

BHARATHIAR UNIVERSITY –COIMBATORE – 641046.
B.Sc APPAREL MANUFACTURING & MERCHANDISING 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	Examinations				Credit
				Dur.Hr	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	Textile Science	4	3	20	55	75	4
	Core II	Pattern Making & Grading	4	3	20	55	75	2
	Practical I	Pattern Making	4	3	40	60	100	4
	Allied Paper I	Introduction to Computers	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	Garment Machineries and Equipments	4	3	20	55	75	4
	Core IV	Principles of Management	4	3	20	55	75	4
	Practical II	Stitches & Seams	4	4	40	60	100	2
	Allied Paper II	Computer Applications Practical	4	3	40	60	100	5
IV	Value Education – Human Rights #		2	3	-	50	50	2
Semester III								
III	Core VII	Knitting Technology	6	3	25	50	75	3
	Core VIII	Quality Assurance of Textiles and Apparels	6	3	25	75	100	3
	Core IX	Garment Construction	4	4	25	75	100	4
	Core X	Knitting Technology– Practical	4	3	40	60	100	4
	Allied : III	Quality Assurance of Textiles and Apparels- Practical	5	3	20	30	50	5
	Skill based Subject 1 (Diploma)	Accountancy for Merchandisers	3	3	25	75	100	3
	Tamil @ / Advanced Tamil# (OR) Non-major elective - I (Yoga for Human Excellence)# / Women's Rights#		2	3	75	75	75	2

Semester IV							
III	Core XI Textile Wet Processing	4	25	75	100	3	3
	Core XII Apparel Manufacturing Technology	5	25	75	100	3	4
	Core XIII Woven Fabrics & Designs	4	20	55	75	3	3
	Core XIV Textile Wet Processing- Practical	6	20	30	50	3	4
	Allied : IV Garment Construction –Practical	6	40	60	100	4	5
	Skill based Subject 2 (Diploma) Fashion Merchandising	3	25	75	100	3	3
	Tamil @ /Advanced Tamil # (OR) Non-major elective -II (General Awareness #)	2	3	75		3	2
Semester V							
III	Core XV Apparel Production Management	6	25	75	100	3	3
	Core XVI Apparel Merchandising	5	25	75	100	3	3
	Core XVII Fashion Accessories & Trims-Practical	6	40	60	100	4	3
	Core XVIII Garment Costing	5	25	75	100	3	3
	Elective I	5	25	75	100	3	5
IV	Skill based Subject 3 (Diploma) Total Quality Management	3	25	75	100	3	3
Semester VI							
III	Core XIX International Trade & Documentation	6	25	75	100	3	4
	Core XX Apparel Retailing	5	20	55	75	3	4
	Core XXI Merchandising & Marketing Management	6	20	55	75	3	4
	Elective II	5	25	75	100	3	5
	Elective III	5	25	75	100	3	5
IV	Skill based Subject 4 (Diploma) Export Sampling & Product Development- Practical	3	40	60	100	4	3
V	Extension Activities @	-	50	-	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	Computer Aided Designing-Practical
	B	Business Communication
	C	Fabric production & Processing
Elective – II	A	Industrial Psychology
	B	Business Finance
	C	Business Organization and Office Management
Elective - III	A	A)Entrepreneurial Development
	B	Executive Business Communication
	C	Textile Economics

SEMESTER – I CORE 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.Chellamni*, 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 – I CORE PAPER II - 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 – I PRACTICAL I - PATTERN MAKING

LIST OF EXPERIMENTS

MEN'S WEAR

- 1 Basic t-shirt with half sleeve.
2. Polo t-shirt with half sleeve
- 3 T-shirt with full sleeve.
4. T-shirt with raglan sleeve.
- 5 Singlets.
6. Brief and boxer shorts.
- 7 Vest with and without sleeve.
8. Night dress
9. Track suit.

KIDS WEAR

1. Bib
2. A line frock
3. Plain frock
4. Baba suit
5. Sun suit
6. Rammer

WOMEN'S WEAR

1. Ladies tops
2. Nighties
3. Ladies pant
4. Ladies shirt
5. Bolero set (top & bottom)
6. Blouse
7. Panties
8. Ladies vest
9. Skirt "A line"
10. Pyjama

SEMESTER – I ALLIED PAPER I - 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 networking, 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 – II CORE PAPER III - GARMENT MACHINERIES AND EQUIPMENTS

UNIT I

Introduction to garment industry process details. Spreading machine: Types and working procedures. Cutting machines: Types of cutting machines and its application – Detailed study on band knife, straight knife, drills & notches.

UNIT II

Sewing machine shapes - Sewing machine bed types-Description and application of each bed – Flat bed - Cylinder bed - Post bed – Applications. Feed mechanisms – Types - Drop feed – Compound feed - Unison feed – Drop and variable top feed -Differential bottom and variable top feed (description of each type of feed mechanisms with sketch).

UNIT III

Classification of garment manufacturing machines & applications. Studies on different sewing machine – Lockstitch machine (chain stitch formation) - Features of advanced lock stitching machines. Overlock machine – Classification - Three thread overlock machine – Stitch forming elements. Brief study on double needle lock stitch machine, flat lock machines.

