nature and Importance of Communication

Process and Barriers to Communication

Forms of Communication

II)   Techniques of Communication.

Techniques of Formal Speech.

Verbal Communication

Non Verbal Communication – Body Language.

III)   Issues in English

Getting started – questions – Cloze – Spelling – Diction – Listening – Word – Sentences – Vocabulary – Pictures & Words – Opposite Meaning – Word order- Grammar – Simple present – Simple Past – Present continuous – Future Tense – Personal Pronouns – Pronunciation – words sentences – writing – punctuation – questions – opinions – different genres.

IV)   Pronunciation

The phonemic alphabet in English

Similar sounds

Word and phrasal stress

Stress and Rhythm

Rhythms from Rainland

V)   Study skills success

Listening – Speaking – Reading – Writing – Vocabulary – Visuals.

VI)   Tense Buster

Articles – Reported speech – Passives – Phrasal verbs – How to learn faster.

VII) Business English

A formula for clear writing – Formal or Informal – Which words – written communication

Reference Books:-

1) Communication Skills for Engineers – Sunita Mishra – Pearson Education
2) Language Software's (1 to 22 Software's)

List of Software's

1. Ease one
2. Click info English
3. Tense Buster
4. Study Skills Success
5. Author Plus with result Manager
6. Sky Pronunciation Suite
7. Pronunciation Power
8. Test Preparation for TOEFL
9. Let's do Business Presentation
10. Let's Do Business Meetings
11. Let's Do Business Negotiations
12. Let's do Business Telephoning
13. Report Writes – Technical Report
14. Report Writers Business Report
15. Report Writers – Letters Faxes, E-Mails
16. Connected Speech
17. Vocabulary Builder
18. Business Territory
19. Error & Terror
20. A Taste for English
21. Issues in English
22. Voice Books

FIRST YEAR B. TEXT. – SEMESTER - I

1.4   ORGANIC CHEMISTRY- I (TC)

Lectures   :   4 Hours / week

Practicals   :   2 Hours / week

Theory Paper   :   100 Marks, 3 Hours.

Term Work   :   50 Marks.

Subject Total   :   150 Marks

1) Aliphatic Hydrocarbons: Scope of the topic,

a) Alkanes: Nomenclature, classification, sources, Important methods of preparation properties & uses of alkanes, Conformations of ethane and n-butane, Applications in textiles.

b) Alkenes: Nomenclature, classification, sources, Methods of preparation, properties and applications of alkenes in textiles.

c) Acetylenes: Nomenclature, Occurrence, preparation, properties and uses of acetylene. Applications of alkynes in textiles.

2) Halogen derivatives of aliphatic hydrocarbons: Scope of the topic. Nomenclature, classification, sources, important methods of preparation, properties & applications in textiles of methyl chloride & ethyl chloride. SN^1, SN^2 & SNi mechanism. Preparation, properties of chloroform, carbon tetrachloride & vinyl chloride & their applications in textiles.

3) Aliphatic hydroxyl compounds and their derivatives: Scope of the topic. Nomenclature, classification, sources, important methods of preparation, properties of methanol, ethanol, ethylene glycol, glycerin, diethanol amine, triethanol amine& their applications in textiles.

4) Aldehydes and Ketones: Scope of the topic. Nomenclature, classification, sources, important methods of preparation, properties of Formaldehyde, glyoxal, acetone & their applications in textiles.

5) Acids and their derivatives: Scope of the topic. Nomenclature, classification, sources, Composition of natural oils, important methods of preparation, important

properties & applications of acetic acid, citric acid, formic acid, tartaric acid, acryl amide, urea. Role of fatty acids in manufacturing of textile auxiliaries.

6) Amines : Scope of the topic. Nomenclature, classification, sources, important methods of

preparation, properties of ethyl amine, quaternary ammonium salts & their applications in textiles.

7) Ethers & epoxies: Nomenclature, classification, sources, important methods of preparation, properties of ether, epoxide & crown ethers & their applications in textiles.

8)Stereochemistry: Scope of the topic definition, Optical isomerism of compounds containing one asymmetric carbon atom, Enantiomers, Distereoisomers, Meso form, racemic mixture. Fischer projection formula, Relative configuration(D&L), Absolute configuration(R&S). Geometrical isomerism: Necessary conditions for a compound to exhibit geometric isomerism, E & Z nomenclature.

9) Reaction mechanism:

Aldol condensation, Claisen ester condensation, Benzidine rearrangement, Michael addition, Reimer-Tiemann reaction, Reformatsky reaction, Skraup Synthesis.

List of Experiments:-

Qualitative analysis:

1. Detection of elements : sodium fusion test (Lassaigne test)
2. Detection of functional group like, -COOH, Ar- OH(phenolic), -CHO, >C=O, -COOR, Aromatic-NH_2 –NO_2 ,C=C, -$CONH_2$,-$NHCOCH_3$,-SO_3H.

Study of some purification techniques:

3. Sublimation.
4. Filtration.
5. Crystallization.
6. Distillation.
7. Soxhlet extraction.

Estimations:

8. Estimation of glucose.

9. Estimation of ester.

10. Estimation of Aniline.

Preparations of some simple organic compounds:

11. Preparation of phthalic anhydride.

12. Preparation of benzoic acid.

13. Preparation of phthalimide.

Reference Books:

1. Organic Chemistry by Morrison & Boyd.

2. Organic Chemistry - Vol. I , The Fundamental Principles by I.L. Finar.

3. Organic Chemistry by N.L. Allinger, M.P.Cava, Donc DE Jongh, C.R. Johnson, N.A. Lebel, C.L. Stevens.

4. Mechanism in Organic Chemistry by Peter Sykes.

5. A text book of Organic Chemistry by P.L. Soni.

6. A text book of Organic Chemistry by B.S. Bahl and Arun Bahl.

7. Reaction Mechanism & Reagents in Organic Chemistry by Gurdeep R.Chatwal.

8. Advanced Organic Chemistry Vol. I, by V.S.Kulkarni, L.P.Ghalsasi, A.S.Arora.

9. Advanced Organic Chemistry by Jerry March.

FIRST YEAR B. TEXT. – SEMESTER - I

1.5   PHYSICAL CHEMISTRY (TC)

Lectures	:	3 Hours / Week.
Practicals	:	2 Hours / Week.
Theory Paper	:	100 Marks, 3 Hours.
Term Work	:	25 Marks.
Subject Total	:	125 Marks.

1. Solutions:- Scope of the topic. Concentration units (Normality, Molarity, Molality, mole fraction), Solutions of solids in liquids, Factors influencing solubility, Lowering of vapour pressure of solutions, Elevation of boiling point, Depression of freezing point of solution, Numerical Problems. Concept of Osmosis and Reverse Osmosis, Concept of Oil in water and water in Oil Emulsions, Applications in Textiles.

2. Chemical Kinetics : - Scope of the topic, Order of reaction and methods to determine the same.Zero, first, second and third order reactions with their examples. Rate equations for simple reactions. Numericals. Homogenious and Heterogeneous reactions. Application in Textiles.

3. Electrolytic Conductance and Transference :- Scope of the topic. Strong and weak electrolytes,Electrolytic conductance, Equivalent conductance and concentration cell, Kohlraush law of independent migration of ions, Ionic mobilities. Application in Textiles.

4. Phase Rule :- Scope of the topic The phase rule, phase diagram. Application of phase rule to one component, two component and three component system. Efflorescence and
deliquescence. Application in Textiles.

5. Thermochemistry :- Scope of the topic, Heat changes in chemical reaction, Heat of reaction at constant pressure and constant volume. Heat of formation, Heat of combustion, Heat of neutralization, Heat of dilution, Effect of temperature on heat of reaction, Kirchhoff's equation. Application in Textiles.

6. Thermodynamics:- Scope of the topic, Zeroth law of thermodynamics, First law of thermodynamics, Internal energy, work and heat changes, Heat changes at constant pressure and constant volume, Maximum work in isothermal expansion of a gas, Internal energy of an ideal gas, Heat capacities at constant pressure and constant volume, adiabatic changes. Second Law of Thermodynamics, Entropy, The Physical significance of entropy, Entropy change in chemical reaction, Third law of thermodynamics. Application in Textiles.

7. Catalysis:- Scope of the topic Introduction to Catalysis, General Characteristics of catalyzed reactions, Types, Enzyme catalysis, Theories of catalysis, Catalyst poisoning, Autocatalysis.

8. Adsorption: Scope of the topic Introduction to Adsorption, Types of adsorption. Freundlich adsorption isotherm, BET equation, Isosteres, Application in Textiles.

9. Ionic Equilibrium:- Scope of the topic Acids and Bases - Concepts of acids and bases, Common ion effect, Ionic product of water, pH, Buffers and indicators, Choice of indicators, Solubility product. Application in Textiles.

List of Experiments:-

1. Preparation of standard solutions of NaOH & H_2SO_4. and standardization using primary standards.
2. Estimation of Na_2CO_3 and NaOH from the mixture solution of Na_2CO_3 and NaOH.
3. Determination of heat of neutralization for the reaction between strong acid & strong base.
4. Determination of the value of rate constant for the hydrolysis of ethyl acetate catalysed by hydrochloric acid.
5. Study of the chemical kinetics of hydrogen peroxide decomposition.
6. Determination of pH by using pH paper, Litmus paper, Universal Indicator and pH meter.
7. Determination of normality of given acid solution potentiometrically.
8. Study of the effect of change in temperature on the rate of reaction between sodium thiosolphate & hydrochloric acid.

9. Determination of normality of given weak acid solution using weak base conductometrically.

10. Determination of energy of activation by titration method.

11. Determination of Viscosity of liquids by using Ostwald's viscometer.

12. Determination of unknown concentration of cobalt chloride solution spectrophotometrically.

Reference Books:-

1. A Text book of Physical Chemistry by Samuel Glasstone.

2. Principles of Physical Chemistry by Maron & Prutton.

3. Colloid Chemistry by S. Voyutsky.

4. Essentials of Physical Chemistry by Bahl and Tuli.

5. A Text book of Physical Chemistry by L.K. Sharma.

6. Physical Chemistry by P.C. Rakshit.

7. Problems and Exercises in Physical Chemistry by Karetnikov & Kudryashov.

8. Physical Chemistry by G.M. Barrow.

9. Thermodynamics by P.K. Nag.

FIRST YEAR B. TEXT. – SEMESTER - I

1.6   INORGANIC CHEMISTRY (TC)

Lectures	:	3 Hours / Week.
Practicals	:	2 Hours / Week.
Theory Paper	:	100 Marks, 3 Hours.
Term Work	:	25 Marks.
Subject Total	:	125 Marks.

1.Theory of Bonding : Scope of the topic, Valency, Chemical bond, Types of bonds-Primary and secondary bonds such as Van der Waals forces, Hydrogen bonds-intermolecular and intramolecular H-bonds, Characteristics of ionic, covalent & co-ordinate compounds, Polar and non-polar bonds, Electronegativity and nature of bonds, Dipole moment, Bond length, Bond angle, Bond energy.

2. Compounds used in Textiles : Properties and textile applications of Ammonium Sulphate, Ferrous sulphate, Zinc oxide, Zinc sulphoxylate formaldehyde, Sodium Carbonate, Sodium Hydroxide, Glauber's Salt, Vacuum salt, Sodium Perborate, Sodium Hydrosulphite, Hydrogen Peroxide, Peracetic acid, Sodium silicate, Potassium permanganate.

3. Stoichiometry : Scope of the topic, Atomic weights, Dulong and Petits rule, Molecular weight, Equivalent weight of an acids & bases, Equivalent weight of oxidising and reducing agents, Problems based on weight – weight relationship, weight-volume relations. Their applications in textiles.

4. Chromatography : Scope of the topic, Classification, Paper chromatography, Thin layer chromatography, Ion exchange chromatography-cation and anion exchangers, Gas-liquid chromatography. Their applications in textiles.

5. Inorganic components of detergents, builders and other additives :
Introduction, Scope of the topic – Phosphates, Silicates, Zeolites, Carbonates, Oxygen Releasing Compounds, Sundry Inorganic Builders.

6. Complex Ions and Co-ordination Compounds : Introduction to co-ordination chemistry, Scope of the topic, Werner's theory of co-ordination compounds. Electronic interpretation of co-ordination. The nature of the linkage in complex ions

and co-ordination compounds, complexes resulting from electrostatic forces between constituents, Complexes resulting from the formation of co-ordination bonds, Factors affecting the stabilities of complex ions and co-ordination compounds, Sequestering agents, Classification of Sequestering agents, The importance of Sequestering agents in textiles.

7. Redox reactions : Introduction, Scope of the topic, Oxidation and reduction, electron transfer concepts, oxidizing and reducing agents, redox reactions in aqueous solutions, oxidation number and rules for assigning oxidation number. Applications in textiles.

