NOTIFICATION

No. 63 /2022 Date : 18/06/2022

Subject : Implementation of new Syllabi of Semester VII & VIII of Bachelor of Textile Engineering (C.B.C.S.) as per A.I.C.T.E. Model Curriculum…

It is notified for general information of all concerned that the authorities of the University have accepted to implement new Syllabi of Semester VII & VIII of Bachelor of Textile Engineering (C.B.C.S.) as per A.I.C.T.E. Model Curriculum to be implemented from the academic session 2022-23 onwards as per ñ**Appendix – A**ò as given below:

Sd/-
(Dr.T.R.Deshmukh)
Registrar

ñ**Appendix A**ò

SYLLABUS OF B.TEXT.ENGG.SEM. VII AND VIII (C.B.C.S.)

SEMESTER SEVENTH

7TX01 KNITTING TECHNOLOGY

Course objectives:

1. To gain basic knowledge about various knitting techniques
2. To understand various loops formation process and mechanisms of knitting machines.
3. To analyze key parameters of warp and weft knitting process

Course outcomes:

After the completion of this course, students will able to:

1. Demonstrate basic knowledge of knitting process
2. Distinguish the types of stitches in weft knitted fabrics
3. Explain the working of various knitting elements
4. Evaluate the forces acting during knitting process
5. Distinguish the types of stitches in warp knit structures
6. Interpret the various factors affecting behaviour of knitted structure

SECTION - A

UNIT-I: Knitting: - History of knitting, types of knitting, difference between woven and knitted fabric, comparison of warp and weft knitting. Terms and definitions used in knitting. Types and specification of needles: spring beard, latch, compound, knitting cycle of latch, spring bearded and compound needle. Classification of knitting machines and their application, yarn quality requirements for weft knitting process.

UNIT-II: Circular Knitting machine: - Cylinder, knitting cam, sinker, feeder, stop motions. Knitting cycle of plain, rib and interlock knitted structure. Basic principles and elements of flat knitting machines, different types of flat knitting machines, various zones of knitting machines, yarn supply arrangement, loop forming arrangement and fabric take down mechanism

UNIT-III: Weft knit structures: -Technical face and back, terms and symbolic representation of weft knit structures, anatomy of loop-stitch, cross-over points, characteristics of plain, rib, interlock and purl knit structures. Needle and cam arrangement for knit, miss, and float.

SECTION - B

UNIT-IV: Fundamentals of knit formation viz. tuck, float stitches. Derivatives of weft knit structures viz. lacoste, accordion and check effect etc.
Knitting dynamics: introduction to forces acting on needle, cams, and needle breakages. Types of tension devices, positive feeders and stop motions. Concept of seamless knitting

UNIT-V: Warp knitting: - Principle, construction of warp knitted fabrics, warp beams and guide bar.
Warp knit structure: - Underlap, overlap, closed lap and open lap stitches.
Warp knitting machine- Classification, knitting elements and cycle on tricot machine and raschel machine, difference between tricot and raschel machine. Applications of warp knitted fabrics.

UNIT-VI: Structure of knitted fabric: - Design of dimensional parameters of knitted fabric such as stitch length, WPI, CPI, stitch density, GSM and tightness factor. Knitted fabric relaxation, problem of knitted structure instability, asymmetry of plain loop. Curling and spirality in knitted fabric. Production calculations of knitting machines. Faults in knitted fabrics, their causes and remedies.

Reference Books:

1. W. B. Azagoankar, ñKnitting Technologyò, Mahajan Textile Publishers.
2. David J.Spencer, ñKnitting Technologyò, Wood Head Publishing Company, England.
3. S.C. Ray, Fundamentals and Advances in Knitting Technologyȝ Woodhead Publishing.
4. C. Mazza and P. Zonda, ĂKnitting: Reference Book of Textile Technologiesȝ
5. J.E. Booth, Textile Mathematicsȝ Vol. ï 3, Textile Institute, Manchester.
6. NPTEL ï Knitting Technology

7TX02 TEXTILE MATHEMATICS

Course Objectives:

1. To analyze numericals related to spinning machines
2. To evaluate weaving machine performance
3. To evaluate woven structure by numerical methods

Course Outcomes:

After completion of this course, the students will be able to,

1. Solve numericals related to fibre dimensions, trash and lint content
2. Analyze blow room, card, draw frame and comber machine performances
3. Discuss the calculations related to speed and ring frames
4. Demonstrate the winding calculations
5. Solve the warping, sizing and weft winding calculations
6. Solve fabric structure and weaving mechanism related numericals

SECTION – A

Unit -I: Calculations Based on Fibre:-Introduction, fibre Dimension, tensile strength, work of rupture. Trash and lint Content of cotton, oils, fats, sizes and resins in fibre samples. Qualitative analysis of fibre mixture.