UNIT IV

Requirements – Guides – Types (edge & curve guide) - Compensating foot - Specialized presser foot – Stitching jig- hem folders - Slack feeding and elasticsation – Cutting aids (threads, elastic and tapes) - Stacker. Simple automatics - Button hole – Button sew – Bar tack machine - Label sewers. Types and parts of machine needles – Needle sizes - Details of stand, table and motor for sewing machines.

UNIT V

Introduction to various machines for garment finishing – Fusing – Sucking – Ironing - Packing. Pressing-Purpose of pressing –Categories of pressing-The means of pressing-pressing equipment and methods-Iron and steam presses. Packaging-Types of package forms-Types of packaging materials-Quality specification of packaging materials-Merchandising packaging-Shipment packaging-Selection of package design.

REFERENCES:

- 1. Harold Carr and Barbara Latham, The Technology of Clothing Manufacture, Blackwell Science Ltd, England (1994).**
- 2. Gerry Cooklin, Introduction to Clothing Manufacture, Blackwell Science Ltd, England (1991).**
- 3. Dora.S.Lewis, Mabel Goode Bowers and Marietta Kettunen, Clothing Construction and Wardrobe Planning, The Macmillan Company : New York (1955).**
- 4. Terry Brackenbury, Knitted Clothing Technology, Blackwell Science Ltd, England**
- 5. Ruth. E, Glock and Grace.I.Kunz, Apparel Manufacturing, Pearson Education, New Delhi.**
- 6. Brochures & Catalogues of various machinery manufacturers.**

SEMESTER –IV CORE PAPER IV - 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 Wehrich, 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 –II PRACTICAL II - STITCHES AND SEAMS

LIST OF EXPERIMENTS

1. Practice on Single Needle Lock Stitch machine for given paper / fabric exercise – Straight lines and curves - Fabric exercises – Straight lines, curves, squares, rectangles, triangles and any other irregular shapes.
2. Prepare atleast five different stitch and seam samples by using different sewing machines and furnish the machine threading diagram along with stitch density and thread consumption details.
3. Developing seams of various types - superimposed, bound, lapped, flat felt and piping
4. Develop the samples of components such as
 - a. Round neck
 - b. Scallop neck
 - c. Gents placket
 - d. Ladies placket
 - e. Cross pocket
 - f. Band collar and
 - g. Henley band

SEMESTER – II ALLIED PAPER II - COMPUTER APPLICATIONS PRACTICAL

LIST OF EXPERIMENTS

1. **Using MS Word, prepare the given report.**
2. **Using MS Excel, prepare the given balance sheet.**
3. **Using MS Excel get the output in various formats such as Histogram, Pareto chart etc.,for the given data.**
4. **Using MS Excel do the given calculation and prepare the required statement.**
5. **Using MS Power Point prepare the flow chart and presentation slides for the given topic.**
6. **Design the given motif / design using Coral draw package.**
7. **Create the given situation in Coral draw.**
8. **Work on Adobe Photo Shop for given design card.**
9. **Design a web page for the given details using HTML / DHTML/ Flash.**

SEMESTER III CORE-VII KNITTING TECHNOLOGY

UNIT – I

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 - Yarn passage diagram of a circular knitting machine – Knitting machine elements and description - Knitting cycle of latch needle with sinker.

UNIT-II

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 - Needle gating - Description of circular Rib & Interlock knitting machine – Characteristics of basic weft knit structures – Circular knitting GSM and production calculations.

UNIT-III

Understanding the single jersey knit fabric structures, their cam and needle order : Plain jersey, Pique, Thick pique, Honey comb, Pearl and Twill.

Understanding the rib fabric structures, their cam and needle order: 1X1 rib, 2X2 rib, Drop needle, Royal rib, Polka rib, Double half cardigan, Double cardigan, Milano rib, Waffle, Flat back, Swiss double pique and French double pique.

Understanding the Interlock fabric structures, their cam and needle order: Interlock, Eight lock, Ottoman rib, Pin tuck, Texi pique and Ponte di Roma.

UNIT-IV

Jacquard knitting - Needle selection techniques – Pattern jack, Pattern wheel , Pattern drum and Computerised jacquard knitting machines – Brief study on speciality weft knit structures – Fleece, Pile, Veloure, Auto stripes and Wrap patterning – Auto stripe yarn programming – Elastomeric yarn insertion and effects – Knitted fabric faults – Causes and Remedies.

UNIT-V

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 in flat knitting machine - Transfer Stitch and Drop Stitch – Thread diagram, effects and applications – Introduction to computer controlled Flat knitting machine. Concept of fully-fashioned machines and seamless knitwears.