List of Experiments:-
1. Paper Chromatography.
2. Estimation of Strength of Hydrogen Peroxide.
3. Determination of Percentage purity of Hydrose powder.
4. Determination of Percentage purity of NaOH.
5. Determination of Percentage purity of Na_2CO_3
6. Determination of Percentage purity of Na_2S
7. Determination of Percentage purity of NaOCl
8. Determination of Percentage purity of ammonium sulphate.
9. Gravimetric estimation of Barium as barium sulphate.
10. Gravimetric estimation of chloride as sliver chloride.
11. Qualitative Analysis of mixture containing two acidic and two basic radicals.
12. Qualitative Analysis of mixture containing three acidic and three basic radicals.

Reference Books:-
1. Fundamental concepts of Inorganic Chemistry by E.S. Gilreath.
2. A New Concise Inorganic Chemistry by J.D. Lee.
3. Inorganic Chemistry by Cotton & Wilkinson.
4. A text book of Quantitative Inorganic Chemistry by A.I. Vogel.
5. Fundamental Inorganic Chemistry by P.L. Soni.
6. Modern Approach Elementary Inorganic Chemistry by Bahl & Sharma.
7. Modern Inorganic Chemistry by Mellor and Parkes.
8. Inorganic Chemistry by P.K. Dutta.

FIRST YEAR B. TEXT. – SEMESTER - I

1.5   COMMUNICATION SKILLS (FT)

Lecturers	:	4 Hours/week
Theory Paper	:	100 Marks.
Term Work	:	50 Marks
Subject Total	:	150 Marks

I)   Background for Effective Business Communication

Importance and benefits of effective communication – Components of communication – Concepts and Problems of Communication – Non verbal communication – The seven Cs of effective communication.

II)   Business communication in context and the ethical context.

Background to intercultural communication – National cultural variables – Individual cultural variables – Background to ethical contexts – Influences on personal ethics – Communication and ethical issues – Business communication and the technology context.

III)   Message Design

The process of preparing effective business messages – The appearance and design of business messages – Good news and neutral messages.

IV)   Written Communication

Business letters – The letter of enquiries & replies – Order, complaint & their reply – Invitation letters and its reply – Techniques of report writing. – Types of report writing – Investigation, survey, inspection report.

V)   Strategies for Oral Communication

Strategies for successful speaking and successful listening – Strategies for successful informative and persuasive speaking – Interpersonal communication – Strategies for successful business and group meetings, interviews, group discussion, debate, elocution, impromptu extempore

VI)   Phonetics

International phonetic alphabets – Stress – Transcription

VII) **Grammar and Vocabulary**

Noun, Pronoun – Adjectives and comparative adjectives – Adverbs – Gerunds – Preposition – Voice – Tenses – Direct & Indirect speeches – Clauses. – Use of phrases and Idioms – Synonyms – Antonyms, affixes – Homonyms – Homophones – Hyponyms

VIII) **The job application process.**

The job application process – The written job presentation _ Interviews and follow up.

Term Work:-

- ❖ Formal Speech on Following Topics
  a) About My Self
  b) The problems I Face while communicating.
  c) Topics on current affairs.
- ❖ Group Discussion on Current topics
- ❖ Vocabulary exercise – Synonyms, Antonyms, Phrases Idioms
- ❖ Language Lab sessions on phonetics and grammar.
- ❖ Games on team building, communication, public speaking.
- ❖ Exercises of summarizing English articles and news.

Reference Books:-

1) Effective Business Communication – H. A. Murphy, H. W. Hildebrandt, Jane P Thomas – Tata MC graw Hill Publishing Company Ltd., New Delhi.
2) Basic Business communication – Robert Ma Arches
3) Business English & Communication – Cleark
4) Business Communication – Pradhan and Thakur
5) Business Communication – Balsubramanium M.
6) Communication Techniques and Skills – R. K. Chaddha – Dhanpat Rai Publication, New Delhi.
7) Professional Communication Skills – Pravil S. R. Bhatia – S. Chand and Co. New Delhi.
8) Better English Pronunciation – J. D. O Connor
9) High School English Grammar & Composition – Wren and Martin – S. Chand & Co. New Delhi.
10) Communication Skills for Engineers – Sunita Mishra C. Muralikrishna – Pearson Education.
11) Principles and Practice of Business Communicatin – ASPi Doctor – Rhoda Doctor – Sheth publications, Mumbai.

FIRST YEAR B. TEXT. – SEMESTER - I

1.6   INTRODUCTION TO TEXTILE MANUFACTURING-I (FT)

Lecturers	:	4 Hours/week
Practicals	:	4 Hours/week
Theory Paper	:	100 Marks.
Term Work	:	50 Marks
Subject Total	:	150 Marks

Yarn Forming:-

1) Definition of Terms – Textile, fibres, yarns & fabrics. Flow chart of process involved in conversion of fibres into yarns by presently available methods object of each process. Brief introduction of different methods of spinning.

2) Yarn classification, yarn numbering system and related calculations.

3) Ginning – Purpose, types of ginners, pressing & baling of cotton.

4) Objects of blowroom, card, drawframe, speedframe, combing & passage of material through above machines.

5) Spinning – objects of ring spinning, functioning of ring spinning.

6) Structure & properties of yarn obtained from different systems of yarn forming.

Fabric Forming:-

1) Intorduction to Textile Industry.

2) Process flow chart for conversion of yarns into woven fabrics, knitted fabric and non-wovens.

3) Yarn preparation – objects of winding, warping, sizing & drawing-in pirn winding, demonstration of machines to show how the objectives are achieved, passage of yarn on each machines & brief description of how the objectives are achieved.

4) Fabric forming – classification of looms, drop box, dobby, jacquard loom & their purpose.

5) Demonstration & brief description of mechanism of non automatic powerlooms such as shedding, picking, beatup, let-off & take-up warp protector & weft stop motion.

6) Calculations – warp weight, weft weight, fabric weight in gm/sq.m. fabric production / loom.

7) Cloth Structures –

   a) Constructional details – warp / weft count, thread densities, width, length, selvedges, light, medium & heavy constructions, capability of weaving machine to weave different constructions, warp & weft cover, cloth cover, crimp, contraction in warp & weft way. Introduction to interlacement of thread.

   b) Presentation of weaves, design, draft, peg plan, denting plan, need & importance.

   c) Study of weaves – plain, twill & satin (basics only).

List of Experiments:-

1. Study of instruments / tools, used in spinning & weaving.
2. To study the different types of drives & calculation based on the same.
3. Introduction to spinning, sequence, machines (carded / combed).
4. Study of passage of material through blow room.
5. To study the passage of material in carding & drawframe.
6. To study the passage of material in comber & its preparatory.
7. To study the passage of material through speedframe & ringframe.
8. Study of all weaving processes to observe the machines & operation to understands objects of all processes.
9. To study the primary motions to understand their functioning & objectives.
10. To study the secondary motions to understand their functioning & objectives.
11. To study the auxiliary motions to understand their functioning & objectives.
12. To study the object & method of fabric analysis and calculation of crimp, covers & fabric weight.
13. Fabric analysis of fabric samples with plain, twill & satin & sateen weaves.

Reference Books:-

1) Principles of Weaving by Marks A.T.C. & Robinson.
2) Textile Colour & Design by Watson.
3) Weaving by Prof. D.B. Ajgaonkar, Prof. Sriramalu, Prof. M.K. Talukdar.
4) Weaving by N.N. Banerjee.

5) Weaving Calculation by Sengupta.

6) Winding & Warping by M.K. Talukdar.

7) Winding, Warping and Weaving by A.R. Garde.

8) Fundamentals of Spun Yarn Technology by Carl A Lawrence.

9) Cotton Ginning, Textile Progress, The Textile Institute Publication.

10) Blowroom and Carding – Training Programme Conducted by NCUTE, IIT, Delhi.

11) Technology of Cotton Spinning by J. Janakiraman.

12) Blowroom Carding, Drawframe by Prof. A.R. Khare.

13) Essential Calculations of Practical Cotton Spinning by T.K. Pattabhiraman.

14) Introduction of Textile Fibres by Dr. H.V.S. Murthy.

FIRST YEAR B. TEXT. – SEMESTER - II

2.1 APPLIED MECHANICS (TT/MMTT/TPE/TC/FT)

Lectures	:	3 Hours / Week.
Theory Paper	:	100 Marks, 3 Hours.
Subject Total	:	100 Marks.

1. Statics, dynamics, Fundamental units of measurements, Metric system of units, SI. System, Scalar quantities, Vector quantities.

   Force, system of forces, principle of transmissibility of force, moment of force. Couple, resultant, parallelogram of forces, triangle of forces, polygon of forces, Varignons theorem, Composition and resolution of Coplanar concurrent and non-concurrent forces. Analytical and graphical method.

2. Equillibrium of Coplanar forces. Conditions of equilibrium, Free body diagram, Lami's theorem, Support reactions of for simply supported beams.

3. Centre of gravity, Centroid of a uniform lamina, Centroid of composite areas, Moment of inertia of sections, parallel axis theorem, perpendicular axis theorem.

4. Lifting Machines : Mechanical advantage, velocity ratio, efficiency, law of machine, effort lost in friction, load lost in friction, Simple machines such as smooth inclined plane, screw jack, simple and differential axle and wheel, worm and worm wheel, single and double purchase crab.

5. Friction: Static friction, dynamics friction, laws of friction, coefficient of friction, angle of friction, angle of repose. Friction of a body lying on an inclined plane.

6. Motion: Equations of linear motion with constant acceleration, variable acceleration, motion under gravity.

   Angular motion, relation between angular motion and linear motion, equations of angular motion.

7. Force and motion of translation: Mass, momentum, inertia, Newton's laws of motion, impulse, principle of conservation of momentum, work, power, energy. Principle of conservation of energy.

8. Couples and Motion of rotation: Angular momentum, mass moment of inertia, radius of gyration, kinetic energy of rotatory flywheels.

9. Transmission of motion and power by belt, rope, chain, gears. Type of gears.

Types of gear drive: Gear trains, velocity ratio, advantages of gear drives, uses in textile machines. Concept of epicyclic gearing.

Reference Books:-

1. Engineering Mechanics by S. Ramamrutham.
2. Engineering Mechanics by Junnarkar.
3. Applied Mechanics Satya Prakashan, New Delhi by S.N. Saluja.
4. Vector Mechanics for Engineers Vol – I & II, Tata Mc-Graw Hill Publication by Beer & Jonhstan.
5. Engineering Mechanics by R. K. Bansal and Sanjay Bansal
6. Applied Mechanics by R.S. Khurmi.
7. Engineering Mechanics, New Age International Pvt. Ltd. By S. S. Bhavikattis,

FIRST YEAR B. TEXT. – SEMESTER - II

2.2 TEXTILE MATHEMATICS-II (TT/MMTT/TPE/TC/FT)

Lectures   :   3 Hours / Week.

Theory Paper   :   100 Marks, 3 Hours.

Subject Total   :   100 Marks.

1. Integral Calculus:

Reduction formulae for $\int_0^{\pi/2} \sin^n x \, dx$, $\int_0^{\pi/2} \cos^n x \, dx$, Gamma function, Beta function

2. Multiple integrals:

Introduction, solution, change of order & change of variables method.

3. Applications of integration:

Area, Mass of lamina using double integrals only. Volume using triple integral only.

4. Numerical Differentiation & curve fitting:

Newton's forward & backward formulae, Sterling's formula. Newton's divided difference formula.

Fitting of curves $y=a+bx$, $y=a+bx+cx^2$, $y=ax^b$ by least square method.

5. Bivariate data:

Correlation: types, coefficient of correlation, properties. Rank correlation coefficient & computation.

Regression: lines of X on Y & Y on X, regression coefficients, properties & computation.

6. Probability distribution:

Random variable: types, introduction & types of probability distribution, pmf & pdf, expectation of random variable. MGF of random variable.

7. Standard discrete probability distributions:

Binomial probability distribution: Definition, properties, fitting & examples.

Poisson probability distribution: Definition, properties, fitting & examples.

8. Standard continuous probability distributions:

Normal probability distribution: Definition, properties, standard normal distribution & examples.

Chi-square probability distribution (χ^2) : Definition & properties only.

t-probability distribution: Definition & properties only.

F-probability distribution: Definition & properties only.

Examples of t, χ^2, & F are not expected.

Reference Books:

1. A textbook of applied mathematics Vol.-I & II by P.N. & J.N. Wartikar.
2. Higher engineering mathematics by B.S. Grewal.
3. A textbook of applied mathematics by Bali, Saxena & Iyangar.
4. Mathematical Statistics by J.E. Fruend.
5. Probability & Statistics for engineers by Johnson.
6. Statistical methods by Kumbhojkar.

FIRST YEAR B. TEXT. – SEMESTER - II

2.3   INDUSTRIAL CHEMISTRY FOR TEXTILES (TT/MMTT/TC)

Lectures	:	4 Hours / week.
Practicals	:	2 Hours / week.
Theory Paper	:	100 Marks, 3 Hours.
Term Work	:	25 Marks.
Subject Total	:	125 Marks.

