## ANNA UNIVERSITY OF TECHNOLOGY, COIMBATORE – 47

Faculty of Textile Technology

Regulations 2008

B.Tech. TEXTILE TECHNOLOGY

### SEMESTER – V

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<th>Code No.</th>
<th>Course Title</th>
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### SEMESTER – VI

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### SEMESTER – VII

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## SEMESTER – VIII

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### LIST OF ELECTIVES FOR

**B.Tech. TEXTILE TECHNOLOGY**

- Textured Yarn Technology
- Silk Technology
- Mechanics of Textile Structures
- Fashion art and Design
- Technical Textiles
- Nonwoven Fabrics
- Apparel Product Engineering and Plant Layout
- Textile Machinery Maintenance
- Garment Production Machinery and Equipment
- Apparel Production Control
- Apparel Marketing and Merchandising
- Creativity, Innovation and New Product Development
- Export Documentation & Global Marketing
- Costing of Apparel Products
- CAD / CAM for Apparel Products
- Quality assurance in Chemical Processing
Elective I

  Textured Yarn Technology
  Silk Technology
  Mechanics of Textile Structures

Elective II

  Fashion art and Design
  Technical Textiles
  Computer Application in Textiles

Elective III

  Apparel Product Engineering and Plant Layout
  Textile Machinery Maintenance
  Garment Production Machinery and Equipment

Elective IV

  Apparel Production Control
  Apparel Marketing and Merchandising
  Creativity, Innovation and New Product Development

Elective V

  Export Documentation & Global Marketing
  Costing of Apparel Products
  CAD / CAM for Apparel Products

Elective VI

  Quality assurance in Chemical Processing
  Textile Project Management
  Industrial Safety, Health and Environment
1. **HUMAN VALUES**


2. **ENGINEERING ETHICS**


3. **ENGINEERING AS SOCIAL EXPERIMENTATION**

Engineering as experimentation - engineers as responsible experimenters - codes of ethics - a balanced outlook on law - the challenger case study

4. **SAFETY, RESPONSIBILITIES AND RIGHTS**


5. **GLOBAL ISSUES**

Multinational corporations - Environmental ethics - computer ethics - weapons development - engineers as managers-consulting engineers-engineers as expert witnesses and advisors -moral leadership-sample code of Ethics (Specific to a particular Engineering Discipline).

**TEXT BOOK(S)**


**REFERENCE(S)**


**TOTAL : 45**

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**08 TT 502  KNITTING TECHNOLOGY**

**UNIT I**

UNIT II

UNIT III

UNIT IV
Warp knitting fundamentals, Basic Warp knitted structures, Closed lap and Open lap stitches. Classification of Warp Knitting Machines – Knitting elements of Raschel and Tricot knitting machine, Points of difference between Raschel and Tricot knitting machine. Representation of Warp – Knit structure.

UNIT V
Basic Yarn Properties for Weft and Warp Knitting – Defects in weft and Warp Knitted fabrics, causes and remedies – Test for Weft Knit quality – Knitting Calculations for Weft Knits and Warp Knits.

TOTAL : 45

TEXT BOOK(S)

REFERENCE(S)
UNIT IV  YARN QUALITY CONTROL


UNIT V  PRODUCTION CONTROL


TOTAL : 45

TEXT BOOK(S)


REFERENCE(S)


08 TT 504  FABRIC MANUFACTURE – II  3 0 0 100

UNIT I


UNIT II

Jacquard shedding – Single Lift, Single Cylinder, Double Lift, Single Cylinder, Double Lift, Double Cylinder jacquards, Electronic jacquards - Card Cutting Lasing. Cone overpick, Side leverpick, Cone underpick, Ruti Underpick, swell checking, check straps, hydraulic Swell checking, Check Straps, Hydraulic checking - 4 bar 6 bar linkage, beat up mechanism, crank arm types.

UNIT III

Weaving Accessories -Types and Selection of Heald Wires, Heald Frames, Reeds, Shuttles, Picking Accessories, Drop Wires, Temples. Negative let off and Positive Let off, Five and Seven Wheel take up motions, Continuous take up motion, Loose Reed and Fast Reed Mechanisms, Types of Warp Stop Motions, Multiple Box Motions, Pick at will motion.