Unit-II : Calculations Based on Spinning Preparatory:-Opening and Cleaning, gearing and drafting calculations on carding, draw frame, draft in Combing machines, production calculations of card, draw frame and comber.

Unit –III : Calculations based on Speed Frame and Ring Frame:- Draft and twist calculations , yarn dimensions,calculation of conversion multipliers and constants, calculations involving yarn diameter, twist in yarn, irregularity, Gear calculations.

SECTION - B

Unit-IV: Calculations Based on Winding:- Introduction, winding rate, traverse ratio, cone winding, yarn tension, tensioning devices, yarn clearing and clearing devices.

Unit-V: Calculations Based on Weaving Preparatory:- section build on the warping drum, sizing calculations, weft preparation- calculations based on weft consumption, pirn dimension and build.

Unit-VI: Calculations Based on Fabrics:- calculations related to take up and crimp, fabric areal density, fabric cover, loom speed, shedding and picking, beat-up, warp let off and take up. Reed calculations loom efficiency and production calculations.

Reference Books:

1. Textile Mathematics, vol.1by J.E Booth
2. Textile Mathematics, vol.2by J.E Booth
3. Textile Mathematics, vol. 3 by J.E Booth
4. Mechanics and Calculations of Textile Machinery by N Gokarneshan, B. Varadarajan and C.B. Senthil Kumar

7TX03 PROJECT MANAGEMENT

Course Objectives:

1. To understand the phases of project management
2. To analyze the techno-economics of project
3. To gain knowledge about resource planning and scheduling

Course Outcomes:

After completion of this course, the students will be able to:

1. Explain various phases of project management
2. Understand the techno-economic feasibility analysis
3. Interpret the project on the basis of risk and return
4. Explain the scheduling of project activities
5. Understand about industrial pollution
6. Analyze the site selection and layout selection

SECTION-A

Unit-I : Project:- Meaning, concept, types. Project Life Cycle. Generation of project ideas. Project selection process.

Unit-II : Project Feasibility Analysis:- Market analysis-Demand forecasting, various methods. Technical analysis. Financial Analysis. Means of Financing. Capital budgeting.

Unit-III : Project Appraisal :- Appraisal criteria- Time value of money, ROI, Financial projections, Analysis of risk. Social appraisals of project-Social cost benefit analysis.

SECTION-B

Unit-IV : Resource Planning and Scheduling:- Networking- CPM, PERT, Project Monitoring and Control: Importance, objective

Unit-V : Environmental Appraisal of Projects:- Meaning of environment and pollution, pollution created by different industries, Methods of preventing pollution.

Unit- VI: Textile Plant Layout:- Factors governing site selection for textile industry. Kinds of layout their advantages and disadvantages, effect of automation on plant layout, advantages of a good layout, symptoms of bad layout.

Reference Books:

1. Project Management-A Managerial Approach by J. R. Meredith and S. J. Mantel Jr., John Wiley and Sons, Inc.
2. Projects: Planning Analysis, Financing, Implementation, and Review by P. Chandra, McGraw-Hill Education.
3. Project Management by S. Chaudhari, Tata McGraw Hill, New Delhi.
4. Project Management by B. M. Patel, Vikas publishing House pvt. Ltd., New Delhi
5. Environmental Management by M. K. Oberoi, Excel Books, New Delhi

7TX04 APPLIED ELECTRONICS AND CONTROL SYSTEMS

Course Objectives:

1. To gain knowledge of operations and applications of semiconductor devices
2. To gain knowledge of digital circuits, microprocessor, microcontroller and PLC
3. To understand the operation of photoelectric devices and transducers
4. To understand the applications of control systems in textile industry

Course Outcomes:

After completion of this course, the students will be able to:

1. Describe the fundamentals of diode and its applications in rectifier.
2. Discuss the working of BJT, Oscillator and Multivibrators.
3. Construct basic logic gates and digital circuits.
4. Explain working principle of photoelectric device, different types of sensors and transducers.
5. Understand the working of microprocessor, microcontroller and PLC.
6. Apply the knowledge of control system in textile applications.

SECTION - A

Unit- I : P-N junction diode and application:- Types of materials:- conductors, insulators and semiconductors, P-Type and N-type semiconductors, P-N junction diode principle. Diode as rectifier, Full wave rectifiers, Zener diode and its use as regulator. Introduction to semiconductor devices like FET, UJT, SCR, DIAC, TRIAC and their basic principles and working.

Unit- II : Transistor:- Principles, PNP, NPN Transistor, its use as amplifier (CE mode only), oscillators (Heartley, colpitt, phase shift and wien bridge), multivibrators using transistor (Astable, monostable and bistable)

Unit- III : Digital Circuits:- Study of logic gates (7400 series) flip-flops, study of basic digital counters (Asynchronous and synchronous), shift register, ADC/DAC.

