

HIMALAYAN GARHWAL UNIVERSITY **UTTARAKHAND**



Evaluation Scheme & Syllabus

For

Masters of Science – Home Science

(M.Sc. – Home Sc.)



HIMALAYAN GARHWAL UNIVERSITY
SYLLABUS AND MARKS EVALUATION OF M. SC HOME SCIENCE

SEMESTER – I

Paper Code	Title of the paper	Credits	Internal Marks	External Marks	Max. marks
MHS101	Textile Chemistry	4	30	70	100
MHS102	Apparel construction	4	30	70	100
MHS103	Historic Textiles & costumes	4	30	70	100
MHS104	Computer Applications	4	30	70	100
MHS101P	Textile Chemistry(Practical)	2	30	70	100
MHS102P	Apparel construction(Practical)	2	30	70	100
MHS103P	Historic Textiles & costumes(Practical)	2	30	70	100
MHS104P	Computer Applications(Practical)	2	30	70	100
Total		24	240	560	800

SEMESTER – II

Paper Code	Title of the paper	Credits	Internal Marks	External Marks	Max. marks
MHS201	Fabric Construction and Woven fabric Analysis	4	30	70	100
MHS202	Research Methods and Statistics	4	30	70	100
MHS203	Textile Industry in India	4	30	70	100
MHS204	Advanced Apparel Construction	4	30	70	100
MHS204P	Advanced Apparel construction (Practical)	4	30	70	100
MHS205P	Draping and pattern making (Practical)	4	30	70	100
MHS206	Seminar	3	70	100	100
Total		27	180	520	700

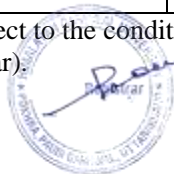
SEMESTER – III

Paper Code	Title of the paper	Credits	Internal Marks	External Marks	Max. marks
MHS301	Dyeing in Textiles	4	30	70	100
MHS302	Entrepreneurship Management	4	30	70	100
MHS303	Research Methods, Statistics and Computer Applications	4	30	70	100
MHS304	Social and Psychological Aspect Of Clothing (Elective)	4	30	70	100
MHS305	Consumer Behaviour – Textiles and Apparel (Elective)		30	70	100
MHS306	Communication and Development (Elective)		30	70	100
MHS307	Textile Heritage of India	2	30	70	100
MHS308	Seminar	1	-	100	100
MHS301P	Practical- Dyeing in Textiles	4	30	70	100
MHS309P	Practical- Draping, Grading and Advance Apparel Construction	4	30	70	100
Total		27	270	730	1000

SEMESTER – IV

Paper Code	Title of the paper	Credits	Internal Marks	External Marks	Max. marks
MHS401	Printing in Textiles	4	30	70	100
MHS402	Garment Production Technology	4	30	70	100
MHS403	Textile Industry in India	4	30	70	100
MHS404	*Dissertation (Elective)	4	-	100	100
MHS405	Textile Ecology (Elective)		30	70	100
MHS406	Technical Textiles (Elective)		30	70	100
MHS401P	Practical- Printing in Textiles	4	30	70	100
MHS407P	Practical- Computer Aided Designing	4	30	70	100
Total		24	210	590	800

*Dissertation in M. Sc –IV, subject to the condition that the student has obtained 70% or more marks after IInd Semester (M.Sc. Ist year).



[Handwritten signature]



HIMALAYAN GARHWAL UNIVERSITY
DETAILED SYLLABUS

SEMESTER-I

Paper I: MHS101 Textile Chemistry

Unit -I

1. Introduction: Why study of textile chemistry is needed. Why this subject is related to textile and clothing.
2. Polymer Chemistry:
 - (a) Polymer, methods of polymerization, polymerization process.
 - (b) Definition of co-polymer, oligomer, graft-co-polymer.
 - (c) Degree of Polymerization, use of X-Ray diffraction method in investigating molecular structure of textile fibres.
 - (d) Orientation and crystallinity of polymers their influence on fibre properties.
3. Chemistry of Natural Fibres:
 - (a) Cellulosic fibres: Introduction to cotton, varieties, properties, longitudinal and cross sectional view. Molecular structure, action of acids and alkalis, hydrocellulose and oxycellulose, mercerisation.
 - (b) Regenerated Cellulosic fibres: - Viscose-rayon, cuprammenium-rayon, cellulose acetate, Polynosic - their manufacture properties and uses.
 - (c) Protein fibres: - Wool & silk Chemical composition, molecular structure, physical & chemical properties action of acids & alkalis and other chemicals. Felting of wool, degumming and weighting of silk, shrink proofing of wool.
 - (d) Synthetic Fibres: - Polyester (Terylene, Dacron) Polyamide (Nylon 6, Nylon 66) and acrylonitrile fibres, Chemistry of fibres: - Raw material, manufacturing process from polymer to fibre stage. Physical & chemical properties their uses in textile & clothing. Comparison of wet, dry and melt spinning methods.
 - (e) Other natural and synthetic fibres their chemical composition, properties and uses namely: - Jute flax, polyethylene, polypropylene, polycarbonate, metallic glass fibre, and polyurethane fibres.

Unit – II

4.
 - (a) Scientific basis of dyeing and printing of textile: - Classification of dyes, theory of dyeing, chemical structures of various classes of dyes, application of dyes on various substrates including blends
 - (b) Scientific basis of scouring and bleaching of textile fibres and fabrics. Role of soaps and detergents, scouring agents, bleaching agents, surface-active compounds, optical brightening agents, methods of application of bleaching agents to different fibres like cotton, wood, silk and rayon.
 - (c) Finishes: Importance & classification Mechanical finishes: Singeing, calendering, tentering, crabbing, decating, glazing, schreinerizing, embossing, moiring, cireing, beetling, raising, napping, sanding, crepe, shearing, weighting.

Chemical finishes: - Mercerization, parchementisation, , wrinkle resistant finishes, chlorination, burnt-out effect.

Resins, their application and chemistry,

Special purpose finishes : - Flame retardant, water repellent, antistatic, stain & soil release, moth proofing, mildew proofing, antimicrobial, absorbency finishes.

- (d) New developments in Fibre manufacture Bi-component and Bi-constituent fibres special purpose fibres.