UNIT IV

UNIT V

Multiphase looms, quick style changes, Weaving of rotor spun yarns, blended yarns, filament yarns – denim – Warp preparation and weaving of Terry fabrics- Improving productivity

TOTAL : 45

TEXT BOOK(S)


REFERENCE(S)


08 TT 505 TEXTILE CHEMICAL PROCESSING – I 3 0 0 100

UNIT I


UNIT II


UNIT III


UNIT IV


UNIT V

TEXT BOOK(S)

REFERENCE(S)

08 TT 506 TEXTILE QUALITY EVALUATION 3 0 0 100

UNIT I INTRODUCTION

UNIT II STATISTICAL EVALUATION
Measures of central tendency and dispersion, Determination of number of tests, Types of error, Sources of error. Repeatability, Reproducibility.

UNIT III FIBRE QUALITY EVALUATION

UNIT IV YARN QUALITY EVALUATION

UNIT V FABRIC QUALITY EVALUATION

TOTAL : 45

TEXT BOOK(S)

REFERENCE(S)

08 TT 507        FABRIC MANUFACTURE LAB II        0 0 3 100

LIST OF EXPERIMENTS

(Minimum of ten experiments shall be offered)
To study the mechanism, setting & operation of the following loom motions.
Tappet Shedding
Dobby and method of pegging.
Side Weft Fork Mechanism
Loose Reed
Fast Reed
Loom Brake and Clutch Mechanism
4x1 Drop Box Mechanism
4 x 4 Drop Box Mechanism and Pick at will Motion
Positive Let off
Warp Stop Motion
Automatic Pîrn Changing
Centre Weft Fork Motion
Shuttleless Looms

TOTAL = 45

08 TT 508        TEXTILE QUALITY EVALUATION LAB        0 0 3 100

LIST OF EXPERIMENTS

(Minimum of 10 experiments shall be offered)
- Measurement of Fibre Length.
- Measurement of Fibre Strength.
- Measurement of Fibre Fineness.
- Measurement of Fibre Maturity.
- Measurement of Fibre Trash & Lint content.
- Measurement of Fibre Nep content.
- Measurement of Fibre Linear density of sliver, roving and yarn.
- Measurement of single yarn and ply yarn twist.
- Measurement of single yarn strength and Lea strength.
- Measurement of Yarn Evenness.
- Measurement of Yarn Impact Strength.
- Measurement of Fabric thickness, Stiffness and Crease recovery.
- Measurement of Fabric Tensile Strength, Tear strength and Bursting strength.
- Measurement of Colour fastness.
- Measurement of Fabric Drape.
- Measurement of Abrasion Resistance.
- Crimp study, GSM study in Fabric and Fabric engineering.

**TOTAL = 45**

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**08 TT 509**

**TEXTILE CHEMICAL PROCESSING LABORATORY I**

**LIST OF EXPERIMENTS**

(Minimum of Ten Experiments shall be offered)

1. Scouring of cotton fabrics
2. Scouring of cotton fabrics using enzymes
3. Bleaching of cotton using hypochlorite
4. Bleaching of polyester/cotton blend
5. Bleaching of cellulosic fibres using hydrogen peroxide
6. Combined scouring and bleaching of cotton
7. Preparatory processes on other natural fibres (wool and silk)
8. Yarn mercerisation.
10. Assessment of scoured fabric
11. Measurement of whiteness index

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**08 TT 601**

**FABRIC AND GARMENT QUALITY ASSURANCE**

**3 0 0 100**

**UNIT I**


**UNIT II**


UNIT III

UNIT IV

UNIT V

TOTAL : 45

TEXT BOOK(S)

REFERENCE(S)
2. Sammel Eliou ,“Production Planning & Control”, Wiley Eastern Pvt. Ltd

08 TT 602 TEXTILE CHEMICAL PROCESSING-II 3 0 0 100

UNIT I

UNIT II

UNIT III

Page.11
Crease resist finish - Cross linking agents - Nitrogenous and Non nitrogenous resins - Properties and uses - Wash-n-wear, Durable press finish.
Water proof and repellent finishes for cotton and synthetics, Flame resistance finishes for cellulosics and blends. Anti microbial finishes, Insect-Resist finishes, Softeners
Finishing of knits, garment processing: value added finishing of garments.

