

BHARATHIAR UNIVERSITY –COIMBATORE – 641046.
B.Sc GARMENT PRODUCTION & PROCESSING DEGREE COURSE WITH
COMPULSORY DIPLOMA IN PRODUCTION MANAGEMENT
(For the students admitted during the academic year 2008-2009 Batch onwards)
Scheme of Examination

Part	Study Components	Course Title	Hours per week	Examination				Credit
				Dur:Hrs.	CIA	Marks	Total Marks	
Semester – I								
I	Language I		6	3	25	75	100	3
II	English I		6	3	25	75	100	3
III	Core I	Preparation for Textile Colouration	4	3	20	55	75	4
	Core II	Principles of Management	4	3	20	55	75	4
	Practical I	Preparation for Textile Colouration Practical	4	4	40	60	100	2
	Allied I	Textile Science	4	3	25	75	100	5
IV	Environmental Studies		2	3	-	50	50	2
Semester – II								
I	Language II		6	3	25	75	100	3
II	English II		6	3	25	75	100	3
III	Core III	Technology of Dyeing	4	3	20	55	75	4
	Core IV	Pattern Making and Grading	4	3	20	55	75	4
	Practical II	Dyeing Practical	4	4	40	60	100	2
	Allied II	Woven Fabrics and Designs	4	3	25	75	100	5
IV	Value Education – Human Rights		2	3	-	50	50	2

Semester III								
III	Core VII	Knitting Technology-I	6	3	25	75	100	4
	Core VIII	Pattern Making -Practical	5	3	20	30	50	3
	Core IX	Printing Technology	5	3	25	75	100	3
	Core X	Printing Technology- Practical	4	4	40	60	100	4
	Allied : III	Introduction to Computers	5	3	20	55	75	5
	Skill based Subject 1 (Diploma) I –	Accountancy For Garment Production	3	3	25	75	100	3
	Tamil/Advanced Tamil (OR)	Non-major elective - I (Communicative English)	2	3	-	75	75	2

Semester IV							
III	Core XI Knitting Technology-II	4	3	25	75	100	3
	Core XII Apparel Manufacturing Technology	5	3	20	55	75	3
	Core XIII Garment Construction	6	3	20	55	75	4
	Core XIV Computer Application-Practical	6	3	40	60	100	4
	Allied :IV Process House Management And Entrepreneurship	4	3	20	55	75	5
	Skill based Subject 2 (Diploma) Fashion Merchandising	3	3	25	75	100	3
	Tamil/Advanced Tamil (OR) Non-major elective -II (General Awareness #)	2	3	-	75	75	2
Semester V							
III	Core XV Technology of Finishing	5	3	25	75	100	3
	Core XVI Technology of Finishing-Practical	5	3	40	60	100	3
	Core XVII Quality Assurance in Textiles	5	3	25	75	100	3
	Core XVIII Quality Assurance -Practical	6	3	40	60	100	3
	Elective -I)	6	3	25	75	100	5
IV	Skill based Subject 3 (Diploma) Total Quality Management	3	3	25	75	100	3
Semester VI							
III	Core XIX Advances in Textiles & Apparel Processing	5	3	25	75	100	4
	Core XX Garment Costing & Export Documentation	6	3	25	75	100	4
	Core XXI Computer Aided Design- Practical	6	3	20	30	50	4
	Elective -II	5	3	25	75	100	5
	Elective -III	5	3	25	75	100	5
IV	Skill based Subject 4 (Diploma) Export Sampling & Product Development- Practical	3	4	40	60	100	3
V	Extension Activities	-		-	-	50	1
	Total					3600	140

@ No University Examinations. Only Continuous Internal Assessment (CIA)

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List of Elective papers (Colleges can choose any one of the paper as electives)		
Elective – I	A	Garment Industrial Management
	B	Entrepreneurship Development & Management
	C	Care and Maintenance of Textiles
Elective – II	A	Surface Embellishment
	B	Executive Business Communication
	C	International Trade & Documentation
Elective - III	A	Engineering Economics
	B	Apparel Retailing
	C	Industrial Psychology

SEMESTER – I CORE PAPER I - PREPARATION FOR TEXTILE COLOURATION

UNIT I

Introduction – Concept of acid and their theories - Concept of base and its theories. Monomer – Polymer – Polymerisation – Types of polymerization - Degree of polymerization. Hardness of water - Quality parameters required for processing and boilers – Softening methods – Ion exchange – Sequestering – Lime soda process - Water analysis - Estimation of hardness of water. Calculation for chemical proportion - Dilution of the solution – Normality - Specific gravity - Density.

UNIT II

Objects of shearing and cropping - Objects of singeing of cotton and blended fabrics – Working of gas singeing machine for yarn, woven & knitted fabrics. Objects of desizing – Enzymatic desizing – Conditions required – Benefits of the process.

UNIT III

Object of scouring - Impurities removed in scouring - Mechanism of scouring. Knitted fabrics scouring – Working principle of modern scouring machine. Scouring of coloured goods. Scouring of wool, jute and degumming of silk.

UNIT IV

Object of bleaching -Bleaching mechanism of hydrogen peroxide, sodium hypo chlorite and sodium chlorite - Parameters affecting the bleaching action - Merits and demerits of each bleaching agents. Hydrogen peroxide bleaching in kier, jigger and soft flow. Principle and working procedure of continuous bleaching process - Function of peroxide killer & antichlor treatment.

Bio preparation - Enzymatic bleaching and enzymatic scouring.

UNIT V

Mercerizing - Objects - Conditions required - Physical and chemical changes - Importance of mercerizing before dyeing and printing - Yarn mercerizing machine – Working principle of woven fabric mercerizing machine – Working principle of knit fabric mercerizing machine – Problems in knit fabric mercerizing. Importance of washing after mercerizing - Mercerizing of coloured goods.

REFERENCES:

1. *Shenai.V.A.*, Technology Of Bleaching & Mercerising, Sevak Publications, Wadala, Mumbai-31.
2. *Chakravarthi.R.R & Trivedi*, Technology of Bleaching and Dyeing Vol. I Part I, Mahajan Book Depot, Ahemedabad-9.
3. *Marsh.J.T.*, Mercerising, BI Publications, Janapath Delhi-1.
4. *Sadov.F, Korchagin.M, Matesky.A*, Chemical Technology of Fibrous Material.
5. *E.R.Trotman*, Textile Scouring & Bleaching, B.I. Publications Pvt. Ltd., New Delhi (1968).
6. *Warren.S.Perkins*, Textile Coloration and Finishing, Carolina Academic Press, Durham, North Carolina (1996).

SEMESTER – I CORE PAPER II - PRINCIPLES OF MANAGEMENT

UNIT I

Nature and scope of management – Management Science / Art – Development of management theory – Scientific management – Henry Foyal’s principles of management .

UNIT II

Planning - Meaning and purpose of planning – Steps in planning – Types of planning - Objectives and policies – Objectives, policies, procedures and methods, nature and types of policies - Decision making – Process of decision making – Types of decisions – Problems involved in decision making.

UNIT III

Organizing – Types of organization – Organizational structure – Span of control – Committees. Delegation and centralization line & staff relationship - Staffing – Sources of recruitment – Selection process - Training methods – Performance appraisal.

UNIT IV

Directing – Nature and purpose of directing – Motivation – Discipline – Leadership – Supervision – Communication – Requirements for effective controls – Critical control points and standards.

UNIT V

Controlling – Need for co-ordinating – Meaning and importance of control - Control process – Types of control.

REFERENCES:

1. *O.P.Khanna*, Industrial Engineering And Management, Dhanpat Rai Publications, New Delhi (2006).
2. *Patrick.J.Montana and Bruce.H.Charnov*, Management, Barrows (2000).
3. *D.P.Jain* ,Business Organisation and Management, Vrinda Publications (1999).
4. *Harold Koontz and Heinz Weihrich*, Essentials of Management, Tata McGraw Hill (1998).
5. *James.A.F.Stoner, R.Edward Freeman and Danier.R.Gilbert.Jr.*, Management, Prentice Hall (1995).
6. *George.R.Terry and Stephen.G.Franklin*, Principles of Management, A.I.T.B.S (2003).
7. *Dingar Pagore*, Principles Of Management
8. *L.M.Prasath*, Principles Of Management
9. *K.Balasundaram*, Industrial Engineering & Management – IV Edition, Shree Ramalinga Sowdeswari Publications, Coimbatore (1986).

SEMESTER – I PRACTICAL I - PREPARATION FOR TEXTILE COLOURATION

LIST OF EXPERIMENTS

PART – I: CHEMICAL ANALYSIS

1. Estimation of water hardness by EDTA method.
2. Estimation of sodium chloride.
3. Estimation of sodium carbonate.
4. Estimation of sodium hydroxide.
5. Estimation of sodium hydro sulphite.
6. Estimation of available chlorine in sodium hypochlorite.
7. Estimation of hydrogen peroxide.
8. Estimation of Glauber's salt.

PART – II: PREPARATORY PROCESS

1. Desizing and determination of starch content in a fabric using desizing method.
2. Scouring of desized woven cotton fabric / knit fabric to determine the scouring loss percentage.
3. Bleaching of scoured woven / knit fabric with Sodium Hypo Chlorite.
4. Bleaching of scoured woven / knit fabric with Hydrogen Peroxide.
5. Comparison of bleached, unbleached and optical brightener treated sample for whiteness and reflectance value.
6. Degumming of silk.
7. Bleaching of silk / wool yarn / fabric by using hydrogen peroxide.
8. Scouring of 100% synthetic textiles (polyester / nylon).
9. Bio - scouring process.
10. Combined scouring and bleaching of cotton knit fabrics.

SEMESTER – I ALLIED PAPER I - TEXTILE SCIENCE

UNIT I

Textile fibres: Classification – General properties – Identification of textile fibres - Polymer – Terminologies – Polymerization types - Types of polymers – Methods of filament spinning - Drawing and effects.