References:

1. Shenai, V.A. (1984) : Technology of Textile Processing, Vol.-IX, Sevak Publication
2. Cook, J. Gordon, Hand Book of Textile Fibres, Man-Made Fibres, Merrow Publishing Co. Ltd. England.
3. Moncnef : RW Manmade Fibres, John Willey & Sons New York. Trotman, E.R. (1975): Dyeing and Chemical Technology of Textile Fibres Charles Griffino Company Ltd., London.
4. Marsh; J.T. (1979): An Introduction to Textile Finishing, B.I., Publications. Mark H., wooding N.S. & Atlas, Smeeds, (19100): Chemical after Treatment of Textiles, John Willey & Sons Inc., NY.
5. Lewin, M. and Sello, Stephen B. (1983): Handbook of Fiber Science and Technology. Vol. II, Chemical Process of Fibers and Fabrics, Functional Finishes- Part A, Marcel Dekker, Inc., NY and Basel.
6. Shenai, V.A. (1991): Introduction to the Chemistry of Dyestuffs, Sevak, Prakashan.
7. Gulrajani M.L. and Gupta, D (1992) : Natural Dyes and their Application to Textiles, IIT Delhi.
8. Mohanty, Chandramouli, Naik, (1987): Natural dyeing process of India, Ahmedabad, Calico Museum of Textiles.
9. India Horti business on the, <http://www.agroindia.org/1HOL>

Paper-II: MHS 102 Apparel Construction

Unit - I

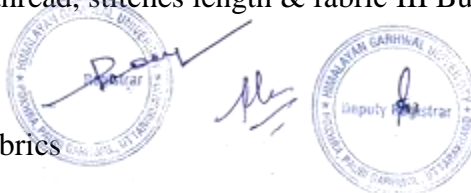
I Detailed study of industrial mechanism and equipments used for

- (a) Cutting
- (b) Sewing
- (c) Finishing
- (d) Embellishment

II Study the interrelationship of needles, thread, stitches length & fabric III Buying

Criteria for

- (a) Knits, silks, denim & other special fabrics
- (b) Readymade garments.



Unit - II

IV Methods of pattern making

- (a) Drafting
- (b) Flat pattern
- (c) Draping

V Developing paper patterns:

- (a) Understanding the commercial paper pattern.
- (b) Layout on different fabrics, widths & types.

References:

1. Armstrong, Pattern Making for/Fashion Design
2. Gioello and Berke : Figure Type And Size Ramnge, Fairchild Publications, New York.
3. Grate and Storm : Concepts in Clothing, McGraw Hill Book Co. New York. Bina Abling, Fashion Sketch Book, Fairchild Publications, New York Claire Shaeffers : Fabric Swing Guide, Chilton Book Company, Radnot, Pennsylvania.
4. Harold Carr and Barbara Lathan : The Technology of Clothing Manufacture, Oxford BSP Professional Book London.
5. Slampler, Sharp & Donnell : Evaluating Apparel, Quality - Fairchild Publications, New York.
6. Natalie Bray : Dress Fitting Published By Blackwell Science Ltd.
7. Margohs Design Your Own Dress Pattern Published By Double Day And Co. Inc., New York.

Paper-III: MHS103 Historic Textiles & Costumes

Unit - I

I Study of traditional textiles of India-patolas of gujrat,bandhani of rajasthan,shawls & carpets of kashmir,brocades of banaras,kalamkari of AP,mulmul, jamdani, amroo, himroo, mashroo,patchitra-orissa,madhubani-bihar,pichwai (painting of god)- bhilwada, sholapur,

II traditonal sarees-ikat sarees of orissa, chanderi,maheshwari,patola, baluchar, paithani,kanjivaram, kanchipuram, jamdani, sidipeth, narayanpeth, pochampalli, bandhni, banaras brocade sarees,gadwal, gharchola, vichitrapur, gari, tanchoi

III Development of Resist dyeing in Indonesia.

IV Development of weaving in India and England

V Study of traditional costumes of different states of India in relation to fabrics, motifs and other related accessories.

ANCIENT INDIAN DRESSES:

I Dress of Aryans.

II Dress during 1100 AD to 1730 AD (Islamic Influence).

III Dress during 1730 AD to 1947 AD (British Period).

IV Costume in ancient civilization, factors that influenced clothing design emphasis of fabric, garment features, garment structure, use of colour, decoration & accessories including head & footwear.



- A ASIA
(a) Babylonia (b) Persia (c) Assyria
- B Europe
(a) Greece (b) Rome (c) Byzantine (d) France
- C Africa
(a) Egypt (b) Coptic

References:

1. Bosomworth Dorothy (1995): The Encyclopedia Of Patterns and Motifs, Studio Editions, London.
2. Dhamija Jasleen (1979) : Living Traditions of Iron's Crafts, Vikas Publishing House, New Delhi.
3. Dupont Auberville,M. (1989): Classic Textiles, Bracken Books, London.
4. Gillow John (1992): Traditional Indonesian Textiles, Thames AND Hudson, London.
5. Gillow John and Sentence Bryan (1999): World Textiles, Thames and Hudeson, London.
6. Ginsburgh, M. (1977): Embroidery, Marshall Cavendish Editions, London.
7. Guy John (1998) : Woven Cargos, Thames and Hudson.
8. Harris Jennifer (1993): Textiles 5000 years, Henry and Brans Inc., New York.
9. Harvey Janet (1966): Traditional Textiles of Central Asia, Thames and Hudson, London.
10. Jones Owen (1997): The Grammar of Omament, Bernard Quatrach, London.
11. Lewis Ethel : Romance of Textiles.
12. Paine Sheila (19100) : Embroidered Textiles Traditions, Thames and Hudson, London.
13. Stone Miller Rebecca (1994): To weave for the Sun, Thames and Hudson, London.
14. Readers Digest (1973): History of Man- The Last Two Million Years.
15. J Anderoon Black, Muidge Garland, A History of Fashion orbis Publishing Limited, London.
16. Boucher Francoius, A History of Costume in the West. Thames and Hudson.
17. R. Tumer Wilcox, The Dictionary of Costume B. T. Batsford Ltd.
18. Gerogina O'Hara : The encyclopedia of Fashion, Thames and Hudson.
19. Gini Stephenes Frings : Fashion from concept to Consumer, Prentice Hall, N. Jersey.
20. Revolution in Fashion : The Kyoto Costume Institute, Abbeville Persi, New York.