1.   Water:-

Scope of topic in textiles Introduction, sources of water, impurities in natural water, quality parameters like pH, hardness, total solids, alkalinity, BOD & COD, oil &grease. Types of hardness (temporary/permanent), Calcium carbonate equivalents of hardness, units of hardness and numerical based on hardness, ill effects of hard water in textile industry, industrial treatment of water by lime-soda process, zeolite process and ion exchange process, domestic treatment of water. disinfection of water. Boiler feed water: Norms for boiler feed water. Definition causes & disadvantages of priming, foaming, scale, sludge and caustic embrittlement.

2.   Surface Active Agents:

Scope of topic in textiles, concept of HLB & wetting Preparation, properties and applications in textiles of

a) Ionic - Anionic surfactants and cationic surfactants.

b) Non-ionics

c) Amphoteric surfactants.

3.   Carbohydrates:

Scope of topic in textiles Introduction,   Classification of carbohydrates, Manufacture of starch, Constitution of starch, Properties of starch paste, Chemical & physical properties of starch, Soluble starch and dextrin, Action of enzymes on starch, Cellulose – sources, methods of pulp making, Constitution of cellulose, Chemical & physical properties of cellulose

4.   Amino Acids and Proteins:

Scope of topic in textiles Introduction, Nature of amino acids, Classification of amino acids, Chemical properties of amino acids Nature and classification of

proteins, Chemical properties of proteins, Denaturing of proteins, isoelectric point, Composition & chemical structure of protein fibres like wool & silk.

5.   **Corrosion:**

Scope of topic in textiles Electrochemistry, electrode potential, electrochemical series,, causes of corrosion, classification, atmospheric corrosion (oxygen & other gases), factors influencing dry corrosion, electrochemical corrosion (hydrogen evolution and oxygen absorption mechanism), factors influencing wet corrosion, Testing and measurement of corrosion by weight loss method & electrical resistance method. Prevention of Corrosion – Introduction, metallic coatings (anodic and cathodic),methods of application of metal coatings such as hot dipping, metal spraying, organic coatings, paints, vanishes. Protection from corrosion by proper design, material selection, Cathodic protection, modifying the environment, use of inhibitiors.

6.   **Fuels:**

Scope of topic in textiles, Definitions and units, Classification of fuels, characteristic of good fuel

Solid fuels : Properties and analysis of fuels, wood, Coals : classification of coal by ranking, Calorific value of fuel.

 Liquid fuels: petroleum, cracking, synthetic petrol, reforming, Gasoline, knocking, Gaseous fuels from petroleum & coal.

7.   **Alloys:**

Scope of topic in textiles, Necessity of making alloys, classification, composition, properties and application of brass, bronze, duralumin, stainless steel.

8.   **Colloids:**

Scope of topic, applications in textiles, true solutions, colloidal solutions ,suspensions, classifications of colloidal, lyophilic and lyophobic colloids, preparations of sols, properties of colloidal solution, Tyndall effect and its applications, electrical properties of colloids, spontaneous aging of colloids, coagulation, factors affecting on coagulation

List of Experiments:-
   1)   Determination of total hardness of given sample of water.
   2)   Determination of total solids & suspended solids of given sample of water.
   3)   Determination of dissolved oxygen of given sample of water.

4) Determination of chemical oxygen demand of given sample of water.

5) Determination of alkalinity of given sample of water.

6) Determination of chlorides in given water sample.

7) Determination of pH by using pH paper, Litmus paper, Universal Indicator and pH meter.

8) Determination of oil & grease in given sample of water.

9) Estimation of copper in given sample of bronze.

10) Analysis of starch.

11) Determination of rate of corrosion of metal.

12) Determination of ash content & moisture content of given solid fuel.

Reference Books:-

1. Industrial Chemistry by Reigel.
2. Engineering Chemistry by Jain and Jain.
3. Industrial Chemistry Lecture Notes by Prof.V.R. Wadekar.
4. Chemistry of Organic Textile Chemicals by Dr. V.A. Shenai.
5. Text Book of Engg. Chemistry by Shashi Chawla.
6. Profiles in chemical analysis by N.F. Desai.

FIRST YEAR B. TEXT. – SEMESTER - II

2.4 ENGINEERING GRAPHICS (TT/MMTT/TPE/TC/FT)

Lectures	:	2 Hour / Week.
Drawing Practical	:	2 Hours / Week.
Theory Paper	:	100 Marks, 3 Hours
Term Work	:	25 Marks.
Subject Total	:	125 Marks.

1. Introduction and use of instruments - Line - Lettering - I.S. conventions for External and Internal Threads, Bearing, Gears, Knurling, end of shaft. I.S. conventions for various materials.

2. Orthographic Projections - General Principles - First angle method - Third Angle method - Dimensioning.

3. Sectional Orthographic Views: Cutting plane - Types of sections. Making sectional drawings of machine components.

4. Isometric Projections: Principle, Isometric scale, Isometric views, Making Isometric drawings of simple objects from orthographic views.

5. Development of Surfaces : A) Introduction to solids (Types of solids only) B) Development of lateral surfaces of cubes, prisms, cylinders, pyramids.

6. Free hand sketches: Making free hand sketches of -
   i. Mechanisms in textile machines – Picking motion mechanism, Let-off motion mechanism, Take-up motion mechanism, Three blade beater, Immersion roller drive in sizing plaiting mechanism, Sewing needle, Throat plate, Sewing machine table, Cutting machine parts

7. Introduction to 'Auto-Cad' - Commands for drawing lines, circles, polygons.

TERM WORK:- Submission of 08 drawing sheets of half imperial size, on the following topics:

   a)   Conversion of pictorial view into orthographic projects.
   b)   Conversion of pictorial view into sectional orthographic projections.
   c)   Isometric projections.
   d)   Development of surfaces.
   e)   Free hand sketches of I.S. conventions for threaded parts, khurling, materials etc.

f)   Free hand sketches of Textile machines mechanisms.

Reference Books:-

1. Engineering Drawing by N.D. Bhat.

2. The Fundamental of Engineering Drawing & Graphic Technology by French & Virek

3. I.S.: 696 (1972) Code of Practice for General Engineering Drawing by I.S.I, New Delhi.

4. Machine Drawing by N.D. Bhat.

5. Engineering Graphics by Narayana K.L. & Kannaiah P.

6. Principles of Weaving by Marks & Robinson.

7. Engineering Drawing by Venugopal.

<u>**FIRST YEAR B.TEXT. – SEMESTER - II**</u>

2.5   YARN FORMING TECHNOLOGY - I (TT)

Lectures	:	4 Hours / Week.
Practicals	:	2 Hours / Week
Theory Paper	:	100 Marks, 3 Hours.
Term Work	:	50 Marks
Subject Total	:	150 Marks.

1. **Cotton Growing & Harvesting in India:-**

- Indian Cotton Situation
- Cotton growing regions
- Evolution of Indian Cottons
- Indian Cotton varieties
- Some foreign Cottons

2. **Cotton Ginning :-**

- Introduction
- Objects of ginning
- Study of various types of gins
- Pre and post ginning equipments. Lay out of ginning factory
- Factors Influencing ginning performance:-

    Harvesting -Moisture content of seed cotton- Feed rate of seed cotton- Fibre attachment to seed-Storage & transportation (storage ,Transportation)-Atmospheric conditions – Effect of conditions on ginning performance - static electricity -conditioning equipment

- Influence of ginning on fibre , yarn and fabric quality

    Pre- ginning equipment -Ginning machinery-Type of gin-Influence of saw-gin parameters on performance (Rate of feeding , Ginsaw & saw speed Seed roll density)- Influence of roller gin setting & speeds on performance-Lint cleaners-Effect of no. of lint cleaners

- Factors affecting ginning performance
- Pressing and bailing of cotton

- Characteristics of bales of various countries

3. Blow room :-

Objects of blow room, Components of blow room machines, Zones in blow room, Review of conventional blow room machines – bale breaker - hopper feeder - step cleaner – porcupine opener – Creighton opener – scutcher with bladed / krishner beaters, Reasons for developments in blow room machinery, Research findings on which the modern developments in blow room are based,

Study of modern blow room machines in details

- Automatic bale opener
- Mild openers– Maxi-flow/ Uni-clean/Vario-clean
- Blenders
- Fine openers, cleanomat, flexiclean

Material transport in modern blow room, Waste removal, Dust removal, Contamination removal (Vision Shield), Utilities required – Electricity – Compressed air, Humidification in blow room, Waste recycling, Fire protection / Safety arrangements

List of Experiments:-

1. Study of Bale Opening machine - Dimensions, Driving arrangement, calculations.

   Demonstration of different setting like Inclined spike lattice –Evener roller, Evener to Stripper, Grid bar - Beater

2. Study of Coarse cleaning machines. Dimension, Driving arrangement, calculations.

   Demonstration of different setting like Grid bar, Baffle Plate.

   Calculation of cleaning efficiency.

3. Study of mixing machine. Dimension, Driving arrangement, calculations.

   Mill visit, Unimix (mixing m/c)

4. Study of Fine cleaning machine – Dimension, Driving arrangement, calculations. Demonstration of different setting like deflector plate. , ERM (Fine opener)

5. Study of De-dusting machines – Dimension, Driving arrangement, calculations.

6. Study of chute feed system. Demonstration of setting of feed batt Gms / mt

7 Calculation of cleaning efficiency of mild & intensive cleaner.

8 Mill visit to study the material flow in blow room

9 Mill visit of ginning factory.

10 Study of pre & post ginning equipments.

11 Study of ginning machine - Dimension, Construction, Working, Driving arrangement, calculations.

Reference Books :-

1) The Textile Institute Publication - Manual of Textile Technology – Short Staple Spinning Series by W. Klein.

2) 'The Characteristics of Raw Cotton' by P. Lord. The Textile Institute Publication, Manual of Cotton Spinning Vol.II, Part-I.

3) 'Opening and Cleaning' by Shirley. The Textile Institute Publication, Manual of Cotton Spinning Vol. II, Part-II.

4) 'Opening Cleaning and Picking' by Dr.Zoltan S. Szaloki, Institute of Textile Technology, Virginia.

5) 'Cotton Opening and Picking' by G.R. Merril.

6) 'Cotton Ginning' Textile Progress, The Textile Institute Publication.

7) 'Fundamentals of Spun Yarn Technology' by Carl A. Lawrence

8) 'Cotton Growing and Marketing', J.S. Parmar, Tecoya Trend Publications.

9) 'Cotton Varieties' by Parmar, Tecoya Trend Publication.

10) Blowroom and Carding- Training Programme conducted by NCUTE, IIT, Delhi.

11) Essential calculations of practical cotton spinning by T.K. Pattabhiraman.

12) 'Mixing & Blowroom' -by Prof.A.R.Khare.

13) Advances in technology of yarn production-NCUTE

14) Rieter Machine Manuals

FIRST YEAR B.TEXT. – SEMESTER - II

2.5   MAN MADE STAPLE YARN MANUFACTURE- I (MMTT)

Lectures	:	4 Hours / Week.
Practicals	:	2 Hours / Week
Theory Paper	:	100 Marks, 3 Hours.
Term Work	:	50 Marks
Subject Total	:	150 Marks.

1. **Cotton Cultivation & Harvesting in India:-**

- Indian Cotton Production
- Cotton producing   regions in India
- Evolution in Indian Cottons
- Cotton varieties produced in Indian
- Some foreign Cottons varieties

2. **Cotton Ginning :-**

- Introduction of ginning process.
- Functions of Cotton ginning machines
- Types of Ginning machines
- Pre and post ginning machines used and their objects. Lay out of modern ginning factory.
- Factors affecting ginning performance:-

    Type of harvesting - Moisture content of seed cotton- Feed rate of seed cotton at ginning machine-Fibre attachment to seed-Storage & transportation (Storage time of seed cotton , Transportation)-Atmospheric conditions at ginning – Effect of conditions on ginning performance - static electricity generation-conditioning equipment

- Influence of ginning on fibre, yarn and fabric quality

    Number and types of Pre- ginning equipment –Type of Ginning machinery-Influence of process parameters on performance of saw-gin (Rate of feeding , saw speed & Seed roll density)- Influence of setting & speeds on performance of roller gin -Lint cleaners-Effect of no. of lint cleaners on fibre properties.

- Pressing and bailing of Indian and foreign cotton.

- Dimensions of bales of various countries.

3. **Blow room :-**

Objects of blow room machines, Various components of blow room machines, Different zones in blow room, Conventional blow room machines e.g. bale breaker - hopper feeder - step cleaner – porcupine opener – Creighton opener – scutcher with bladed / krishner beaters, Reasons of developments in blow room machinery, Research findings for developments of modern blow room,

Modern blow room machines

- Automatic bale opener
- Mild openers– Maxi-flow/ Uni-clean/Vario-clean
- Blenders
- Fine openers, cleanomat, flexiclean

Method used for - material transport in modern blow room- Waste removal- Dust removal- Contamination removal. Utilities required for various blow room machines like Electricity, Compressed air, etc. Humidification system used in blow room, Waste recycling machines and methods, Fire protection / Safety arrangements in blow room.