Cotton: Producing countries – Botanical and commercial classification - Brief study on Indian hybrid and imported commercial cotton varieties – Fibre morphology – Chemical structure & composition - Properties - End uses. Brief study about organic cotton and it's cultivation.

Jute: Producing countries – Fibre morphology – Chemical composition - Properties - End uses.

Flax: Producing countries – Fibre morphology – Chemical composition - Properties - End uses.

UNIT II

Wool: Producing countries - Grading - Fibre morphology – Chemical structure & composition - Properties - End uses - Felting – Study of Woolen and Worsted Yarns - End uses - Brief study on specialty hair fibers and uses.

Silk: Producing countries – Sericulture – Stiffling & Reeling – Throwing – Degumming – Weighting. Fibre morphology – Chemical structure & composition – Properties - End uses. Meaning of spun silk – Comparison of spun & filature silk. Brief study on wild silk varieties.

UNIT III

Semi synthetic fibres: Rayon - Regenerated and modified cellulose -Viscose rayon process flow - HWM fibres - Comparison of properties between viscose and HWM rayons –End uses –Bamboo fibre- Process flow - Properties - End uses.

Synthetic fibres: Common steps for the production – Brief study about Polyamide, Polyester, Poly Acrylic, and Spandex – Process flow for the production of Nylon 6,6, Nylon 6, Polyester filaments and staple fibres. Individual fibre properties and trade names – End uses.

Texturisation and it's effects, Types of textured yarns - Methods of texturisation – End uses of textured yarns.

UNIT IV

Classification of yarn types- Staple spinning system - Types – Cotton Yarn Production sequence and objectives – Principles of short staple spinning – Comparison of carded and combed yarn - Winding and it's objects – Waxing and it's significance – Properties required for export quality hosiery yarns. Study of yarn twist and it's importance – Types of yarn twist – Various yarn & package defects.

UNIT V

Blended textiles: Types of blending – Benefits of blending – Prominent blended yarns of fashion apparel market - Double yarn - Properties –Uses. Classification of Sewing threads & applications – Thread prerequisites – Essential properties - Production process of spun Polyester sewing thread & core spun sewing thread – Advantages. Yarn numbering systems.

REFERENCES:

1. *Shenai. V.A.* Textile Fibers: Technology of Textile Processing, Vol.I, Sevak Publications, Mumbai (1996).
2. *Wynne, A.* The Motivate Series – Textiles, Macmillan Education Ltd., London (1997).
3. *Mishra, S.P.* A Text Book of Fibre Science and Technology, New Age International (P) Ltd Publishers, New Delhi (2000).
3. *Gordon Cook, J.* Hand Book of Textile Fibres – Vol. I & Vol. II. Wood Head Publishing Ltd., Cambridge, England (1984).
5. *Carr, C.M.* Chemistry of the Textile Industry.
6. *Phyllis G.Torton*, Understanding Textiles.
7. *Marjory L.Joseph*, Essentials of Textiles.
8. *Joseph J.Pizzuto*, Fabric Science.
9. *Goswami.J.C., Martindale.J.G, Scardino.K.L.*, Textile Yarns, Technology, Structure & Applications, Mahajan Book Distributors, Ahmedabad (1995).
- 10.*Moncrieff,W*, Man-made Fibres, Butterworth Scientific (1975).
11. Identification of Textile Materials, The Textile Institute, Manchester.
- 12.*Eric Oxtoby*, Spun Yarn Technology
- 13.*A.Venkatasubramaniam*, Spun Yarn Technology Vol. I – III, Saravana Publications, Madurai (1993).
- 14.*Sadov.F, Korchagin.M, Matesky.A*, Chemical Technology of Fibrous Material.
- 15.*K.P.Chellamani*, Yarns and Technical Textiles.
- 16.*Bernard P. Corbman*, Textiles – Fibre to Fabric.
- 17.*Debbie Ann Gioello*, Understanding Fabrics: From Fibre to Finished Cloth, Fairchild Publications, New York (2002).

SEMESTER – II CORE PAPER III - TECHNOLOGY OF DYEING

UNIT I

Introduction to dyeing: Theory of colour, chromophore, auxo-chrome, chromogen. classification of dyes & properties. Various definitions related to dyeing: Affinity, exhaustion, etc. - Application of direct dyes on cotton. Mechanism of dyeing. - Dye fixing agents.

Dyeing with Direct dyes and the after treatment.

Reactive dyes and their applications: Reactive dyes - properties, cold brand, hot brand, vinyl sulphone dyes, low salt dyes, highly exhaustive dyes, bi-functional dyes. Mechanism of dyeing. Exhaust dyeing, pad-batch, pad-steam, pad-cure, pad-silicate method. Stripping and redyeing.

UNIT II

Vat dyes and properties. Application procedure: Leuco vat, vat acid - solubilised vat dyes - Properties - Advantages and disadvantages of vat dyes.

Dyeing with Sulphur dyes and the after treatment – Brief study of solubilised Sulphur dyes. Application of pigments in dyeing.

UNIT III

Acid dyes - Properties, classification of dyes. Dyes properties, classification of dyes, mechanism of dyeing. Application of acid dyes on wool and silk, stripping and limitation of dyes.

UNIT IV

Singeing, desizing, scouring, bleaching heat setting and mercerising of synthetic & blends.

Dyeing of Polyester with Disperse dyes: Levelling agents, antifoaming agents, redox buffer mechanism of dyeing.

Dyeing of Acrylic and Nylon: Dyeing of Acrylic with cationic dyes – Properties – Mechanism of dyeing – Exhaust dyeing, stripping of cationic dyes. Dyeing of Nylon with acid dyes.

Dyeing of blends: Introduction to dyeing of Polyester/Cotton, Polyester /Viscose, Acrylic/Cotton and Polyester/Wool. Dyeing of elastomeric mixtures.

UNIT V

Yarn dyeing in cabinet & cheese machine. Working principles of above machines & winch dyeing machine - Fully automatic jigger dyeing machine - soft flow dyeing machine - two bowl and three bowl padding mangle - continuous dyeing range - garment dyeing - beam & jet dyeing machine - yarn dryer, tumble dryer, relax dryer, radio frequency dryer and rope opener.

REFERENCES :

1. *Shenai V.A.*, Technology of Textile Processing Vol.1-2, Sevak Publications, 306, Sri Hanuman Industrial Estate, G.C. Ambedkar Road, Wadala, Bombay 400 031.
2. *Trotman E.R.*, Dyeing and Chemical Technology of Textile Fibres, Charles Griffin & Co, 42, Dhury Lane, London WC2.
3. *Chakravarthy RR And Trivedi S.S.*, Technology of Bleaching and Dyeing of Textile Fibres Vol.1, Part-I,1979, Mahajan Book Publishers, Supermarket Basement, Near Nataraj Cinema, Ashram Road, Ahmedabad 380 009.
4. *Prayag R.S.*, The Bleaching and Dyeing of Cotton Material 1983, Weaver's Service Cent., 15 A, Mamparamanand Marg, Near Roxy Cinema, Bombay 400004.
5. *Datye K.V and Vaidhay A.A.*, Chemical Processing of Synthetic Fibres and Blends 1982, John Wiley & Sons, New York.
6. *Usenko V*, Processing of Manmade Fibres 1975, MIR Publishers, Moscow.
7. *Wilfred Ingamells*, Colour for Textiles: A User's Handbook, Society of Dyers and Colourists(1993).
8. *John Shore*, Cellulosics Dyeing, Society of Dyers and Colourists(1995).
9. *Lewis.D.M.*, Wool Dyeing, Society of Dyers and Colourists(1992).
10. *Warren.S.Perkins*, Textile Coloration and Finishing, Carolina Academic Press, Durham, North Carolina (1996).

SEMESTER – II CORE PAPER IV - PATTERN MAKING AND GRADING

UNIT I

Introduction – Concept of basic pattern and grading – Methods of pattern making with special reference to pattern drafting - Pattern making tools – Various pattern production terms–Standard body measurements for men's wear, women's wear and kids wear of different countries. Style wise component parts of a garment.

UNIT II

Pattern positioning and lay out – Concept of pattern layout - Rules and methods of pattern layout – Adjusting the patterns to fabric. Fitting: Definition – Principles for a good fit– Checking the fit of a garment – Solving fitting problems in various garments.

UNIT III

Draping – Importance of draping – Dress form and types – Draping steps for basic bodice, skirt, pants. Procedure to develop necklines: Jewel neck - Round neck - 'U' neck - Square neck - Pentagon neck - Star neck - Inside and outside scallop neck. Procedure to develop sleeves: Plain and puff sleeves.

UNIT IV

Procedure to draft the ¼th patterns for men's wear: Basic round neck T shirt, raglan sleeve T shirt with hood, full sleeve shirt, narrow bottom trouser.

Procedure to draft the ¼th patterns for kids wear: Jabla, knicker, pedal pusher, A-Line frock.

Procedure to draft the ¼th patterns for Ladies wear: Blouse, kameez, salwar, midi, midi top.

UNIT V

Basic principle of dart manipulation – Displacement of bust dart (waist – side seam, armhole – neck of front edge).

Grading – Definition – Principles of grading - Master grades – Basic back & front grades – Grading of basic sleeve, basic collar, basic facing. Selecting a grading system – Midi – Trace grading – Trouser grading – Jacket grading – Shirt grading.