SECTION- B

Unit-IV : Photoelectric Devices and Transducers :- LDR, LED, photodiode, photo transistors, photoelectric relay, LCD, 7 Segment display. Transducers : Types of transducers active, passive and primary, secondary, electrical and non-electrical, capacitive transducers, inductive transducer, measurement of temperature, pressure measurement of flow, thickness, humidity, strain, displacement.

Unit-V: Microprocessor and Microcontroller:- 8085 microprocessor features, pin diagram and architecture; 8051 microcontroller features, block diagram; PLC block diagram

Unit-VI: Electronics in Textile Industry:- Open loop, closed loop control system, position and speed control mechanism. Applications of electronics in textile machines.

References Books:

1. Principles of Electronics: V. K. Mehta
2. Integrated Electronic : Millman Halkies
3. Modern Digital Electronics : R. P. Jain
4. Introduction to Microprocessors : B. Ram
5. Microprocessor, Architecture and applications : Gaonkar
6. Electrical Measurement : A. K. Sawney
7. Instrumentation : Rangan Sharma
8. Control System : Nagrath Gopal
9. Automatic Control Engineering : B. C. Kuo.
10. Electronic Controls for Textile Machine ï Hiren Joshi and Gouri Joshi, NCUTE

7TX05 PROFESSIONAL ELECTIVE - III (PE-III)
(i) SUSTAINABLE TEXTILE TECHNOLOGIES AND CERTIFICATIONS

Course Objectives:

1. To understand the need and importance of sustainability and its assessment in the field of engineering and management.
2. To recognize the use of sustainability related certifications and organizations that works for textile field.
3. To identify the use of various sustainable textile products and their manufacturing.
4. To apply sustainable practices and methods for various textile processes.

Course Outcomes:

After completion of this course, the students will be able to:

1. Explain the need, importance and core principles of sustainability in engineering and management field.
2. Discuss the concept of sustainability assessment related to the design and manufacturing of products.
3. Describe the various certifications and its related organizations that work for textile sustainability.
4. Summarize the information about various sustainable fibers used in textile products manufacturing.
5. Recommend sustainable production strategies for spinning and weaving industries.
6. Explain about sustainable green processing methods and strategies used in fashion and garment manufacturing industry.

SECTION- A

Unit-I: Fundamentals of Sustainability:- definition, sustainability and circularity, core principles of sustainability pertaining to various domains viz. Material, economic, life, social, spiritual. Goals of sustainability, Sustainable development indicators.

Unit-II: Sustainability Assessment:- Sustainability assessment steps and tools. Classification of sustainability assessment methodologies, metrics for technology evaluation for sustainability, trends and methods for textile and apparel industry sustainability assessment.

Unit-III: Certifications in Textile Sustainability:- Introduction to various textile certifications and its related organizations that works for sustainability in textile field viz. Better Cotton Initiative (BCI), Bluesign, Cradle to Cradle, Fair Trade, Global Organic Textile Standards (GOTS), Global Recycle Standard, Two Organic Standard Certifications, Good Weave, Made By, OE-100, Oeko-Tex, Social Accountability Accreditation Services (SAAS), SCS Certification, USDA Certified Organic, Zque, World Fair Trade Organization (WFTO), Fair Wear Foundation, Ethical Trading Initiative (ETI),B Corporation, Sourcemap, Cotton Made In Africa, Responsible Down Standard, Responsible Wool Standard, People for the Ethical Treatment of Animals (PETA), Fashion Revolution, Sustainable Apparel Coalition, Higg Index, Ecolabel Index, Outdoor Industry Association, Textile Exchange

SECTION- B

Unit-IV: Sustainable Materials for Textile Industry:- Introduction to the use of sustainable organic, eco-friendly lingo -cellulosic natural fibers viz. cotton, Hemp, linen, bamboo, pineapple etc. Recycled fiber viz. cotton, polyester and eco- nylon fiber. Semi synthetic vegan fibers viz. modal, tencel, loycell, casein, cupra etc. animal derived sustainable fibers.

Unit-V: Sustainable Production Methods for Textile Industry:- Introduction to the sustainability conscious product design and production approaches. Sustainable production strategies used in spinning and weaving industry. Concept of saving of water, chemicals and energy in textile industry.

Unit-VI: Green Textile Processing Techniques: - Introduction to new sustainable dyeing, printing and finishing technologies. Sustainability Practices in Fashion and Garment Industry:-Front and back end design approach**.** Circular Fashion, fast and slow fashion. Sustainable material sourcing, sustainable supply chain and close loop manufacturing in garment industry.