List of Experiments:-

1. Study of Bale Opening machine - Dimensions, Driving arrangement, speed calculations.

   Demonstration of different setting between Inclined spike lattice –Evener roller, Evener to Stripper, Grid bar - Beater and its effect on waste collection

2. Dimension and driving arrangement study of Coarse cleaning machines., Speed calculations.

   Demonstration of Grid bar, Baffle plate setting.

   Machine Cleaning efficiency calculation.

3. Study of mixing machine. Working, Dimension, Driving arrangement, calculations.

   Mill visit, e.g. Unimix .

4. Study of Fine cleaning machine – Dimension, Driving arrangement used, Speed calculations. Demonstration of different setting like deflector plate. , ERM (Fine opener)

5. Study of De-dusting machines – Working, Dimension, Driving arrangement and calculations.

6. Study of chute feed system. Different chute feed systems, Demonstration of chute feed system, setting of feed batt weight (gms / mt)

7 Cleaning efficiency calculation of mild & intensive cleaners.
Processing the material and checking the cleaning efficiency for both mild & intensive cleaners.

8 Mill visit to study Blow room machine sequence used and the material flow.

9 Ginning Mill visit to study the working of ginning machinery.

10 Study of pre & post ginning equipments and their working.

11 Study of ginning machine - Dimension, Construction, Working, Driving arrangement, calculations.

Reference Books :-

1) The Textile Institute Publication - Manual of Textile Technology – Short Staple Spinning Series by W. Klein.

2) 'The Characteristics of Raw Cotton' by P. Lord.   The Textile Institute Publication, Manual of Cotton Spinning Vol.II, Part-I.

3) 'Opening and Cleaning' by Shirley. The Textile Institute Publication, Manual of Cotton Spinning Vol. II, Part-II.

4) 'Opening Cleaning and Picking' by Dr.Zoltan S. Szaloki, Institute of Textile Technology, Virginia.

5) 'Cotton Opening and Picking' by G.R. Merril.

6) 'Cotton Ginning' Textile Progress, The Textile Institute Publication.

7) 'Fundamentals of Spun Yarn Technology' by Carl A. Lawrence

8) 'Cotton Growing and Marketing', J.S. Parmar, Tecoya Trend Publications.

9) 'Cotton Varieties' by Parmar, Tecoya Trend Publication.

10) Blowroom and Carding- Training Programme conducted by NCUTE, IIT, Delhi.

11) Essential calculations of practical cotton spinning by T.K. Pattabhiraman.

12) 'Mixing & Blowroom' -by Prof.A.R.Khare.

13) Advances in technology of yarn production-NCUTE

14) Rieter Machine Manuals

FIRST YEAR B. TEXT. – SEMESTER - II

2.6   FABRIC FORMING TECHNOLOGY - I (TT)

Lectures	:	4 Hours / Week.
Practicals	:	2 Hours / Week
Theory Paper	:	100 Marks, 3 Hours.
Term Work	:	50 Marks
Subject Total	:	150 Marks.

I) WARPING

1. Need, Objectives, precautions to be considered in the process, classification of warping process- (beam warping, sectional warping, ball warping)

2. Warping machine: - construction and working: -

   a. Creel: - framing (requirements, length, height, pitch, etc,) pegs, tensioning arrangements guides, blow fan, types of creels (parallel, V, V-nose etc.)

   b. Principles of operation of beam warping and sectional warping.

   c. Head stock: - Leasing reeds, Drum, speed, stop-motion, brake, comb, beam pressing, beam handling, set length, drums for sectional warping, its geometrical aspects, traverse, section width and sections, beaming process and speed.

   d. Calculations: -production of warping machine, efficiency based on speed and stoppages, weight of yarn on warper's beam, organizing the set (based on cones available, creel capacity, fabric construction etc) Calculation of number of sections, section width.

II) SIZING

1. Need: Objectives (abrasion resistance, strength, smoothness, lubrication, fiber lay etc), achieving the objectives through size paste constituents size application.

2. Concepts of sizing process: hank sizing, ball warp sizing, slasher sizing, and classification of sizing machines.

3. Sizing machine: -Various zones, their functions, creel and the types with comparison, elements in sow box and their functions, various drying arrangements and drying mechanism in each.

4. Head stock: - various functions in head stock, their importance in weaving (dry splitting, measuring, marking, winding, beam pressing etc)

5. Moisture and stretch: - Importance and their control

6. Ingredients-Types (natural, synthetic), their functions, examples, features.

7. Size cooking: - need, equipments available, method of addition of ingredients and its importance, gelatinizing, bursting, homogenizing, concentration, viscosity, (measuring methods and importance)

8. Calculations: -Production and efficiency of machine.

II) WEAVING

1. Study of dobby: Keighly, cam dobby, paper pattern, cross border dobby, method of pegging, heald reversing motions, Keighly dobby settings

2. Study of Jacquard: Parts of jacquards, sizes and figuring capacities of jacquard, harness ties, design ties, casting out, card cutting and lacing, Double lift single cylinder, Double lift double cylinder, cross border jacquards, high pitch jacquards.

3. Weft patterning: - Eccle's and Zang's drop box motions, pattern chain, card saving, fabric defects.

IV) FABRIC STRUCTURE

1. To represent following weaves on graph paper with design, draft, peg-plan and denting order.
    a. Derivative of plain weave-warp and weft rib, matt (regular and irregular)
    b. Derivatives of twill: pointed, herringbone, various types of diagonals, different types of broken and rearranged twills, transposed twill, twill checks, curved twills, combined twill, diamond, twist and twill interaction
    c. Derivatives of satin/sateen weave, irregular satin, satin checks.
    d. Toweling structures: Ordinary and brightened honeycomb, huckaback.
    e. Mock leno, crepes by various methods.

2. The requirements of weaving for all above mentioned constructions, practical aspects of weaving, fabric and weave characteristics and properties of fabric and their applications.

3. Constructional details, characteristics and properties of following fabrics.
    Poplin, long cloth, semi and full voile, cambric, denim, dhoti, sari, sheeting, shirting, suiting, gabardine, dress material.

List of Experiments:-

1. Study of Auxiliary motions – construction, working and functions of various parts in each system.

2. Study, dismantling and resetting of side weft fork motion.

3. Study, dismantling and resetting of Keighley dobby.

4. Study, dismantling and resetting of Cam dobby.

5. Weaving of fabric on dobby by pegging and card cutting.

6. Study of mechanical jacquard and fabric weaving by card cutting for four picks.

7. Study, dismantling and resetting of drop box mechanism.

8. Study of sectional warping machine details and beam preparation.

9. Study of Automatic pirn winding machine, preparation of pirns with different diameter and bunch length.

10. Fabric Analysis of Mock Leno, Honey Comb.

11. Fabric Analysis of huck-a back.

12. Visit to warping and sizing unit

Reference Books:-

1. Principles of Weaving by Marks and Robinson.

2. Weaving Mechanism by Fox.

3. Weaving by D.B. Ajagaonkar, Sriramulu and Talukdar.

4. Sizing by D.B. Ajagaonkar.

5. Weaving Mechanism by Chakraborthy.

6. Weaving Mechanism by N.M. Banerjee.

7. Weaving by BTRA.

8. Fancy Weaving by K.T. Aswani.

9. Textile colour and design by Watson.

10. Woven cloth construction by Marks and Robinson.

11. Winding and Warping by M.K. Talukdar.

12. Yarn Preparation by Mr. Sengupta.

13. Weaving Technology & Operations by Ormerod

FIRST YEAR B. TEXT. – SEMESTER - II

2.6   MAN MADE FABRIC MANUFACTURE - I (MMTT)

Lectures	:	4 Hours / Week.
Practicals	:	2 Hours / Week
Theory Paper	:	100 Marks, 3 Hours.
Term Work	:	50 Marks
Subject Total	:	150 Marks.

I) WARPING

1. Need, Objectives, precautions to be considered in the process, classification of warping process- (beam warping, sectional warping, ball warping)

2. Warping machine: - construction and working: -

    a. Creel: - framing (requirements, length, height, pitch, etc,) pegs, tensioning arrangements guides, blow fan, types of creels (parallel, V, V-nose etc.)

    b. Principles of operation of beam warping and sectional warping.

    c. Head stock: - Leasing reeds, Drum, speed, stop-motion, brake, comb, beam pressing, beam handling, set length, drums for sectional warping, its geometrical aspects, traverse, section width and sections, beaming process and speed.

    d. Calculations: -production of warping machine, efficiency based on speed and stoppages, weight of yarn on warper's beam, organizing the set (based on cones available, creel capacity, fabric construction etc) Calculation of number of sections, section width.

II) SIZING

1. Need: Objectives (abrasion resistance, strength, smoothness, lubrication, fiber lay etc), achieving the objectives through size paste constituents size application.

2. Concepts of sizing process: hank sizing, ball warp sizing, slasher sizing, and classification of sizing machines.

3. Sizing machine: -Various zones, their functions, creel and the types with comparison, elements in sow box and their functions, various drying arrangements and drying mechanism in each.

4. Head stock: - various functions in head stock, their importance in weaving (dry splitting, measuring, marking, winding, beam pressing etc)

5. Moisture and stretch: - Importance and their control

6. Ingredients-Types (natural, synthetic), their functions, examples, features.

7. Size cooking: - need, equipments available, method of addition of ingredients and its importance, gelatinizing, bursting, homogenizing, concentration, viscosity, (measuring methods and importance)

8. Calculations: -Production and efficiency of machine.

II) WEAVING

1. Study of dobby: Keighly, cam dobby, paper pattern, cross border dobby, method of pegging, heald reversing motions, Keighly dobby settings

2. Study of Jacquard: Parts of jacquards, sizes and figuring capacities of jacquard, harness ties, design ties, casting out, card cutting and lacing, Double lift single cylinder, Double lift double cylinder, cross border jacquards, high pitch jacquards.

3. Weft patterning: - Eccle's and Zang's drop box motions, pattern chain, card saving, fabric defects.

IV) FABRIC STRUCTURE

1. To represent following weaves on graph paper with design, draft, peg-plan and denting order.
    a. Derivative of plain weave-warp and weft rib, matt (regular and irregular)
    b. Derivatives of twill: pointed, herringbone, various types of diagonals, different types of broken and rearranged twills, transposed twill, twill checks, curved twills, combined twill, diamond, twist and twill interaction
    c. Derivatives of satin/sateen weave, irregular satin, satin checks.
    d. Toweling structures: Ordinary and brightened honeycomb, huckaback.
    e. Mock leno, crepes by various methods.

2. The requirements of weaving for all above mentioned constructions, practical aspects of weaving, fabric and weave characteristics and properties of fabric and their applications.

3. Constructional details, characteristics and properties of following fabrics.
    Poplin, long cloth, semi and full voile, cambric, denim, dhoti, sari, sheeting, shirting, suiting, gabardine, dress material.

List of Experiments:-

1. Study of Auxiliary motions – construction, working and functions of various parts in each system.
2. Study, dismantling and resetting of side weft fork motion.
3. Study, dismantling and resetting of Keighley dobby.
4. Study, dismantling and resetting of Cam dobby.
5. Weaving of fabric on dobby by pegging and card cutting.
6. Study of mechanical jacquard and fabric weaving by card cutting for four picks.
7. Study, dismantling and resetting of drop box mechanism.
8. Study of sectional warping machine details and beam preparation.
9. Study of Automatic pirn winding machine, preparation of pirns with different diameter and bunch length.
10. Fabric Analysis of Mock Leno, Honey Comb.
11. Fabric Analysis of huck-a back.
12. Visit to warping and sizing unit

Reference Books:-

1. Principles of Weaving by Marks and Robinson.
2. Weaving Mechanism by Fox.
3. Weaving by D.B. Ajagaonkar, Sriramulu and Talukdar.
4. Sizing by D.B. Ajagaonkar.
5. Weaving Mechanism by Chakraborthy.
6. Weaving Mechanism by N.M. Banerjee.
7. Weaving by BTRA.
8. Fancy Weaving by K.T. Aswani.
9. Textile colour and design by Watson.
10. Woven cloth construction by Marks and Robinson.
11. Winding and Warping by M.K. Talukdar.
12. Yarn Preparation by Mr. Sengupta.
13. Weaving Technology & Operations by Ormerod

<u>**FIRST YEAR B. TEXT. – SEMESTER - II**</u>

2.7   LANGUAGE LABORATORY (TT/MMTT)

Practicals   :   2 Hours/week

Term Work   :   50 Marks

I)   Communication

Nature and Importance of Communication

Process and Barriers to Communication

Forms of Communication

II)   Techniques of Communication.

Techniques of Formal Speech.