REFERENCES:

1. *Helen Joseph Armstrong*, Pattern Making For Fashion Design, Harper Collins Publishers (1987).
2. *Winifred Aldrich*, Metric Pattern Cutting, , Blackwell Science Ltd, England (1994).
3. *Winifred Aldrich*, Metric Pattern Cutting for Men's Wear, Blackwell Science Ltd, England (1990).
4. *Winifred Aldrich*, Metric Pattern Cutting for Children's Wear (From 2 – 14 Years), Blackwell Science Ltd, England (1991).
5. *Gerry Cooklin*, Pattern Cutting for Women's Outerwear, Blackwell Science Ltd, England (1992).
6. *Gerry Cooklin*, Pattern Grading for Women's Clothes, Blackwell Science Ltd, England (1990).
7. *Gerry Cooklin*, Pattern Grading for Men's Clothes, Blackwell Science Ltd, England (1992).
8. *Gerry Cooklin*, Pattern Grading for Children's Clothes, Blackwell Science Ltd, England (1991).
9. *Gerry Cooklin*, Master Patterns and Grading for Women's Outsizes, Blackwell Science Ltd, England
10. *Natalie Bray*, Dress Pattern Designing, Blackwell Science Ltd, England (1986).
11. *Natalie Bray*, More Dress Pattern Designing, Blackwell Science Ltd, England
12. *Natalie Bray*, Dress Fitting, Blackwell Science Ltd, England (1978).
13. *Maccam, Dinald H*, How to Make Sensible Pattern.
14. *Gollian Holman*, Pattern Making Made Easy.
15. *Inju Kim*, Apparel Making in Fashion Design, Fairchild Publications Inc. New York (2002).
16. *Winifred Aldrich*, Fabric, Form and Flat Pattern Cutting, Om Book Service, New Delhi (1996).

SEMESTER – II PRACTICAL II - DYEING

LIST OF EXPERIMENTS

NATURAL FIBRES :

1. Dyeing Of Cotton Materials With Vat Dyes.
2. Dyeing Of Cotton Materials With sulphur Dyes.
3. Dyeing Of Cotton Materials With Cold Brand Reactive Dyes.
4. Dyeing Of Cotton Materials With Hot Brand Reactive Dyes.
5. Dyeing Of Cotton Materials With Vinyl Sulphone Dyes.
6. Dyeing Of Wool With Acid & Metal Complex Dyes.
7. Dyeing Of Wool With Reactive Dyes.
8. Dyeing Of Silk With Acid & Metal Complex Dyes.
9. Dyeing of silk with reactive Dyes.

MAN MADE FIBRES AND BLENDS:

10. Dyeing Of Nylon with Acid Dyes.
11. Dyeing Of Nylon With Disperse Dyes.
12. Dyeing Of Polyester With Disperse Dyes.
13. Dyeing Of Acrylics With Cationic Dyes.
14. Dyeing Of Acrylics With Disperse Dyes.
15. Dyeing Of Polyester-Cotton Blend With Disperse / Reactive Dyes.
16. Dyeing Of Polyester-Cotton Blend With Disperse / Vat Dyes.

SEMESTER – II ALLIED PAPER II - WOVEN FABRICS AND DESIGNS

UNIT – I

Classification of fabric forming methods – Weaving preparatory processes - Objects of winding process – Winding types – Passage of material through conventional drum type slow speed non – automatic and modern drum type high speed automatic winding machine with machine elements – Passage of material of precision winding machine – Winding terminologies, open wind and close wind – Winding defects, causes & remedies. Pirn winding – Objects - Passage of material through an automatic high speed pirn winder.

UNIT – II

Objects of warping – Types of warping – Passage of material through slow speed conventional beam warping machine, high speed modern beam warping machine & sectional warping machine – Warping defects, Causes & remedies. Objects of sizing – Passage of material through two cylinder, multi cylinder & hot air sizing machines – Sizing ingredients & their functions – Size paste preparation – Sizing defects, causes & remedies.

UNIT – III

Passage of material through a plain power loom – Basic mechanisms of a loom – Primary, secondary & auxiliary motions – Tappet shedding – Cone over pick & under pick mechanisms – Beat up mechanism – Types of let off & take up mechanisms – Fabric defects, causes & remedies.

UNIT – IV

Introduction to weaves – Weave diagram – Plain weave & derivatives – Twill weave & derivatives – Satin & sateen weaves – Honeycomb – Huck a back. Objects of dobby & jacquard mechanisms – Types of dobby & jacquard – Study of negative & positive dobbies – Study of single cylinder & double cylinder jacquard mechanisms.

UNIT – V

Salient features of automatic looms - Introduction to shuttleless looms - Advantages over shuttle looms - Types of shuttleless looms –Principles of shuttleless looms - Rapier – Projectile – Airjet – Waterjet – Introduction to non wovens – Production methods - Applications.

REFERENCES:

1. *R.Marks, A.T.C. Robinson*, Principles of Weaving, The Textile Institute, Manchester (1976).
2. *B.Hasmukhrai*, Fabric Forming, S.S.M Institute of Textile Technology Students Co operative stores Ltd, Komarapalayam (1996).
3. *Prof.N.N.Banerjee*, Weaving Mechanism, Vol. I & Vol. II, Published by Smt.Tandra Banerjee, West Bengal (1999).
4. *Prof.J.L.Chakravorty*, Mechanism of Weaving Machines, Smt.B.Chakravorty, Serampore, W.B. (1984).
5. *Sabit Adanur*, Handbook of Weaving, Technomic Publishing Company, Inc, USA (2001).
6. *Peter Schwartz*, Trevor Rhodes, Mansour Mohamed, Fabric Forming Systems, Mahajan Book Distributors, Ahmedabad (1996).
7. *K.T.Aswani*, Fancy Weaving Mechanism, Mahajan Book Distributors, Ahmedabad (1990).
8. *N.Gokarneshan*, Fabric Structure and Design, New Age International Publishers, New Delhi (2004).
9. *Z.Grosicki*, Watson's Textile Design and Color and Advanced Textile Design and Color, Newnes – Butter Worth, Universal Publishing Corporation, Bombay (1988).
10. *Blinov.I, Belay.S*, Design of Woven Fabrics, MIR Publishers, Moscow (1988).

SEMESTER III CORE-VII KNITTING TECHNOLOGY-I

UNIT – I

Introduction To Knitting: Different fabric forming methods-Comparison of weaving and knitting-Principles of weft and warp knitting – Comparison of weft and warp knitting – Classification of knitting machines – Structure of Knitting Industry in India.

UNIT-II

Description of Circular Weft Knitting Machine: Yarn passage diagram of a circular knitting machine – Knitting machine elements and description - Knitting cycle of latch, Beard and Compound needle with sinker.

UNIT-III

Single Knit Structure: Knitting terms and definitions - Principal weft knit stitches - Knit, tuck and miss stitch formation and properties - Representation of weft knit stitches – Study of Basic weft knit structures – Characteristics of Single Jerky Fabrics.

UNIT-IV

Double Knit Structure-Rib: Introduction to Double Knit-Needle Gating- Description of Circular Rib Knitting Machine-Rib Fabric Characteristics. **Double Knit Structure-Interlock& Purl:** Description of Circular Interlock Knitting Machine- Interlock Fabric characteristics. Description of Circular Purl Knitting Machine-Purl Fabric characteristics

UNIT-V

Flat Knitting : Flat Knitting – Yarn passage diagram of a flat knitting machine – Mechanical type Flat knitting machine - Needle bed assembly – Racking, Carriage and Cam box arrangement - Yarn feeding arrangement – Carriage Driving Mechanism- Fabric Take – Down Mechanism.
Fabric Faults And Calculations: Knitted Fabric Faults- Causes and Remedies. Effects of Loop Length and Tightness Factor. Calculations: Estimation of Course & Wales Density and Loop Length – GSM Calculations- Count and Gauge Relationship- Knitting Production Calculations.

References:

1. D.B. Ajgaonkar – Knitting Technology
2. David .J.Spencer – Knitting Technology
3. Chandrasekara Iyer et al. – Circular knitting technology
4. Dr.Samuel Raz – Flat Knitting
5. Dr.S.Raz – Warp Knitting Technology
6. Peter Lord et al. – Fabric forming systems

SEMESTER III CORE-VIII PATTERN MAKING – PRACTICAL

Draft And Construct The Pattern Of Given Style / Sample As Per The Specification Given With And Also Grade The Same For Required Sizes

1. Men's Basic T Shirt
2. Men's Raglan With Pocket
3. Men's Polo T Shirt
4. Men's High Neck Shirt
5. Men's Boxer Short
6. Men's Bermudas Short
7. Men's Trouser
8. Men's Kimono Sleeve
9. Men's V – Neck Shirt
10. Men's Hood Shirt
11. Men's Inner Garment – Vests RN / RNS
12. Men's Under Garment: Briefs With Inner Waist Band Or Outer Waist Band Of Various Models - Trunk Type.
13. Ladies Skirt
14. Ladies Blouse
15. Ladies Basic Bodice
16. Women's Nighties
17. Kid's Wear Of Various Styles
18. Children's Suits and Pyjama

SEMESTER III CORE-IX PRINTING TECHNOLOGY

Unit-1

INTRODUCTION TO PRINTING PROCESS & ITS MACHINES

Fabric Preparation For Printing - Preparation Of Printing Paste – Essential Component Of A Printing Paste – Selection Dye Stuffs As Per Print Style.

Unit-2

Methods Of Printing: Introduction - Screen Printing - Roller Printing - Rotary Printing - Advantages And Disadvantages Of Roller Rotary And Screen.

Unit-3

STYLES OF PRINTING

Direct Styles Of Printing – Discharge Styles Of Printing – Resist Styles Of Printing.

Unit-4

PRINTING MACHINES

Preparation Of Screens For Table And Rotary Screen Printing Machine, Different Methods, Principle And Working Of Flat Bed Printing Machine With Line Diagrams With Conveyor And

Float Dryer - Working Of Rotary Printing Machine With Line Diagram And Its Limitations. Comparison Of Rotary Printing Machine With Flat Bed Printing Machine - Principle And Working Of Garment Printing Machine And Working Of Table Screen Printing Machine With Limitations And Advantages. Post Printing Operations – Curing & Agency.