Reference Books:

1. Sustainability in the Textile and Apparel Industries, Editor-Subramanian Senthilkannan, Muthu and Miguel Angel Gardetti.
2. Handbook of Sustainable Textile Production, Editor- Marion I. Tobler- Rohr
3. Sustainable Textiles, Editor- R S Blackburn
4. Sustainable Fibers and Textiles,Editor-Subramanian Senthilkannan,
5. Textiles and Clothing Sustainability**,** Editor- Subramanian Senthilkannan,

7 TX 05 PROFESSIONAL ELECTIVE – III (ii) TECHNICAL TEXTILES

Course Objectives:

1. To understand the difference between traditional textile and technical textile
2. To apply the knowledge of technical textiles in the area of filtration, geotextile and transportation
3. To apply the knowledge of technical textiles in the area of medical, protective and sport textile.

Course Outcomes:

After completion of this course, students will be able to,

1. Define and classify the technical textile
2. Summarize the functioning and applications of textile material in filtration area
3. Apply the knowledge of technical textiles in the area of geotextile and transportation
4. Identify the fibre, yarn and fabric for medical textile applications
5. Apply the knowledge of technical textiles in the area of protective clothing
6. Discuss the sports and recreation textiles

SECTION - A

Unit -I: Introduction: - Definition, scope, classification, role of yarn and fabric construction, composite material. Present and future market trends in Technical Textiles, difference between traditional textile and technical textile.

Unit -II : Filtration Textiles:- Definition of filtration parameters, filtration mechanism and filtration requirements, Concept of pore size and particle size, Role of fiber, Fabric construction and finishing treatments, Dust filtration - general, protective masks and high temperature filtration purification and separation of gases - liquid filtration - solid liquid filtration, liquid - liquid separation - Textiles used for the above applications and their features.

Unit -III: Geotextiles:- Introduction, definition, basic functions of geo textiles, brief idea about geosynthetics and their uses. Essential properties of geotextiles, types, raw material, Applications of geotextile, woven geo textiles - Non-woven geo textiles - knitted geo textiles.

Textiles in Transportation:-Textiles in road vehicles- Car seat, air bag, tyre cords, seat belt, filters, carpets.Textiles in Rail applications, Textiles in aircraft and marine applications.

SECTION -B

Unit –IV: Medical Textiles: -Introduction, classification, Fibres used in Non-implantable materials, Extra-corporeal devices, Implantable devices, and Healthcare / hygiene products.

Unit–V: Protective Clothing: - Brief idea, different types and functional requirement of protective clothing. Temperature and flame retardant clothing, chemical protective clothing, water proof breathable fabrics.

Defence Textile:- Introduction, functional requirement of textiles in defence, ballistic protection, and parachute cloth.

Unit –VI: Sports and Recreation Textiles: - Functional requirements of different type of products and their constructions.

Textiles in Miscellaneous Industrial Applications: Introduction, paper making felt, bearing and sealing materials, sound insulation, battery separators, electrical insulation, textiles re-inforced products; Transports bags and sheets; Fabrics to control oil spills; Canvas cover and tarpaulins.

Reference Books:

1. ñHandbook of Technical Textilesò, Ed. A R Horrocks and S C Anand, Woodhead Publication Ltd., Cambridge, 2000.
2. ñWellington Sears Handbook of Industrial Textilesò, Ed. SabitAdanaur, Technimic Publishing Company, Inc., Pennsylavania, USA, 1995.
3. ñEngineering with Geosyntheticsò, Ed. G V Rao and G V S Raju, Tata McGraw Hill Publishing Co. Ltd., New Delhi, 1990.
4. ñIndustrial Textileò, Ed., J Svedova, Elsevier, New York, 1990.
5. ñModern Textile Characterization Methodsò, Ed. M Raheel, Marcel Dekker, Inc., 1996.
6. Mukhopadhyay S K and Partridge J F, ñAutomotive Textilesò, Vol. 29, No. ½, The Textile Institute, 1999.
7. Sewing Threads (Textile Progress, Vol. 30, No. 3/4, 2000) J. O. Ukponmwan, A. Mukhopadhyay and K. N. Chatterjee, Textile Institute, Manchester, UK, ISBN 1 8703738 7.
8. Medical Textiles -International Conference on Medical Textiles, Bolton, Woodhed Publication, Cambridge, 1997.
9. John,N.W.MòGeotextileòBlackie publication,Glasgow,1987
10. Industrial Textiles ï Horrocks

7TX06 PROJECT AND SEMINAR

Course Objectives:

1. To identify the research problem / idea for undertaking project work.
2. To conduct survey and summarization of literature based on the identified project area
3. To design plan of work for the project work undertaken
4. To undertake and deliver the seminar work based on latest trends in textiles