Introduction to warp knitting – Warp knitting terminologies – Open lap and closed lap. Basic lapping variations - Detailed study of knitting elements of Tricot and Raschel machines. Knitting action of Tricot and Raschel machines. Comparison of Tricot and Raschel machine. Study of standard two bar warp knit structures and their properties – Lock knit, Satin, Reverse lock knit, Loop raised, Sharkskin and Queens cord

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 QUALITY ASSURANCE OF TEXTILES AND APPARELS

1. INTRODUCTION TO TESTING & QUALITY

Importance of Quality & Testing Laboratories – Standards – Objectives of Testing - atmospheric conditions for testing lab. Brief study on fibre properties - FQI

2. TESTING OF YARN QUALITY

Yarn numbering - systems - instrument for yarn numbering - wrap reel - electronic yarn count balance - quadrant balance - beesley balance - count calculations. **Yarn strength** : Lea strength tester and CSP.

Yarn evenness: Brief study on methods of measuring evenness **Yarn twist:** Terms - Electronic twist tester

3. TESTING OF FABRIC QUALITY

Knitted fabric specifications - Bursting strength testing – testing of fabric resistance to abrasion & pilling - fabric handle - drape and stiffness. Dimensional stability of knitted fabric.

Testing of color fastness to washing, rubbing, perspiration & light - Grey scales and ratings - Reasons for poor color fastness -.

4. INSPECTION

Meaning – Definition - Types of Inspection – Study on Incoming materials inspection: fabric inspection systems & Testing of zippers, Buttons, Waistbands, Sewing thread

5. IN PROCESS & FINAL INSPECTION

On line inspection and its significance in apparel quality – final inspection. Seam strength & efficiency –Garment appearance after washing – package quality testing – care labels

References

1. Principles of Textile Testing – J.E. Booth
2. Hand book of textile Testing & Quality Control – Elliot b. Grover & D.S. Hamby
3. Textile testing – P. Angappan & R. Gopalakrishnan
4. Managing Quality in Apparel Industries – Pradeep V Metha & Satish k. Bhardwaj
5. ISI standards [BIS] / AATCC / ASTM – Technical manuals

SEMESTER III CORE-IX GARMENT CONSTRUCTION

1. 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.

2. 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 .

3. Seams

Introduction –Definition – Properties –Detailed Study On Seams Classification As Per Federal Standards – Plain, Top Stitched Seam, Welt Seam, Lapped Seam, Slot Seam, Flat Fell Seam, Hemmed Flat Felt Seam, French Seam, Piped Seam ,Superimposed And Bound Seam. Seam Finishes – Devices For Introducing Fullness. Thread Consumption For Various Types Of Stitches And Garments

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 . Introduction To Trims And Accessories Attachments -Label, Zips, Fasteners – Sewing Thread Types And Ticket Numbering.

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 III CORE-X KNITTING TECHNOLOGY- PRACTICAL

Part A:

1. Calculate The Speed Of Single Jersey Knitting Machine Through Gearing Diagram.
2. Calculate The Speed Of Rib Knitting Machine Through Gearing Diagram.
3. Trace The Diagram Of Different Cams In The Conventional/Modern Knitting Machine With Measurements. Also Mention The Importance Of Each Cam.
4. Trace The Take Down Mechanism And Set The Mechanism For Maximum And Minimum Tension.
5. Trace The Positive Feeder Mechanism Available In The Modern Knitting Machine And Set The Mechanism For Two Different Feed Lengths.
6. Develop A Pattern For Flat Knitting And Set The Machine Accordingly.
7. Develop A Pattern For Circular Knitting And Set The Machine Accordingly.

Part B: Development Of The Following Samples:

1. Pique
2. Double Pique
3. Lacoste
4. Pearl
5. Twill
6. Two Thread Fleece
7. Mini Jacquard Design
8. Auto Striper
9. Rib Waffle
10. Flat Back Rib
11. Rib drop needle
12. Interlock

and Analyse the Following Particulars:

- A) Course and Wale density
 - B) Loop length
 - C) Areal Density (GSM)
 - D) Tightness factor
 - E) Technical Graph
 - F) Cam Order
 - G) Needle Order
- (Any one of the above designs shall be given)**

SEMESTER III ALLIED: III QUALITY ASSURANCE OF TEXTILES AND APPARELS- PRACTICAL

1. Determination Of Count Of Yarn: Wrap Reel & Weighing Scale.
2. Determination Of Yarn Count: Electronic Yarn Count Balance.
3. Determination Of CSP: Lea Strength Tester –
4. Determination Of Yarn Count From Fabric Swatch: Beesley Balance.
5. Determination Of Twist /Single Yarn: Electronic Twist Tester.
6. Determination Of Twist / Double Yarn: Electronic Twist Tester.
7. Fabric Analysis For Determining GSM, CPI, WPI, SI, CI & Count Of Given Sample: Course Length Tester And Weighing Scale.
8. Fibre Identification: Microscope And Chemical Test
9. Blend Composition – Chemical Test
10. Determination Of Color Fastness Of Given Sample To Washing By Using Launderometer And Rating With Help Of Grey Scales
11. Determination Of Color Fastness Of Given Sample To Rubbing By Using Crockmeter And Rating With Help Of Grey Scales –
12. Determination Of Color Fastness Of Given Sample To Perspiration By Using Perspirometer And Incubator & Rating With Help Of Grey Scales .
13. Determination Of Dimensional Stability% (Shrinkage / Growth) Of A Given Fabric/Garment To Washing By Using Indianized-Washing Machine As Per ISO Procedures.