Unit-5

PRINTING ON KNIT FABRICS.

Preparation Of Knit Fabric For Printing. Printing In Tubular & Open Form, Garment Form – Limitation And Their Problem Associated In printing Tubular Fabrics – Khadi And Colour Khadi Printing. Plastic & Rubber Prints – Gold & Silver Prints On Knit Fabric By Direct Style Method.

References :

1. Prayag.R.S. Tech.Of Tex.Printing,1986 Mrs.Prayag 127 Belgaum Rd, Dharwad-580 008.
2. Storey, Manual Of Tex. Printing 1979, Thomson Hudson Ltd, London.
3. Kale.D.G., Principles Of Cotton Printing Edition - 2, 1976, Mahajan Book Depot, Ahmedabad-9.
4. Mills.LWC, Tex.Printing 1981, SDC Perkin House, 82, Grattom Rd, Yorkshire, England.

SEMESTER III CORE-X PRINTING TECHNOLOGY-PRACTICAL LIST OF EXPERIMENTS:

1. Direct Style Of Printing Using Hot Brand Reactive Dyes (Procion H Dyes).
2. Direct Style Of Printing Using Vinyl Sulphone Dyes.
3. Direct Style Of Printing Using Pigment Dyes On Cotton And P/C Blend.
4. Direct Style of Printing with Khadi On knit fabrics.
5. Development of Plastic Print On knit fabrics.
6. Development of Silver / Gold Print On knit fabrics.
7. Development of Tie & Dye Style of Printing with Vinyl Sulphone Dyes.
8. Development of Batik Style Print With reactive Dyes.
9. White Discharge on Ramazol Ground.
10. Vat Colour Discharge on Ramazol Ground.

ALLIED: III INTRODUCTION TO COMPUTERS

UNIT I

Introduction to computer - Definition of a computer - Computer generations - Classification of a computer - Areas of application - Concepts of data and information - Capabilities and limitations of a computer. Components of a computer system: Hardware – CPU, input devices, output devices, storage devices, motherboard, power supply unit. Memory: Primary memory, secondary memory. Software: System software, application software. Programming languages, packages. Introduction to numbering systems - Binary, octal, decimal and hexadecimal number systems.

UNIT II

Operating system: Functions of an Operating System - Classification of Operating Systems - Introduction to DOS - Graphical User Interface Systems - Basic components of a GUI system - Advantages of GUI over CUI - Introduction to Windows XP. Introduction to computer net working, network operating systems, network concept and classification, LAN, LAN topologies, WAN, Advantages of networking - Introduction to Windows 2000 server.

UNIT III

Introduction to MS Office: The Office Assistant, Working with multiple data, clip art, templates, wizards - Introduction to word processing - Word Processor, benefits and advantages, applications, mail merging, working with word processor - Spread sheet – An introduction - Advantages of using spread sheet software, applications of spreadsheet, Excel. Understanding workbooks and worksheets, charts & tables. Power point - An introduction - The concept of a presentation, creating a slide show, preparing hand-outs.

UNIT IV

Introduction to internet, History of internet, The World Wide Web. Internet browsers – Internet Explorer, Netscape Navigator. Internet Tools – E-Mail, advantages and disadvantages of E-Mail. Search engines and benefits. Introduction to E – commerce.

UNIT V

Virus, Types of viruses, How do virus spread, Symptoms of a virus attack, Prevention of virus attack, Detection of viruses, Removing viruses.

REFERENCES:

1. *R.Krishnamoorthi*, Computer Programming and Applications, J.J Publications.
2. *Greg Perry*, Teach Yourself Microsoft Office 2000 in 24 Hours, Tech media Publications.

SEMESTER III DIPLOMA-I ACCOUNTANCY FOR GARMENT PRODUCTION

Unit-1

Introduction - Book Keeping - Meaning Of Accounting - Types Of Accounts – Personal – Real – Nominal - Financial Accounting - Management Accounting- Cost Accounting – Managerial Uses –Double Entry System – Advantages.

Unit-2

Journal-Ledger-Trial Balance-Rectification Of Errors-Suspense Account – Subsidiary Books-Invoice-Debit Note – Credit Note- Cash Receipts-Voucher- Bank Reconciliation Statement.

Unit-3

Final Accounts – Preparation Of Trading Account-Profit & Loss Account And Balance Sheet-Adjustments In Final Accounts- Outstanding Expenses- Prepaid Expenses-Distinction Between Capital And Revenue Expenditure- Differed Revenue Expenditure-Capital And Revenue Receipts- Depreciation- Meaning – Types- Straight Line Method- Diminishing Method.

Unit-4

Financial Statements- Nature Of Financial Statements-Limitations Of Financial Statements-Types Of Analysis-Ratio Analysis – Types- Liquidity Ratios- Turnover Ratios- Profitability Ratios – Importance And Limitations Of Ratio Analysis. Fund Flow Statement- Need And Meaning- Managerial Uses And Limitations Of Fund Flow Statement- Cash Flow Statement- Need And Meaning-Managerial Uses And Limitations Of Cash Flow Statement.

Unit-5

Capital Budgeting – Importance- Evaluation Techniques – Payback Period Method- Arr Method – Dcf Methods – Npv And Irr Methods- Working Capital Management- Need - Types Of Working Capital – Computation Of Working Capital.

References:

1. N.Vinayagam, P.L. Mani,K.L.Nagarajan,*Principles Of Accounting*
2. Arulanandam & K.S.Raman,*Advanced Accounting*
3. Gupta & Radhasamy, *Advanced Accounting*
4. Shukla & T.S. Grewal , *Advanced Accounting*
5. Maheswari, *Management Accounting & Financial Accounting*
6. Manmohan & Goyal , *Principles Of Management Accounting*
7. Jain & Narang, *Advanced Cost Accounting*

SEMESTER IV CORE-XI Knitting Technology –II

UNIT-I

Description of Modern Knitting Machine: Features of Modern Knitting Machines- Machine Elements- Knitting Elements- Monitoring and Maintenance devices- Relanit Technology. Needle Selection Techniques: Principles of Needle selection- Direct needle control and indirect needle control- Electronic needle control- Features of Modern Jacquard Knitting machines.

UNIT-II

Development of Single Jersey Multi track and Jacquard Designs: Study of Plain Jersey Structure and Derivatives- Single Pique, Double Pique, Honey Comb, Purl, Plated Structure, Cross miss, Cross Tuck, Accordion- Ornamentation of Weft Knit Structures- Elastomeric Yarn insertion and its effects.

UNIT-III

Development of Double Jersey Designs: Ornamentation of Rib Structures- Study of Rib Derivatives- Half Cardigan, Full Cardigan, Double half Cardigan, Double Cardigan, Double side Half Cardigan, Rippled Cardigan, Milano Rib, Half Milano, Ripple, Flat back Rib, Rib Waffle, Rib Drop Needle, Swiss Pique, French Pique, Platted Rib. Study Of Interlock Derivatives: Eight Lock, Single Pique, Cross Tubular, Cross Miss, Half Milano, Ponte-Di-Roma, Ottaman Rib Bourrelet, Texi Pique, Pin Tuck, Platted Interlock .

UNIT-IV

Specialty Structure: Introduction to Fleece Structure and its types- Formation of Different Fleece Structure- Formation of Plush Structure- Mechanism of Wrapper Finger- Programming- Effect of Elastomeric Yarn and its effects.

UNIT –V

Flat Knitting Stitches: Transfer stitch (Description of Formation, Machine Arrangement and Loop Diagram- Properties and Applications.)- Drop Stitch (Description of Formation, Machine Arrangement and Loop Diagram).

Principles of Needle Selection of High and Low Butt Needles- Needle Arrangement and Cam Arrangement for simple Designs.

Introduction to Computer Controlled Flat Knitting Machine.

References

1. Circular Knitting Technology: Meise Nbach Bamberg
2. Knitting Technology : D.B. Ajgoankar
3. Flat Knitting : Samuel Raz
4. Warp Knitting Technology : S. Raz
5. Starfish Manual : U.K. Publishers

SEMESTER IV CORE-XII APPAREL MANUFACTURING TECHNOLOGY

UNIT I: Structure of Clothing Industry:

Introduction to textiles -Process sequence, sectors of apparel industry – Size & Manufacturing structure - various departments and their role - Apparel market Case studies.

Classification of Garments:

Garment analysis - Types of garments - Requirement and break down of garments - Torso and bifurcated Garments - Product types and its influence on organization - Fabric selection techniques for garments - Case study on garment classification, flow process and fabric selection.

UNIT II: Pattern Making:

Concept of Basic Pattern and Grading - Developing Basic Patterns - Pattern Materials & Limitations - Pattern Making Tools - Introduction to Computer Aided Pattern Making and Grading - Case Study on Standard Body Measurements For Different Countries for Men, Women and Children's Clothing and Commercial Patterns - Pattern Defects Causes and Remedies.

UNIT III: Spreading & Cutting:

Process sequence - Marker Planning, drawing and reproduction - Marker efficiency - Lay - Spreading and Methods - Cutting and Cutting Machine Types - Bundling - Case Study on Spreading and Cutting Machines.

UNIT IV: Sewing:

Classification of Stitches and Seams - Mechanism of Stitch Formation of Chain and Lock Stitch - Sewing Machine Types and Applications - Brief Study on Work Aids, Special Purpose Machines and Needles - Pressing & Packing -Case Study on Various Sewing Machines, Sewing, Needle and Thread Problems, Causes & Remedies, Sewing Thread Consumption Ratio.