Course Outcomes:

After the completion of this course, students will able to:

1. Identify the research problem and generate project idea
2. Conduct literature survey by using various literature sources
3. Summarize the literature relevant to the identified project area
4. Design the project plan and manage the resources required for the execution of project
5. Select the seminar topic based on latest trends in textile field using various literature sources
6. Compile the seminar literature and deliver the same using suitable ICT tools

Guidelines for Project and Seminar Work:

(I) Identification of Project Topic and Registration Process: - Students will identify project topic based on present industry need, student interest, faculty expertise, social needs, available resources etc. Students may undertake the project topic in following areas

a) Product development b) Fabrication work c) Up gradation and optimization of processes d) Design of systems and software e) Survey based project in the field of textile.

(II) Survey and Summarization of Literature: - Students will conduct literature search related to their project using authenticated and standard literature sources. Further, they will summarize the literature in the direction of intended project.

(III) Plan of Work: - Students will prepare synopsis of project work of proposed research topic. This synopsis will include Objectives, Literature Review, Materials and Methods, Investigation Tools, Time scale, Cost estimation etc.

(IV) Presentation of Synopsis for Approval of Registration: - Students will present their synopsis in presence of Department level Research Recognition Panel (DRRP). After approval from DRRP students will start actual execution of project work.

(V) Seminar Completion and Presentation: - Student will select seminar topic based on recent trends in textile field. Students will compile literature related to their seminar topic and they will deliver the seminar in presence of internal examiners using suitable ICT tools.

7TX07 KNITTING TECHNOLOGY-LAB

Students will perform 8 to 10 practicalôs based on the syllabus given for subject 7TX01 Knitting Technology.

7TX08 PROJECT MANAGEMENT-CASE STUDIES

Students will have to undertake 1 to 2 case studies based on subject 7TX03 Project Management. Students will submit the case study report in hard copies during internal evaluation process. Further they will have to deliver the case study during internal and external evaluation process using suitable ICT tools.

7TX09 SKILL DEVELOPMENT LAB

Students will perform 1 to 2 technical or techno commercial/managerial competency task based on their undergraduate curriculum. The task performed may be from following area:

a) Planning of industrial projects
b) Techno commercial studies
c) Trouble shooting of real time technological problems
d) Exposure to the routine technological studies conducted at industries
e) Design of small new ideas, systems, procedures, possible solutions etc. pertaining to textile engineering field.

Students will present the skill development laboratory work before internal and external evaluators using suitable ICT tools. Also they will submit the reports in hard copies to the institute during internal evaluation process.

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SEMESTER - VIII

8TX01 NON-WOVEN TECHNOLOGY

Course Objectives:

1. To understand technical background and global scenario of nonwoven sector.
2. To gain knowledge about the basic nonwoven process and various fiber used in nonwoven production.
3. To analyze nonwoven fabrics and understand their applications.
4. To gain knowledge about finishing and characterization of nonwoven fabric.

Course Outcomes:

After successful completion of this course, the students will be able :

1. Discuss the introductory aspects of nonwoven sector and its market scenario.
2. Compare the various fibers and production systems of nonwoven.
3. Explain the production principle of air and wet laid web formation.
4. Explain the technical principle of polymer laid web formation and mechanical bonding methods.
5. Explain the technical principle of thermal and chemical bonding methods.
6. Summarize the finishing and characterization of nonwoven fabrics.

SECTION- A

Unit-I: Nonwovens:- Introduction, Definition as per INDA and EDANA, Historical background of nonwoven industry, Global market scenario and growth, Global nonwoven industries, Comparison between woven, knitted and nonwoven fabrics, Classification of Nonwovens on various basis. Applications of nonwoven fabrics and its role in technical textiles.

Unit-II: Non-woven Manufacturing:- basic stages, raw material for nonwoven production, function of fiber, effect of fiber properties on nonwoven fabric, special fibers for nonwoven production.
Web forming technologies:- Carded web formation- raw material, fibre selection and preparation, web formation, layering types and techniques, properties and applications of carded nonwovens.

Unit-III: Airlaid Web Formation:- Air laying technology, raw material, properties and applications of airlaid nonwoven fabrics.
Wet-laid web formation: Raw materials, fiber preparation, web forming technology, properties and applications.

SECTION- B

Unit-IV: Polymer Laid web Formation:- Spun bonding and Melt blown process, raw material, production methods, bonding, properties and application.
Web Bonding Technologies:-Mechanical Bonding- Needle punching technology, Application of needle punched nonwoven.
Hydro entangled nonwovens (spun laced), bonding method, Evolon technology, properties and applications of spun laced nonwovens. Stitch bonded nonwovens, properties and their applications.