UNIT IV
Techniques for Effluent treatment – chlorine trioxide treatment, ozone treatments, reverse osmosis, enzymatic decolourisation. Concepts of ISO 14000

UNIT V

TOTAL : 45

TEXT BOOK(S)

REFERENCE(S)

08 TT 603 GARMEN TECHNOLOGY 3 0 0 100

UNIT I
Apparel industry in India, domestic industry, size of the industry, nature of the industry, its developments in recent years. Definition of merchandising – functions of merchandising division – Role and responsibilities of a Merchandiser — awareness of current market trends – product development-line planning – line presentation.
Need for sourcing- sourcing materials- manufacturing resources planning –Overseas sourcing – sourcing strategies.

UNIT II

UNIT III
UNIT IV

Sewing machine fundamentals, classification – stitch forming mechanism – needles – feeding system.
Sewing threads – functions of sewing thread – characteristics of threads – Thread size – ticket number.
Types of Plackets, Cuff, Pockets.

UNIT V

Trims – Types and sources of Trims – Knit Trims, Embroidery – Lace – Labels- Materials styles and application methods.

TEXT BOOK(S)


REFERENCE(S)


08 TT 604 WOVEN FABRIC STRUCTURE 3 0 0 100

UNIT I

Twill and derivatives, Satin – Sateen and derivatives; Ordinary and Brighten Honey Comb, Huck-a-Back and modification. Mock Leno – Distorted Mock leno – Crepe weaves.

UNIT II


UNIT III

UNIT IV

Double cloth: Classification – types of stitches-wadded double cloth – warp and weft wadded double cloth – centre warp and weft stitched double cloth.

UNIT V


TOTAL: 45

TEXT BOOK(S)


REFERENCE(S)


08 TT 607  KNITTING & GARMENT LAB  0 0 3 100

LIST OF EXPERIMENTS

(Minimum of Ten Experiments shall be offered)

To study the working Principle of Flat & Circular Welt Knitting machines
To study the features of various types of Knitting needles
Setting of various machine parameters on Circular Knitting machine
Setting of various machine parameters on Flat Knitting machine
Preparing samples for different types of basic hand stitches
Preparing samples for different types of seams and seam finishes
Developing patterns for children’s wear
Developing patterns for women’s wear
Developing patterns for men’s wear
Development of different embroidery designs – hand and sewing machine

08 TT 608  CLOTH ANALYSIS LAB  0 0 3 100

LIST OF EXPERIMENTS

(Minimum of Ten Experiments shall be offered with different weaves)

Construction Details – Design, Draft, Peg Plan, Warp and Weft particulars and Loom requirements and Knitting machine particulars for the following.
- Plain / Twill / Satin / Sateen Weaves.
- Honey comb weave.
- Hack-a-Back weave.
- Extra Warp / Extra Weft figuring
- Pile Fabrics (Warp & Weft)
- Welts and Piques.
- Backed Fabrics.
- Gauze and Leno.
- Double cloths.
- Crepe.
- Mock Leno.
- Bedford cords.
- Tapestry

**08 TT 609  TEXTILE CHEMICAL PROCESSING LAB II**

**LIST OF EXPERIMENTS**

(Minimum of Ten Experiments shall be offered)

1. Dyeing of cotton / viscose yarns using direct dyes
2. Dyeing of cotton yarn using vat dyes
3. Dyeing of cotton yarn using reactive dyes
4. Dyeing of cotton fabric with reactive dyes pad-batch methods
5. Dyeing of cotton using naphthol dyes
6. Dyeing of polyester using carrier
7. Dyeing of polyester / cotton blends
8. Dyeing of polyester / viscose blends
9. Dyeing of polyester / wool blends
10. Dyeing of silk, wool with acid, reactive dyes

Total: 45 Hrs.
08 MG 701    PRINCIPLES OF MANAGEMENT  3 0 0 100

1.  HISTORICAL DEVELOPMENT  9

2.  PLANNING  9

3.  ORGANISING  9

4.  DIRECTING  9

5.  CONTROLLING  9

TOTAL : 45

TEXT BOOK(S)

REFERENCE(S)

07 TT 702    DISASTER MANAGEMENT  3 0 0 100

UNIT I: INTRODUCTION  9
UNIT II: DISASTER MANAGEMENT AND RISK REDUCTION IN TEXTILE INDUSTRIES

Types of disasters and disaster plans: Processing machines and utilities. Sustainable livelihoods and their Protection – Recovery from disaster –fire, boiler mishap. Textiles health monitoring and Disaster aids.

UNIT III: AWARENESS OF RISK REDUCTION

Trigger mechanism – constitution of trigger mechanism – risk reduction by education – disaster information network – risk reduction by public awareness

UNIT IV: DEVELOPMENT PLANNING ON DISASTER

Implication of development planning – financial arrangements – areas of improvement – disaster preparedness – community based disaster management – emergency response.