UNIT V: Garment Accessories & Embellishments:

Role of Accessories - Buttons, Zipper, Labels, Lining. Interlining Labels Wadding, Lace, Braid & Elastic - Hook & Loop Fasteners -

REFERENCES:

1. H.Carr and B.Latham, Technology of Clothing Manufacture
2. Gerry Cooklin, Introduction to clothing Manufacture
3. Jacob Solinger, Apparel Manufactures Hand Book
4. T. Bracken Berry, Knitted clothing Technology.
5. A.J. Chuter, Clothing Production Management.

SEMESTER IV CORE-XIII GARMENT CONSTRUCTION

1. Basic Introduction To Various Pre-Construction Stages – Marker Planning – Spreading – Cutting – Detailed Study Of Sewing Machine.

2. ELEMENTS AND FUNCTIONS OF CLOTHING

Garment Analysis And Its Classification - Measurement And Size Charts For Men, Women, And Children - Requirement And Breakdown Of Garments - Flow Process - Torso And Bifurcated Garments.

3. STITCHES

Introduction –Definition -Basic Principles Of Stitch Formation – Classification Of Stitches Based On Federal Standards -- Formation Of Important Stitch Classes In 100,200,300,400,500 And 600 Series – Detailed Study Of Application Of All Stitches - Comparison Of Stitches .

Introduction –Definition – Properties –Detailed Study On Seams Classification As Per Federal Standards. Seam Finishes – The Concept Of Seam Performance.

4. DEFECTS & REMEDIES

Detailed Study On Various Stitching, Sewing And Assembly Defects - Causes & Remedies: Skip Stitch, Unbalanced, Puckering, Gathering, Needle Defects, Thread Problems – Quality Of Threads And Its Impact On Sewing Quality – Sewability And Its Influencing Factors – Needle Cutting Index.

5. ALTERNATIVE METHODS OF JOINING MATERIALS:

Fusing And Its Requirements – Fusing Process – Interlinings – Fusible Resin Types – Factors For Fusing Equipment . Welding And Adhesives – Moulding.

Introduction To Trims And Accessories Attachments -Label, Zips, Fasteners – Sewing Thread Types And Ticket Numbering. Thread Consumption For Various Types Of Stitches And Garments

References:

1. Apparel Manufacturing – Hand Book – Jacob Solinger
2. Technology Of Clothing Manufacture – Herold Carr & B.Latham
3. Knitted Clothing Technology – T.Bracken Berry
4. Technology Of Stitches & Seams – Coats Viyella Limited

SEMESTER IV CORE-XIV COMPUTER APPLICATION- PRACTICAL

1. Do The Following Exercise Using DOS:
 - Create A File And Display It
 - Delete And Rename A File
 - Display All Files With The Extension .Exe Or .Bat
2. Create A Batch File And Macro Using DOS Commands.
3. Using Windows
 - Create A Folder And Sub Folder
 - Edit And Delete A Folder
 - Rename The Folder
 - Copy A Folder In To Floppy Disc
4. Create A Text File Using Windows And Save It In A Folder That Is Created By You And Print The File Using Print Command. Also Create A Shortcut Of The File In The Desktop.
5. In Microsoft Word Use The Following Utilities In Your Document
 - Find, Replace, Go To, Header & Footer, Zoom
 - Insert A Hyperlink And Bookmark Into Your Document
6. Create A Document Using The Utilities Of MS Word
 - Font, Bullets And Numbering, Borders And Shading, Auto Format
 - Auto Correct, Spell Check
 - Create A Table In MS Word
7. Create A Letter And Send To All The Students Who Have Different Addresses Using Mail Merge Facility. Also Create A Macro Using Same Utility Of Ms-Word.
8. Create A Spread Sheet Which Contains Chart, Pivot Table,
9. Using MS Word, Produce The Given Report
10. Using MS Excel Produce The Given Balance Sheet
11. Using MS Excel Get The Output In The Various Graphs For The Given Data's
12. Using MS Excel Do The Given Calculation And Get Required Statement
13. Using MS Power Point Prepare The Flow Chart And Presentation Slides For Given Topic
14. Design The Given Motif / Design Using Corel Draw.
15. Create The Given Situation In Corel Draw.
16. Work On Adobe Photo Shop For Given Designed Card
17. Design A Web Page For The Given Details Using HTML / DHTML / Flash

Internet

18. Experiment on Searching Related Websites for a Particular Topic Using Search Engine.
19. Experiment on Creating an E-Mail Address & Sending and Receiving E-Mail.

SEMESTER IV ALLIED: IV PROCESS HOUSE MANAGEMENT AND ENTREPRENEURSHIP

1. ORGANISATION

Different Types Of Organisation Chart Of A Process House. Plant Location - Selection Of Site For A Dye House - Factors Considered For Selection Of Site - Importance Of Lighting And Its Requirements In A Dye House - Material Handling - Material Handling Equipments Used In The Dye House.

2. PRODUCTION MANAGEMENT

Productivity And Work Study In Processing Industries - Time Study - Labour Productivity Index And Machine Productivity Index. Objectives Of Production Planning And Control (PPC) - Functions Preplanning, Routing, Scheduling, Despatching, Controlling, Research, Product Planning, Product Development And Standardisation - Concept Quality Circle And Its Usefulness. Inventory Control - Definition - Economic Order Quantity (E.O.Q), ABC Analysis.

3. FINANCIAL MANAGEMENT

Objectives Of Financial Management - Sources Of Finance - Idea About Capital Cost And Working Capital Requirements - Costing - Importance Of Costing - Over Heads - Different Types Of Over Heads - Fixed Cost And Variable Cost - Break Even Point - Depreciation. Introduction To Personnel Management In Process House.

4 ENTREPRENEURSHIP DEVELOPMENT - I

EDP – Meaning – Analysis – Types And Functions – Influence Of Environmental Factors – Helps In EDP – Training And Development Of Entrepreneur. Business Idea – Project Identification And Formulation – Classification Of Project – Feasibility Studies – Project Appraisal Method – Project Design – Institutional Finance To Entrepreneur – Approaching Financial Institutions For Loan. Promoting An Enterprise: Small Scale Industries – Regulation – Governing Small Scale Industries – Incentives And Concession For Ssi Units. Institution And Development Of Entrepreneur – Role Of DIC – SIDO – SISI – SIDCO – NSIC – NAYE – KVIC – DCOS – ITCOT And Entrepreneurial Guidance Bureau.

5. EXPORT MARKETING

Importance Of Export To National Economy - Brief Idea About International Markets - Role Of WTO & GATT - Comparison Of Domestic Market And Global Market - New Textile Policy. Export Pricing - FOB, FAS, CIF - Role Of Textile Export Promotion Councils - TEXPROCIL, AEPC, HEPC AND PDEXCIL. Role Of Textile Commissioners Office. BIS & Textile Committee - Information Technology On Process House Management - Use Of Enterprise Resource Planning [ERP].

Reference:

1. Personal Management And Industrial Relations – Tripathi
2. Industrial Engineering And Management – O.P. Khanna

SEMESTER IV DIPLOMA: II FASHION MERCHANDISING

UNIT I

Fashion: Meaning, Definition & Terminologies – Components of fashion - Principles of fashion – Environment of fashion: Demographic & Psychographic, Economic, Sociological and psychological factors – Fashion cycle - Leaders of fashion: Designer's role, manufacturer's role and retailer's role – Theories of fashion adoption.

UNIT II

Scope of fashion business: Primary level, secondary level and retail level – Type of fashion designers - Fashion focus on Children Apparel: History, organization & operation, merchandising & marketing activities – Fashion focus on Ladies Apparel: History, organization & operation, merchandising & marketing activities

UNIT III

Fashion Focus on Men's apparel: History, organization & operation, merchandising & marketing activities – Fashion focus on Apparel accessories: History, organization & operation, merchandising & marketing activities – Fashion Forecasting – Forecasting techniques – Sources of forecasting

UNIT IV

Fashion merchandising: Store image, Target customer – Fashion direction - Design planning and selection – Merchandising plan – Buying – Receiving and Warehousing – Distribution – Retail selling and promotion – Sales evaluation – Retailing policies – Foreign Fashion Markets: France, Italy, America, Britain, German, Asian – Indian Fashion Industry

UNIT V

Fashion Shows –Types of Fashion Shows – Organising fashion shows – Check points for fashion shows – Foreign Fashion Designers: American, French, Italian, German, UK – Indian Fashion Designers – Fashion Association in India – Fashion Auxiliary services

References:

1. Strong Elian, Fashion Merchandising
2. Inside the Fashion Business.. Mc Millan Publishing Co.,
3. Apparel Merchandising
4. Fashion : Concepts to Consumers

SEMESTER V CORE XV TECHNOLOGY OF FINISHING

UNIT-I

FINISHING AND FINISHING AGENTS

Object Of Finishing - Classification, Temporary / Permanent / Chemical / Mechanical-Stiff Finishing Using Starches, Pvac (Polyvinyl Acetate), CMC, Dextrin With Recipes- Back Filling And Backram Finishes Softeners Properties, Merits, Demerits Of Anionic, Cationic, Non Ionic And Reactive Softeners.

UNIT-II

Brief Idea About The The Chemicals Used For Stain Guard Finish. Resin Finishing For Anti-Crease Properties- Dimensional Stability Mechanism Of Pre-Shrinkage/ Compact Machine - Concept - Condition And Mechanism Of Heat-Setting.

UNIT-III

SPECIAL FINISHES

FINISHING OF KNITTED GOODS: Peach Finish. Biopolishing With Enzymes, Anti-Microbial Finish, UV Protection Finish, Sand Blasting, Stone Wash.

UNIT-IV

A Brief Study On Polyethylene Emulsion, Silicon Emulsion, Acrylic Emulsion, Wax Emulsion- Water-Proofing And Water Repellent Finishes-Fire Retarder Finish-Soil Release Finish With Recipes And Process Sequence.

UNIT-V

FINISHING MACHINES

Back Filling Machine - Raising & Brush Machine - Over Feeding Systems And Its Advantages - Float Dryer(With Padding Mangle). Brief Idea About Garment Finishing.