Paper-IV: MHS 104 Computer Application

Unit - I

General awareness of computers and its applications. Introductions to various input and output devices like Keyboard, Printer, CD-ROM, Mouse, floppy, Monitor etc. Introduction to DOS, MS DOS Windows

MS - Word

MS - Power Point

MS-Excel

Internet - What is Internet?

E-mail

Browsers.



Any package related to Home Science

Paper V: MHS101P Textile Chemistry (Practical)

1. Identification of fibres: - (Cotton, Polyester, Viscose, Polyamide, silk, Wool etc.) Use of burning test, Microscopic examination, chemical test & solubility.
2. Qualitative & Quantitative analysis of binary blends - Polyester/ cotton, Polyester/viscose, polyester/wool, cotton/ wool.
3. Bleaching & Scouring of Cotton.
4. (a) Dyeing of cotton with direct, reactive and azoic dyes.
(b) Dyeing of wool & silk with acid dyes, basic dyes.
5. Effect of degumming on silk.

Paper VI: MHS102P Apparel Construction (Practical)

I Designing through flat pattern - Dart manipulation

II Development of variation in sleeves, sleeves and bodice combination.

III Development of variations in collars.

- (a) Roll over collar
- (b) Collar with bodices (shawl)

IV Scooped necklines

- (a) Built - up necklines
- (b) Cowl necklines

V Plackets

- (a) Centre button closing
- (b) Asymmetrical Closing
- (c) Double breasted

VI Development of paper pattern and construction of garments (using checks, stripes, Unidirectional & novelty fabrics)

VII Observation of working of any boutique for five to seven days

Paper VII: MHS103P Fashion Illustrations (Practical)

1. Sketching of different action croqui (based on basic figure learnt earlier)
2. Garments and garment details: -
 - Necklines and collars
 - Sleeves details
 - Skirts & pants
 - Blouses, coats & jackets
 - Drawstring & fastenings
 - Pleats , gathers,darts and tucks
 - Frills,flounces,ruffles, fringes
 - cows & cascades
 - Macramés and patch work. -
 - Shirring, smoking , quilting
 - Yokes and ties .
3. Sketching of Accessories: -
 - Hats & headgears



Handwritten signature



- Footwear
 - Bags & Purses
 - Jewellery
4. Basic Rendering Techniques:
- Colour matching using different mediums.
 - Stripes
 - Checks, gingham and plaids
 - Patterns & textures
 - Shading
5. Theme Rendering: Developing a line of garments based on a theme (any one the following)
- Beachwear
 - Cocktail wear
 - Swimwear
 - Eveningwear
 - Casual wear
 - Ramp wear
 - Action/Sports wear
 - Executive wear
 - Nightwear
 - Traditional Indian Costume

References:

1. Abling Bina, Fashion Sketchbook, Fairchild Publishers, New York.
2. Mckelvey Kathyarn, Illustrating Fashion Blackwell Science Munslow Janine.
3. Seaman Julian, Professional Fashion Illustration, B.T. Batsord Ltd. London.
4. Ireland, Patrick John, Fashion Illustration, B.T. Batsford Ltd. London.
5. Allen Anne Seaman Julian Fashion Drawing The Basic Principles B.T. Batsford Ltd. London.

Paper VIII: MHS104P Computer Applications (Practical)

- 1 Determination of addition, Subtraction and average
- 2 MS- Word
- 3 MS- Power Point
- 4 MS- Excel
- 5 Internet.
- 6 E-mail
- 7 Project report.



[Handwritten signature]



SEMESTER – II

Paper I: MHS201 Fabric Construction and Woven Fabric Analysis

Unit - 1

I Principles of Yarn Manufacture – Yarn processing: for natural fibres cotton, wool and worsted, jute, linen by conventional and nonconventional systems -

a) OE Spinning - Rotar, Vortex, Friction, Airjet electrostatic, Twisters (Bobbtex ,Cover, Signaal, twilo)

(b) Self -Twisting

(c) Yarn from Fibres

- Yarn Nomenclature and Measurement yarn numbering systems.

- Geometry of yarns and its relationship to fabric properties.

II Principles of spinning in production of man-made fibre: - Hot and cold drawing, spun yarn, bi-constituent and bi-component yarn. Blending: principles, types & technology.

III Modern development in yarns and at their manufacture.

IV Fabric Faults - yarn and fabric defects and their remedies.

Unit - II

VI Principles of fabric manufacture basic principles, characteristics and significances of different process woven knitted, non woven, laces, braids etc.

- Fabric classification

(a) Weaving

- Parts and functions of handloom

- Sequence of operation in warp and weft preparations. -Various types of looms and their drive.

- advantages & disadvantages of shuttleless, projectile, rapier, airjet& waterjet looms.

- Basic & decorative weaves - plain, Twill and satin derivatives. Dobby & Jacquard shedding & weaving terry, pile, leno, bird's eye, mockleno, spot , swivel and lappet , double weaving, etc.

- weave calculation, economy of production

(b) Knitting

- Knitting machines, Types of knitting

- Properties

-Production of special knits and integral garments.

(c) Felts & Non Wovens

- Braiding & Lace making

d) textile design centres and their functions

References:

1. Spun Yarn Technology- Eric Oxtoby Butterworth Publication. American Cotton Handbook - Merrill
2. Subodh Kumar Aggarwal (1980): Textile Processing and Auxiliaries. Textiles - Burker - (1988) Abhishek Publication.

3. Essentials of Textiles - M. Joseph, Holf Rinechants, Winston Publications. Irene Wallen Designing with Threads.
4. Edward Miller (1992) Textiles. Corbman, B. Fibre To Fabric. Book Textiles Year 1998 By A.F. Barker Chapter-7, Principles of Weaving Pg., 154-171
5. Book - From Fibres to Fibrics, Gale, E., 1968, p.54 Colour and Weave - Margaret & Thomas, Winderkuechd.
6. Grociki, Z.J. : Textiles Design and Colour, London, Longmans Green and Co. Ltd.
7. William Watson : Advanced Textiles Design, London, Longmans Green and Co. Bombay.
8. Nisbet, H : Grammar of Textile Design, Tarapoprewale Sons and Co. Bomaby.
9. Aswani, K.T. : Weaving Calculations - Taraporewale Sons and Co. Ltd., London.
10. Sengupta, R.: Weaving Calculations - Taraporewale Sons and Co. Bombay.