Unit-V: Thermal Bonded Nonwovens :- Thermoplastic binder materials and fibres, methods of thermal bonding, hot calendaring, belt calendaring, oven bonding, ultrasonic bonding, radiant heat bonding. Structure, properties and applications of thermal bonded nonwovens.
Chemical Bonded Nonwoven: - Adhesive bonding materials, chemical bonding mechanism and technologies. Properties and application of chemical bonded nonwovens.
Nonwoven Nanostructure:- Basics of nonwoven nanostructure with reference to electro spinning.

Unit-VI: Nonwoven Finishing:- Wet finishing, dyeing, printing, Application of Chemical Finishes. Mechanical finishing of nonwovens.
Characterization and Testing of Nonwovens:-Important nonwoven fabric properties, standards for testing of nonwovens.

Reference Books:

1. Handbook of Nonwovens By: S Russell.
2. NPTEL on Nonwoven Technology.
3. Albrecht. W, Fuchs. H, Kittelmann and Walter, ñNonwoven Fabrics- Raw Materials, Manufacture, Applications, Characteristics, Testing Processesò, Wiley-VLH, 2002.
4. Nonwoven Process Performance and Testing ï Turbak.
5. Lunenschloss, J and W. Albrecht., ñNonwoven bonded fabricsò, Ellis Horwood, London.
6. Krcma,R., ñManual of Nonwovensò, Textile Trade press.

8TX02 APPAREL MERCHANDISING

Course Objectives:

1. To understand the basic knowledge about industry, business and apparel merchandising.
2. To apply the knowledge of marketing and merchandising in apparel field.
3. To understand various sourcing systems and export- import documentation process.
4. To apply ISO quality management systems for apparel industry.

Course Outcomes:

After successful completion of this course, the students will be able to,

1. Understand the concept of apparel industry and business etiquettes.
2. Summarise the responsibilities, objectives and strategies for apparel merchandising.
3. Understand the role and responsibilities of apparel merchandiser.
4. Distinguish various sourcing systems used in apparel merchandising.
5. Demonstrate procedures, rules and documentation related to export business.
6. Identify the basic requirements for ISO registration and certification in apparel industry.

SECTION-A

Unit-I: Organization of the apparel business:- Introduction to apparel industry, organization of the apparel industry, types of buyers and exporters, business concepts applied to the apparel industry- international trade (GDP, WTO).

Unit-II: Marketing:- Introduction to marketing, functional organization of an apparel firm, responsibilities of a marketing division- marketing objectives and strategies, marketing research -types of markets: retails and wholesale strategies for merchandise, distribution, retailers, sourcing flows and practices, marketing plan, labelling and licensing.

Unit-III: Apparel Merchandising:- Definition of merchandising, functions of merchandising division, role and responsibilities of merchandiser, different types of communications with the buyers, awareness of current market trends, product development- line planning and line presentation.

SECTION-B

Unit-IV: Sourcing:- Need for sourcing, sourcing materials, manufacturing resource planning principles of MRP- overseas sourcing, sourcing strategies, supply chain and demand chain analysis, materials management for quick response, JIT technology.

Unit-V: Documentation:- Order confirmation, various types of export documents, pre and post- shipment documentation, terms of sale, payment, shipment etc., Export incentives: duty drawback, DEPB, I/E incentives duty drawback, DEPB, I/E: license exchange control regulation, foreign exchange regulation acts, export management risk and export finance. WTO / GATT / MFA -functions and objectives, advantages, and disadvantages.

Unit-VI: Quality management system:- ISO 9000 quality policy, data, records and traceability, documenting the quality system, quality manual, quality audit, ISO 9000 registration ISO 14000: objectives, advantages and disadvantages.

Reference Books

1. Management of Textile Industry -Dr. V.D. Dudeja,
2. Export Planning and Promotion-II- D. Sinha(1989).
3. Import-Export Finance- Tunin K Nandi (1989).
4. Export Marketing - A practical guide to Exporters-S. Shivaramu.
5. Inside the Fashion Business, J.A. Jamow, M, Guerreiro. B. Judelle

8 TX 03 ELEMENTS OF COSTING AND ECONOMICS

Course Objectives:

1) To gain knowledge about various costing methods
2) To understand concepts of inventory control
3) To gain knowledge of the micro and macro economics

Course Outcomes:

After the completion of this course, students will able to:

1) Explain the costing fundamentals and its different methods
2) Discuss about industrial raw material procurement and storage process.
3) Understand the concept of inventory management systems
4) Analyse demand- supply and its interaction
5) Explain the different market types
6) Describe about banking and taxation system

SECTION-A

Unit-I: Costing:- Meaning and various methods of costing. Elements of cost, prime cost, factory overheads, factory cost, selling and distribution overheads. Total cost. Concept of BEP. Fixed cost, Variable cost.