SEMESTER III DIPLOMA PAPER-I : ACCOUNTANCY FOR MERCHANTISERS

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

Unit – I. Water

Water & Quality Required For Wet Processing Industries - Softening Process: Ion Exchange - Sequestering Agent Methods - Terminology & Terms Related To Textile Industries (Ph, Acid, Base, Oxidation, Reduction) – Role Of Textile Auxiliaries.

Unit – II. Preparatory Process

Desizing – Objects And Methods – Process Of Desizing – Scouring – Objects, Methods And Process – Bleaching – Objects And Types Of Bleaching Agents – Bleaching Process – Optical Whiteners.

Unit – III. Dyeing

Dyes & Dyeing – Classification – Principles Of Different Dyeing - Direct, Reactive, Vat, & Disperse Dyes – Principles Of Dyeing Of Synthetic & Blended Textile Materials - After Treatments – Types & Principles Of Different Dyeing Machines - Winch – Soft Flow – Cabinet - Cheese And Hthp Machines – Merits & Demerits.

Unit – IV. Printing

Principles Of Printing – Screen Preparation-Styles And Methods – Resist, Discharge, Transfer Etc., -- Recipes Of Print Paste –After Treatments – Principles Of Various Printing Machines – Pigment Printing.

Unit – V. Finishing

Objects Of Finishing – Temporary And Permanent Finishes – Chemical Finish - Wrinkle Free – Silicone Wash – Pigment Padding – Enzyme Washing – Stone & Sand Washing – Mechanical Finish - Calendaring – Shrinkage Control – Raising – Shearing – Tumble Dry. Mercerisation – Objects & Process – Knit Mercerisation – Quality Test.

References:

1. Technology Of Textile Processing (Vol 1-9) – V.A.Shenai
2. Dyeing And Chemical Technology Of Textile Fibres – E.R.Trotman

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:

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

SEMESTER IV CORE-XIII 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 IV CORE-XIV TEXTILE WET PROCESSING - PRACTICAL

1. Estimation of water hardness by EDTA method.
2. Scouring of grey cotton woven / knitted fabrics and estimate the scouring loss percentage.
3. Bleaching the given cotton knitted fabrics using hydrogen peroxide.
4. Dye the given cotton sample with natural dyes.
5. Dye the given cotton sample with cold brand reactive dyes.
6. Dye the given cotton sample with hot brand reactive dyes.
7. Dye the given cotton sample with vinyl sulphone dyes.
8. Dye the given cotton sample with reactive H-E dyes.
9. Dye the given silk material with acid / basic dyes.
10. Dye the given wool material with acid / basic dyes.
11. Dye the given polyester sample using carriers.
12. Dye the given fabric for the given pattern using Tie & Dye Technique.
13. Develop a batik motif and print on the given sample.
14. Prepare the print paste with pigment colour and print on the given fabric.
15. Print the given fabric with reactive dyes by Resist Style.
16. Prepare the print paste with reactive dyes and print on the given fabric by discharge style.

SEMESTER IV ALLIED: IV GARMENT CONSTRUCTION PRACTICAL

1. Exercise On Single Needle Lock Stitch Machine For Given Paper / Fabric Exercise – Straight And Curves - Fabric Exercises – Straight Lines, Curves, Squares, Rectangles, Triangles And Any Other Unlimited Shapes
2. Get At Least Five Different Stitch And Seam Samples Stitched On Various Machines And Furnish The Machine Threading Diagram Along With Stitch Density And Thread Consumption Details, For Given Details
3. Developing Seams Of Various Types - Superimpose, Bound, Lap, Piping Etc.
4. Developing Samples Of Components Such As
 - h. Round Neck
 - i. Scallop Neck
 - j. Gents Placket
 - k. Ladies Placket
 - l. Cross Pocket
 - m. Band Collar
 - n. Henley Band, etc., (As Per Diagrams And Sketches Also May Be Given)

Draft The Pattern, Cut & Construct The Following Components For The Given Measurement:

1. Different Neck Lines (At Least 3Types)
2. Different Collars (At Least 3 Types)
3. Different Sleeves (At Least 3 Types)
4. Different Plackets (At Least 3 Types)
5. Different Pockets (At Least 3Types)
6. Slits

and develop and construct the following.

1. Men's Crew Neck / Henley Neck / Raglan Sleeve Shirt
2. Men's Vest RN / RNS
3. Ladies Skirt

SEMESTER IV DIPLOMA PAPER-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

Reference:

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 APPAREL PRODUCTION MANAGEMENT

Unit – 1 Human Resource Development

Introduction To Structure And Sectors Of Clothing Industry - Job Analysis And Description – Job Specification – Recruitment And Selection – Kinds Of Interview - Purpose Of Appraisal – Criteria Of Appraisal – Methods Of Appraisal Methods – Limitations - Hrd Methods And Processes – Sewing Room Supervisor’s Job And Training Needs - Hrd In Indian Apparel Industry.