UNIT V: SEISMICITY

Seismic waves – Earthquakes and faults – measures of an earthquake, magnitude and intensity – ground damage – Tsunamis and earthquakes

TOTAL: 45 Hours

TEXT BOOK(S)
1. Pardeep Sahni, Madhavi malalgoda and ariyabandu, “Disaster risk reduction in south Asia”, PHI

REFERENCE BOOK(S)
1. Pardeep sahni, Alka Dhameja and Uma medury, “Disaster mitigation: Experiences and reflections”, PHI

08 TT 703 TEXTILE MECHANICS 3 0 0 100

UNIT I

Belts and Rope Drives
Speed Ratio – Centrifugal tension condition for maximum power transmission and speed – PIV drives – Electro Magnetic Drives.

Gears
Nomenclature-Velocity Ratio-Speed calculations- Epicyclic gear trains – speed ratio of differential motion.

UNIT II

Scutcher cone drum profile design and construction. Flyframe cone drum profile design and construction.
Different types of cams used in Textile machines – Design of Ring frame builder motion cam- Plain and Twill cams for roller followers in looms.

UNIT III

Equations of motion

UNIT IV

Kinetic and potential energy calculation the Textile application – Principles of moments-Scutcher, calender roller – Ring frame Top arm loading – Forces in heald reversing system.

UNIT V

Friction:
Static, Dynamic and Coil friction – Coefficient of friction – Frictional force and power – Warp tension calculation.
Clutches:
Single plate – Multiple plate – Cone Clutches, Band and block Brakes – Internal expanding shoe Brakes –
Sley displacement – eccentricity relation with crank radius and connecting arm length – velocity –
Acceleration – Beat-up force.

TEXT BOOK(S)

REFERENCE(S)
   York, 1969.

08 TT 704 COMPUTER APPLICATIONS IN TEXTILES 3 0 0 100

UNIT I
Introduction: Basic architecture and functions of different components of computers- Automatic textile
control system-Online electronic controls in textile machines - Various microprocessors used in textiles -
Various sensors used in textile industry.

UNIT II
Role of Computer Systems on Fiber and Yarn Production: Online monitoring of machine and process
performance in manmade fiber production, cotton blending, opening and cleaning. – online nep monitoring
in cards. Working of openloop and closed loop autolevellers in modern drawframe. Principle of operation
of Ring Data & Ring - i systems on ringframe.

UNIT III
Role of Computers Systems in Fabric and Apparel Production: Basics of online monitoring of machine
and process performance at different stages of fabric production- Computerised yarn clearing on modern
winding machines. –Online process control systems in sizing process. – Online monitoring of loom
working. – Loom –i and Mill-i systems. Scope for application of computers to the process of textile
chemical processing-Computer colour matching for textiles – Introduction to Computer aided Textile and
Garment designing. Computer aided embroidery machines .Basic features of various software.

UNIT IV
Role of Computer Systems in Quality Control: BIAS software for control of cotton mixing cost- EFS-
computers in fiber testing instruments- HVI & AFIS. Computerised yarn & fabric quality evaluation-
Basics of UT5, SIROS, OASYS & Uster Fabric scan.- Introduction to ANN and Image processing
Technique with reference to textile industry.

UNIT V
Role of Computers in Textile Business: Identification of areas for the application of computers in finance,
accounts, marketing and human resource management in textile business. E-Commerce in textiles. Robotics
in textile industry. MIS, production planning & ERP in textiles.

Total: 45 Hrs.

TEXT BOOK(S)
REFERENCE(S)


08 TT 707  PRODUCTION PROCESS LAB  0 0 3 100

LIST OF EXPERIMENTS
(Minimum of 10 experiments shall be offered)

1. Studies on determination of cylinder load and transfer efficiency in carding
2. Studies on influence of process variables on ring-spun yarn quality
3. Studies on productivity improvement in ring spinning
4. Studies on influence of process variables on rotor-spun yarn quality
5. Studies on productivity improvement in rotor spinning
6. Studies on influence of process variables on siro-spun and siro-fil yarns
7. Studies on production of mélange yarns
8. Studies of production of core-spun yarns
9. Studies on influence of process important variables on air-jet-spun yarn quality
10. Studies on influence of important process variables on friction-spun yarn quality
12. Studies on production of defect free pirns with cotton, pc bended and polyester filament yarns
13. Study on troubleshooting in warping and sizing
14. Studies on manufacturing of special fabrics – denims and fabrics for technical textiles
15. Studies on productivity improvement in weaving
16. Studies on various techniques for effluent treatment
17. Studies on influence of enzymes textile chemical processing
18. Studies on garment washing process
19. Studies on effect of aesthetic and functional finishes on woven fabrics
20. Studies on effect of aesthetic and functional finishes on knitted fabrics