Verbal Communication

Non Verbal Communication – Body Language.

III)   Issues in English

Getting started – questions – Cloze – Spelling – Diction – Listening – Word – Sentences – Vocabulary – Pictures & Words – Opposite Meaning – Word order- Grammar – Simple present – Simple Past – Present continuous – Future Tense – Personal Pronouns – Pronunciation – words sentences – writing – punctuation – questions – opinions – different genres.

IV)   Pronunciation

The phonemic alphabet in English

Similar sounds

Word and phrasal stress

Stress and Rhythm

Rhythms from Rainland

V)   Study skills success

Listening – Speaking – Reading – Writing – Vocabulary – Visuals.

VI)   Tense Buster

Articles – Reported speech – Passives – Phrasal verbs – How to learn faster.

VII) **Business English**

A formula for clear writing – Formal or Informal – Which words – written communication

Reference Books:-

1) Communication Skills for Engineers – Sunita Mishra – Pearson Education
2) Language Software's (1 to 22 Software's)

List of Software's

1. Ease one
2. Click info English
3. Tense Buster
4. Study Skills Success
5. Author Plus with result Manager
6. Sky Pronunciation Suite
7. Pronunciation Power
8. Test Preparation for TOEFL
9. Let's do Business Presentation
10. Let's Do Business Meetings
11. Let's Do Business Negotiations
12. Let's do Business Telephoning
13. Report Writes – Technical Report
14. Report Writers Business Report
15. Report Writers – Letters Faxes, E-Mails
16. Connected Speech
17. Vocabulary Builder
18. Business Territory
19. Error & Terror
20. A Taste for English
21. Issues in English
22. Voice Books

FIRST YEAR B.TEXT. – SEMESTER - II

2.3 GENERAL ENGINEERING (TPE)

Lectures	:	3 Hours / Week.
Practical	:	3 Hours / Week.
Theory Paper	:	100 Marks, 3 Hours.
Term Work	:	25 Marks.
Subject Total	:	125 Marks.

1. Pattern Making: Basic instructions in connection with pattern making - Pattern material - Selection - Design consideration of pattern - Types of pattern - colour codification - Master Pattern.

2. Moulding & Core Making: Moulding material, Moulding sand classification - Properties & Sand Testing - Sand Preparation & Conditioning - Moulding Methods - Bench moulding, Floor moulding, Pit moulding - Shell moulding - CO_2 moulding.
   Core Making - core - use, core material, types of cores, core boxes - core making.

3. Foundry: Cuplola Furnace, Induction Furnaces, Foundry processes - A) Sand Mould Casting - Melting - pouring - cooling of molten metal - cleaning of casting - casting defects. B) Special Casting processes – Die casting (Cold chamber, Hot Chamber), Centrifugal Casting - Types

4. Machine Tools:
   I. Lathe - principle, important operations, Job holding devices, Tool holding devices, capstan & Turret lathe.
   II. Milling Machine: Principle - Types, Up milling - Dawn milling & various operations performed.
   III. Drilling Machine: Principle - Types - comparison between operations like Drilling, Reaming, Boring.

5. Welding: Principle, equipment & procedure of Gas & Arc welding, Brazing.

List of Experiments:-

1. Practical work relating to Mechanical workshop practice. Introduction to equipments & tools in pattern making, metal turning.
2. Each student has to prepare minimum two jobs in the following trades.
   a. Pattern Making (carpentry)
   b. Metal Turning.
3. Demonstration of welding.

Reference Books:

1. Foundry Technology - Sinha & Goyal.
2. Workshop Technology - Raghuwanshi.
3. Workshop Technology - Hajara-Choudhary.
4. Production Technology - P.C. Sharma.

FIRST YEAR B.TEXT. – SEMESTER - II

2.5   YARN MANUFACTURING MACHINERY- I (TPE)

Lectures	:	4 Hours / Week.
Practicals	:	2 Hours / Week
Theory Paper	:	100 Marks, 3 Hours.
Term Work	:	50 Marks
Subject Total	:	150 Marks.

1. **Cotton Growing & Harvesting in India:-**

- Indian Cotton Scenario

- Indian cotton growing regions

- Development in Indian Cottons

- Indian Cotton varieties and their properties

- Some foreign Cottons and their properties

2. **Cotton Ginning :-**

- Introduction to ginning operation

- Ginning objects

- Constructional details of different types of gins used for various types of cottons

- Pre and post ginning equipments- functions and working. Pre and post ginning machine lay out in ginning factory.

- Factors affecting ginning performance:-

    Methods used for cotton harvesting - Seed cotton moisture content - Feed rate - Fibre attachment to seed (fibre pulling force) -Storage & transportation (No. of storage days, Transportation methods used in foreign countries and India) - Atmospheric conditions – Effect of ginning machine conditions on its working performance – effect of static electricity generation - conditioning equipments and its effect.

- Effect of ginning on fibre , yarn and fabric properties

    Machine used at Pre- ginning -Ginning machinery condition -Type of gin machine used -Influence of saw-gin parameters on machine performance (seed cotton feed rate, Ginning speed & Seed cotton

density)- Influence of setting & speeds on Roller ginning machine performance-Lint cleaners number of machines used and its effect.

- Factors affecting ginning performance
- Pressing and bailing of cotton
- Characteristics of bales of various countries

3. Blow room :-

Objects of blow room, Construction of components of blow room machines, Zone wise machines used in blow room, Construction of conventional blow room machines like bale breaker, hopper feeder, step cleaner, porcupine opener, Creighton opener, scutcher with bladed / krishner beaters. Reasons for constructional developments in blow room machinery, Research findings for modern developments in blow room.

Constructional details of modern blow room machines.

- Automatic bale opener
- Mild openers– Maxi-flow/ Uni-clean/Vario-clean
- Blenders
- Fine openers, cleanomat, flexiclean

Material transport system in modern blow room, Waste removal arrangement, Dust removal, Contamination removing machines, Utilities required for blow room machines – Electricity – Compressed air, Humidification in blow room, Waste recycling machines, Fire protection / Safety arrangements in blow room.

List of Experiments:-

1. Constructional study of Bale Opening machine - Dimensions, Driving arrangement and speed calculations.

   Study of effect of different setting between Inclined spike lattice & Evener roller, Evener to Stripper, Grid bar to Beater on waste quality.

2. Constructional study of Coarse cleaning machines. Dimension, Driving arrangement, calculations.

   Demonstration of different setting like Grid bar, Baffle Plate.

   Cleaning efficiency calculation.

3. Constructional details of mixing machine. Dimension, Driving arrangement, calculations.

Mill visit, e. g. Unimix or Multimixer.

4. Study of Fine cleaning machine – Construction, Dimension, Driving arrangement, calculations. Demonstration of different setting like deflector plate. , ERM (Fine opener)

5. Study of De-dusting machines – Machine positioning, Working, Dimension, Driving arrangement, calculations.

6. Study of chute feed system. Constructional details, Demonstrations and setting of feed batt weight (gm/mt)

7 Calculation of cleaning efficiency of mild & intensive cleaner machines in blow room.

8 Mill visit to study the material flow and working of blow room.

9 Mill visit of ginning factory.

10 Constructional study of pre & post ginning machines.

11 Study of ginning machine – Construction, Dimension, Working, Driving arrangement and speed calculations.

Reference Books:-

1) The Textile Institute Publication - Manual of Textile Technology – Short Staple Spinning Series by W. Klein.

2) 'The Characteristics of Raw Cotton' by P. Lord.   The Textile Institute Publication, Manual of Cotton Spinning Vol.II, Part-I.

3) 'Opening and Cleaning' by Shirley. The Textile Institute Publication, Manual of Cotton Spinning Vol. II, Part-II.

4) 'Opening Cleaning and Picking' by Dr.Zoltan S. Szaloki, Institute of Textile Technology, Virginia.

5) 'Cotton Opening and Picking' by G.R. Merril.

6) 'Cotton Ginning' Textile Progress, The Textile Institute Publication.

7) 'Fundamentals of Spun Yarn Technology' by Carl A. Lawrence

8) 'Cotton Growing and Marketing', J.S. Parmar, Tecoya Trend Publications.

9) 'Cotton Varieties' by Parmar, Tecoya Trend Publication.

10) Blowroom and Carding- Training Programme conducted by NCUTE, IIT, Delhi.

11) Essential calculations of practical cotton spinning by T.K. Pattabhiraman.

12) 'Mixing & Blowroom' -by Prof.A.R.Khare.

13) Advances in technology of yarn production-NCUTE

14) Rieter Machine Manuals

FIRST YEAR B. TEXT. – SEMESTER - II

2.6   FABRIC MANUFACTURING MACHINERY - I (TPE)

Lectures	:	4 Hours / Week.
Practicals	:	2 Hours / Week
Theory Paper	:	100 Marks, 3 Hours.
Term Work	:	50 Marks
Subject Total	:	150 Marks.

I) WARPING

1. Need, Objectives, precautions to be considered in the process, classification of warping process- (beam warping, sectional warping, ball warping)

2. Warping machine: - construction and working: -

   a. Creel: - framing (requirements, length, height, pitch, etc,) pegs, tensioning arrangements guides, blow fan, types of creels (parallel, V, V-nose etc.)

   b. Principles of operation of beam warping and sectional warping.

   c. Head stock: - Leasing reeds, Drum, speed, stop-motion, brake, comb, beam pressing, beam handling, set length, drums for sectional warping, its geometrical aspects, traverse, section width and sections, beaming process and speed.

   d. Calculations: -production of warping machine, efficiency based on speed and stoppages, weight of yarn on warper's beam, organizing the set (based on cones available, creel capacity, fabric construction etc) Calculation of number of sections, section width.

II) SIZING

1. Need: Objectives (abrasion resistance, strength, smoothness, lubrication, fiber lay etc), achieving the objectives through size paste constituents size application.

2. Concepts of sizing process: hank sizing, ball warp sizing, slasher sizing, and classification of sizing machines.

3. Sizing machine: -Various zones, their functions, creel and the types with comparison, elements in sow box and their functions, various drying arrangements and drying mechanism in each.

4. Head stock: - various functions in head stock, their importance in weaving (dry splitting, measuring, marking, winding, beam pressing etc)

5. Moisture and stretch: - Importance and their control

6. Ingredients-Types (natural, synthetic), their functions, examples, features.

7. Size cooking: - need, equipments available, method of addition of ingredients and its importance, gelatinizing, bursting, homogenizing, concentration, viscosity, (measuring methods and importance)

8. Calculations: -Production and efficiency of machine.

II) WEAVING

1. Study of dobby: Keighly, cam dobby, paper pattern, cross border dobby, method of pegging, heald reversing motions, Keighly dobby settings

2. Study of Jacquard: Parts of jacquards, sizes and figuring capacities of jacquard, harness ties, design ties, casting out, card cutting and lacing, Double lift single cylinder, Double lift double cylinder, cross border jacquards, high pitch jacquards.

3. Weft patterning: - Eccle's and Zang's drop box motions, pattern chain, card saving, fabric defects.

IV) FABRIC STRUCTURE

1. To represent following weaves on graph paper with design, draft, peg-plan and denting order.
   a. Derivative of plain weave-warp and weft rib, matt (regular and irregular)
   b. Derivatives of twill: pointed, herringbone, various types of diagonals, different types of broken and rearranged twills, transposed twill, twill checks, curved twills, combined twill, diamond, twist and twill interaction
   c. Derivatives of satin/sateen weave, irregular satin, satin checks.
   d. Toweling structures: Ordinary and brightened honeycomb, huckaback.
   e. Mock leno, crepes by various methods.

2. The requirements of weaving for all above mentioned constructions, practical aspects of weaving, fabric and weave characteristics and properties of fabric and their applications.

3. Constructional details, characteristics and properties of following fabrics.
   Poplin, long cloth, semi and full voile, cambric, denim, dhoti, sari, sheeting, shirting, suiting, gabardine, dress material.

List of Experiments:-

1. Study of Auxiliary motions – construction, working and functions of various parts in each system.

2. Study, dismantling and resetting of side weft fork motion.

3. Study, dismantling and resetting of Keighley dobby.

4. Study, dismantling and resetting of Cam dobby.

5. Weaving of fabric on dobby by pegging and card cutting.

6. Study of mechanical jacquard and fabric weaving by card cutting for four picks.

7. Study, dismantling and resetting of drop box mechanism.

8. Study of sectional warping machine details and beam preparation.

9. Study of Automatic pirn winding machine, preparation of pirns with different diameter and bunch length.

10. Fabric Analysis of Mock Leno, Honey Comb.

11. Fabric Analysis of huck-a back.

12. Visit to warping and sizing unit

Reference Books:-

1. Principles of Weaving by Marks and Robinson.

2. Weaving Mechanism by Fox.

3. Weaving by D.B. Ajagaonkar, Sriramulu and Talukdar.

4. Sizing by D.B. Ajagaonkar.

5. Weaving Mechanism by Chakraborthy.

6. Weaving Mechanism by N.M. Banerjee.

7. Weaving by BTRA.

8. Fancy Weaving by K.T. Aswani.

9. Textile colour and design by Watson.

10. Woven cloth construction by Marks and Robinson.

11. Winding and Warping by M.K. Talukdar.

12. Yarn Preparation by Mr. Sengupta.

13. Weaving Technology & Operations by Ormerod

FIRST YEAR B. TEXT. – SEMESTER - II

2.7   COMPUTER LABORATORY (TPE/TC)

Practical   :   2 Hours/week

Term Work   :   50 Marks

Subject Total :   50 Marks

1. Computer Fundamental :-

Basic organization of computer & its functional unit, Memories, System Software, Application Software.