Unit – 2. Plant Engineering & Line Balancing

Introduction To Garment Industry Plant Location – Location Economics – Plant Layout – Process Layout – Product Layout – Combination Layout – Introduction To Balancing Theory – Balance Control – Balancing Exercises For Garment Industry.

Unit – 3. Work Study

Concept And Need – Method Study And Work Measurement – Techniques – Process Chart Symbol – Process Flow Chart – Flow Diagrams – String Diagrams – Multiple Activity Chart – Principles Of Motion Economy – SIMO Chart – Time Study Methods – Standard Time Data – Ergonomics With Special Reference To Garment Industry.

Unit – 4. Production And Productivity

Methods Of Production Systems – Job, Mass & Batch – Section Systems, Progressive Bundle System & ‘Synchro’ System – Conveyor Systems – Unit Production System – Quick Response. Productivity Concepts – Measurement Of Productivity – “Man Machine Material” – Criteria For Increasing Productivity.

Unit – 5 Production Planning And Control

Function, Qualitative And Quantitative Analysis Of Production - Coordinating Departmental Activities - Basic Production Systems - Evaluating And Choosing The System - Flow Process And Charts For Garment - Scheduling Calculations - Assigning Operators Optimally - Setting Up Complete Balanced Production Lines To Produce Given Amount Of Garments

References:

1. Technology Of Clothing Manufacture – Carr & Latham
2. Apparel Manufacturers Handbook – Jacob Solinger
3. Introduction To Clothing Manufacture – Gerry Cooklin
4. Introduction To Production Management – A. J. Chuter
5. Personal Management And Industrial Relations – Tripathi
6. Industrial Engineering And Management – OP. Khanna

SEMESTER V CORE-XVI APPAREL MERCHANDISING

UNIT I

Merchandising: Introduction, Meaning- Apparel Merchandising – Concepts of ‘Six Rights’ – Organisation structure of an apparel industry – Classification of Exporters - Rating or Grading of export houses – Classification of buyers – Export merchandising and retail merchandising – Company profile and its contents

UNIT II

Process flow in apparel industry – Buyer sourcing & communication – Enquiry – Order confirmation – order review and its importance – Planning & programming: Master planning, Scheduling or route card – Factors for route card - programming for yarn, knitting, dyeing, stitching, sampling, accessories – Samples: Meaning & importance – Types of samples – expedition of samples

UNIT III

Inspection and its types – Testing – Check points before cutting - Pilot run or trial run and its importance – Approvals - Types of approvals – Shipping marks – Final inspection procedures – Self, Second and Third party inspection - Effective expedition procedures – Order sheet and its contents – Packing list and its contents – Document formats: order sheet, packing list, invoice, inspection and testing reports etc., - Assortment and its types

UNIT IV

Types of merchandiser - Functions of a merchandiser – Essential requisites of a good merchandiser – Vendor sourcing, evaluation and development – Global sourcing – Vendor nomination by buyers – Reasons for vendor nomination – Documents recording and maintenance – Claims and reasons for claims - Factory audits – Buyer’s code of conducts

UNIT V

Export associations – Apparel Export Promotion Council – Journals and magazines related to apparel and textiles –Trade shows and Fairs – Participation in trade shows – Advantages of trade shows and fairs - Apparel & Textile Trade shows and fairs in India –

REFERENCES:

1. Daragho' Reilly, Jullian J. Gibbs, Building Buyer Relationships.
- 2 Mc Millan Publishing Co., Inside the Fashion Business..
3. Strong Elian, Fashion Merchandising.
4. Apparel merchandising
5. Apparel Views, Jan'09, “ Apparel Merchandising – The concept of six rights”

SEMESTER V CORE-XVII FASHION ACCESSORIES AND TRIMS - PRACTICAL

1. Accessory And Its Importance – The Concept – The Difference Between Accessories And Trims – Specifications – Standards Pertaining To Accessory – Types Of Accessories And Trims Sourcing Of Accessory – Single Sourcing – Multiple Sourcing – Advantages And Disadvantages Of Sourcing – Vendor Evaluation – Rating – Vendor Based Rationalization
2. Sewing Threads And Its Applications – Quality Control In Sewing Thread – Types Of Thread Packages – Embroidery Threads – Quality Requirements – Appliqué Works – Sequence Works, Beads, Crystals & Stones
3. Functions And Application Of Accessories And Trims – Zippers – Quality Parameters And Testing Procedures – Buttons – Types – Testing Procedures – Lace – Elastic, Draw Strings – Velcro – Snap Fastness – Hooks Performance And Properties Of Components And Trims.
4. Labels And Its Types – Testing Procedures – Tags And Its Types – Quality Parameters And Testing Procedures – Lining – Interlining – Poly Bags - Master Poly Bags – Hangers – Cartons – Wrappers – Pouches For Inner Wear.
5. Trends In Accessory And Trims – Forecasting Procedure –Innovation In Accessory Industry – Costing Procedure In Accessory And Trims – Sample Collections – Presentation – Possible Defects And Remedies.