Paper-II: MHS 202 Research Methods & Statistics

Unit-I

Nature of research in Home Science, scientific approach.

Types of Research: Experimental, Field studies, Case study, and Survey research.

Designing research: Problem, hypothesis, concept and types of variables (dependent, independent, random, discrete, continuous, qualitative and quantitative).

Methods of data collection: Interview, observation, questionnaire, rating scales. Research Designs: randomized groups, matched groups, pre and post test and factorial.

Sampling: Meaning, importance and types; random (simple, stratified, cluster), Non random (incidental, purposive, quota)

Unit-II

Statistics: Meaning, primary data, array, frequency, frequency distribution and its types.

Measures of central tendency: Mean, Median, Mode; Measures of dispersion: range, mean deviation, standard deviation, root mean square deviation, variance, moments about origin and moments about mean, Binomial and Normal distribution, Skewness and Kurtosis.

Parameter & Statistic, sampling distribution and sampling error, standard error, Tests of significance: Null hypothesis, Alternative hypothesis, levels of significance- Type I and Type II errors, chi-square: goodness of fit.

T- test: single mean, independent mean, paired mean, Analyses Variance: One-way & Two-way. Correlation -Pearson's correlation, scatter diagram, Spearman's correlation.

Significance of difference between correlations.

Reference:

1. S.C. Gupta & V.K. Kapoor: Fundamentals of Mathematical Statistics
2. S.C. Gupta: Fundamentals of statistics
3. G. Udny Yule, N.M.G. Kendall: An Introduction to the theory of Statistics
4. Croxton, F.C. and Cowden, D. J. Applied General Statistics, Prentics hall Inc. 1955
5. Garrett. H. Statistical in Psychology and Education. Oxford book Co. 19100.
6. R.P. Hooda: Introduction to statistics. The MacMillon Co.
7. Scotharman, W. A. Textbook of Statistics, (Revised edition) 1973.
8. Kerlinge, Foundations of Behavioral Research
9. Sneedecer G. W. Statistical Methods. Applied Pacific Private Ltd., 1961.

Paper III: MHS 203 Textile Industry in India

Unit - I

I Importance of textile and clothing industry in the Indian economy in terms of domestic consumption, employment and per- capita income, gross national product and international trade.

II National textile policy 1986, and latest policy - changes in focus over the years in terms of objective, function ability, regulatory mechanism and futuristic trends.

IV Status of textile and clothing Industry over a decade - in relation to production and consumptions pattern, locale, employment potential, R & D, problems and prospects, research associations & institutes, cotton, wool, silk, jute, rayon and synthetic industry, Handloom industry, readymade garment industry, hosiery industry.

Unit - II

V Status of textile & apparel industry in global scenario Gatt/WTO ISO 10000-2000 series and ISO 14000 series SWOT analysis

VI Export and Import policies of textiles & apparels

- a. Problems in export and import of textiles,
- b. Trends in Indian Exports
- c. Export infrastructural facilities & incentives.

Paper-IV: MHS 204 Advanced Apparel Construction

Unit - I

I Fitting – factors affecting good fit, common problems encountered and remedies for fitting defects (upper and lower garments)

II Clothing for people with special needs.

- Maternity and lactation period
- Old age
- Physically challenged.

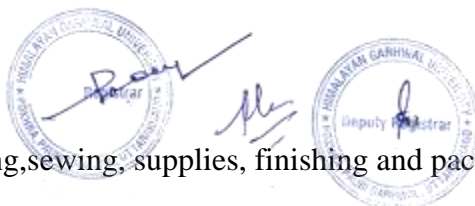
Unit – II

III Overview of the Apparel Industry

- History of apparel industry
- Mass
- Production process
- Costing

IV Evaluating the quality of apparel:

- Testing & Inspection
- Quality specifications and standards in cutting, sewing, supplies, finishing and packing.



References:

1. Slamper, Sharp & Donnell: Evaluating Apparel, Quality- Fairchild Publications, New York.
2. Natalie Bray Dress Fitting Published By Blackwell Science Ltd.
3. Margolis Design your Own Dress Pattern Published By Double Day And Co. Inc. New York.

Paper V: MHS 204P Advanced Apparel Construction (Practical)**I. Fashion Sketching****II. Development of slopers for skirt variation**

- Low & High Waist
- A Line, Flared, Circular, Pleated, Yoked.

III. Pockets

- Slashed pockets-welt, bound flaps
- Inseam pockets – closed and open

IV. Plackets

- Fly front opening
- Zipper inseam, without seam.

V. Designing, drafting and construction of skirt, jacket, top, lady's trousers and nighty and gown designer lady's suit.**VI One month training in any garment construction Unit and Report submission****Paper VI: MHS 205P Draping and Pattern Making (practical)**

1. Introductions to draping and silhouette of the individual – dress form, Elements of fabric woven, knitted.
2. Development of the ladies block crotch line garments by drafting and draping (Shorts, Bermudas, trousers etc)
3. Development of pattern with variation in
 - One piece dresses
 - Two-piece dresses
 - Dart less dresses.(Incorporating various, collars, sleeves, yokes, necklines, pockets and plackets etc.)
4. Draping of bodice block and skirt block and their variation.
 - Draping of asymmetrical designs and preparing patterns.
5. Pattern markings, pattern envelope and guide sheet.

References:

1. Crawford C.A., The art of Fashion draping, fair child publications New York.
2. Pamela C. Stinger, Pattern drafting for dressmaking.
3. Hillhouse, M.S. and Mansfield, E.A.: Dress Design - Draping and Flat Pattern, London.
4. Sheldon Maratha Gene - Design through draping, USA Burgers Publishing Company.

5. Brackman, Helen, L- Theory of Fashion Design, New York, John Wiley and Sons.
6. Strickland, Gertuole-A Tailoring Manual -New York, Macmillan Company.
7. Pepin Harriet-Modern Pattern Design, New York.

SEMESTER -III

Paper I: MHS 301 Dyeing In Textiles

UNIT – I

1. Preparation of fabric for dyeing:
 - a) Scouring
 - b) Bleaching
 - c) Desizing
2. Reagents used and their application
3. Specific preparatory steps for cotton, wool, silk and man-made fibres.