Unit-II: Raw materials:- Purchase Procedure, Issue of raw materials, bin cards, store ledger, materials requisition slip, material transfer and return slip, different pricing basis of raw materials (FIFO, LIFO and Average)

Unit-III: Inventory:- Importance and meaning, Considerations for fixing maximum and minimum stock to be maintained. Annual stock taking and perpetual inventory, ABC system of inventory control. EOQ, inventor system.

SECTION-B

Unit-IV: Economics:- Definition and scope. Characteristics and classification of wants. Meaning of demand, supply, law of demand, law of supply, price elasticity of demand, factors affecting elasticity of demand. Demand supply interaction.

Unit-V: Type of Markets: - Perfect Market, Imperfect market (Monopoly, Oligopoly. etc.) Money functions, price level, inflation.

Unit-VI: Banking:- Functions of commercial bank, central bank, National income - Definition, concepts, measurement, Difficulties in measurement of NI. Taxation: meaning, type, Canons of taxation,

Reference Books :

1. Elementary Economic Theory, by K.K. Dewett and J.D Verma
2. Industrial Engineering and Management by O. P. Khanna
3. Cost Accounting Methods and Problems by B.K. Bhar.

8TX04 PROFESIONAL ELECTIVE-IV (P.E. -IV)
(i) IMPORT EXPORT MANAGEMENT IN TEXTILE

Course Objectives:

1. To understand the international trade, export market, Exchange rate determination
2. To gain knowledge about foreign trade policies and process
3. To understand about foreign trade documentation, shipments and customs procedure

Course Outcomes:

After the completion of this course, students will able to:

1. Explain international trade, exchange rate determination
2. Evaluate market selection, export pricing and packaging
3. Identify the firm establishment process and foreign trade documents
4. Recommend various important documents required during foreign trade
5. Describe the shipment and customs procedure.
6. Interpret the present scenario of textile and garment industry.

SECTION-A

Unit-I: Introduction to international trade:- Introduction, its scope, world economic scenario. International trade- Trade barriers- Foreign exchange-Exchange rate determination. Functions and objectives of WTO-Concepts of GATT and MFA.

Unit-II: International marketing:- Introduction- Market selection and Product strategies- Export pricing; export logistics management, Documentation and processing of an export trade.-Export finance. Export risk insurance- Export packaging, labelling and risk insurance

Unit-III: Foreign trade:- Indiaôs Export-import policy and its control. Export Promotions- Export intensives, duty drawback, Regulatory requirements for foreign trader, Major problem of Indiaôs export sector

SECTION-B

Unit-IV: Foreign Trade Documents:- Importance and scope of various documents- Certificate of origin, Packing note, invoice, etc. Bill of Lading ï Air Way Bill
Documents Relating to Payment- Letter of credit, Bill of exchange, Letter of hypothecation, Bank certificate for payment.

Unit-V: Shipment and Customs:- Pre-Shipment Inspection and Quality Control ï Foreign Exchange Formalities ï Pre-Shipment Documents. Shipment of Goods and Port Procedures ï Customs Clearance Post Shipment: Formalities and Procedures, Role of Clearing and Forwarding Agents.

Unit VI: Scenario of Indian textile and garment industry: - Size, various sectors, output, contribution in total export. Govt. schemes and policies for promoting textile export, focused textile sector / product.

Reference Books:

1. Export Marketing ï A practical Guide to Exporters, by Ramus Shiva wheeler publication
2. Export Marketing, - A practical Guide to Exporters, by S. Shivaramu, McGraw-Hill Book
3. Export Import procedure, by C. Rama Gopal, New age international publication, New Delhi
4. International trade and Export management by Francis Cherunilam ï Himalaya Publication, Mumbai
5. Hand Book of Import And Export Procedures - Paras Ram
6. Govt. Of India: Hand Book of Import and Export Procedures.

8TX04 PROFESIONAL ELECTIVE-IV (PE-IV)
(ii) TOTAL QUALITY MANAGEMENT IN TEXTILE

Course Objectives:

1. To Acquire knowledge of Total Quality Management concepts
2. To understand the various quality systems
3. Apply Total Quality Management tools for domain specific applications

Course Outcomes:

After the completion of this course, students will able to,

1. Apply Total Quality Management principles and concepts
2. Analyze quality by using various statistical tools.
3. Evaluate various parameters to improve quality of product.
4. Understand the Total Quality Management tools as a means to improve quality
5. Describe different quality systems and procedures for total quality management.
6. Apply various quality assurance systems for quality management.

SECTION A

Unit-I: Quality Management:Definition of Quality, Dimensions of Quality, Quality costs, Top Management Commitment, Quality Council, Quality Statements, Barriers to TQM Implementation Concepts and various systems, need, relevance and tools. Documentation and standardization. Various standards for management systems.