2. 'C' Programming:-

Introduction, Algoritham & flowchart, keywords, statements, Loops.

3. Array:-

Introduction, Array representation, one dimensional array, two dimensional arrays.

4. Structure:-

Introduction, define structure, define structure variable, accessing structure member, array of structure, union.

5. Pointer:-

Introduction, application of pointer, pointer arithmetic,   pointer & array.

6. Introduction of 'C++' programming:-

Basic concept of OOP, Application of OOP & C++,characteristic of OOP language.

7. Classe & Object:-

Class type, Data   member, Member function, Constructor, Destructor.

8. Function in 'C++':-

Function prototype, inline function, friend function.

9. Inheritance:-

Basic Concept of inheritance, types of inheritance, Virtual function.

Term Work   (Minimum 12 Program)

List of Experiments:-

1. One programs each on Loops, Array, Structure, Pointer, Union.
2. Class & Object
3. Constuctor & Destrucure
4. Function
5. Inheritance & virtual function.

Reference Books:-

1. C++ Programming-   Robert Lafore
2. Let us C –   Yashwant Kanitkar.
3. Let C++   - Yashwant Kanitkar
4. Fundamental of computer-   Rajaraman

FIRST YEAR B. TEXT. – SEMESTER - II

2.5   ORGANIC CHEMISTRY-II (TC)

Lectures   :   4 Hours / week

Practicals   :   2 Hours / week

Theory Paper :   100 Marks, 3 Hours.

Term Work   :   50 Marks.

Subject Total :   150 Marks

1) Aromatic Compounds:

Scope of topic, Reasons for sperate classification of Aromatic compounds.

Coal tar distillation, Nomenclature of Aromatic hydrocarbons

Study of Benzene:

a) Orbital picture of benzene   b) Resonance structure of benzene.

c) Isomerism of benzene derivatives   d) Reactivity and orientation.

e) Preparation, properties & uses of benzene & Toluene.

Electrophilic substitution in aromatic compounds:

Study of some important reactions like : i) Nitration, ii) Sulphonation, iii) Sulphation iv) Halogenation, v) Friedel-Crafts reaction vi) Amination   vii) Oxidation

2) Aromatic Halogen Compounds:

Scope of topic, Nomenclature, Methods of preparation of halobenzene by i) direct halogenations, ii) Action of PCl_5 on nuclear hydroxyl compounds iii) Sandmeyar's Reaction. Physical, chemical properties and uses of chlorobenzene.

3) Benzene Sulphonic Acid:

Scope of topic, Nomenclature, preparation of benzene sulphonic acid. Physical, Chemical properties & uses of benzoic sulphonic acid. Compare acidity of carboxylic acid & sulphonic acids. Applications in Textiles.

4) Aromatic Nitro Compounds:

Scope of topic, Nomenclature, preparation of nitrobenzene. Physical, Chemical properties of nitrobenzene. Applications in Textiles.

5) Aromatic Amino Compounds:

Scope of topic, Nomenclature, Compare basicity of aliphatic & aromatic amines. Preparation, physical & chemical properties of Aniline. Uses of i) Aniline ii) o-, m- & p- Toluidines iii) Phenylene diamines iv) Diphenyl amine v) Triphenyl amine in textiles.

6) Diazonium Salts:

Nomenclature, Diazotization, Preparation of benzene diazonium chloride. Physical, Chemical properties & uses of benzene diazonium chloride. Role of excess of mineral acid in diazotization.

Reactions of diazonium salts in which the nitrogen atoms are replaced :

i) by halogen ii) by -CN iii) by -OH iv) by -H.

Coupling reactions of diazonium salts with amines & phenols.

7) Aromatic Hydroxy Compounds:

Scope of topic, Nomenclature, preparation of phenol. Physical, Chemical properties & uses of phenol. Preparation & properties of Naphthols. Applications in Textiles.

8) Aromatic Acids:

Scope of topic, Nomenclature, preparation of benzoic acid. Physical & Chemical properties of benzoic acid. Uses of benzoic acid, phthalic acid, Anthranilic acid & Terephthalic acid in textiles.

9) Polynuclear Aromatic Hydrocarbons:

Preparation, properties & uses of

a) Polynuclear aromatic hydrocarbons with isolated benzene rings :

Biphenyl, Benzidine, Diphenylmethane, Triphenylmethane.

b) Polynuclear aromatic hydrocarbons with condensed benzene rings :

Naphthalene, Anthracene, Anthraquinone.

10) Synthesis of Some Dye intermediates:

Scope of topic, Preparation of following dye intermediates. H-acid, J-acid, Naphthionic acid, Gamma acid.

List of Experiments:-

Organic Binary Mixture Separation :-

1) Acid   +   Phenol

2) Acid   +   Base

3) Acid   +   Neutral

4) Phenol +   Base

5) Phenol +   Neutral

6) Base   +   Neutral

Study of Important Reactions :-

7) Nitration

8) Sulphonation

9) Halogenation

10) Coupling Reaction (Preparation of azo dye)

Study of Some Estimations :-

11) Estimation of Resist salt

12) Estimation of Acetone

13) Estimation of Ethylene glycol

14) Estimation of urea

Reference Books:-

1. Organic Chemistry by Morrison & Boyd.

2. Organic Chemistry - Vol. I , The Fundamental Principles by I.L. Finar.

3. Organic Chemistry by N.L. Allinger, M.P.Cava, Donc DE Jongh, C.R. Johnson,N.A. Lebel, C.L. Stevens.

4. Mechanism in Organic Chemistry by Peter Sykes.

5. A text book of Organic Chemistry by P.L. Soni.

6. A text book of Organic Chemistry by B.S. Bahl and Arun Bahl.

7. Reaction Mechanism & Reagents in Organic Chemistry by Gurdeep R.Chatwal.

8. Advanced Organic Chemistry Vol. I, by V.S.Kulkarni, L.P.Ghalsasi, A.S.Arora.

9. Advanced Organic Chemistry by Jerry March.

<u>**FIRST YEAR B. TEXT. – SEMESTER - II**</u>

2.6   CHEMISTRY OF TEXTILE FIBRES-I (TC)

Lecture	:	4 Hours / Week.
Practical	:	2 Hours / Week
Theory Paper	:	100 Marks.
Term Work	:	50 Marks
Subject Total	:	150 Marks

1. INTRODUCTION :

Concept of fibre, yarn, rope, fabrics; Sequence of operations for conversion of natural and manmade fibres into finished fabrics. Concept of weaving, knitting & production of non-woven, Importance of fabric design in weaving. General production sequence of fabric to garment manufacturing, concept of processing and finishing of fabrics and garments.

Introduction to Textile Fibres: Definition of fibre, filament, degree of polymerization and Cohesive Energy Density (CED). Classification of fibres according to their chemical nature and origin. Essential and desirable properties of fibres. Concept of crystalline, mesomorphous and amorphous regions and their importance.

2. NATURAL CELLULOSIC FIBRE : COTTON :

Introduction to Cultivation of cotton and varieties of cotton. Morphological structure of cotton. Chemistry of cellulose, Concept of chemical bonding in cotton, Supra-molecular structure of cotton, structure of cellulose-I & cellulose-II., influence of structure of cotton cellulose on its properties. Physical and chemical properties of cotton, Chemistry of damage of cellulose. Chemical methods of detection of oxycellulose and hydrocellulose.

3. BAST FIBRES :

Classification of Bast fibres, Introduction to cultivation and varieties of Jute. Morphological structure and chemical constitution of Jute and Ramie. Concept of hemicellulose, lignin and such other cementing components and their chemistry. Retting of Jute and Ramie. Physical and chemical properties of Jute and Ramie.

4. REGENERATED CELLULOSE :

Concept of wet, dry and melt spinning with fibre example, Essential requirements of wet spinning. Concept of extrusion and spinning. Manufacturing process of viscose rayon. The functions of various additives used in the manufacture of viscose rayon. Concept of press weight ratio and its significance. Chemical crimp in viscose rayon. Physical and chemical properties of viscose rayon. Raw materials, brief manufacturing process, physical and chemical properties and uses of polynosic rayon, H.W.M.F., Cuprammonium Rayon, Tencel.

5. MODIFIED CELLULOSE :

Concept of Dry spinning. Essential requirements of dry spinning. Concept of heterogeneous and homogeneous acetylations. Raw materials, manufacturing process, physical and chemical properties of cellulose acetate and triacetate.

6. ANIMAL PROTEIN FIBRES :

Wool : - Source and grading of wool, Impurities present in raw wool, morphological structure of wool, Chemical composition of wool, types of forces present in wool fibres, Physical and chemical properties of wool.

Silk: - Varieties of silk, production of raw silk - sericulture and reeling, Morphological structure of silk, Chemical composition of silk, Physical and chemical properties of silk, degumming of silk.

List of Experiments:-

1. Identification of Fibres by Microscope Method.
2. Determination of moisture regain of fibre.
3. Detection of Honey dew content of cotton.
4. Determination of Fibre fineness by cut weight method.
5. Determination of fibre length by using Grease plate method.
6. Identification of fibres by density gradient column.
7. Identification of fibres by chemical method.
8. Identification of fibres by chemical method.
9. Identification of fibres by chemical method.
10. Testing of fibre properties by High Volume Instrument
11. Measurement of maturity of cotton by caustic soda method.

12. Detection of fibre damage.

Reference Books:-

1. Chemical Technology of Fibrous materials by F. Sadov.
2. Textile Fibres Vol -I by Dr. V. A. Shenai.
3. Man Made Fibres by R.W. Moncrieff.
4. Handbook of Textile Fibres by Jordon Cook.
5. Introduction to Textile Fibres by Dr. H.V. Sreenivas Murthy.
6. Textiles Fibre to Fabric by Corbmann, New York Mc Garw Hill Book Co.1983.
7. Cotton Spinning 'ATIRA' Publication, Ahmedabad.
8. Plain Weaving Motions by Aswani K.T., Mahajan Book Publishers, 1996.
9. Fundamental Principles of Textile Processing by V.A. Shenai, Sevak Publisher
10. Silk Production, Processing and Marketing by Mahesh Nanavaty.
11. Wool, Science and Technology, W S Simpson and G H Crawshaw, Woodhead Publication Ltd, England
12. Handbook of fibre chemistry - Lewin

FIRST YEAR B. TEXT. – SEMSTER II

2.3   ELEMENTS OF FASHION DESIGN   (FT)

Lectures	:	3 hrs/week
Drawing Practicals	:	3 hrs/week
Theory Paper	:	100 marks
Term Work	:	25 marks
Subject Total	:	125 marks

1.   Introduction to the elements of Design: Point, Line, Shape, Direction, Texture, Color, Value

2.   Point – The perspective of vanishing point and starting point.

   Line - To define Line, Shape, Contour & Outline to continuity and movement.

3.   Shapes – Organic & Geometric shapes, positive shape creating a negative shape.

   Direction - Horizontal, Vertical or Oblique. Suggestion of directions or feeling provided by the different directions.

4.   Texture – Surface quality, Visual Texture, Physical texture. The meaning of texture.

   Color – The difference between primary, secondary and tertiary colors, mixing of colors. Saturation, warm & cool colors, color schemes.

   Value – darkness or lightness of a color, diluting a color to get different hue.

5.   Introduction to the principles of design: Balance, rhythm, proportion, emphasis, unity.

6.   Balance – Equilibrium resulting from looking at images and judging them against our ideas of physical structure. Symmetrical and asymmetrical balance.

   Rhythm - repetition or alternation of elements, often with defined intervals between them. Rhythm creating a sense of movement, and establishing pattern and texture.

7.   Proportion - the comparison of dimensions or distribution of forms. relationship in scale between one element and another, or between a whole object and one of its parts.

8.   Emphasis - varying degrees of dominance in design. visual weight of a composition, establishes space and perspective.

9. Unity - the aspects of a given design that are necessary to tie the composition together, to give it a sense of wholeness, or to break it apart and give it a sense of variety.

10. Mobility and concentration – Mobility in a design and concentration in a composition.
    Space – The concept of positive and negative space and showing the positive and negative space with the help of compositions.

11. Emotions: Showing emotions with the help of elements & principles of design.

12. Introduction to basic drawing – Tools and materials, perspective, drawing with a grid, drawing basic shapes.

13. Eight head theory of body measurements, 10 – head theory of body measurements, 12 – head theory of body measurements.