References:

1. Technology Of Clothing Manufacture – Carr & Latham
2. Apparel Manufacturers Handbook – Jacob Solinger
3. Introduction To Clothing Manufacture – Gerry Cooklin

SEMESTER V CORE-XVIII GARMENT COSTING

Unit – I

Principles Of Costing - Requirements Of Good Costing System - Cost Unit - Types Of Costs - Fixed Cost - Variable Cost - Semi Variable Cost - Conversion Cost- Replacement Cost - Differential Cost - Imputed Cost - Sunk Cost -Research Cost - Development Cost - Policy Cost - Shutdown Cost.

Unit – II

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 - III

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.

Unit – IV

Estimation Of Factory Cost For Vest, Briefs , Shorts, T-Shirts, Pyjamas, Children's Wear, Ladies Wear Etc.-

Unit – V

Various Factors To Be Considered In Costing For Domestic Products & International Products.

Books for Reference:

1. S.P.Jain and KL. Narang, "Cost Accounting", Kalyani Publishers, New Delhi. Edn. 2005
2. R.S.N. Pillai and V. Bagavathi, "Cost Accounting", S. Chand and Company Ltd., New Delhi. Edn. 2004.

SEMESTER V DIPLOMA PAPER-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 : Oeko Tex, SA8000, OHSAS 18000, WRAP

REFERENCES:

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

SEMESTER VI CORE-XIX INTERNATIONAL TRADE AND DOCUMENTATION

Unit – I Firm Establishment

Introduction – Export Promotion Councils And Their Role – Registration Formalities - RCMC – IE Code – RBI Code – Garment Classification And Categories For Various Countries – Quota – Quota Distribution Methods – Quota Transfer

Unit – II 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 – Types Of L/C - Bill Of Exchange – Letter Of Hypothecation – Bank Certificate For Payment – Document Relating To Inspection – Certificate Of Inspection – GP And Other Forms.

Unit – III. 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 – IV. Shipment And Customs

Preshipment Inspection And Quality Control – Foreign Exchange Formalities – Preshipment Documents - Documentation Terms - Excise And Customs Clearance Of Export Cargo – Shipment Of Goods And Port Procedures – Customs Clearance Of Import Cargo. Post – Shipment Formalities And Procedures – Claiming Duty Drawback And Other Benefits.

Unit – V. Payment And Deliveries

Terms Of Delivery – INCO terms – EXW – FCA – FOB – CFR – CIF – CPT – DAF – DDP – DDU. Terms Of Payment – Open Account – Cheque – Cash Payment Against Documents – Bank Payment Against Documents (LC) – Security And Cost Of Various Payment Terms – Assessing The Risk In Payment – Role Of ECGC And Standard Policy

Text Book:

Paras Ram : Hand Book Of Import And Export Procedures.

References:

1. Govt. Of India : Hand Book Of Import And Export Procedures.
2. Bose. A. : Streamline Your Export Paper Work., International Trade Form, Oct – Dec 1965.
3. How To Start Export.
4. CBI Booklets – Netherland
5. ECGC Services And Guidelines
6. AEPC Booklets

SEMESTER VI CORE-XX 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 CORE-XXI MERCHANDISING AND MARKETING MANAGEMENT

UNIT I

MANAGERIAL ECONOMICS: Demand – Levels of demand – Demand analysis – Demand forecasting – Cost analysis – Breakeven analysis – Levels of competition: Monopoly, Oligopoly, perfect competition, monopolistic competition

STRATEGIC MANAGEMENT: Meaning & definition – Features of strategic management – Functions, need & importance of strategic management – Formulation of strategy – SWOT analysis

UNIT II

STRESS MANAGEMENT: Stress: - Meaning & definition – Nature of stress – Levels and consequences of stress – Types of stress – The effect of distress – Stress management techniques

TIME MANAGEMENT: Meaning & principles – Personal, Organisational & Environment factors – Time management strategies & techniques

UNIT III

MARKETING MANAGEMENT:

Market and Marketing : Meaning and definition – Marketing Vs Selling – Marketing Vs Merchandising – Basic Marketing Concepts – Market segmentation and its classifications – Market Research and its types – Marketing Research Process – Marketing mix

UNIT IV

Market planning – Marketing performance and control – Marketing Strategy and implementation – Product classification – New product development: strategy & process – Product policy & Product mix – Pricing: Objectives, policies & procedures – Pricing strategies

UNIT V

Promotional tools: Personal selling, Advertising, Public relations, Sales promotion – Distribution channels: Definition & importance – Types of distribution channels – Logistics & Supply chain management – Value chain – Supply chain strategies – Perceptual mapping – Pipeline concepts

Reference:

1. R.S.N Pillai, Bagavathi, “Marketing Management – Principles and Practices”, S. Chand & company Ltd., (2005)
2. Philip Kotler, “Marketing Mangement”,
3. “ Time Mangment”
4. Mangerial Economics

SEMESTER VI DIPLOMA PAPER -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 : 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. 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 T-Shirt with hood
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

Part – B

Digitize The Given Patterns And Store Them As Style Files And Apply Grade Rules And Estimate The Lay Length And Marker Efficiency

SEMESTER V ELECTIVE I – B : BUSINESS COMMUNICATION

UNIT I

Meaning of communication – Importance of effective communication in business – Objectives of communication - Media – Types – Principles, Process, Barriers - Methods to reduce barriers. Role of English Language in business communication - The sentence – Types – Verbs – Main and auxiliary – Agreement of verb and subject – Use of articles and prepositions – “WH” question and ‘yes’ or ‘no’ type questions - Punctuation and use of capital letters – Common errors- words often confused – Antonyms- Synonyms.