UNIT – II

4. Dyes:
 - a) Classification, definition, components.
 - b) Color and chemical constitution of dyes.
5. Dyeing with different dyes:
 - a) Direct, reactive, vat, sulphur, azo (for cellulosic).
 - b) Acid, metal complex, chromeomordant (for proteins).
 - c) Basic, disperse (for man-made).
6. Dyeing auxiliaries and their practices:

UNIT- III

7. Dyeing with:
 - a) Natural dyes
 - b) Difference between dyes and pigments and uses of pigments
- c) Dyeing of blends.
 8. Dyeing machines and equipments for fiber, yarn and fabric at cottage and industrial level.
9. Industrial dyeing practices.

UNIT-IV

10. Textile design through dyeing
 - a) Tie and Dye
 - b) Batik
 - c) Level & Cross dyeing
11. Dyeing defects and remedies.
12. Advances in dyes & dyeing technology

References:

1. Shenai (1987), Chemistry of Dyes and Principles of Dyeing SevakPrakashan, Mumbai.



2. H. A. Lubs, Robert E. The Chemistry of Synthetic Dyes and pigments, Krieger Publishing Company, New York.
3. V. A. Shenai (1999), Azo Dyes – Facts and Figures – SevakPrakashan, Mumbai.
4. R. S. Prayag, Technology Textile Printing – Noyes Data Corporation.
5. V.A. Shenai (1977), Technology of Printing – Technology of Textile Processing, Vol. IV, Sevak Publication.
6. M.L. Gulrajani and Deepti Gupta (1990), Natural dyes and their Application to Textiles”, ed. I.T.I. Delhi Publications.
7. John and MargarotCannow (1994), Dye Plants and Dyeing, The Herbert Press (UK).
8. ASTM and ISI Standards.
9. K. Venkatrama (1970), Chemistry of Synthetic Dyes, Part I and II

Paper II: MHS 302 Entrepreneurship Management

UNIT – I

1. Entrepreneurship:
 - a) Definition and characteristics
 - b) Employment promotion
 - c) Factors affecting entrepreneurs role
 - d) Barriers- Environmental, Physical and Psychological barriers
2. Business environment for the entrepreneur, Government of India’s policytowards promotion of entrepreneurship, reservations and sanctions forsmall scale sector.

UNIT – II

3. Agencies for development of entrepreneurship:
 - a) Role of SSI, procedure and formalities for setting up SSI
 - b) Role of MIDC in Industrial development
 - c) Role of NSIC – supply of machinery and equipments.
4. Voluntary organizations
5. Bank funding and loan

UNIT – III

6. Personal effectiveness:
 - a) Effective communication skills
 - b) Achievement motivation
 - c) Goal orientation
 - d) Creativity
 - e) Assert assertiveness
 - f) Quick response.
7. Technical communication
 - a) Importance of Business communication, Principles, Procedures
 - b) Formulation of project proposal and Feasibility of report.
8. Management techniques:
 - a) Planning
 - b) Organizing
- c) Controlling and review.

UNIT – IV



[Handwritten signature]



9. Establishing an enterprise:

- a) Problems, information, source / schemes of assistance
- b) Product management
- c) Purchase techniques
- d) Costing
- e) Marketing management, sales promotion

10. Financial management:

- a) Budget estimate
- b) Working capital management
- c) Personal management
- d) Calculating risk
- e) Labour law application.

References:

1. Kanitkar, A. (1995) Grassroots, Entrepreneurship; Entrepreneurs and Micro – Enterprises in Rural India, New Age International, New Delhi.
2. S.K.G. – Sundaram: Entrepreneurship: A Hand Book for Beginners, S.N.D.T. Women's University, Mumbai.
3. G. R. Jain and Debnuni Gupta, New Initiatives in Entrepreneurship Education and Training, ed.
4. W. Harrell (1995) For Entrepreneurs Only, New Jersey, Career.
5. Sarabhai Vikram (1974): Management for Development, Vikas Publishing House Pvt. Ltd.
6. Michael Armotrong (1986): A Handbook of Management Techniques, KogarPage Limited.
7. K. Sadgrove (1997), the complete Guide to Business Risk Management, JaicePublishing House, Mumbai.
8. Colin Melver : Case Studies in Marketing, Advertising and Public Relations,Heinemann, London.

Paper III: MHS 303 Research Methods, Statistics and Computer Applications

UNIT-I

1. Role of Statistics and research in Home Science discipline:

Objective of research: Explanation, Control and Prediction

2. Nature and types of Research: Historical, Descriptive, Social Research, Experimental, Field studies, Case study.

3. Definition and Identification of a Research Problem:

- Selection of research problems
- Justification
- Hypothesis

4. Concept and types of variable (dependent, independent, random, discrete, continuous, qualitative and quantitative.

UNIT-II

5. **Sampling:** Meaning, importance and types:
Random (simple, systemic, stratified, cluster, two stages and multi stage)
Non-random (incidental, purposive, quota, snow ball).
6. **Data gathering Instruments:** Interview, Observation, Questionnaire, Rating scale, Reliability and validity of measuring instruments.
7. **Analysis of data and research report**

UNIT-III

8. **Statistics:** Meaning, frequency, frequency distribution and its type.
9. Parametric and Non parametric test.
10. Normal distribution
11. **Measure of central tendency:** Mean, medium, mode.
12. **Measure of dispersion:** Range, mean deviation, standard deviation, skewness and kurtosis.

UNIT-IV

13. **Chi – square test**
14. **T-test:** Single mean, independent mean, paired mean.
15. Correlation and coefficient of correlation
16. **Analysis of variance :** One way and two way classification
17. Software related to Home Science

References:

1. S.C. Gupta & V.K. Kapoor: Fundamentals of Mathematical Statistics
2. S.C. Gupta: Fundamentals of statistics
3. G. Udny Yule, N.M.G. Kendall: An Introduction to the theory of Statistics
4. Croxton, F.C. and Cowden, D. J. Applied General Statistics, Prentice hall Inc. 1955
5. Garrett. H. Statistical in Psychology and Education. Oxford book Co. 1960.
6. R.P. Hooda: Introduction to statistics. The MacMillan Co.
7. Scotharman, W. A. Textbook of Statistics, (Revised edition) 1973.
8. Kerlinger, Foundations of Behavioral Research
9. Snee decer G. W. Statistical Methods. Applied Pacific Private Ltd., 1961.