14. Introduction to landscapes – Landscape compositions, perspectives, drawing simple landscapes

15. Introduction to people - From the subtleties of emotion conveyed by facial expressions, learning shading techniques that can bring life to portraits.

List of Experiments:-

1. Drawing of Horizontal, Vertical, Diagonal, Spiral, zig-zag lines on sketch book.

2. Make a composition using Line, Shape, Contour & Outline to show continuity and movement

3. Make different colors, mix primary colors to get secondary colors and make 20 tones of each color.

4. Make 5 Visual textures and 5 Physical textures using any natural material and colors.

5. Draw 5 each of abstract, organic and geometric shapes free-hand.

6. Make compositions to show a feeling of balance, formality and alertness using 20 lines, 5 circles and 10 rectangles.

7. Draw regular, flowing and progressive compositions to get a sense of movement.

8. Design 3 compositions each on positive and negative space, mobility and concentration.

9. Drawing of human body with the help of 8 head theory of body measurements.

10. Make a composition based on the elements and principles of design using 64 cubes of size 1X1" and using colors, texture and theme-based on the given 4 lines of poetry.

Reference Books:

1. The Elements of Design, *Rediscovering Colours, Textures, Forms and Shapes, Loan Oei, Cecile De Kegel, ISBN 0500283397.*
2. The art of basic drawing, Walter Foster Publishing Inc.
3. Elements of Design: Structure of Visual Relationships, by Gail Greet Hannah
4. Principles of Three-Dimensional Design: Objects, Space and Meaning, Stephen Luecking
5. Universal Principles of Design, by William Lidwell, Rock port publications.

FIRST YEAR B. TEXT. – SEMESTER – II

2.5   INTRODUCTION TO TEXTILE MANUFACTURING – II (FT)

Lecturers	:	4 Hours/week
Practical	:	2 Hours/week
Theory Paper	:	100 Marks.
Term Work	:	50 Marks
Subject Total	:	150 Marks

1. Doubling and Twisting - Objects, properties and applications of doubled yarns, various doubling & twisting methods (Ring doubler, Uptwister and TFO).

2. Introduction to principle of working of Rotor spinning, Airjet spinning, Vortex spinning, Compact spinning and Friction spinning.

3. Blend Yarns – Objects of blending of different fibres, concept of blend spinning. Properties and application of blended yarns.

4. Weft patterning – Study of systems available, types of box motions, introduction to Weft patterning on modern weaving machines, card saving

5. Tore present following weaves on graph paper with design, draft, per plan and dealing order.
    a. Derivative of plain weave, warp and welt rib matt (regular and irregular)
    b. Derivatives trill – Pointed, herringbone, various types of diagonals, different types of broken and rearranged trills, transposed trill, trill chocks, curved trills, combined trill, diamond, twist and trill interaction.
    c. Derivatives of satin / sateen weave irregular satin, satin cheeks.
    d. Toweling structures, ordinary and Brighton Honeycombs, Huckaback.
    e. Mock leno, Creps by Various methods.

6. The requirements of weaving for all above mentioned constructions, practical aspects of weaving, fabric and weave characteristics and properties of fabric and their applications.

7. Constructional details, characteristics and properties of following fabrics : Poplin, Long cloth, Semi and Full voile, Cambric, Denim, Dhoti, Sari, Sheeting, Shirting, Suiting, Gabardine, Dress material.

8. Need for chemical processing of textiles – Important unit processes involved in conversion of gray fabric to finished fabric. Object of each processes such as desiring, scouring, bleaching, mercerization, dyeing, printing and finishing.

9. Introduction to Garment processing.

List of Experiments:-

1. Study of Ring doubler – Passage and calculations.
2. Study of construction and passage of material on rotor spinning.
3. Study of construction and passage of material on airjet spinning.
4. Operating the plain and auto loom to weave the good fabric.
5. To study different fabric defects.
6. Fabric Analysis (Derivatives of plain : Warp Rib, Welt Rib, Matt weave)
7. Fabric Analysis (Trill derivatives : Broken, Transposed, Herringbone)
8. Fabric Analysis (Satin and Sateen)
9. Fabric Analysis (Mack leno, Honeycomb, Huckaback.
10. Study of important processing operations.
11. Study of various finishes used for textiles.
12. Mill Visit.

Reference Books:-

1. The textile Institute publication – Manual of Textile Technology – Short Staple Spinning series.
   Vol. V: New Spinning System by W. Klein.
   Vol. I: The Technology of Short Staple Spinning by W. Klein.
2. Essential Calculations of practical cotton spinning by T. K. Pattabhirerman.
3. Elements of Ring frame and doubling by A. R. Khare.
4. Spun Yarn Technology by Eric Oxtoby.
5. TFO Technology and Technique for spun yarn by M. S. Kulkarni and H. V. S. Murthy.
6. Fundamentals of Spun Yarn Technology By Carl A. Lawrence.
7. Principles of Weaving by Marks ATC and Robinson.
8. Textile Color and design by Watson.
9. Weaving by Prof. D. B. Ajgaonkar, Prof. Sriramalar & M. K. Takkdar
10. Weaving Mechanism by K. T. Aswani.
11. Pretreatment of Cotton fabrics by R. S. Prayag.

12. Technology of Textile Processing by Prof. V. A. Shenai.

FIRST YEAR B. TEXT. – SEMESTER – II

2.6   TESTING OF FIBRES AND YARNS (FT)

Lectures	:	4 Hours/week
Practical	:	2 Hours/week
Theory Paper	:	100 Marks.
Term Work	:	50 Marks
Subject Total	:	150 Marks

FIBRE TESTING:-

1.   **Sampling for determination of fibre properties:-** Importance, General requirements – Random sample, Biased sample, Numerical and Length biased samples – Extent bias, Avoidance of extent bias, Sampling techniques – Squaring method, Cut square method, Zoning technique.

2.   **Longitudinal dimensions (Fibre Length):-** Technical significance of fibre length, Fibre length measurement – Hand Stapling, Oil plate method, Comb sorter method, Digital Fibrograph.

3.   **Transverse Dimensions (Fineness & Maturity):-**

   i. **Fineness** – Terms & Definitions, Technical significance of fibre fineness, Measures of fibre fineness, Measurement of fineness – Micrometric method, Gravimetric method, Airflow method, Vibroscope method

   ii. **Maturity of cotton** - Technical significance, Measures of maturity, Methods of measurement –Microscope Method, Differential dyeing method, Polarized light method

4.   **Fibre Strength: -** Importance, terminology, Stress-strain curve & its importance, Factors influencing fibre strength, Measurement of fibre strength: – Single fibre strength – Instron, Bundle strength – Stelometer.

5.   **Modern Testing Instruments: -** HVI & AFIS.

6.   **Neps: -** Definition, Importance, Testing of Neps in card web by Shirley Template Method.

7.   **Identification of Fibres:-** Cotton, Wool, Silk, Viscose Rayon, Nylon, Polyester & Acrylic fibre, Solubility test, Burning test, Cross sectional & Longitudinal views of fibres.

8.   **Linear density of yarn: -** Count or Yarn number, Direct & Indirect system of yarn numbering, Measurement of yarn number.

9.   **Twist & Twist Measurement:-** Definition, Twist Direction, Amount of Twist, Twist multiplier / factor, Functions of twist on yarn properties, Effect of twist in yarn on fabric properties, Measurement of twist – Untwist and Twist method, Take-up Twist Tester.

10.   **Yarn Strength:-**

   a) **Single Thread Strength** :- Effect of fibre properties on yarn strength, factors affecting tensile properties of textiles, Different principles of Tensile Testing, Pendulum lever principle, Strain gauge transducer principle, Machines working on these principles.

   b) **Lea Strength**: - Lea CSP or Break factor & its significance, Description of Lea Strength tester. Comparison of Lea & Single thread strength test results

   c) **Ballistic Strength** :- Principle, Measurement of Ballistic Strength

11.   **Evenness of Yarn:-** Classification of Variations, Expressions of irregularity, Basic irregularity, Index of irregularity, Measurement of yarn irregularities – Visual examination, Electronic capacitance principle, Spectrogram analysis, Causes of irregularity, Importance of irregularity, Imperfections & Classimat faults, Principle & working of Uster Classimat

12.   **Hairiness in spun yarn: -** Causes & Control of Yarn Hairiness, Measurement of yarn hairiness.

List of Experiments:-
   1.   Identification of Textile fibres by Microscopy Method.
   2.   Fibre maturity measurement by Caustic Soda (NaOH method)
   3.   Fibre fineness by Cut – Weight Method.
   4.   Measurement of micronaire value by airflow instrument.
   5.   Determination of fibre parameters by HVI.

6. Determination of fibre parameters by AFIS.

7. Determination of yarn number & its variation.

8. Determination of Twist in Single & Double Yarn.

9. Determination of Single Thread Strength

10. Determination of Lea Strength & Ballistic Strength.

11. Determination of yarn evenness by Capacitance principle.

Reference Books:-

1. Textile Testing by Angappan & Gopal Krishnan

2. Physical Testing of Textiles by J. E. Booth.

3. Physical properties of Textile fibres by Morton & Hearle

4. Textile Testing by Skinkle.

5. Handbook of Indian Standards.

<u>**FIRST YEAR B. TEXT. – SEMESTER – II**</u>

2.7   ADVANCED COMPUTER LABORATORY (FT)

Practical   :   2 Hours/week

Term Work   :   50 Marks

Subject Total :   50 Marks

1. Introduction to CorelDraw X4. The Corel Draw X4 Workplace. Setting up document page, saving and opening documents. Use of rulers and margins. Zooming and navigating the work area.

2. The toolbars available in CorelDraw, working with toolbars to create basic shapes. Uses of pen tools, Bezier tool, break paths, combine objects, drawing arcs with 3-point curve tool, grouping and ungrouping objects.

3. Cloning objects using the duplicate command, control layer properties, typography rules and conventions. Creating your own fonts. Filling objects with color outline. Envelope and distortion effects & blend and contour effects.

4. Working with Dockers, nested Dockers, mirror, rotate and duplicate with the help of Dockers. Using the interactive extrude tool, setting extrusion shapes. Raw image color correction.

5. Lens effect and transparency, color add lens, heat map lens etc. Using the frozen action, remove face option, fountain fill transparency, Embellishments: Bevels, power clips and shadows, feathers, shadow as glow effects, working with perspectives.

6. Introduction to Adobe Photoshop CS4, getting to know the work area, opening a file, importing and exporting different file formats, selecting and using basic tools.

7. Basic photo corrections & modifications – adjusting image resolution and size, cropping and feathering an image, use of clone stamp tool, spot healing brush tool, select and deselect parts of an image.

8. Layer Basics – create, view, hide and select layers, apply blending mode to layers. Masks and channels – refining a selection using a quick mask, viewing a mask using the channels panel. Adjusting individual channels, advance layering, advance compositing.

9. Preparing files for the web – slicing an image, user slices and auto slices, defining rollovers, optimizing images for the web, preview animations in a web browser.

List of Experiments:-

1. Create rectangles, ellipse, spirals, flowers and other basic shapes using the toolbox.

2. Make your visiting card with the help of the toolbars available and color palettes.

3. Using transformation, artistic media and other basic tools, draw an aquarium with a 3D effect.

4. Using the available tools, draw a shirt with checks with the use of power clips and fill options.

5. Draw a T-shirt and print a design on it while also showing labels on it and one vertically written word on it.

6. Remove a color cast from an image using Auto Color correction.

7. With the given image, move and duplicate a selection simultaneously.

8. Using layers and color channels, make a collage in Photo Shop.

9. Using the available tools in photo shop and with the help of layers, design an invitation card for your college's fashion program.

10. Create a composition and publish it to the web, create animation sequences and preview the animations in a web browser.

Reference Books:

1. Art & Design in Photoshop, by Steve Caplin, Focal Press Publications.

2. Adobe Photoshop CS4 Classroom in a book, The official training workbook from Adobe Systems, Adobe Systems Incorporated.

3. Corel Draw X4 The Official Guide, by Gary David Bouton, Corel Press Officially endorsed by Corel Corporation.

4. Corel Draw X4 Unleashed, Foster D. Coburn, Premium Bonus Publications.

D.K.T.E.SOCIETY'S TEXTILE & ENGINEERING INSTITUTE, ICHALKARANJI.

Equivalence of subject at First Year B.Text. to Revised Textile Courses.