References:

1. Shenai.V.A., Tech.Of Tex.Processing Vol. IV 1982, Sevak Publications, Mumbai-31.
2. Datye.K.V.& Vaidya, Chemical Processing Of Synthetic Fibres And Blends 1984, Johnwiley & Sons Publications, New York.
3. Dr. G.Nalankilli And G.S.Jeyapragasham, Textile Finishing, SSMITT Students Cooperative Stores, Komarapalayam

SEMESTER V CORE XVI TECHNOLOGY OF FINISHING-PRACTICAL

FINISHING

1. Finish The Given Fabric Using 2% Starch.
2. Permanent Stiff Finish Using Poly Vinyl Acetate.
3. Finishing the Given Fabric Using 2% Softener.
4. Back Filling / Buckram Finish.
5. Finish The Sample Using The Given Resin.
6. Evaluation of Softeners (Application method).
7. Give Scroopy Finish For Silk.
8. Carbonise P/C Blend.
9. Biopolish Using Enzyme.
10. Give Stain Repellent Finish.

SEMESTER V CORE XVII QUALITY ASSURANCE IN TEXTILE PROCESSING AND APPAREL

UNIT-I

INTRODUCTION TO QUALITY ASSURANCE: Standards and Its Benefits Definition. Of Process Control And Quality Control - Need For Quality Control In Textile And Apparel Industries. Moisture Relations & Its Measurements Fibre Length, Fineness, Maturity Strength Cotton Trash Counter In Yarn Quality And Their Importance.

UNIT-II

TESTING OF YARNS

System Of Yarn Numbers Determination. Yarn Twist - Importance Of Twist -Yarn Strength And Its Importance - Principle Of Lea Strength Tester And Its Working - CSP. Yarn Evenness & Hairiness And Its Effects On Fabric Quality.

UNIT-III

TESTING OF FABRICS & APPAREL:

Knitted Fabric Terms And Definitions - Fabric Analysis – Fabric Strength Testing - Bursting Strength Tester - Pilling Of Fabric And Pilling Tester - Air Permeability And Water Permeability Testing - Fabric Thickness Gauge - Crease Resistance And Crease Recovery - Fabric Handle - Drape And Stiffness – Garment Stretch Properties.

UNIT-IV

QUALITY CONTROL IN WET PROCESSING:

Identification Of Dyes On Cellulosic Fibre, Protein Fibre And Synthetic Fibre. Evaluation Of Dye Strength & Attention Of Recipe For Reproducibility.

Need For Quality Control In Textile Wet Processing - Quality Control In Desizing, Scouring, Bleaching Mercerizing, Dyeing, Printing And Finishing. Absorbency Tests By Drop Test Method And Wicks Method.

UNIT-V

Determination Of Ash Content - Determination Of Whiteness - Determination Of Barium Activity Number – Shrinkage & Spirality - Dimension Stability Of Fabric - Determination Of Colour Fastness To Washing, Rubbing Perspiration, Hot Pressing, Dry Cleaning And Sublimation - Determination Of Light Fastness By Xenon Arc Lamp – Eco Labels- Eco Friendly Norms.

References :

1. J.E. Booth, Principles Of Textile Testing.
2. B.K.Kothari, Testing And Quality Management.
3. Elliot R.Grover & D.S.Hamby, Handbook Of Textile Testing & Quality Control
4. P.Angappan & R.Gopalakrishnan, Textile Testing.
5. Pradeep V Metha & Satis K.Bhardwaj, Managing Quality In Apparel Industries.
6. Bureau Of Indian Standards, ISI Standards.
7. Technical Manual : American Society For Testing & Materials (ASTM), Vol. 7.1 & 7.2.
8. Technical Manual : American Association Of Textile Chemist & Colorist (AATCC).

SEMESTER V CORE XVIII QUALITY ASSURANCE - PRACTICAL

LIST OF EXPERIMENTS

1. Determination Of Single And Double Yarn Twist, CV% Of Twist Using Electronic Twist Tester.
2. Determination Of Lea Strength Using Lea Tester And Calculation Of Lea CSP, CV% Of Count And Strength.
3. Determination Of Count Of Yarn And CV% Using Wrap Reel And Physical Balance.
4. Determination Of Count Of Yarn And CV% Using Wrap Reel And Electronic Yarn Count Balance.
5. Determination Of Fabric Bursting Strength.
6. Determination Of Pilling Resistance Of Fabric Using Pilling Tester.
7. Knitted Fabric Analysis (Courses Per Inch, Wales Per Inch, Stitch Density, Loop Length, Course Length, Tightness Factor, GSM).
8. **Blend Composition – Chemical Test**
9. **Determination Of Color Fastness Of Given Sample To Washing By Using Launder Meter And Rating With Help Of Grey Scales**

10. **Determination Of Color Fastness Of Given Sample To Rubbing By Using Crockmeter And Rating With Help Of Grey Scales –**
11. **Determination Of Color Fastness Of Given Sample To Perspiration By Using Perspirometer And Incubator & Rating With Help Of Grey Scales.**
12. **Determination Of Dimensional Stability (Shrinkage % / Growth %) of A Given Fabric/Garment To Washing By Using Mechanized Washing Machine As Per ISO Procedures.**

SEMESTER V DIPLOMA-III TOTAL QUALITY MANAGEMENT

UNIT I

Quality – Evolution of Quality management – Quality Function and Quality Planning – Basic concepts of Total Quality Management (TQM) – Principles of TQM – Important Phases of TQM – Quality Trilogy – Four pillars of TQM – PDCA cycle & PDSA cycle – Kaizan concept – 5’S Philosophy – Quality Circles

UNIT II

Statistical Quality Control (SQC) : Definition – SQC techniques – Frequency distributions: Discrete and Continuous – Measures of Central tendency: Mean, Median & Mode – Measures of dispersion: Range, Mean Range, Mean Deviation, Percentage Mean Deviation, Standard Deviation, Coefficient of Variation – Normal distribution – Binomial distribution – Poisson distribution

UNIT III

Control charts: concepts and uses – Control limits – Control charts for Variables and Attributes: X Charts – R chart – P chart – NP chart – C chart – Acceptance sampling – Types of sampling plans: Single, Double and Multiple Sampling plans – OC curves – AQL and LTPD – Sampling errors and sampling risks – Producer’s risk and Consumer’s risk

UNIT IV

ISO 9000 Standards: Meaning & Definition – ISO 9000 family of standards – Elements of ISO – Benefits of ISO 9000 System – Study on ISO 9001:2000 Guidelines and Standard Clauses – Implementation Procedures and requirements for ISO 9001:2000 system – Quality Manual and its contents – Accreditation and Certification agencies – Quality audit – Types of quality audit – Audit procedure – Requirements and characteristic of a Quality auditor

UNIT V

Environmental Management System (EMS) – Meaning & Definition – Elements of EMS – Benefits of EMS – Environmental Policies – Implementation of ISO 14000 – Study on other management systems : OTN 100, SA 8000, OHSAS 18000, WRAP

REFERENCE

1. Dr. S.P.Gupta, “Statistical Methods”
2. J.M. Juran, “Quality Control Handbook”
3. V.K.Kapoor, “Statistics”

SEMESTER VI CORE XIX ADVANCES IN TEXTILE AND APPAREL PROCESSING

UNIT-I

CHEMICAL PREPARATORY PROCESSES

Combined Stage Desizing And Scouring And Bleaching - continuous bleaching machine -.bio scouring-enzyme based auxiliaries. Recent development in processing auxiliaries. Application of plasma in textile preparation

Garment Dyeing

Introduction to garment dyeing- factors to be consider for garment dyeing-selection of dyes for garments dyeing-garment dyeing machine-value added dyeing methods-limitation of garment dyeing-brief study on garment accessories dyeing.

UNIT-II

GARMENT FINISHING

INTRODUCTION TO GARMENT CHEMICAL FINISHING

Wash Down Effects on garments - Stone Wash,- Enzyme Wash-, Bio-Polishing -, Acid Wash -, Sand Blasting, - Wrinkle Free Finish -, Water Repellent Finish -, UV Protective finish-Anti-Microbial - Silicone Softeners – fire Retardant Finishes – PH extraction test for garments.

UNIT-III

GARMENT PRINTING FINISHING MACHINES:

Introduction to the garment printing - Transfer printing methods for garments and its limitation – selection of colorants for garment printing – special effects [photochromatic effect, Thermochrometic effects, highdensity, brasso styles, glitter] Finishing Techniques, Dip & Tumbling Process,. Stone Washing Machines Tumble Dryer,.

UNIT-IV

ECO STANDARDS

Need For Eco-Standards – Eco Labels & Norms – Need For Eco-Testing – Testing Of Formaldehyde-. Tonicity Of Dyes And Chemicals. Discussion Of Azo Testing. organic cotton and certification process. chemical to be avoid for eco norms

UNIT-V

ENERGY CONSERVTION

Low Liquor Ratio Machines Recipe Monitoring, Low Temperature Dyeing Methods. Rapid Inverse Dyeing Of P/C Blends. Introduction to computer colour matching system And its application on textiles-dyes dispensing system .recent develoment on pigments and dyes .a brief study on nano based products in chemical finishing..