TOTAL: 45

08 TT 708  INPLANT TRAINING

At the end of the sixth semester each student should under go in-plant training in Textile industry. The total training period should not be less than 2 Weeks. Students have to submit a detailed report before the seventh semester examination.

08 TT 709  PROJECT WORK (PHASE I)

Identification of a real life problem in thrust areas
Developing a mathematical model for solving the above problem
Finalisation of system requirements and specification
Proposing different solutions for the problem based on literature survey
Future trends in providing alternate solutions
Consolidated report preparation of the above
1. INTRODUCTION
Definition of Quality, Dimensions of Quality, Quality Planning, Quality costs - Analysis Techniques for Quality Costs, Basic concepts of Total Quality Management, Historical Review, Principles of TQM, Leadership – Concepts, Role of Senior Management, Quality Council, Quality Statements, Strategic Planning, Deming Philosophy, Barriers to TQM Implementation.

2. TQM PRINCIPLES

3. STATISTICAL PROCESS CONTROL (SPC)
The seven tools of quality, Statistical Fundamentals – Measures of central Tendency and Dispersion, Population and Sample, Normal Curve, Control Charts for variables and attributes, Process capability, Concept of six sigma, New seven Management tools.

4. TQM TOOLS

5. QUALITY SYSTEMS

TOTAL: 45

TEXT BOOK(S)

REFERENCE(S)
The project involves the following:

Preparing a project - brief proposal including

- Problem Identification
  - A statement of system / process specifications proposed to be developed (Block Diagram / Concept tree)
- List of possible solutions including alternatives and constraints
- Cost benefit analysis
- Time Line of activities

A report highlighting the design finalization [based on functional requirements & standards (if any)]

A presentation including the following:

- Implementation Phase (Hardware / Software / both)
- Testing & Validation of the developed system
- Learning in the Project

Consolidated report preparation
UNIT I
Need for bulking of synthetic fibres – texturing – basic definition and classifications – developments in high speed spinning – POY.

UNIT II

UNIT III

UNIT IV
Basics of air jet texturing – types of yarns produced – feed material structure and properties of air-jet texturing machines, nozzles, evaluation of air-jet textured yarn vis-à-vis spun and filament false twist textured yarns.

UNIT V
Stuffer box and edge crimping methods – principles, limitations, and applications – knit-de-knit and gear crimping methods. Bi-component filament texturing – texturing of polypropylene and jute fibres – Chemo-mechanical and thermo-mechanical texturing.

TEXTBOOKS

REFERENCE(S)

UNIT I
Overview of the silk industry and the features of silk, Present day silk industry, Varieties of silk. Mulberry leaf varieties and production, Biology of the silkworm, Silkworm rearing, Harvesting. Characteristics of the cocoon – Physical characteristics, Composition of the cocoon, Properties of silk. Cocoon quality, Factors influencing cocoon quality, Classification of cocoons, Cocoon testing and grading.
UNIT II


UNIT III

Re-reeling and Finishing: Re-reeling, Re-reeling machine and apparatus, How to re-reel raw silk, Re-reeling efficiency, Silk end tying and skein lacing, Booking and packing, Storage of silk. Factory Planning: Annual requirement of cocoons, Equipment for installation, Location and space, Quality and quantity of filature water, Selection of proper machinery.

UNIT IV


UNIT V


TOTAL : 45

TEXT BOOK


REFERENCE(S)


08 TT 003 MECHANICS OF TEXTILE STRUCTURES 3 0 0 100

UNIT I YARN GEOMETRY


UNIT II FIBRE MIGRATION


UNIT III MECHANICS OF STAPLE FIBRE YARNS

UNIT IV MECHANICS OF FILAMENT YARNS

Theory of extension of continuous filament yarns, Analysis of tensile forces, Stress-strain relations of the filaments, Effects of large extensions, Filament behaviour at large extensions, Prediction of breakage, Load-Extension curve near break, Tenacity, Breaking extension, Initial modulus, Work of rupture.