UNIT II

Functions of a business letter - Foreign words used in correspondence – The layout planning – Enquiries and replies – Orders and execution – Credit and status enquiries.

UNIT III

Complaints – Collection letters – Circular – Sales letters - Bank and insurance correspondence – Import and export correspondence - Agency correspondence – Correspondence of a company secretary.

UNIT IV

Memos and forms of messages – Office correspondence – Telegrams – E-mail – Fax – Interview letters – Testimonials – Appointments – Confirmation – Resignation – Report writing

UNIT V

Agenda and minutes of meeting – Advertisement – Speech making – Interviews- Information technology of the future - Telex - Teleconferencing - Fax-Internet - Multimedia

Reference:

1. Rajendra paul, Korlahalli.J.S. Essentials of business communication.
2. Krishna Mohan, Developing communication skills.
3. Champa Tickoo & Jaya sasikumar, Writing with a purpose.
4. F.T.wood, A Remedial English Grammar for Foreign Students

SEMESTER V ELECTIVE I – C : FABRIC PRODUCTION AND PROCESSING

UNIT I : FUNDAMENTAL CONCEPTS OF KNITTING

Fabric forming techniques – Comparison of weaving and knitting – Principles and comparison of weft and warp knitting – Classification of weft knitting machines – Terms and definitions in weft knitting – Basic structures and characteristics – Features of modern knitting machine – Study the role of machine elements and knitting elements of multi cam track jersey machine – Knitting cycle of latch needle with sinkers. Fabric faults, causes and remedies.

UNIT II : STUDY OF KNITTED FABRIC STRUCTURES

Formation of tuck and miss stitches and their influence on knitted fabric properties – Representation methods of weft knit stitches and structures – Ornamentation of weft knit structures: Need and possibilities. Elastomeric yarn types and it's effects in knitting – Study of single jersey derivative structures: Pique, Double Pique, Lacoste, Pearl and Twill. Study of rib derivative structures: Half Cardigan, Full Cardigan, Milano rib, Rib Waffle and Flat back rib. Concept of 2X2 rib and rib drop needle. Study of interlock derivative structures: Eight Lock, Ottoman rib, Ponte – di – Roma, Texi Pique and Pin tuck. Areal density and production calculation of circular knitting machine.

UNIT III : FUNDAMENTALS OF WOVEN FABRICS & DESIGNS

Weaving definition – Important terms related to woven fabric – Classification of looms – Sequence of weaving preparation processes and their objectives – Passage of material through plain loom – Important motions of a loom – Important Parts of Loom –Introduction to woven fabric designing and study of basic weaves and their derivatives.

UNIT IV : PRINCIPLES OF DYEING

Introduction to wet processing – Brief study of preparatory processes of dyeing and objectives – Meaning of dyes and pigments – Various classification methods of dyes – Principle & method of dyeing of cotton knitted fabric – Principle and working of jigger, beam dyeing, winch, soft flow and air flow machines – Concept of tie and dye – Brief study on garment dyeing.

UNIT V : PRINCIPLES OF PRINTING & FINISHING

Introduction to printing –Comparison of dyeing and printing – Methods of printing – Study of table screen printing and rotary screen printing methods. Styles of printing – Study of non conventional printing styles employed in garment printing – Principle and working of garment printing machine – Printing ingredients and model recipe formulation. Need and objects of finishing – Classification – Brief study of various mechanical and chemical finishes.

BOOKS FOR REFERENCE:

1. *D.B.Ajgoankar*, Knitting Technology, Universal Publishing Corporation, Mumbai (1998).
2. *David.J Spencer*, Knitting Technology, Wood Head Publishing Ltd. – Second Edition, England (1989).
3. *Samuel Raz*, Flat Knitting, Meisenbach Bamberg (1993).
4. *J.E.Booth*, Textile Mathematics, The Textile Institute Manchester – I Edition(1997).
5. *Peter Schwartz, Trevor Rhodes and Mansour Mohamed*, Fabric Forming Systems, Mahajan Publishers, Ahmedabad (1996).
6. *Chandrasekara Iyer, Bernd Mammel and Wolfgang Schach*, Circular Knitting, Meisenbach Bamberg (1992).
7. *Wynne, A*, The Motivate Series – Textiles, Macmillan Education Ltd., London (1997).
8. *Bernard P. Corbman*, Textiles, Fibre to Fabric
9. *Shenai.V.A.*, Technology Of Bleaching & Mercerising, Sevak Publications, Wadala, Mumbai-31.
10. *E.R.Trotman*, Textile Scouring & Bleaching, B.I. Publications Pvt. Ltd., New Delhi (1968).
11. *Warren.S.Perkins*, Textile Coloration and Finishing, Carolina Academic Press, Durham, North Carolina (1996).