Elective

Paper IV: MHS 304 Social and Psychological Aspects of Clothing

UNIT – I

1. Origin of Clothing
2. Theories of clothing – theory of modesty, immodesty, protection, adornment, combined need theory, other theories in fashion.
3. Modern philosophy of clothes.

UNIT – II

4. Relation between clothing and other disciplines.
 - a) Clothing and first impressions
 - b) Clothing and Physical Health
 - c) Clothing and Mental Health
5. Clothing and communication.



UNIT – III

6. Relation between clothing and the wearer
 - a) Personality and self concept.
 - b) Motivation in clothing choices. Individual values, interests and attitudes related to clothing.
7. Clothing values, ,clothing choices and their effect on clothing of the individual.

UNIT – IV

8. Clothing and Society:
 - a) Clothing and social behavior
 - b) Clothing influenced by religion and culture. Clothes and conformity
 - c) Clothes and occupation
 - d) Clothing and Uniforms .
9. Clothes and colours, Psychological impact of colours.

References:

1. Avis, M. Dry (1961): The Psychology of Jung, Methuen & Co., London.
2. Horn, Marilyu J. (1968): The Second Skin, Houghton Mifflin Co., USA.
3. Flugel, J.C. (1950): The psycho – analytical study of the family, The Hograth Press & the Institute of Psycho Analysis, London.
4. Richard Wollhein (1985): Freud, Fontana Press, London.
5. Vincent Brome (1978): Jung, Granada Publishing, London, Toronto Sydney, New York.

Elective

Paper V: MHS 305 Consumer Behavior - Textiles & Apparel

UNIT I

1. Introduction & Overview; The Consumer perspective and viewpoints.
2. Understanding the consumer; Environmental Influence; Individual Differences.

UNIT II

3. Consumer Resources: Involvement and Motivation Knowledge, Attitudes.
4. Individual difference in behavior; Psychological Processes.

UNIT III

5. Consumer Decision Processes and Behavior, Consumer Analysis
6. Marketing Strategy: Retailing, Consumer Trends, Market Segmentation

UNIT IV

7. Diffusion of innovation.
8. Counterfeit textiles and consumer protection measures.
9. Global Consumer Markets.

Refernces:

1. Cranz RLM. 1972. Clothing Concepts. Collier Mcmillan.
2. Flugel JC. 1950. The Psychology of Clothes. Prentice International.
3. Fringes GS. Fashion from Concept to Consumer. Prentice International.
4. Mary Kafgen& Phyllis 1971. Individuality in Clothing Selection & Personal Appearance. The Macmillian Co.
5. Ryan.M.S. 1966. Clothing - A Study in Human Behaviour. Winston.

Elective**Paper VI: MHS 306 Communication and Development****Unit I**

1. Introduction to communication
 - a) Origin, Concept, definition, nature of communication
 - b) Models of communication, Levels of communication
2. Effective communication- Frame of reference, perception, fidelity , communication gap, time lag, empathy, homophily, hetrophily, Functions of communication

Unit II

3. Communication media and Technology
 - a) Classification of media.
 - b) Selection of appropriate media
4. Production and use of selected media in Home Science
 - a) Writing scripts for radio talk, television talk, puppet play, street play
 - b) Writing for newspapers, magazine

Unit III

5. Developmental communication
 - a) Problems in Development and grass root participation (need and participation)
 - b) Development communication strategies for grass root mobilization
 - c) Importance of leadership in developmental communication.
6. Understanding the role of traditional and modern media in developmental communication
7. Participatory approach in developmental communication

Unit -IV

8. Communication process
 - a) Elements of communication.
 - b) Principle of effective communication
 - c) Channels of communication
9. Problems of communication (related to the communicator, message receiver and other factors)

References:

1. Benjamin James : Communication Concepts and Contexts, 1986
2. Berlo, D.K.: The Process of Communicating –An Introduction to Theory and Practical,1960, New York, Henry Holt and Company
3. Chopra,K., Kaukodi, G.K., &Murty, M.N.: Participatory Development, 1990. Sagar

Publication

4. Dhama, O.P. & Bhatnagar, O.P. : Education and Communication for Development, 1987
5. Dhama, O.P. & Bhatnagar, O.P. : Communication for Development, 1991
6. Kumar Keval J.: Mass Communication in India: A Comprehensive and Critical Look at the Mass Media in India, 1987
7. Ray, G.L., Extension Communication and management, 1999, Nays Prakashan, Calcutta
8. Tiwari, LP : Communication, Technology and Development, 1987
9. Indian Ministry of Information & Broad Casting : Mass Media in India, 1985

Elective

Paper VII: MHS-307 Textile Heritage of India

Unit – I

1. Study of Historical textiles with special emphasis on traditional carpets, rugs and Durries of India
2. Study of regional costumes of India (Men/Women) Punjab, Himachal, Kashmir, U.P, M.P., Bengal, Tamilnadu, Rajasthan, Gujarat, and Maharashtra

Unit – II

3. Woven Textile-Study of woven textiles with reference to construction techniques, colour and motif
 - a) Jamdani of Bengal
 - b) Baluchari of Bengal
 - c) Brocade of Varanasi
 - d) Paithani of Maharashtra
 - e) Tancoi of Gujarat
 - f) Munga Silk of Assam
 - g) Tassar of Bihar
 - h) Chanderi of Madhya Pradesh
 - i) Kota Doria of Rajasthan
4. Shawls of Kashmir

Unit – III

5. Indian Embroidery –Study of Indian Embroidered textiles with special reference to stitches, colours and motifs
 - a) Kashida of Kashmir
 - b) Phulkari of Punjab
 - c) ChambaRumal of Himachal
 - d) Chikankari of Uttar Pradesh
 - e) Sindhi Embroidery of Kutch
 - f) Kantha of Bengal
 - g) Kasuti of Karnataka
 - h) Appliqué work of Orissa
 - i) Metal wire and leather embroidery



[Handwritten signature]



Unit – IV

6. Printed and Painted Textiles-Study of printed and painted textiles in reference to historical significance, styles, colour and motif
 - a) Fabric resist dyeing – Bandhani of Rajasthan
 - b) Yarn resist dyeing – Gujarat, Orissa and Andhra Pradesh
 - c) Printed textiles – Sanganer and Bagru
 - d) Painted textiles – Kalamkari and Madhubani

References:

1. Naik, Shailja D., Traditional embroideries of India, APH Publishing Corp. New Delhi.
2. Alkazi, Roshen., Ancient Indian Costume, National Book Trust, New Delhi.2003
3. Bhatnagar, Parul., Traditional Indian Costumes and Textiles, Abhishek Publications, Jaipur
4. Naik., Traditional Embroideries of India, APH Publication Corp, New Delhi.
5. Das, Shukla., 1992, Fabric Art –Heritage of India, Abhinav Publications, New Delhi
6. Indian Carpets, Thames & Hudson, London
7. Dhamija, Jasleen. & Jain, Jyotiindra., Handwoven Fabrics of India, Mapin Publishing Pvt. Ltd. Ahmedabad.
8. Dar, S.N., Costumes of India and Pakistan, Taraporevala Publishing Industries Pvt. Ltd, Mumbai.1997
9. Jennifer, Harris., 5000 years of Textiles, British Museum Press, London.2005
10. Harris J. (Ed.). 1993. Five Thousand Years of Textiles. British Museum.
11. Leene JE. 1972. Textile Conservation. Butterworths.
12. Williams JC. 1977. Preservation of Paper and Textiles of Historic and
13. Artistic Value. American Chemicals Society

Paper IX: MHS -301P Dyeing In Textiles (Practical)

1. Preparation of fabric for dyeing:
 - a) Scouring
 - b) Bleaching
 - c) Desizing, at cottage level for different and fiber blends.
2. Dyeing of yarns, fabrics and blends with different classes of dyes.
3. Shade matching.
4. Creating designs on fabrics through various dyeing processes:
 - a) Tie & Dye
 - b) Batik
5. Observation of working of dyeing unit for 1 week and submission report.

Paper X: MHS-309P Draping Grading and Advanced Apparel Construction (Practical)

1. Introductions to draping
 - a) Silhouette of the individual – dress form
 - b) Elements of fabric woven, knitted
2. Draping of bodice block and skirt block, their variation and preparation of patterns by incorporating various design elements.



3. Development of the ladies crotch line garments by drafting/ draping (Shorts, Bermudas, trousers etc)
4. Introduction to grading
 - a) Terminology
 - b) Grading standard size block to different sizes.
 - c) Children – bodice blocks, sleeve block, skirt and shorts block.
- e) Women – Bodice block, Sleeve block, skirt and shorts block.
5. Designing, drafting, pattern making and construction of
 - a) Skirt-Top
 - b) Lady's trousers
 - c) Nighty and gown
 - d) Evening gown
 - e) Designer lady's suit.
6. Designing and Construction of various theme based costumes.
7. Presentation of Costumes through Fashion show
8. One month training in any garment construction Unit and Report submission

SEMESTER –IV

Paper I: MHS-401 Printing in Textiles

UNIT – I

1. Printing:
 - a) Introduction to printing
 - b) Difference between dyeing and printing.
2. Methods of printing:

Historical development of printing methods – block, stencil, screen roller and rotary screens used at cottage and industrial level.

UNIT – II

3. Printing pastes:
 - a) Thickening agents
 - b) Preparation of printing pastes for different dyes and different fabrics.
4. Auxiliaries for printing and their suitability to various classes of dyes and different fabrics.

UNIT – III

5. Styles of Printing
 - a) Direct style, resist or resource style, discharge style and raised style.
 - b) Styles and methods of printing traditionally used in India.
6. Finishing and after treatment of printed goods at cottage and industrial level.

UNIT – IV

7. Special Printing Procedures:
 - a) Polychromatic dyeing

- b) Transfer printing
 - c) Carpet printing
 - d) Flock printing.
8. Advances in printing technology

References:

1. A. Shenai (1987), Chemistry of Dyes and Principles of Dyeing Sevak Prakashan, Mumbai.
2. H. A. Lubs, Robert E. The Chemistry of Synthetic Dyes and pigments, Krieger Publishing Company, New York.
3. V. A. Shenai (1999), Azo Dyes – Facts and Figures – SevakPrakashan, Mumbai.
4. R. S. Prayag, Technology Textile Printing – Noyes Data Corporation.
5. V.A. Shenai (1977), Technology of Printing – Technology of Textile Processing, Vol. IV, Sevak Publication.
6. M.L. Gulrajani and Deepti Gupta (1990), Natural dyes and their Application to Textiles”, ed. I.T.I. Delhi Publications.
7. John and MargarotCannow (1994), Dye Plants and Dyeing, The Herbert Press (UK).
8. ASTM and ISI Standards.
9. K. Venkatrama (1970), Chemistry of Synthetic Dyes, Part I and II.

Paper II: MHS 402 Garment Production Technology

UNIT – I

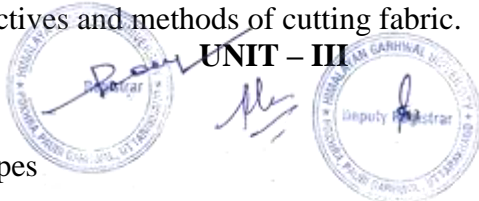
1. Introduction to the background and structure of the garment Industry.
 - a) The organization of garment factory
 - b) Principles of Management.
2. Various Departments like:
 - a) Design Departments
 - b) Marketing Departments
 - c) Finance Departments
 - d) Purchasing Departments
 - e) Production Departments
 - f) Operations Departments

UNIT – II

3. Manufacturing Technology
 - a) Cutting & Cutting Room
 - b) Marker planning
 - c) Efficiency, Method & use of marker plan.
4. Methods of spreading of fabric and requirements of the spreading process.
5. Cutting the fabric – objectives and methods of cutting fabric.

UNIT – III

6. Fusing Technology.
7. Sewing Technology
 - a) Sewing – properties, types
 - b) Stitch – types
 - c) Sewing Machines – Feed machines machines Needles.
 - d) Sewing threads – types of fiber, construction and furnish, thread size, thread package, thread costs, thread properties and seam performance.
8. Sewing problems; Stitch formation, damage along the seam live puckering.



- a) Testing for sewability and tailor ability.
- b) Use of components and Trims

UNIT – IV

9. Alternative Methods of forming materials

- a) Fusing
 - b) Welding and adhesives
 - c) Moulding
 - d) Pressing Technology
 - e) Production Technology
 - f) Ware Housing
- ##### **10. Engineering & Quality Control**
- a) Production Engineering
 - b) Principles of Quality Control.