UNIT V FABRIC GEOMETRY AND DEFORMATION


TOTAL: 45

TEXTBOOK(S)


REFERENCE(S)


08 TT 004 FASHION ART AND DESIGN

UNIT I

Origin of clothing – Grouping of dress out of painting, cutting and other methods. Role of costumes as a status symbol, sex appeal, Fashion and seasons. Costumes of ancient civilizations - Egypt, Greece, Roman, English, French empires during Renaissance 1500 - 1600 AD.

UNIT II

Costumes of India. History of Indian costumes up to Mughal period, History of Indian costumes post Mughal period. Traditional costumes of different states. Factors influencing costumes changes in India – Accessories and Garments used in India. Costumes of Pakistan, Srilanka, Burma, China and Japan.

UNIT III


UNIT IV

UNIT V

Study of Dacca Muslin, Jamdhani, Himrus & Amrus, carpets, Kashmir shawls, Kancheepuram and Baluchari saris, Paithani saris, Bandhani, Patola, Ikkat, Kalamkari & other styles of printing and dyeing textiles. Factors determining changes in costumes from period to period.

TEXT BOOK(S)

1. Russel Gillow, Nicholas Barnard, “Traditional Indian Textiles”, Thames and Hudson Ltd.

REFERENCE(S)


UNIT I

Technical Textiles – An Overview: Definition and scope of technical textiles, Milestones in the development of technical textiles, Textile processes, applications, Globalization of technical textiles, Future of the technical textiles industry.

Technical Fibres: Introduction, High strength and high modulus organic fibres, High chemical- and combustion-resistant organic fibres, High performance inorganic fibres, Ultra-fine and novelty fibres, Fibres used in Civil and agricultural engineering, Automotive and aeronautics, Medical and hygiene applications, Protection and defence applications.

UNIT II


UNIT III


UNIT IV

UNIT V 9


TOTAL : 45

TEXT BOOK(S)

REFERENCE(S)

08 TT 006 NONWOVEN FABRICS 3 0 0 100

UNIT I 9
Introduction: Definitions and classification of nonwoven fabrics. Historical development, Fibres used, Production and Sales, Raw Materials used for making nonwovens.

UNIT II 9
Web forming: Methods of making the spun fibre web using carding machines – parallel laying, cross laying, air laying and wet laying. Webs manufactured from filaments.

UNIT III 9

UNIT IV 9
Finishing and End Uses: Dry finishing and wet finishing of nonwoven fabrics, Various end uses of nonwoven fabrics made from different fabrics such as spunlaced, meltblown and spunbond techniques.

UNIT V 9
Testing: Methods of testing raw materials for nonwovens and nonwoven fabrics. Testing of fibres and bonding agents, Testing characteristics for specific uses such as clothing/shoes, home furnishing textiles, household, bed and table linen, medical textiles and technical textiles.

TOTAL : 45

TEXT BOOK(S)

REFERENCE(S)
UNIT I     PRODUCT ANALYSIS
Relationship between quality and construction of a sewn product, geometric principles of draping, drafting and industrial patterns product specifications.

UNIT II     PRODUCTION CONTROL AND ENGINEERING
Industrial engineering concepts-development and application of standard data for pre-costing and factory scheduling-basic production systems - production control charts. Manufacturing information system: systems and procedures.

UNIT III     PRODUCTION MANAGEMENT ANALYSIS
Analysis of techniques for material utilization and cutting of raw materials for all types of sewn products, principles and methods of costing, evaluation of equipment for examining, spreading, cutting, marking and ticketing - solution of production problems in spreading, cutting and cost control.

UNIT IV     PLANT LAYOUT
Definition-Types of production layout, criteria for evaluation of a plant layout, determining minimum space requirement, calculation grid, plant size location, basic production line layout, Government regulations for plant layout.

UNIT V     TIME AND MOTION STUDY
General approach for making a time and motion study, preliminary data for time and motion study sheet, sewing work study, principles of work cycle timing methods, objectives of time study, statistical approaches – statistical calculation of time study. Operator efficiency distributions. Evaluating motion study data principles for improving sewing and pressing operations.

TEXT BOOK(S)

REFERENCE(S)

UNIT I
UNIT II

UNIT III

UNIT IV

UNIT V

TOTAL : 45

TEXTBOOK(S)

REFERENCE(S)

08 TT 009 GARMENT PRODUCTION MACHINERY AND EQUIPMENT  3 0 0 100

UNIT I
Introduction to spreading machines and cutting machines – types and functions. History of sewing machines and development. Sewing machinery – classification according to bed types, stitch types (hook or looper), material wise (extra light to heavy weight).