References :

1. IIT – Delhi – Textiles Printing – Mahajan Brothers – Ahmadabad – 1980 Edition.
2. NIIR Board of Consultants and Engineers – Natural Dyes and Pigments – Asia Pacific Business Press Delhi.
3. Gulrajani – Dyeing and Printing with natural Dyes – NCUTE Publication – IIT Delhi – 2001 Edition.
4. Prof. K.B.Krishna Kumar – Pollution in Textile Industry – SSm I.TT. Komarapalayam

SEMESTER VI CORE XX GARMENT COSTING AND EXPORT DOCUMENTATION

UNIT-I

PRINCIPLES OF COSTING: Requirements Of Good Costing System - Cost Unit - Types Of Costs. Elements Of Cost - Direct Material Cost - Direct Expenses - Direct Wages - Indirect Materials - Indirect Expenses - Indirect Labour - Overheads - Production Overhead - Administrative Overhead - Selling Overhead Distribution Overhead - Prime Cost - Work Cost - Cost Of Production - Total Cost

UNIT-II

COST ESTIMATION Of Yarn, Knitted Fabric, Dyeing, Printing & Finishing. Cost Estimation For Cutting, Stitching, Checking, Packing, Forwarding, Shipping, Insurance Etc., - INCO Terms & Its Relationship With Costing.

ESTIMATION OF FACTORY COST For Vest, Briefs , Shorts, T-Shirts, Pyjamas, Children's Wear, Ladies Wear Etc., Various Factors To Be Considered In Costing For Domestic Products & International Products.

UNIT-III

FIRM ESTABLISHMENT

Introduction – Export Promotion Councils And Their Role – Registration Formalities - RCMC – IE Code – RBI Code.

Foreign Trade Documents: Need, Rationale And Types Of Documents Relating To Goods – Invoice – Packing Note And List – Certificate Of Origin – Certificate Relating To Shipments – Mate Receipt – Shipping Bill – Caret Ticket – Certificate Of Measurement – Bill Of Lading – Air Way Bill – Documents Relating To Payment – Letter Of Credit – Bill Of Exchange – Letter Of Hypothecation – Bank Certificate For Payment – Document Relating To Inspection – Certificate Of Inspection – GSP And Other Forms.

UNIT-IV

IMPORT PROCEDURE:

Import License – Procedure For Import License – Import Trade Control Regulation Procedure – Special Schemes – Replenishment License – Advance License – Split Up License – Spares For After Sales Service License – Code Number – Bill Of Entry.

UNIT-V

SHIPMENT AND CUSTOMS:

Pre Shipment Inspection And Quality Control – Foreign Exchange Formalities – Pre Shipment Documents. Shipment Of Goods And Port Procedures – Customs Clearance Of Import Cargo Post Shipment: Post – Shipment Formalities And Procedures – Claiming Duty Drawback And Other Benefits.

Reference:

1. Hand Book Of Import And Export Procedures - Paras Ram

SEMESTER VI CORE XXI COMPUTER AIDED DESIGNING – PRACTICAL

PART – A

Develop The Patterns For The Following Styles Using Any Cad Software For The Given Measurements And Also Grade The Patterns To Various Sizes And Estimate The Lay Length And Marker Efficiency.

1. Men's Basic T Shirt
2. Men's Polo T Shirt
3. Men's High Neck Shirt
4. Men's Bermudas Short
5. Men's V – Neck Shirt
6. Men's Collar Neck Shirt
7. Men's Inner Garment – Vests Rn / Rns
8. Men's Under Garment: Briefs With Inner Waist Band Or Outer Waist Band Of Various Models – Trunk.
9. Ladies Skirt With Pleats
10. Ladies Blouse
11. Women's Nighties
12. Kid's Wear Of Various Styles
13. Children's Suits And Pyjama

PART – B

1. Digitize The Given Patterns And Store Them As Style Files And Apply Grade Rules And Estimate The Lay Length And Marker Efficiency
2. Using Suitable CAD Prima Vision Software, Develop Various Designs For Making Printing Screens.

SEMESTER VI DIPLOMA –IV EXPORT SAMPLING AND PRODUCT DEVELOPMENT-PRACTICAL

Students Will Be Given Export Order Or Export Enquiry And They Are Asked To Design The Samples As Per The Specification Given And Also Prepare A Report Containing The Following Details.

1. Yarn Details & Composition
2. Yarn Consumption Per Garment
3. Fabric Details – Design, GSM, Machine Etc.,
4. Size Details
5. Factory Cost Of Garment

(Totally 6 Export Orders & 6 Export Enquiries Related To Following Styles Shall Be Given)

(Men's Basic T Shirt / Men's Crew Neck Shirt / Men's Polo T Shirt / Men's High Neck Shirt / Men's Boxer Short / Men's Bermuda Short / Men's Trouser / Men's Full Arm Shirt / Men's V –

Neck Shirt / Men's Collar Neck Shirt / Men's Inner Garment – Vests Rn / Rns / Men's Under Garment: Briefs With Inner Waist Band Or Outer Waist Band Of Various Models - Trunk Type. / Ladies Skirt With Pleats / Ladies Blouse / Ladies Basic Bodice / Women's Nighties / Kid's Wear Of Various Styles / Children's Suits And Pyjama)

SEMESTER V ELECTIVE I –A GARMENT INDUSTRIAL MANAGEMENT

Unit-I

Entrepreneurship- Meaning definition and types , need for Entrepreneurs, qualities and types of Entrepreneurship. Difference between Entrepreneur and manager. Management- Definition , Management as a process –Planning ,organizing ,Directing Controlling, Co ordination.

Unit-II

Institutions supporting entrepreneurs- DIC, NSIC ,SISI,SIPCOT, TII,KVIC, CODISSIA, COMMERCIAL BANKS –SBI.
Organizational structure of a garment unit –Hierarchical organization, production planning and control.

Unit-III

Different department in a garment unit – Design department ,Finance department, purchasing department , Production department, Organizing different sections – hierarchy
Personnel involved in all the departments, nature of the job .

UNIT-IV

Factory Design and layout – importance of factory design , factors affecting factory design , Types of buildings, (single and Multi –storey) –advantages and limitation . Factory layout – Process, Product and combined layout
Design requirement – requirements relating to health, safety and welfare

UNIT-V

Performance of Indian Garment Export, SWOT Analysis Setting up of garment unit for export market ,Export Document ,Export finance- Payment method ,Export shipping

Role of merchandiser in a garment unit
Reference;

1. Principles of management- Dinakar pagare, sultan chand and sons, delhi.
2. Entrepreneurship Development in India – Dr. C.B Gupta , Dr N.P . Srinivasan, sultan Chand and sons delhi 1997.
3. Garment Exports – Darlie O Koshy (1997)
4. Introduction to clothing production management – AJ Chester 2nd Edition , Wrenbury Associates Ltd (1998).
5. The technology of clothing manufacture – Harold Carr and Barbara Latham ,Blackwell Science (1994).

SEMESTER V ELECTIVE I – B

ENTREPRENEURSHIP DEVELOPMENT AND MANAGEMENT

Unit – I

Concept of entrepreneurship : Definition Nature and characteristics of entrepreneurship – function and type of entrepreneurship phases of EDP. Development of women entrepreneur & rural entrepreneur – including self employment of women council scheme.

Unit – II

The start– up process, Project identification – selection of the product – project formulation evaluation – feasibility analysis, Project Report.

Unit – III

Institutional service to entrepreneur – DIC, SIDO, NSIC, SISI, SSIC, SIDCO – ITCOT, IIC, KUIC and commercial bank.

Unit – IV

Institutional finance to entrepreneurs : IFCI, SFC, IDBI, ICICI, THIC, SIDCS, LIC and GIC, UTI, SIPCOT – SIDBI commercial bank venture capital.

Unit – V

Incentives and subsidies – Subsidied services – subsidy for market. Transport – seed capital assistance – Taxation benefit to SSI role of entrepreneur in export promotion and import substitution.

Books for Reference:

1. Entrepreneurial Development – C.B.Gupta and N.P.Srinivasan
2. Fundamentals of Entrepreneurship and Small Business – Renu Arora and S.KI.Sood
3. Entrepreneurial Development – S.S.Khanka
4. Entrepreneurial Development – P.Saravanavel
5. Entrepreneurial Development – S.G.Bhanushali
6. Entrepreneurial Development – Dr.N.Ramu

SEMESTER V ELECTIVE I – C

CARE AND MAINTENANCE OF TEXTILES

UNIT-I

Water- hard and soft water, methods of softening water.

Laundry soaps – Manufacture of soap (Hot process , cold process), composition of soap types of soap, soap less detergents , chemical action , detergent manufacture , advantages of detergents .

UNIT-II

Finishes – Stiffening Agents – Starch (cold water and hot water) , Other stiffening agents, preparation of starch .

Laundry blues , their application .

UNIT-III

Laundry equipment – for storage, for steeping and Washing – Wash board, suction washer, wash boiler, washing machine.

Drying equipments – out door and indoor types .

Irons and ironing board – types of iron (box, flat , automatic, steam iron) . Ironing board – different types.

UNIT-IV

Principles of washing – suction washing, washing by kneading and squeezing , washing by machine - Process details and machine details.

Laundering of different fabrics – cotton and linen, woolens, coloured fabrics, silks, rayon and nylon.

UNIT-V

Special types of Laundry – water proff coats, silk ties, leather goods, furs, plastics, lace.

Dry cleaning – using absorbents , using grease solvents.

Storing – points to be noted.

Stain removal – food stains, lead pencil, lipstick, mildew, nose drops, paint ,perfume, perspiration / mildew, tar, turmeric and kum- kum.

Care labels – washing, bleaching,Drying, ironing and different placements of label in garments.

References;

- 1.Textiles fabrics and their Selection – Wingate I B, Allied publishers Ltd, Chennai.
- 2.Fundamentals of Textiles and their Care- Susheela Dantyagi , Orient Longmann Ltd (1980).
- 3.Family Clothing – Tate of Glession , John Wiley & Sons I n c, Illinois.
- 4.Household Textiles and Laundry Work – Durga Duelkar , Amla Ram & Sons, Delhi

SEMESTER VI ELECTIVE II – A SURFACE EMBELISHMENT

Unit – I

Introduction to Surface Ornamentation and Embroidery – General rules for Hand and Machine Embroidery – Special Attachments to Sewing Machines for Embroidery – Tools and Equipments – Needles – Threads.