SEMESTER VI ELECTIVE II - A : 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

REFERENCES:

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

SEMESTER VI ELECTIVE II - B : BUSINESS FINANCE

Unit – I

Business Finance: Introduction – Meaning – Concepts – Scope – Function of Finance
Traditional and Modern Concepts – Contents of Modern Finance Functions.

Unit – II

Financial Plan: Meaning – Concept – Objectives – Types – Steps – Significance –
Fundamentals.

Unit – III

Capitalisation – Bases of Capitalisation – Cost Theory – Earning Theory – Over Capitalisation –
Under Capitalisation : Symptoms – Causes – Remedies – Watered Stock – Watered Stock Vs.
Over Capitalisation.

Unit – IV

Capital Structure – Cardinal Principles of Capital structure – Trading on Equity – Cost of Capital
– Concept – Importance – Calculation of Individual and Composite Cost of Capital.

Unit – V

Sources and Forms of Finance: Equity Shares, Preference Shares, Bonds, Debentures and Fixed
Deposits – Features – Advantages and Disadvantages– Lease Financing: Meaning – Features –
Forms – Merits and Demerits.

Books for Reference:

1. Essentials of Business Finance – R.M. Sri Vatsava
2. Financial Management – Saravanavel
3. Financial Management – L.Y. Pandey
4. Financial Management – S.C. Kuchhal
5. Financial Management – M.Y. Khan and Jain

SEMESTER VI ELECTIVE II - C : BUSINESS ORGANIZATION AND OFFICE MANAGEMENT

UNIT -1

Nature and scope of Business, Forms of Business Organisation - **Sole Trader, Partnership firms**, Companies and Co-operative Societies - Public Enterprise.

UNIT - II

Location of Business - Factors influencing location, localization of industries- Size of forms, Sources of Finance - Shares, Debentures, Public Deposits, Bank Credit and Trade Credit - Relative Merits and Demerits.

UNIT - III

Stock Exchange - Functions - Procedure of **Trading** - **Functions of SEBI - DEMAT of shares**- Trade Association- Chamber of Commerce.

UNIT - IV

Office - Its functions and significance - Office layout and office **accommodation - Filing and Indexing**

UNIT - V

Office machines and equipments - Data Processing Systems - EDP -Uses and Limitations - Office Furniture.

BOOKS FOR REFERENCE

1. Y.K.Bhushan - *Business Organisation and Management* - Sultanchand & sons
2. Shukla - *Business Organisation and Management* - S.Chand & Company Ltd.,
3. Saksena - *Business Administration and Management* - Sahitya Bhavan
4. Singh.B.P & Chopra - *Business Organisation and Management* - Dhanpat Rai & sons
5. R.K.Chopra - *Office Management* - Himalaya Publishing House
6. J.C.Deneyer- *Office Management*
7. Chatterjee - *Modern Business*

SEMESTER VI ELECTIVE III - A : ENTREPRENEURIAL DEVELOPMENT

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, TIIC, SIDCS, LIC and GIC, UTI, SIPCOT – SIDBI commercial bank venture capital.

Unit – V

Incentives and subsidies – Subsidised 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.Saravanel
5. Entrepreneurial Development – S.G.Bhanushali
6. Entrepreneurial Development – Dr.N.Ramu

SEMESTER VI ELECTIVE III - 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 III - C : TEXTILE ECONOMICS

UNIT I

SCOPE OF METHODOLOGY : Definition of Economics – Nature and Scope of Economics – Utility analysis – Law of diminishing utility – Law of Equi Marginal utility – Indifference curve – Approaches of Economic Analysis – Methodology of Economics maximization and other objectives – Marshall's utility Analysis – Law of Diminishing Marginal Utility – Social Responsibilities.

UNIT II

THEORY OF CONSUMER BEHAVIOUR : Demand Analysis – Demand Schedule – Law of Demand – Demand Curves – Elasticity of Demand – Consumer's surplus – Analysis Schedule.

UNIT III

Production – Factors of Production – Law of diminishing Returns – Law of variable proportions – Return to scale – scale of production – Law of supply – Cost and Revenue – concepts and Curves – THEORY OF PRODUCTION . Production Function – Factors of Production Enterprise as a Factor.

UNIT IV

PRODUCT PRICING : Market Definition – Types – Equilibrium under perfect competition of Firm and Industry – Pricing – Pricing under perfect competition. Monopoly – Price Discrimination – Pricing under Monopolistic competition – Pricing under Oligopoly.

UNIT V

FACTOR PRICING – Marginal Productivity theory – Theories of wages, rent, interest and profit.

BOOKS FOR REFERENCE

1. Principles of Economics - Seth M.L.
2. A Text Book of Economic Theory - Stonier and Hague
3. Macro Economics - Jhingan