UNIT II
Major parts of sewing machinery and functions. Adjustment of major parts of single needle lock stitch machine: Non-UBT: stand height, pedal, presser foot, height of needle bar, needle to hook relationship, height of feed dog, normal and reverse feed stitch length, feed timing, presser foot pressure, needle and bobbin thread tension, bobbin winding assembly, belt tension. Sewing machine safety regulations.
UNIT III
Sewing needle and sewing thread, thread consumption, thread routing. Adjustment on SNLS – UBT: Needle stop position, wiper, thread timing sequence, timing of thread trimmer cam, positioning the moving knife, installation, sharpening, replacing moving knives, adjusting the floating amount of the auxiliary tension disk.

UNIT IV
Parts, functions and adjustments of over lock: Needle height, feed dog height, differential feed ratio, tilt of the feed dog, position of the upper and lower knives, sharpening of knife and loopers, trouble shooting in over lock.

UNIT V
Work-aids and attachments, functions of pullers, guides and folders compensating presser foots- left, right, double; feller, hemmer, etc. Collar turning machines, folding machinery, fusing and pressing machinery. Computer controlled cutting, sewing and folding machinery.

TOTAL : 45

TEXT BOOK(S)

REFERENCE(S)

08 TT 010 APPAREL PRODUCTION CONTROL 3 0 0 100

UNIT I

UNIT II
Operation sequence development: Garment breakdown with machine and attachment details, development of production grid for garment construction, development of production flowchart.

UNIT III
Bundle tickets: Guidelines for bundle ticket design, functions of bundle tickets, bundle ticket control. Different manufacturing systems: Make through and Assembly line manufacturing - advantages and disadvantages. Lay lot planning: Numerical exercises on lay lot planning to optimize cutting cost, bundling, ticketing and cutting room control formats.
UNIT IV
Production planning and control: Capacity calculation for cutting, sewing and finishing. Determination of machine requirements for new factory. Line balancing: determination and allocation of manpower, machine for balanced production in existing plant for a given target.

UNIT V
Quality in product development: Quality assurance during product development – methods to avoid problems during pattern making, garment construction and other areas. Inspection procedures. Work-study in garment industry – methods to control time and cost.

TEXTBOOK(S)

REFERENCE(S)

08 TT 011 APPAREL MARKETING AND MERCHANDISING

UNIT I
Organization of the Apparel Business:
Introduction to apparel industry – Organization of the apparel industry – Types of exporters – Business concepts applied to the apparel industry International trade.

UNIT II

UNIT III

UNIT IV

UNIT V
Documentation: Order confirmation, various types of export documents, pre-shipment post-shipment documentation, terms of sale, payment, shipment, etc. Export incentives: Duty drawback, DEPB, I /E license-exchange control regulation- foreign exchange regulation acts-export management risk-export finance. WTO / GATT / MFA – functions and objectives, successes and failures.
TEXTBOOK(S):

REFERENCES:

UNIT I INTRODUCTION
The process of technological innovation - factors contributing to successful technological innovation - the need for creativity and innovation - creativity and problem solving - brain storming - different techniques.

UNIT II PROJECT SELECTION AND EVALUATION
Collection of ideas and purpose of project - Selection criteria - screening ideas for new products (evaluation techniques).

UNIT III NEW PRODUCT DEVELOPMENT

UNIT IV NEW PRODUCT PLANNING
Design of prototype - testing - quality standards - marketing research - introducing new products.

UNIT V

TEXTBOOK(S)

REFERENCE(S)
UNIT I
Export credit - short term, anticipatory letter of credit, and packing of credit. Negotiation of bills, source of short-term credit, medium-term and long-term export credits, methods, roll of terms of payment in international marketing. Factors responsible for counter trade growth.

UNIT II

UNIT III
Balance of payment, deficit in balance of payment, debits & credits, foreign exchange market, commercial bank credit for export trade

UNIT IV
Standard policies - Indian trade police, India's foreign trade policy, exports and imports policy.

UNIT V
Major documents for exports – International codes for products and services – principal documents, auxiliary documents, documents for claming export assistance.

TOTAL: 45

TEXT BOOK(S)

REFERENCE(S)

UNIT I
Introduction to costing, Aims of costing, Types of costing, Aims of estimation, Difference between Estimation and Costing, Types of estimates.