Unit – II

Running Stitch – Laced Running Stitch - Back stitch – Stem Stitch – Satin stitch – Bullion Knot – Pearl Knot – Cross Stitch - Blanket Stitch – Button Hole Stitch – Shaded Button Hole – Corel Stitch – Spider Web Stitch – Fly Stitch.

Unit – III

Chain Stitch – Daisy Chain Stitch – Roman Chain Stitch – Zig Zag Chain Stitch – Russian Chain Stitch – Zig Zag Cable Stitch – Chevron Stitch – Cretan Stitch – Faggoting Stitch – Feather Stitch – Fern Stitch – Fish Bone Stitch – Herringbone Stitch – Couching – Overcasting.

Unit – IV

Counted Thread Work – Drawn Thread Work – Cut Work – Bead Work – Mirror Work – Sequins Work – Introduction to print designs – Repeat Patterns – Block, Drop, Brick Variations – Surface Design Techniques – Batik – Tie and Die – Fabric Painting – Dry, Wet and Stroke.

Unit - V

A detailed study on Computerized Embroidery Machines – Concept of Designing – Special Attachments - Sequins – Cording – Boring – Chenille – Taping.

References:

1. Encyclopedia of Embroidery Stitches Including Crewel – Dover Publications – 1974
2. Computerized Encyclopedia of Needle Work – Therese De Dillmont – 3rd Edition.
3. Decorative Painting Techniques Book – Val Holmes – 2003
4. Traditional Indian Motifs for Weaving and Printing
5. 5000 Designs and Motifs from India – Ajit Mookerjee – 1996
6. Barudan / Tazima / ZSK Embroidery Machines Catalogue

SEMESTER VI ELECTIVE II – B EXECUTIVE BUSINESS COMMUNICATION

Unit – I

Business Communication : Meaning – Importance of Effective Business Communication– Modern Communication Methods – Business Letters : Need – Functions – Kinds – Essentials of Effective Business Letters – Layout.

Unit – II

Trade Enquiries – Orders and their Execution – Credit and Status Enquiries – Complaints and Adjustments – Collection Letters – Sales Letters – Circular Letters.

Unit – III

Banking Correspondence – Insurance Correspondence – Agency Correspondence.

Unit – IV

Company Secretarial Correspondence (Includes Agenda, Minutes and Report Writing)

Unit – V

Application Letters – Preparation of Resume – Interview: Meaning – Objectives and Techniques of various types of Interviews – Public Speech – Characteristics of a good speech – Business Report Presentations.

Books for Reference:

1. **Rajendra Pal Korahill**, “Essentials of Business Communication”, Sultan Chand & Sons, New Delhi, 2006.
2. **Ramesh, MS, & C. C Pattanshetti**, “Business Communication”, R.Chand&Co, New Delhi, 2003.
3. **Rodriquez M V**, “Effective Business Communication Concept” Vikas Publishing Company ,2003.

SEMESTER VI ELECTIVE II – C INTERNATIONAL TRADE AND DOCUMENTATION

UNIT I

Introduction to international trade, Global scene, Prospects for Indian Apparel in overseas market, Globalisation, GATT and WTO

UNIT II

Foreign trade document -need - types of documents related to goods, invoice to goods, invoice packing note and list - certificate relating to shipments - shipping bill- caret ticket - certificate of measurement - Bill of lading - airway bill - documents related to payment -letter of credit - bill of exchange - bank certificate for payment - document related to inspection

UNIT III

Import procedure and shipment - import license - procedure - special schemes replenishment license - advance license - split up license - spares for after sales service license - code number - bill entry, pre shipment inspection and quality control, post shipment formalities and procedures

UNIT IV

Export procedure and recent policies of the government

UNIT V

Customs - meaning, definition, types, exercise and customs, clearance of export cargo - shipment of goods and port procedures - claiming duty draw backs and other benefits

REFERENCE:

- Govt. of India: Hand book of import and export procedures
Bose. A, Streamline your export paper work, International trade form Oct - Dec 1965

SEMESTER VI ELECTIVE III – A ENGINEERING ECONOMICS

UNIT - I

FUNDAMENTALS OF ECONOMICS: Scarcity definition of Economics – Micro and Macro Economics – Engineering Economics and its definition – Utility – Law of Diminishing Marginal Utility – Demand – Law of Demand – Factors affecting the Elasticity of Demand – Demand Forecasting.

UNIT – II

PRODUCTION AND COST ANALYSIS: Factors of Production – Production problem – Law of Variable Proportions – Production Function – Isoquants – Law of Returns to Scale – Ridge Lines – Empirical Estimation of Cobb – Douglas Production Function – Supply – Meaning – Supply Curve – Law of Supply – Factors affecting the Supply – Cost Concepts – Cost-Output Relationship – Short-run and Long-run Cost Curves.

UNIT – III

PRICING AND OUTPUT DETERMINATION: Pricing Decisions under different market conditions – Perfect Competition – Monopoly – Oligopoly – Pricing Methods – Break – Even Analysis.

UNIT – IV

DEMAND FOR MONEY AND SUPPLY OF MONEY: Demand for Money – Keynes Liquidity Preference Theory – Importance of Money Supply – Concepts and its Measurement – Functions of RBI – Methods of Credit Control – Bank Rate Policy – Changing the Cash Reserve Ratio (CRR) – Inflation – Meaning – Types of Inflation – Causes of Inflation in Developing Countries.

UNIT – V

INTERNATIONAL TRADE AND FOREIGN EXCHANGE: Difference between Internal Trade and International Trade – Balance of Payments and Balance of Trade – Methods of Correcting Adverse Balance of Payments – Foreign Exchange Rate and Foreign Exchange Market – Fixed and Flexible Exchange Rate – Appreciation and Depreciation of Currencies.

REFERENCES:

1. Business Economics – H.L. Ahuja , S. Chand & Co. Ltd.
2. Contemporary Engineering Economics – Chan S. Park, Prentice Hall of India.
3. Engineering Economics and Finance Accounting – A. Ramachendra Aryasri and V.V. Ramana Murthy.
4. Industrial Organisation and Engineering Economics – S.C. Sharma and T.R. Banga
5. Macro Economics for Business and Management – H.L. Ahuja, S. Chand & Co. Ltd.
6. International Business – Francis Cherunilam, Himalaya Publishing House
7. International Marketing - Francis Cherunilam, Himalaya Publishing House

SEMESTER VI ELECTIVE III –B

APPAREL RETAILING

UNIT I

Retail & Retailing – Meaning & definition – Scope of apparel retailing – Retailing terminologies – Types of retailers and retail formats – Global retailing scenario – Retailing scenario in India – Functions of retailers

UNIT II

Retail strategies : Operational excellence , Product differentiation, Customer intimacy – Growth strategies – Market expansion strategies – Store planning – Location planning – Store design – Store design & retailing image mix – Space mix – Effective retail space management – Store layout – Floor space management

UNIT III

Retail merchandising – Merchandise planning – Merchandise hierarchy – Buying function – Category management – Mark up & Mark down – Shrinkage in merchandising management – Cross margin return on inventory – Supply chain management in apparel retailing – ERP in apparel industry

UNIT IV

Retail operations – Significant areas – Store operating parameters related to customers, stocks, space, employee, finance – Managing retail personnel – Manpower planning – Types of employees in retail – Remuneration structure – Visual Merchandising (VM): Definition & Meaning – VM Techniques – Elements of VM – Functions of a Visual Merchandiser

UNIT V

Retail Brands and Branding – Functions of brands – Types of brands – Branding strategies – Store brands or private labels – Store brands Vs National brands – Famous apparel retail brands – Packaging – Functions of packaging – Kinds of packaging – Requisites of good package – Customer service management in retail – Service management model

REFERENCES:

1. Jaico Books, “Retail Management – Functional Principles & Practices”, Gibson G. Vedamani
2. “Retail management “
3. Retail Merchandising – part I

SEMESTER VI ELECTIVE III – C INDUSTRIAL PSYCHOLOGY

UNIT I

Organisational Behaviour: Definition & Meaning – Nature & Scope of OB – Understanding Human behaviour: Individual level, Interpersonal level, Group level, Inter-group level – Perception – Concept of perception – Perceptual process – Factors that influence perception

UNIT II

Personality – Contributing factors to personality – Attitude – Concept of attitude – Distinguish between Attitude, Opinion & Belief – Attitudinal influences on behaviour – Measurement of attitude: Bipolar scale, Thurstone's scale, Likert's scale – Motivation – Concept of motivation – Nature & Objective of motivation – Importance of motivation

UNIT III

Group – Concept & characteristics of group – Factors influencing group formation – Types of groups – Group dynamics – Concept & Importance of group dynamics – Advantages & disadvantages of group – Team building – Team building cycle – Leadership – Types of leadership – Traits of a good leader – Conflict: Definition & Meaning – Types of conflict – Managing conflicts

UNIT IV

HRM: Meaning and definition – Objectives of HRM – Functions of HRD - Job analysis and evaluation – Job description and Job specification – Labour welfare and Labour legislation – Payment of wages- Kinds of wages – Component of wages – Method of wage payment – Incentive plans

UNIT V

Trade unions: Definition, Nature & Objectives – Features of trade union – Functions of trade union – Merits & Demerits of trade union – Industrial relation : Definition , Nature & Objectives – Scope & Importance of Industrial relation – Collective bargaining – Steps involved in collective bargaining – Methods to settle disputes

REFERENCE

1. Kieth Davis, “ Organisational Behaviour at work”
2. Kreintner, “ Organisational Behaviour”
3. Luthans and Fred, “ Organisational Behaviour”
4. Uma Sekaran , “ Organisational Behaviour
5. Industrial Psychology
6. Aswethappa. K. “Principles of Business Law”
7. Bulchandani. K.R, “Business Law”