FIRST YEAR B.TEXT.- T.T. (TEXTILE TECHNOLOGY) SEMESTER-I

SR. NO.	COMMON TO COURSE	PRE-REVISED SUBJECTS	SEM-ESTER	COMMON TO COURSE	REVISED SUBJECTS	SEMESTER
1.	TT/MMTT/TPE/TC/FT	Applied Physics	I	TT/MMTT/TPE/TC/FT	Applied Physics	I
2	TT/MMTT/TPE/TC/FT	Textile Mathematics-I	I	TT/MMTT/TPE/TC/FT	Textile Mathematics-I	I
3.	TT/MMTT/TPE/TC/FT	Electrical Science	I	TT/MMTT/TPE/TC/FT	Electrical Science	I
4.	TT/MMTT/TPE/FT	Textile Fibres	I	TT/MMTT/TPE/FT	Textile Fibres	I
5.	TT/MMTT/TPE	Principles of Yarn Manufacturing-I	I	TT/MMTT/TPE	Principles of Yarn Manufacturing	I

| 6. | TT/MMTT/TPE | Principles of Fabric Manufacturing-I | I | TT/MMTT/TPE | Principles of Fabric Manufacturing | I |
| 7. | TT/MMTT/TPE/TC/FT | Computer Laboratory-I | I | TT/MMTT/FT | Computer Laboratory | I |

FIRST YEAR B.TEXT.- T.T. (TEXTILE TECHNOLOGY) SEMESTER-II

SR. NO.	COMMON TO COURSE	PRE-REVISED SUBJECTS	SEM-ESTER	COMMON TO COURSE	REVISED SUBJECTS	SEMESTER
1.	TT/MMTT/TPE/TC/FT	Applied Mechanics	II	TT/MMTT/TPE/TC/FT	Applied Mechanics	II
2	TT/MMTT/TPE/TC/FT	Textile Mathematics-II	II	TT/MMTT/TPE/TC/FT	Textile Mathematics-II	II
3.	TT/MMTT/TC/FT	Industrial Chemistry for Textiles	II	TT/MMTT/TC	Industrial Chemistry for Textiles	II

4.	TT/MMTT/TPE/TC/FT	Engineering Graphics	II	TT/MMTT/TPE/TC/FT	Engineering Graphics	II
5.	TT/MMTT/TPE	Principles of Yarn Manufacturing–I	II	TT	Yarn Forming Technology-I	II
6.	TT/MMTT/TPE	Principles of Fabric Manufacturing-II	II	TT	Fabric Forming Technology-I	II
7.	TT/MMTT/TPE/TC/FT	Computer Laboratory-II	II	TT/MMTT	Language Laboratory	II

D.K.T.E.SOCIETY'S TEXTILE & ENGINEERING INSTITUTE, ICHALKARANJI.

Equivalence of subject at First Year B.Text. to Revised Textile Courses.

FIRST YEAR B.TEXT.- M.M.T.T. (MAN MADE TEXTILE TECHNOLOGY) SEMESTER-I

SR. NO.	COMMON TO COURSE	PRE-REVISED SUBJECTS	SEM-ESTER	COMMON TO COURSE	REVISED SUBJECTS	SEMESTER
1.	TT/MMTT/TPE/TC/FT	Applied Physics	I	TT/MMTT/TPE/TC/FT	Applied Physics	I
2	TT/MMTT/TPE/TC/FT	Textile Mathematics-I	I	TT/MMTT/TPE/TC/FT	Textile Mathematics-I	I
3.	TT/MMTT/TPE/TC/FT	Electrical Science	I	TT/MMTT/TPE/TC/FT	Electrical Science	I
4.	TT/MMTT/TPE/FT	Textile Fibres	I	TT/MMTT/TPE/FT	Textile Fibres	I
5.	TT/MMTT/TPE	Principles of Yarn Manufacturing–I	I	TT/MMTT/TPE	Principles of Yarn Manufacturing	I
6.	TT/MMTT/TPE	Principles of Fabric Manufacturing-I	I	TT/MMTT/TPE	Principles of Fabric Manufacturing	I
7.	TT/MMTT/TPE/TC/FT	Computer Laboratory-I	I	TT/MMTT/FT	Computer Laboratory	I

FIRST YEAR B.TEXT.- M.M.T.T. (MAN MADE TEXTILE TECHNOLOGY) SEMESTER-II

SR. NO.	COMMON TO COURSE	PRE-REVISED SUBJECTS	SEM-ESTER	COMMON TO COURSE	REVISED SUBJECTS	SEMESTER
1.	TT/MMTT/TPE/TC/FT	Applied Mechanics	II	TT/MMTT/TPE/TC/FT	Applied Mechanics	II
2	TT/MMTT/TPE/TC/FT	Textile Mathematics-II	II	TT/MMTT/TPE/TC/FT	Textile Mathematics-II	II
3.	TT/MMTT/TC/FT	Industrial Chemistry for Textiles	II	TT/MMTT/TC	Industrial Chemistry for Textiles	II
4.	TT/MMTT/TPE/TC/FT	Engineering Graphics	II	TT/MMTT/TPE/TC/FT	Engineering Graphics	II
5.	TT/MMTT/TPE	Principles of Yarn Manufacturing –II	II	MMTT	Man Made Staple Yarn Manufacture-I	II
6.	TT/MMTT/TPE	Principles of Fabric Manufacturing-II	II	TT/MMTT/TPE	Man Made Fabric Manufacture-I	II
7.	TT/MMTT/TPE/TC/FT	Computer Laboratory-II	II	TT/MMTT	Language Laboratory	II

D.K.T.E.SOCIETY'S TEXTILE & ENGINEERING INSTITUTE, ICHALKARANJI.

Equivalence of subject at First Year B.Text. to Revised Textile Courses.

FIRST YEAR B.TEXT.- T.P.E. (TEXTILE PLANT ENGINEERING) SEMESTER-I

SR. NO.	COMMON TO COURSE	PRE-REVISED SUBJECTS	SEM-ESTER	COMMON TO COURSES	REVISED SUBJECTS	SEMESTER
1.	TT/MMTT/TPE/TC/FT	Applied Physics	I	TT/MMTT/TPE/TC/FT	Applied Physics	I
2	TT/MMTT/TPE/TC/FT	Textile Mathematics-I	I	TT/MMTT/TPE/TC/FT	Textile Mathematics-I	I

3.	TT/MMTT/TPE/TC/FT	Electrical Science	I	TT/MMTT/TPE/TC/FT	Electrical Science	I
4.	TT/MMTT/TPE/FT	Textile Fibres	I	TT/MMTT/TPE/FT	Textile Fibres	I
5.	TT/MMTT/TPE	Principles of Yarn Manufacturing –I	I	TT/MMTT/TPE	Principles of Yarn Manufacturing	I
6.	TT/MMTT/TPE	Principles of Fabric Manufacturing-I	I	TT/MMTT/TPE	Principles of Fabric Manufacturing	I
7.	TT/MMTT/TPE/TC/FT	Computer Laboratory-I	I	TPE/TC	Language Laboratory	I

FIRST YEAR B.TEXT.-T.P.E.(TEXTILE PLANT ENGINEERING) SEMESTER-II

SR. NO.	COMMON TO COURSE	PRE-REVISED SUBJECTS	SEM-ESTER	COMMON TO COURSES	REVISED SUBJECTS	SEMESTER
1.	TT/MMTT/TPE/TC/FT	Applied Mechanics	II	TT/MMTT/TPE/TC/FT	Applied Mechanics	II

2	TT/MMTT/TPE/TC/FT	Textile Mathematics-II	II	TT/MMTT/TPE/TC/FT	Textile Mathematics-II	II
3.	TPE	General Engineering	II	TPE	General Engineering	II
4.	TT/MMTT/TPE/TC/FT	Engineering Graphics	II	TT/MMTT/TPE/TC/FT	Engineering Graphics	II
5.	TT/MMTT/TPE	Principles of Yarn Manufacturing –II	II	TPE	Yarn Manufacturing Machinery-I	II
6.	TT/MMTT/TPE	Principles of Fabric Manufacturing-II	II	TPE	Fabric Manufacturing Machinery-I	II
7.	TT/MMTT/TPE/TC/FT	Computer Laboratory-II	II	TPE/TC	Computer Laboratory	II

D.K.T.E.SOCIETY'S TEXTILE & ENGINEERING INSTITUTE, ICHALKARANJI.

Equivalence of subject at First Year B.Text. to Revised Textile Courses.

FIRST YEAR B.TEXT.- T.C. (TEXTILE CHEMISTRY) SEMESTER-I

SR. NO.	COMMON TO COURSE	PRE-REVISED SUBJECTS	SEM- ESTER	COMMON TO COURSE	REVISED SUBJECTS	SEMESTER
1.	TT/MMTT/TPE/TC/FT	Applied Physics	I	TT/MMTT/TPE/TC/FT	Applied Physics	I
2	TT/MMTT/TPE/TC/FT	Textile Mathematics-I	I	TT/MMTT/TPE/TC/FT	Textile Mathematics-I	I
3.	TT/MMTT/TPE/TC/FT	Electrical Science	I	TT/MMTT/TPE/TC/FT	Electrical Science	I
4.	TC	Organic Chemistry-I	I	TC	Organic Chemistry-I	I
5.	TC	Physical Chemistry	I	TC	Physical Chemistry	I
6.	TC	Inorganic Chemistry	I	TC	Inorganic Chemistry	I
7.	TT/MMTT/TPE/TC/FT	Computer Laboratory-I	I	TPE/TC	Language Laboratory	I

FIRST YEAR B.TEXT.- T.C. (TEXTILE CHEMISTRY) SEMESTER-II

SR. NO.	COMMON TO COURSE	PRE-REVISED SUBJECTS	SEM-ESTER	COMMON TO COURSE	REVISED SUBJECTS	SEMESTER
1.	TT/MMTT/TPE/TC/FT	Applied Mechanics	II	TT/MMTT/TPE/TC/FT	Applied Mechanics	II
2	TT/MMTT/TPE/TC/FT	Textile Mathematics-II	II	TT/MMTT/TPE/TC/FT	Textile Mathematics-II	II
3.	TT/MMTT/TC/FT	Industrial Chemistry for Textiles	II	TT/MMTT/TC	Industrial Chemistry for Textiles	II
4.	TT/MMTT/TPE/TC/FT	Engineering Graphics	II	TT/MMTT/TPE/TC/FT	Engineering Graphics	II
5.	TC	Organic Chemistry-II	II	TC	Organic Chemistry-II	II

| 6. | TC | Chemistry of Textile Fibres-I | II | Chemistry of Textile Fibres-I | Inorganic Chemistry | II |
| 7. | TT/MMTT/TPE/TC/FT | Computer Laboratory-II | II | TPE/TC | Computer Laboratory | II |

D.K.T.E.SOCIETY'S TEXTILE & ENGINEERING INSTITUTE, ICHALKARANJI.

Equivalence of subject at First Year B.Text. to Revised Textile Courses.

FIRST YEAR B.TEXT.- F.T. (FASHION TECHNOLOGY) SEMESTER-I

SR. NO.	COMMON TO COURSE	PRE-REVISED SUBJECTS	SEM-ESTER	COMMON TO COURSE	REVISED SUBJECTS	SEMESTER

1.	TT/MMTT/TPE/TC/FT	Applied Physics	I	TT/MMTT/TPE/TC/FT	Applied Physics	I
2	TT/MMTT/TPE/TC/FT	Textile Mathematics-I	I	TT/MMTT/TPE/TC/FT	Textile Mathematics-I	I
3.	TT/MMTT/TPE/TC/FT	Electrical Science	I	TT/MMTT/TPE/TC/FT	Electrical Science	I
4.	TT/MMTT/TPE/FT	Textile Fibres	I	TT/MMTT/TPE/FT	Textile Fibres	I
5.	FT	Communication Skills	I	FT	Communication Skills	I
6.	FT	Introduction to Textile Manufacturing-I	I	FT	Introduction to Textile Manufacturing-I	I
7.	TT/MMTT/TPE/TC/FT	Computer Laboratory-I	I	TT/MM/FT	Computer Laboratory	I

FIRST YEAR B.TEXT.- F.T. (FASHION TECHNOLOGY) SEMESTER-II

SR. NO.	COMMON TO COURSE	PRE-REVISED SUBJECTS	SEM-ESTER	COMMON TO COURSE	REVISED SUBJECTS	SEMESTER
1.	TT/MMTT/TPE/TC/FT	Applied Mechanics	II	TT/MMTT/TPE/TC/FT	Applied Mechanics	II
2	TT/MMTT/TPE/TC/FT	Textile Mathematics-II	II	TT/MMTT/TPE/TC/FT	Textile Mathematics-II	II
3.	TT/MMTT/TC/FT	Industrial Chemistry for Textiles	II	FT	Elements of Fashion Design	II
4.	TT/MMTT/TPE/TC/FT	Engineering Graphics	II	TT/MMTT/TPE/TC/FT	Engineering Graphics	II
5.	FT	Introduction to Textile Manufacturing-II	II	FT	Introduction to Textile Manufacturing-II	II
6.	FT	Testing of Fibres and Yarns	II	FT	Testing of Fibres and Yarns	II
7.	TT/MMTT/TPE/TC/FT	Computer Laboratory-II	II	FT	Advanced Computer Laboratory	II