UNIT II
UNIT III

UNIT IV

UNIT V

TOTAL: 45

TEXT BOOK(S)

REFERENCE(S)

08 TT 015 CAD / CAM FOR APPAREL PRODUCTS 3 0 0 100

UNIT I
Introduction to computer - Concepts of CAD / CAM. CAM in garment manufacturing. Complete pattern design system in preparation for grading, marker making and pattern manipulation.

UNIT II
Computerized production pattern making - Hardware, software and system programming to produce a sample production pattern. Computer aided manipulation of pattern pieces to create individual styles. Operation of garment CAD software. Computer used for purchase, inventory control and sales, computerization in quality control and production control. Computer aided production planning in garment manufacturing.

UNIT III
Introduction to finite scheduling concept and fast react software. Creating product and order planning, updating. Eliminate late deliveries – General set up, allowances and matrices – Analyzing loan balancing in different departments – control mechanisms – critical path and timetables.

UNIT IV
Computer controlled machinery for garment manufacturing – automated layout planning by various techniques – Algorithm for computer production garment parts – intelligent systems – 3D scanning technology. Use of microcomputers for production control in garment industry. Imaging techniques for various designs. Development of robotics for CAM.
UNIT V

Management Information System in garment industry – EDI in garment technology. Concept of Enterprise Resource Planning (ERP) and computerization in exports / documentation.

TOTAL: 45

TEXTBOOK(S)


REFERENCE(S)


08 TT 016 QUALITY ASSURANCE IN CHEMICAL PROCESSING 3 0 0 100

UNIT I 9


UNIT II 9

Determination of impurities of natural and man made fibres – cotton; wax content, ash content, colouring matter, Silk – Degumming – Wool percentage of vegetable impurities, oils and greases. Synthetic materials – fibre finishes.

UNIT III 9

Evaluation of bleaching – degree of whiteness, change in mechanical properties, presence of carboxyl groups and aldehyde groups, fluidity, ash content, uniformity of grey preparation. Evaluation of mercerisation – deconvolution count, lustre, change in mechanical properties, barium activity number, change in dye absorbency.

UNIT IV 9

Quality evaluation of dyed / printed materials, colour fastness to washing, light, crock (dry and wet), perspiration, bleaching, sublimation, uniformity of dyeing, shade matching.
Quality evaluation of finished fabric for waterreppellancy, air permeability, stiffness, crease, flame resistance, anti static and soil release.

UNIT V 9

Brief introduction to testing instruments for above methods and quality standards, ISO, AATCC

TEXTBOOK(S)


REFERENCE(S)

2. Norms for the Textile Industry (Chemical Processing), 2000 ATIRA, BTRA, SITRA, NITRA

TOTAL: 45

Name of University is Coimbatore Institute of Technology - Choose Study Program, Compare Tuition And Fees and Apply Online to Coimbatore Institute of Technology. The V. Rangasamy Naidu Educational Trust devoted to the cause of promoting technical and scientific literacy, established Coimbatore Institute of Technology (CIT) in 1956. CIT is one of the most reputed institutions in India and has 64 Chats online with university admissions officers on official pages of Universities. Study costs start from $366. When applying for admission to Coimbatore Institute of Technology in India, you should prepare all required documents. Request a list of necessary documents directly from a university, as it may vary for different countries.

Anna University Regional Campus, Coimbatore, previously Anna University, Coimbatore and Anna University of Technology, Coimbatore, is a regional campus of Anna University. It offers more than 40 degree programmes through its Distance Education Arm Directorate of Online and Distance Education. It was established in 2007. Anna University, Coimbatore was established on 1 February 2007 as a result of a decision to split Anna University into six universities, namely, Anna University, Chennai, Anna The Regional Campus Coimbatore of Anna University was established during 2012. It offers higher education in Engineering and Technology. Located in an Arcadian environment and away from the hustle and bustle crowd of the city. The Regional Campus Coimbatore is equipped with excellent infrastructure and highly qualified members of faculty, who facilitate hands on experience to students to master their skills in various disciplines.

Anna University Coimbatore UG Programs: S.No. Courses offered. Anna University regional campus Coimbatore placements criteria is growing its reach with each succeeding year for the sake of campus placements as the department strives to offer 100% placement and skill development training for self-employment. Thus, all the students were continuously trained for soft skills, industrial skills and other necessary skills.