References:

1. Gerry Cooklin – Introduction to Clothing Manufacture, Black Well Sciences.
2. Harold Carr& Barbara Lathare – The Technology of Clothing Manufacture – Blackwell Science.
3. A.J. Chuter – Introduction to Clothing Production Management Blackwell Science.
4. D. J. Tyles – Materials Management in Clothing production – Blackwell Science.
5. Harold Carr& Barbara Lathan (1992): Fashion Design and Product Development – Blackwell Science.
6. Mike Easey – Fashion Marketing. Blackwell Science.
7. Stylios, G. (1991): Textiles objective Measurement and Automation in Garment Manufacture, Ellis Horword Ltd., New York, London, Singapore

Paper III: MHS 403 Textile Industry in India

Unit - I

1. Importance of textile and clothing industry in the Indian economy in terms of domestic consumption, employment and per- capita income, gross national product and international trade.
2. National textile policy 1986, and latest policy - changes in focus over the years in terms of objective, function ability, regulatory mechanism and futuristic trends.

Unit - II

3. Status of textile and clothing Industry over a decade - in relation to production and consumptions pattern, locale, employment potential, R & D,
4. Problems and prospects, research associations & institutes, cotton, wool, silk, jute, rayon and synthetic industry, Handloom industry, readymade Garment industry, hosiery industry.

Unit - III

5. Status of textile & apparel industry in global scenario Gatt/WTO
6. ISO 9000-2000 series and ISO 14000 series SWOT analysis

Unit – IV

7. Export and Import policies of textiles & apparels Problems in export and import of textiles.
8. Trends in Indian exports, export infrastructural facilities & incentives.

Rferences

1. Mishra and puri, Indian economy , Himalaya pub. house

2. National Textile Policy 1986, 2000
3. Journals-Clothesline, business India, Business Today
4. Newspaper- Economic times, financial express& apparel online
5. Industry published Journals/Newsletters e.g. SASMIRA, WWEPC, HHEC, etc.
6. Economic surveys, government of India

Elective
Paper IV: MHS 404 Dissertation

Elective
Paper V: MHS 405 Textile Ecology

UNIT I

1. Industrialization, eco-balance and textile ecology. Air, noise and water pollution by mechanical and chemical textile processing and their effect.
2. Treatment and disposal of textile effluents. Treatment processes of sewage.

UNIT II

3. Health hazards of textile workers working in various textile units (manufacturing units, printing units, dyeing units and weaving units) and their remedial measures.
4. Banned dyes and auxiliaries: Introduction, details, limitations and after effects.

UNIT III

5. Eco-friendly production and processing to various textiles.
6. Organic and naturally colored cotton, natural dyes and detergents: manufacturing, properties and applications.

UNIT IV

7. Indian and International environmental legislations.
8. (a) Eco labeling
(b) management and auditing.



References:

1. Mark KH, Woodlings& Atlas SM. 1971. Chemical after Treatment of Textiles. John Wiley & Sons.
2. Skinkle JH. 1972. Textile Testing. D.B. Taraporewala.88

Elective
Paper VI: MHS 406 Technical Textiles

UNIT I

1. Developments in Nano-fibre and microfiber non-wovens: Introduction, processing, specifications and applications
2. Importance and classification of technical textiles- Introduction, manufacturing types of fibers, materials and applications.

UNIT II

3. Medical Textiles: Importance, manufacturing and applications.
4. Special textiles for industrial applications.
5. Automotive textiles and Industrial textiles.

UNIT III

6. Agro textiles, Geo-Textiles: Importance manufacturing and their applications
7. Phase Change Materials; Shape Memory Materials; Chromic Materials.

UNIT IV

8. Conductive Materials and other Functional Materials- characteristics and its Applications.
9. Smart textiles – Introduction, manufacturing, applications, factors affecting the selection and uses.

References

1. Allison Mathews 1994. Medical and Hygiene Textile Production. Intermediate Technology Publ.
2. Cookling Gerry 1997. Garment Technology for Fashion Designers. Blackwell Science.
3. Padmanabhan AR. 1988. A Practical Guide to Textile Testing. SITRA, Coimbatore. Prentice Hall.
4. Skinkle JH. 1972. Textile Testing. D.B. Taraporewala.

Paper VII: MHS-401P Printing in Textiles (Practical)

1. Developing designs for block, stencil, screen printing and hand painting.
 - a) Sources of design
 - b) Sequel arrangements of unit
 - c) Center line design
 - d) Border design
 - e) Over-all design (Sheet work).
2. Printing – preparation of screens and stencils for printing.
3. Making samples with stencil, block, screen printings and hand painting on different available fabric with different dye classes.
4. Make one article each of block, stencil, screen and hand painting.
5. Display/Exhibition of all articles prepared during course.



Paper VIII: MHS 408P Computer Aided Designing(Practical)

1. Basic Awareness of Coral Draw, Adobe Photoshop and Adobe Illustrator.
2. Creation of pattern related to textile designing using different types of yarn, weaves and knits. Making designs and its graph. Specification of picks and ends, yarn count for meaning on the computer.
- Dobby, jacquard pile, carpet and knits. The innumerable styles of weaves, plain as well as design weave. Making punch cards from the graphs. Stimulation of various yarns like novelty, fancy and weaving them on the monitor to get different fabrics with specified end use. Colours and setting designs in different repeats and colour combination. Fitting the repeat according to the method and application of printing – roller, screen, block etc. Scanning the already printed fabric, reducing the color manually or by automatic color reduction.
3. **Module I :**
Use of sketching software for development circles. Squares and triangle to study elements of design. Drawing basic silhouettes of design. Drawing basic silhouettes and proportions of the fashion figures construct styles and designs. Conversion of vector based images in to a bitmap based and their application using various effects and filters to create different designs.
Module II:
Introduction and use of scanning systems and its software's. Learning of draping software. Application and change of texture print and colour in the scanned photograph. Creating color ways, new designs and textures by using available effects like embossing, Blurring, Transparent, Translucent and other such looks on the garments.
Module III:
Introduction of pattern making software, knowledge of hardware and pattern making programme. Use of computer for pattern making, grading and marking. Making of specific sheets and drafting out patterns for different age groups. Putting darts, seam allowances and making the layout. Plotting and printing the pattern.