Unit-II: TQM Principles: Fundamental concepts of TQM, Basic approach, quality and business performance, service quality versus product quality.
Customer satisfaction ï Customer perception of quality, Customer complaints, Service quality, Customer retention, Continuous process improvement, 5S, Kaizen, Just-In-Time and Concepts of zero defects, right first time (FTR).

Unit-III: Statistical Quality Control:The seven tools of quality, New seven Management tools, Statistical Fundamentals ï Measures of central Tendency and Dispersion, Population and Sample, Normal Curve, Control Charts for variables and attributes, Concept of six sigma. Application of six sigma in textile industry.

SECTION B

Unit-IV: TQM Tools: Quality Policy Deployment (QPD), Quality Function Deployment (QFD), Benchmarking, Taguchi Quality Loss Function, Total Productive Maintenance (TPM). TQM protection act SA 8000 etc. Application of TQM tools in textile industry.

Unit-V: Quality Systems: ISO 9000- Importance and Implementation procedures. Need for ISO 9000 and Other Quality Systems, ISO 9001:2008 Quality System-Elements, Implementation of Quality System, Documentation, Quality Auditing, ISO 14001:2004. Application of quality systems in textile industry.

Unit-VI: Quality Assurance: National and international standardization, quality assurance systems, implementation of mandatory quality assurance systems. Quality circles: Back ground to quality circle, essential preconditions for successful quality circles, organizing and training for quality control. Application of quality assurance systems in textile industry.

Reference Books:

1. Total Quality Management, Pearson Education-Dale H. Besterfiled,
2. Total Quality Management, McGraw Hill- Feigenbaum. A. V.
3. Total Quality Management, Butterworth ï Hcinemann Ltd., Oxford- Oakland. J. S.
4. Total Quality Management- Baidya
5. Quality Management- J. M. Juran
6. Quality Planning and Analysis- J. M. Juran Quality Control and TQM- P. L. Jain
7. The Management and Control of Quality, South-Western (Thomson Learning), 2008- James R. Evans and William M. Lidsay,
8. Quality Management-Concepts and Tasks, New Age International 2007- Narayana V. and Sreenivasan, N.S.,
9. Total Quality Management for Engineers, Wood Head Publishers- Zeiri.
10. Practical Handbook of Textile Testing and Quality Control- Hamby and Groover
11. Publications of TRAs and other agencies on quality management, ISO 9000, TQM and environment.
12. G. Shanmmugam, T. Sivasantaran, D. Sarvanan NCUTE publications Quality Control Technique.

8TX05 PROJECT AND SEMINAR

Course Objectives:

1. To execute the experimental work and material resourcing required for the project work
2. To perform testing and result analysis as required by project work undertaken
3. To compile project thesis and present the same during internal and external evaluation process

Course Outcomes:

After the completion of this course, students will able to:

1. Manage the various materials and research facilities required for the project work
2. Perform the experimental work as per the requirement of project work
3. Perform the various scientific and standard testings as needed by the project
4. Analyze and interpret the research data and draw the meaningful conclusions from their project work
5. Apply various research tools for the project data analysis
6. Compile the project thesis as per the standard format along with scientific articulation approach.

Guidelines for Project Work:

(I) Experimentation Work: - Students will initiate their experimental work as per the approved synopsis of project. During experimentation work following activities will be executed.

a) Experimental Material Sourcing
b) Experimental Set-up Work
c) Production/Fabrication/Research Trials

(II) Testing and Result Analysis: - Students will perform various scientific tests as required by their project. In order to perform testing, student will use testing facilities at their parent institute or related industries or research institutions or other institutes or universities. After completion of testing work, the test data will be analyzed by using suitable analytical/computational tools.

(III) Thesis Writing: - After the completion of experimentation and result analysis work, students will start writing of their project thesis as per the standard format prescribed by their parent institute.

(IV) Internal Evaluation Prior to Thesis Submission: - Students will have to give detailed presentation before the departmental research recognition panel (DRRP) for final approval of their project.

(V) Thesis Submission in Hard Copies: - After the satisfactory remarks and approval from DRRP, students will submit project work in hard copies to the institute.

8TX06 NON-WOVEN TECHNOLOGY- LAB

Students will perform 8 to 10 practicalôs based on the syllabus given for subject 8TX01 Non-Woven Technology.

8TX07 APPAREL MERCHANDIZING-CASE STUDIES

Students will have to undertake 1 to 2 case studies based on subject 8TX02 Apparel Merchandizing. Students will submit the case study report in hard copies during internal evaluation process. Further they will have to deliver the case study during internal and external evaluation process using suitable ICT tools.

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